

...In complete control of power

## Electrical Power Products

Catalogue reference  
EPP 0318

- Transformers and Wound Components
- Power Electronics



- Thermal Management Products
- Transformer and Panel Accessories



Eastern Transformers  
& Equipment Ltd

...In complete control of power



Catalogue reference  
**EPP 0318**



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In the interest of continuous improvement ETE reserves the right to alter designs  
and specifications without prior notice.

Where data is critical please check with our technical sales team.

## ABOUT US



Eastern Transformers and Equipment (ETE) was formed in 1984 in Bury St Edmunds, Suffolk and we have been growing ever since.

We are currently located in Great Whelnetham, three miles outside of Bury St Edmunds, having relocated in 2004 to a larger premises.

Since our formation the company has become one of the UK's leading transformer and wound component manufacturers with, arguably, the largest, and widest spanning, stock range of transformers nationwide. Boasting around 300 ex stock transformer types, ready for immediate despatch, it is easy to see why ETE is the number one choice for the UK's control panel builders, machine builders, and automation & control system specialists.

In addition, we stock an extensive array of power electronics, thermal management products, and transformer & panel accessories for next day delivery.

We are an approved national distributor for Mean Well, the 5th largest power supply manufacturer in the world, and have direct and exclusive access to their entire range of power supplies.

We have developed a comprehensive approach to our markets, utilising modern production facilities, to cope with low and high volume requirements.

We are ISO 9001:2008 and ISO 14001:2004 approved for the "design, manufacture, and supply of transformers, inductors, wound components, and electrical power equipment".

As well as offering standard products, we design and manufacture custom-built transformers. Our normal delivery time is 7-14 days, however, we also offer a 'within 7 day' and '2 day' service for when urgency is paramount.



We work closely with our customers to develop custom-built solutions for their products, with prototypes often being produced within days of the initial enquiry.

Our powerful mix of manufactured and stock items makes ETE a truly unique supplier to the electrical market.

## Key Contacts and Email Addresses

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We have key distributors of our products throughout the British Isles with England, Scotland, Wales, Northern Ireland, and Republic of Ireland represented.

Visit [www.ete.co.uk/distributors](http://www.ete.co.uk/distributors) to see a map showcasing the locations of all of our major distributors.

Simply click on the distributor of your choice to bring up their full contact information.

Tel: 01284 388 033

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Unit H1, Overland Business Park, Sudbury Road,  
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## Our E-commerce Website

The majority of our stocked product ranges are available to buy through our e-commerce website with over 900 products listed spanning each of our four main product ranges.

Each product listing includes a high resolution image, detailed description, and product specification.

Live stock quantities are shown allowing customers to easily check stock of a specific item.

Our e-commerce shop is constantly being developed to ensure we are offering the best web experience possible with easy to navigate pages and swift checkout options.

Additionally, PDF specifications and engineering drawings are available to download as required.

Want to find out which of our approved distributors is closest to you? Our website lists all of our key distributor locations on a map of the British Isles. Click on the distributor of your choice to bring up their complete contact information.

Check out our 'News / Events' for all the latest from ETE and our 'Blog' for interesting and informative articles.

Account holders can also now place orders, track order progress, and view their discount online through our new distributor login feature.

## Follow Us



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# FULL CATALOGUE CONTENTS

Since our establishment in 1984, ETE has continuously strived to maintain our position at the forefront of the UK controls, automation, and machine building markets. We have continually adapted to the fast paced technical and commercial changes that have occurred throughout the years and have designed and developed distinctive innovative ranges of transformers, power electronics, and complimentary products for these core markets.

Our catalogue is divided and colour coded into four key product sectors as indicated below:

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### Power Electronics

### Thermal Management Products

### Transformer and Panel Accessories

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ETE is a leading UK transformer designer and manufacturer. We hold one of the largest and most comprehensive ranges of control circuit transformers nationwide available for immediate despatch on a next day delivery. Our custom-built transformer ranges are up to 75kVA 1ph and 500kVA 3ph. Beyond these sizes we have important connections with some of Europe's leading manufacturers to enable us to quote against most specifications.

## Contents Summary



# Transformers and Wound Components



- Control Circuit Transformers
- 1ph & 3ph Custom-Built Transformers
- 3ph to 1ph Custom-Built Transformers
- Portable Tool and Site Transformers
- Distribution Boards
- 1ph & 3ph Enclosed Transformers
- 1ph Class II Transformers
- Voltage Transformers
- Custom-Built Autotransformers
- 1ph & 3ph Variable Autotransformers
- Chokes and Reactors
- Much more...



ETE is a proud UK-based manufacturer and validated member of Made in Britain. Any page with the Made in Britain logo in the heading features products designed and manufactured by ETE in the UK.

ETE's transformers and wound components cover a wide range of application criteria. Our technical team is always ready to assist in offering the best solution for your individual requirements whether it is a 'one-off' special transformer or an ongoing regular demand. We use the latest innovations in materials and design to enable us to offer optimum designs for all specifications at very competitive prices.

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# Transformers and Wound Components

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# STOCK RANGE OF SINGLE VOLTAGE (SV) AND DUAL INPUT VOLTAGE (DV) SINGLE-PHASE TRANSFORMERS FROM 25VA TO 1KVA

Ex stock range with next day delivery for the whole of the UK.

Single voltage (SV) and dual input voltage (DV) options.

Designed to EN 61558-1: Class E insulation.  
High specification with IP20 touch-proof terminals.  
Class H varnish impregnation and core earth connection.  
Ambient temperature range from -10 °C to +35 °C.

Highly reliable and easy to install.  
DIN rail mounting option for models up to 150VA.  
For a full range of enclosures see page 123.



SV 150 P5S4

Reference	VA Rating	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)	Enclosure Reference	Contactor Inr. VA 95% V	Contactor Information Inr. VA 90% V	Voltage Reg.
SV 25	25VA	66 (79 E)	60	76	50	40	5	0.7	EPH 1 or EPN 1	35VA	60VA	15%
SV 50	50VA	75	65	88	56	45	5	1.0	EPH 1 or EPN 1	60VA	85VA	15%
DV 50	50VA	75	71	88	56	51	5	1.2	EPH 1 or EPN 1	60VA	85VA	15%
SV 100	100VA	85	70	93	64	47	5	1.5	EPH 1 or EPN 1	150VA	225VA	12%
DV 100	100VA	85	87	93	64	61	5	1.7	EPH 1 or EPN 1	150VA	225VA	12%
SV 150	150VA	96	76	103	84	59	5	2.3	EPH 2 or EPN 1	250VA	400VA	10%
DV 150	150VA	96	87	103	84	69	5	2.8	EPH 2 or EPN 1	250VA	400VA	10%
SV 200	200VA	96	87	103	84	69	5	2.8	EPH 2 or EPN 1	350VA	600VA	10%
DV 200	200VA	96	104	103	84	83	5	3.5	EPH 2 or EPN 1	350VA	600VA	10%
SV 250 / DV 250	250VA	120	88	120	90	70	5	3.9	EPH 3 or EPN 2	400VA	750VA	8%
SV 300 / DV 300	300VA	120	100	120	90	82	5	4.7	EPH 3 or EPN 2	650VA	1.00kVA	8%
SV 400 / DV 400	400VA	120	108	120	90	90	5	5.5	EPH 3 or EPN 2	900VA	1.50kVA	8%
SV 500	500VA	120	120	120	90	102	5	6.2	EPH 3 or EPN 2	1.20kVA	1.75kVA	8%
DV 500	500VA	135	105	125	105	88	5	6.2	EPN 3	1.20kVA	1.75kVA	8%
SV 750 / DV 750	750VA	150	108	145	122	84	6	7.6	EPN 3	2.20kVA	3.80kVA	4%
SV 1000 / DV 1000	1kVA	150	125	145	122	101	6	9.8	EPN 3	3.00kVA	5.50kVA	4%

Single Voltage Primary Input	SV Code	Dual Voltage Primary Input	DV Code	Single Voltage Secondary Output (for SV & DV Ranges)	SV / DV Code
0/110V 50 / 60 Hz	P0	0/240/415V 50 / 60 Hz	P6	0/110V	S4
0/240V 50 / 60 Hz	P4			0/240V	S5
0/415V 50 / 60 Hz	P5			0/24V	S6

Stock Units Available	25VA	50VA	100VA	150VA	200VA	250VA	300VA	400VA	500VA	750VA	1kVA
P4S4	■	■	■	■	■	■	■	■	■	■	■
P4S6	■	■	■	■	■	■	■	■	■	■	■
P5S4	■	■	■	■	■	■	■	■	■	■	■
P5S5	■	■	■	■	■	■	■	■	■	■	■
P5S6	■	■	■	■	■	■	■	■	■	■	■
P6S4		■	■	■	■	■	■	■	■	■	■
P6S5		■	■	■	■	■	■	■	■	■	■
P6S6		■	■	■	■	■	■	■	■	■	■



# STOCK RANGE OF MULTI-VOLTAGE (MV) AND WIDE INPUT VOLTAGE (WV) SINGLE-PHASE TRANSFORMERS FROM 50VA TO 10KVA

Ex stock range with next day delivery for the whole of the UK.

Multi-voltage (MV) and wide input voltage range (WV) options.

Designed to EN 61558-1: Class E or Class F insulation.  
 Class E insulation up to 3kVA; Class F insulation from 4kVA to 10kVA.  
 High specification with IP20 touch-proof terminals.  
 Class H varnish impregnation and core earth connection.  
 Ambient temperature range from -10 °C to +35 °C.

Highly reliable and easy to install.  
 DIN rail mounting option for models up to 150VA.  
 For a full range of enclosures see pages 123-124.



WV 100 P7S8

Reference	VA Rating	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)	Enclosure Reference	Contactor Information Inr. VA 95% V	Contactor Information Inr. VA 90% V	Voltage Reg.
MV 50 / WV 50	50VA	75	65	88	56	45	5	1.0	EPH 1 or EPN 1	60VA	85VA	15%
MV 100 / WV 100	100VA	85	70	93	64	47	5	1.5	EPH 1 or EPN 1	150VA	225VA	12%
MV 150 / WV 150	150VA	96	76	103	84	59	5	2.3	EPH 2 or EPN 1	250VA	400VA	10%
MV 200 / WV 200	200VA	96	87	103	84	69	5	2.8	EPH 2 or EPN 1	350VA	600VA	10%
MV 250 / WV 250	250VA	120	88	120	90	70	5	3.9	EPH 3 or EPN 2	400VA	750VA	8%
MV 300 / WV 300	300VA	120	100	120	90	82	5	4.7	EPH 3 or EPN 2	650VA	1.00kVA	8%
MV 400 / WV 400	400VA	120	108	120	90	90	5	5.5	EPH 3 or EPN 2	900VA	1.50kVA	8%
MV 500 / WV 500	500VA	120	120	120	90	102	5	6.2	EPH 3 or EPN 2	1.20kVA	1.75kVA	8%
MV 750 / WV 750	750VA	150	108	145	122	84	6	7.6	EPN 3	2.20kVA	3.80kVA	4%
MV 1000 / WV 1000	1.00kVA	150	125	145	122	101	6	9.8	EPN 3	3.00kVA	5.50kVA	4%
MV 1500 / WV 1500	1.50kVA	150	151	145	122	126	6	14.2	EPN 4	3.60kVA	6.20kVA	4%
MV 2000 / WV 2000	2.00kVA	192	145	185	155	96	6	18.0	EPN 4	4.00kVA	7.50kVA	3%
MV 2500 / WV 2500	2.50kVA	192	161	185	155	112	6	24.0	EPN 5	5.80kVA	9.00kVA	3%
MV 3000 / WV 3000	3.00kVA	192	189	185	155	140	6	28.0	EPN 5	7.20kVA	10.20kVA	3%
MV 4000	4.00kVA	245	190	230	114 & 162	133	8	36.0	EPN 6	9.50kVA	12.00kVA	3%
MV 5000	5.00kVA	245	220	230	114 & 162	163	8	45.0	EPN 6	12.00kVA	15.00kVA	3%
MV 6250	6.25kVA	245	250	230	114 & 162	193	8	58.0	EPN 7	N/A		3%
MV 7500	7.50kVA	300	330	330	220	190	12	70.0	ETS 1	N/A		2%
MV 10000	10.00kVA	300	360	330	220	220	12	90.0	ETS 1	N/A		2%

Multi-Voltage Primary Input	MV Code	Multi-Voltage Secondary Output	MV Code	Wide Input Voltage Primary Input	WV Code	Wide Input Voltage Secondary Output	WV Code
10/0/220/240V 50 / 60 Hz	P1	0/55/110V	S1	0/380/400/420/440/460/480V 50 / 60 Hz	P7	0/24V 0/24V	S7
20/0/380/420V 50 / 60 Hz	P2	10/0/220/240V	S2	0/500/550/600/690V 50 / 60 Hz	P8	0/110/120V 0/110/120V	S8
0/120V 0/120V 50 / 60 Hz	P3	0/12V 0/12V	S3				

Stock Units Available	50 VA	100 VA	150 VA	200 VA	250 VA	300 VA	400 VA	500 VA	750 VA	1.00 kVA	1.50 kVA	2.00 kVA	2.50 kVA	3.00 kVA	4.00 kVA	5.00 kVA	6.25 kVA	7.50 kVA	10.00 kVA
P1S1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P1S3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P2S1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P2S2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P2S3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P3S3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P7S7	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P7S8	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P8S8	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Fast delivery for urgent requirements.

Two day delivery, within five working days, and standard quoted delivery options.

Designed to EN 60742 and EN 60076-1.

Class E, Class F, and Class H insulation systems.

Ambient temperature range from  $-10\text{ }^{\circ}\text{C}$  to  $+40\text{ }^{\circ}\text{C}$ .

Enclosures available for all sizes from IP23 to IP55.



SE 250 in red



SE 50 in blue

A comprehensive range of custom-built single-phase transformers designed specifically to customers' own requirements. Any quantity can be produced, from single units to regular call-off orders. Sizes from 25VA to 3kVA (SE 25 to SE 3000) are designed with Class E ( $120\text{ }^{\circ}\text{C}$ ) materials, Class F ( $155\text{ }^{\circ}\text{C}$ ) designs from 500VA to 15kVA (SF 500 to SF 15000) and Class H ( $180\text{ }^{\circ}\text{C}$ ) from 10kVA to 20kVA (SH 10000 to SH 20000). All transformers are air cooled and are fully varnish impregnated with an aesthetically appealing red polyester varnish (gentian blue also available upon request). Terminals are normally IP20 and either DIN rail mounted, studs, copper tube crimps, or busbar (dependent on current ratings). A full range of IP23 ventilated enclosures is available for all sizes (as well as up to IP55). Sizes from 25VA to 150VA can be fitted with 'easy fit' DIN rail fixing brackets if required (see accessories section).

Reference	Insulation Class	VA Rating	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)	Enclosure Reference
SE 25	E	25VA	66	71	76	50	51	5	0.8	EPH 1 or EPN 1
SE 50	E	50VA	75	65	88	56	45	5	1.0	EPH 1 or EPN 1
SE 63	E	63VA	77	75	87	54	43	5	1.1	EPH 1 or EPN 1
SE 80	E	80VA	75	71	88	56	51	5	1.2	EPH 1 or EPN 1
SE 100	E	100VA	85	70	93	64	47	5	1.5	EPH 1 or EPN 1
SE 150	E	150VA	96	76	103	84	59	5	2.3	EPH 2 or EPN 1
SE 200	E	200VA	96	87	103	84	69	5	2.8	EPH 2 or EPN 1
SE 250	E	250VA	120	88	120	90	70	5	3.9	EPH 3 or EPN 2
SE 300	E	300VA	120	100	120	90	82	5	4.7	EPH 3 or EPN 2
SE 400 / SF 500	E / F	400VA / 500VA	120	108	120	90	90	5	5.5	EPH 3 or EPN 2
SE 500 / SF 600	E / F	500VA / 600VA	120	120	120	90	102	5	6.2	EPH 3 or EPN 2
SE 600 / SF 750	E / F	600VA / 750VA	135	115	125	105	98	5	7.3	EPN 3
SE 750 / SF 1000	E / F	750VA / 1.00kVA	150	108	145	122	84	6	7.6	EPN 3
SE 1000 / SF 1250	E / F	1.00kVA / 1.25kVA	150	125	145	122	101	6	9.8	EPN 3
SE 1500 / SF 2000	E / F	1.50kVA / 2.00kVA	150	151	145	122	126	6	14.2	EPN 4
SE 2000 / SF 2500	E / F	2.00kVA / 2.50kVA	192	145	185	155	96	6	18.0	EPN 4
SE 2500 / SF 3000	E / F	2.50kVA / 3.00kVA	192	161	185	155	112	6	24.0	EPN 5
SE 3000 / SF 4000	E / F	3.00kVA / 4.00kVA	192	189	185	155	140	6	28.0	EPN 5
SE 3500 / SF 4500	E / F	3.50kVA / 4.50kVA	245	190	230	114 & 162	133	8	36.0	EPN 6
SE 4000 / SF 5000	E / F	4.00kVA / 5.00kVA	245	220	230	114 & 162	163	8	45.0	EPN 6
SE 5000 / SF 6250	E / F	5.00kVA / 6.25kVA	245	250	230	114 & 162	193	8	58.0	EPN 7
SF 7500 / SH 10000	F / H	7.50kVA / 10.00kVA	300	245	330	220	140	12	68.0	ETS 1
SF 10000 / SH 12500	F / H	10.00kVA / 12.50kVA	300	300	330	220	175	12	76.0	ETS 1
SF 12500 / SH 15000	F / H	12.50kVA / 15.00kVA	300	330	330	220	215	12	88.0	ETS 2
SF 15000 / SH 20000	F / H	15.00kVA / 20.00kVA	300	360	330	220	255	12	98.0	ETS 2



# CUSTOM-BUILT RANGE OF OPEN OR ENCLOSED SINGLE-PHASE UI TYPE TRANSFORMERS FROM 6.5KVA TO 75KVA

Designed to EN 60076-1.

Insulation systems: Class E, Class F, or Class H.

Insulation system up to 1.1kV.

Frequency of 50 / 60 Hz.

Ambient temperature range from -10°C to +40 °C.

Enclosures available for all sizes from IP23 to IP55.



SE 10000

A comprehensive range of custom-built single-phase transformers designed specifically to customers' own requirements. Any quantity can be produced, from single units to regular call-off orders. Sizes from 6.5kVA to 50kVA (SE 6500 to SE 50000) are designed with Class E (120 °C) materials and sizes from 20kVA to 62.5kVA (SF 20000 to SF 62500) are designed with Class F (155 °C) materials. The SH range from SH 25000 to SH 75000 range from 25kVA to 75kVA are designed with Class H materials (180 °C). All transformers are naturally air cooled and are fully varnish impregnated with an aesthetically appealing red polyester varnish. A range of enclosures to IP23 is available for all sizes (as well as up to IP55). Maximum voltage of 1,100V and a frequency of 50 / 60 Hz.

Reference	Insulation Class	VA Rating	L (mm)	W (mm)	H (mm)	FC L	FC W	FC diam.	Weight (kg)	Enclosure Reference
SE 6500	E	6.5kVA	280	230	400	210	140	10	65	EPN 7
SE 8000	E	8.0kVA	280	250	400	210	160	10	75	EPN 7
SE 10000	E	10.0kVA	320	240	500	240	140	10	80	ETS 1
SE 12500	E	12.5kVA	320	260	500	240	160	10	95	ETS 1
SE 15000 / SF 20000	E / F	15.0kVA / 20.0kVA	320	300	500	240	200	10	110	ETS 1
SE 18000 / SF 22500	E / F	18.0kVA / 22.5kVA	320	320	500	240	230	10	130	ETS 2
SE 20000 / SF 25000	E / F	20.0kVA / 25.0kVA	320	350	500	240	260	10	140	ETS 2
SE 25000 / SF 30000	E / F	25.0kVA / 30.0kVA	400	375	700	350	180	15	160	ETS 3
SE 30000 / SF 37500	E / F	30.0kVA / 37.5kVA	400	400	700	350	205	15	185	ETS 3
SE 40000 / SF 50000	E / F	40.0kVA / 50.0kVA	400	450	700	350	230	15	210	ETS 3
SE 50000 / SF 62500	E / F	50.0kVA / 62.5kVA	400	500	700	350	280	15	230	ETS 3
SH 25000	H	25.0kVA	400	325	700	350	130	15	120	ETS 3
SH 30000	H	30.0kVA	400	350	700	350	155	15	140	ETS 3
SH 35000	H	35.0kVA	400	375	700	350	180	15	160	ETS 3
SH 45000	H	45.0kVA	400	400	700	350	205	15	185	ETS 3
SH 60000	H	60.0kVA	400	450	700	350	230	15	210	ETS 3
SH 75000	H	75.0kVA	400	500	700	350	280	15	230	ETS 3



# CUSTOM-BUILT RANGE OF CLASS E AND CLASS F OPEN OR ENCLOSED THREE-PHASE TRANSFORMERS FROM 120VA TO 75KVA

Designed to EN 60076-1: Class E or Class F insulation.

Insulation system up to 1.1kV.

Frequency of 50 / 60 Hz.

Ambient temperature range from -5 °C to +40 °C.

Terminals are IP20 and either DIN rail mounted, studs, copper tube crimps, or busbar (dependent on current ratings).

Enclosures available for all sizes from IP23 to IP55.



TE 20000

A comprehensive range of custom-built three-phase transformers designed specifically to customers' own requirements. Any quantity can be produced from single units to regular call-off orders. Sizes from 120VA to 60kVA (TE 120 to TE 60000) are designed with Class E (120 °C) materials with an additional option of Class F (155 °C) designs from 2.2kVA to 75kVA (TF 2200 to TF 75000). All transformers are air cooled and are fully varnish impregnated with an aesthetically appealing red polyester varnish. A full range of IP23 ventilated enclosures is available for all sizes (as well as up to IP55).

Reference	Insulation Class	VA Rating	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)	Enclosure Reference
TE 120	E	120VA	120	80	125	100	44	5	2	EPN 1
TE 200	E	200VA	120	90	125	100	54	5	3	EPN 1
TE 350	E	350VA	150	100	150	125	50	5	4	EPN 2
TE 500	E	500VA	150	115	150	125	65	5	6	EPN 2
TE 650	E	650VA	180	120	190	150	60	6	8	EPN 3
TE 900	E	900VA	180	140	190	150	80	6	10	EPN 3
TE 1300	E	1.3kVA	180	165	190	150	105	6	14	EPN 3
TE 1600 / TF 2200	E / F	1.6kVA / 2.2kVA	240	130	240	200	80	6	16	EPN 4
TE 2400 / TF 3200	E / F	2.4kVA / 3.2kVA	240	150	240	200	100	6	25	EPN 4
TE 3200 / TF 4000	E / F	3.2kVA / 4.0kVA	240	170	240	200	120	6	30	EPN 4
TE 4000 / TF 5200	E / F	4.0kVA / 5.2kVA	300	150	290	250	90	8	35	ETT 2
TE 5000 / TF 6500	E / F	5.0kVA / 6.5kVA	300	170	290	250	110	8	45	ETT 2
TE 6000 / TF 7800	E / F	6.0kVA / 7.8kVA	300	190	290	250	130	8	55	ETT 2
TE 7000 / TF 9000	E / F	7.0kVA / 9.0kVA	360	160	350	300	110	8	60	ETT 3
TE 8000 / TF 10000	E / F	8.0kVA / 10.0kVA	360	180	350	300	130	8	70	ETT 3
TE 10000 / TF 12500	E / F	10.0kVA / 12.5kVA	420	220	410	350	140	10	85	ETT 3
TE 12500 / TF 16000	E / F	12.5kVA / 16.0kVA	420	240	410	350	160	10	100	ETT 3
TE 16000 / TF 20000	E / F	16.0kVA / 20.0kVA	480	240	470	400	160	10	120	ETT 4
TE 20000 / TF 25000	E / F	20.0kVA / 25.0kVA	480	260	470	400	180	10	160	ETT 4
TE 25000 / TF 31500	E / F	25.0kVA / 31.5kVA	480	300	470	400	220	10	190	ETT 4
TE 31500 / TF 40000	E / F	31.5kVA / 40.0kVA	600	300	600	540	260	12	220	ETT 5
TE 40000 / TF 50000	E / F	40.0kVA / 50.0kVA	600	325	600	540	285	12	280	ETT 5
TE 50000 / TF 63000	E / F	50.0kVA / 63.0kVA	600	350	600	540	310	12	320	ETT 5
TE 60000 / TF 75000	E / F	60.0kVA / 75.0kVA	600	400	600	540	360	12	390	ETT 6



# CUSTOM-BUILT RANGE OF CLASS F AND CLASS H OPEN OR ENCLOSED THREE-PHASE TRANSFORMERS FROM 85KVA TO 500KVA

Designed to EN 60076-1: Class F or Class H insulation.

Insulation system up to 1.1kV.

Frequency of 50 / 60 Hz.

Ambient temperature range from -5 °C to +40 °C.

Terminals are IP20 and either DIN rail mounted, studs, copper tube crimps, or busbar (dependent on current ratings).

Enclosures available for all sizes from IP23 to IP55.



TGF 250K

A comprehensive range of custom-built three-phase transformers designed specifically to customers' own requirements. Any quantity can be produced from single units to regular call-off orders. Sizes from 85kVA to 400kVA (TF 85000 to TF 400000) are designed with Class F (155 °C) materials with an additional option of Class H (180 °C) designs from 100kVA to 500kVA (TH 100000 to TH 500000). This range incorporates high efficiency low loss core material giving a good power to weight ratio. The core design is unique and reduces stray losses and also results in a compact design. All transformers are air cooled and are fully varnish impregnated with an aesthetically appealing red polyester varnish. A full range of IP23 ventilated enclosures is available for all sizes (as well as up to IP55).

Reference	Insulation Class	VA Rating	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)	Enclosure Reference
TGF 85K / TGH 100K	F / H	85kVA / 100kVA	820	425	850	480	315	20	420	HDE 10 (or ETT 8)
TGF 100K / TGH 125K	F / H	100kVA / 125kVA	820	455	850	480	345	20	490	HDE 10 (or ETT 8)
TGF 125K / TGH 150K	F / H	125kVA / 150kVA	820	510	850	480	395	20	600	HDE 10 (or ETT 8)
TGF 150K / TGH 180K	F / H	150kVA / 180kVA	820	560	850	480	445	20	680	HDE 10 (or ETT 8)
TGF 175K / TGH 225K	F / H	175kVA / 225kVA	1,000	550	900	560	350	24	720	HDE 20 (or ETT 8)
TGF 200K / TGH 250K	F / H	200kVA / 250kVA	1,000	575	900	560	375	24	770	HDE 20 (or ETT 8)
TGF 225K / TGH 275K	F / H	225kVA / 275kVA	1,000	600	900	560	400	24	880	HDE 20 (or ETT 8)
TGF 250K / TGH 300K	F / H	250kVA / 300kVA	1,000	625	900	560	425	24	990	HDE 20 (or ETT 8)
TGF 275K / TGH 350K	F / H	275kVA / 350kVA	1,200	625	1,000	680	425	24	1,200	HDE 30 (or ETT 9)
TGF 325K / TGH 400K	F / H	325kVA / 400kVA	1,200	650	1,000	680	450	24	1,300	HDE 30 (or ETT 9)
TGF 350K / TGH 450K	F / H	350kVA / 450kVA	1,200	675	1,000	680	475	24	1,400	HDE 30 (or ETT 9)
TGF 400K / TGH 500K	F / H	400kVA / 500kVA	1,200	700	1,000	680	500	24	1,500	HDE 30 (or ETT 9)

# CUSTOM-BUILT RANGE OF DRY-TYPE CLASS F AND CLASS H OPEN OR ENCLOSED SINGLE-PHASE AND THREE-PHASE TRANSFORMERS UP TO 1MVA

Low voltage power and distribution dry-type transformers.

Single-phase and three-phase variations available with Class F or Class H insulation.

Non-flammable construction with copper or aluminium windings and vacuum impregnated with Class H resins.

Meet EN 60076-1 standards.

Insulation system up to 1.1kV.

Frequency of 50 / 60 Hz.

Ambient temperature range from  $-15\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$ .

Terminals are IP20 and either DIN rail mounted, studs, copper tube crimps, or busbar (dependent on current ratings).

Enclosures are available for all sizes from IP23 to IP44.



*1MVA dry-type three-phase transformer*

Custom-built range of low voltage transformers up to 1.1kV.

Coils are constructed from either aluminium or copper and cores are produced with a unique design principle using low-loss grain oriented material.

The possibilities within these design criteria are endless.

Aluminium conductors are now being employed in design due to lower weight and lower cost.

The technology of cooling aluminium windings is becoming more sophisticated by either using well ducted air cooling or employing specialist forced air cooling devices.

Vacuum varnish impregnation using solventless polyester or epoxy resin is available as well as standard solvent-based dip impregnation.

Any quantity can be produced from single units to regular call-off orders.

Ratings are up to 1MVA 3ph.

A full range of IP23 to IP44 ventilated enclosures is available for all sizes.

Give our sales team a call to discuss your specific requirements.

## **Design Possibilities**

- Single-phase and three-phase low voltage transformers
- Isolating transformers
- High current foil wound transformers
- Single-phase and three-phase autotransformers
- Filter chokes (either line reactors or output reactors)
- Single-phase or three-phase iron-cored reactors
- Air-cored inductors



*30kVA transformer with 5,000A output*

All units can be fitted with temperature probes for controlling winding temperatures which can be linked to specialist control units, specialist thermal contacts, pre-set thermometers, dial thermometers, or relays.

Another option is having PT100 thermistors embedded in each coil and connected to the terminals mounted on the unit.

## CUSTOM-BUILT RANGE OF CAST RESIN AND OIL-COOLED CLASS H OPEN OR ENCLOSED THREE-PHASE TRANSFORMERS UP TO 3.15MVA

Low and medium voltage cast resin transformers with Class H insulation.

Operating temperatures from Class A to Class H.

Designed with normal losses or high efficiency EU 548/2014 losses.

Power ratings from 100kVA to 3.15MVA.

Voltage insulation classes 12kV, 17.5~24kV, and 36kV.

Designed using high efficiency low loss electrical cores.

Can be supplied as open-type or enclosed (up to IP44).



*2.5MVA cast resin three-phase transformer*

Custom-built low and medium voltage cast resin transformers up to 3.15MVA. The voltage classes of the transformers are either 12kV, 17.5~24kV, or 36kV. Coils are constructed from either aluminium or copper and cores are produced with a unique design principle using low-loss grain oriented material. The possibilities within these design criteria are endless. Any quantity can be produced from single units to regular call-off orders. A full range of IP23 to IP44 ventilated enclosures is available for all sizes of the cast resin units. Give our sales team a call to discuss your specific requirements.

Low and medium voltage cast resin transformers with Class H insulation.

Operating temperatures from Class A to Class H.

Designed with normal losses or high efficiency EU 548/2014 losses.

Power ratings from 100kVA to 2.5MVA.

Voltage insulation classes 12kV, 17.5~24kV, and 36kV.

Designed using high efficiency low loss electrical cores.

Designed for indoor or outdoor applications.

Hermetically sealed or conservator types.



*1.25MVA oil-type three-phase transformer*

Custom-built low and medium voltage oil-cooled transformers up to 2.5MVA. The voltage classes of the transformers are either 12kV, 17.5~24kV, or 36kV. Coils are constructed from either aluminium or copper and cores are produced with a unique design principle using low-loss grain oriented material. The possibilities within these design criteria are endless. Any quantity can be produced from single units to regular call-off orders. The oil filled units can be designed for indoor or outdoor applications. Give our sales team a call to discuss your specific requirements.

### **Additional Accessories**

- Dial-type thermometer with two contacts
- Buchholz relay
- Silica gel breather
- Auxiliary terminal box
- HV Elastimold outlets and plugs
- Oil level indicator with electrical contacts
- Sudden pressure relay
- Air-insulated boxes on HV and LV bushings

Designed to EN 60076-1.

Insulation systems: Class E or Class F.

Insulation system up to 1.1kV.

Frequency of 50 / 60 Hz.

Ambient temperature range from  $-5^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ .

IP23 to IP55 enclosures available for all sizes.

Three-phase (3ph) delta input to single-phase (1ph) output.



TSF 7200

A comprehensive range of custom-built three-phase input to single-phase output transformers designed specifically to customers' own requirements. These units help to balance the loading of three-phase supplies with two phases drawing equal current. The third phase draws around twice the current of each of the other two phases. Any quantity can be produced from single units to regular call-off orders. Sizes from 1.3kVA to 40kVA (TSE 1300 to TSE 40000) are designed with Class E ( $120^{\circ}\text{C}$ ) materials with an additional option of Class F ( $155^{\circ}\text{C}$ ) designs from 1.8kVA to 120kVA (TSF 1800 to TSF 120000). All transformers are air cooled and are fully varnish impregnated with an aesthetically appealing red polyester varnish. A full range of IP23 ventilated enclosures is available for all sizes (as well as up to IP55).

Reference	Insulation Class	VA Rating	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)	Enclosure Reference
TSE 1300 / TSF 1800	E / F	1.3kVA / 1.8kVA	280	170	240	200	80	6	16	EPN 6
TSE 2000 / TSF 2600	E / F	2.0kVA / 2.6kVA	280	190	240	200	100	6	25	EPN 6
TSE 2600 / TSF 3200	E / F	2.6kVA / 3.2kVA	280	210	240	200	120	6	30	EPN 6
TSE 3200 / TSF 4200	E / F	3.2kVA / 4.2kVA	350	200	290	250	90	8	35	ETT 3
TSE 4000 / TSF 5200	E / F	4.0kVA / 5.2kVA	350	220	290	250	110	8	45	ETT 3
TSE 4800 / TSF 6200	E / F	4.8kVA / 6.2kVA	350	240	290	250	130	8	55	ETT 3
TSE 5600 / TSF 7200	E / F	5.6kVA / 7.2kVA	420	220	350	300	110	8	60	ETT 3
TSE 6400 / TSF 8000	E / F	6.4kVA / 8.0kVA	420	240	350	300	130	8	70	ETT 3
TSE 8000 / TSF 10000	E / F	8.0kVA / 10.0kVA	490	290	410	350	140	10	85	ETT 4
TSE 10000 / TSF 12500	E / F	10.0kVA / 12.5kVA	490	310	410	350	160	10	100	ETT 4
TSE 12500 / TSF 16000	E / F	12.5kVA / 16.0kVA	560	320	470	400	160	10	120	ETT 3
TSE 16000 / TSF 20000	E / F	16.0kVA / 20.0kVA	560	340	470	400	180	10	160	ETT 4
TSE 20000 / TSF 25000	E / F	20.0kVA / 25.0kVA	560	380	470	400	220	10	190	ETT 4
TSE 25000 / TSF 32000	E / F	25.0kVA / 32.0kVA	700	400	600	540	260	12	220	ETT 5
TSE 32000 / TSF 40000	E / F	32.0kVA / 40.0kVA	700	425	600	540	285	12	280	ETT 5
TSE 40000 / TSF 50000	E / F	40.0kVA / 50.0kVA	700	450	600	540	310	12	320	ETT 5
TSF 56000	F	56.0kVA	820	485	850	480	285	20	380	HDE 10 (or ETT 8)
TSF 60000	F	60.0kVA	700	500	600	540	360	12	390	HDE 10 (or ETT 8)
TSF 80000	F	80.0kVA	820	520	850	480	340	20	490	HDE 10 (or ETT 8)
TSF 100000	F	100.0kVA	820	590	850	480	390	20	590	HDE 10 (or ETT 8)
TSF 120000	F	120.0kVA	820	640	850	480	440	20	680	HDE 10 (or ETT 8)

## CUSTOM-BUILT RANGE OF UL APPROVED TRANSFORMERS FROM 40VA TO 3kVA 1PH AND FROM 200VA TO 30KVA 3PH

UL approved single-phase control transformers  
from 40VA to 3kVA.

To UL 506 / VDE 0570 and EN 61558 part 2-2/4.

Autotransformer versions:  
VDE 0570 / EN 60558 part 2-13 with index-A.

Insulation Class T 40/B.

IP20 Class I protection.

Frequency of 50 / 60 Hz.

IP23 to IP55 enclosures available for all sizes.



*1ph UL approved  
transformer*

A comprehensive range of custom-built UL approved single-phase transformers designed specifically to customers' own requirements. The design is EI configuration and shell-type construction. Both double wound (separate windings) and auto wound (single winding) designs are available. All transformers are air cooled and are fully vacuum varnish impregnated with an aesthetically appealing polyester varnish. They are chassis mounted with 100% duty cycle. Protection against accidental contact is to VBG 4. A full range of IP23 ventilated enclosures is available for all sizes (as well as up to IP55). For full size and performance data please contact our sales department.

UL approved three-phase dry-type transformers  
from 200VA to 30kVA.

To UL 506 / VDE 0570 and EN 61558 part 2-1.

Autotransformer versions:  
VDE 0570 / EN 60558 part 2-13 with index-A.

Insulation Class T 40/B.

IP20 Class I protection.

Frequency of 50 / 60 Hz.

IP23 to IP55 enclosures available for all sizes.



*3ph UL approved  
transformer*

A comprehensive range of custom-built UL approved three-phase transformers designed specifically to customers' own requirements. The design is 3UI configuration and three limb core construction. Both double wound (vector group to be advised) and auto wound (single winding with N brought out: Yna0) designs are available. All transformers are air cooled and are fully vacuum varnish impregnated with an aesthetically appealing polyester varnish. They are chassis mounted with 100% duty cycle. Protection against accidental contact is to VBG 4. A full range of IP23 ventilated enclosures is available for all sizes (as well as up to IP55). For full size and performance data please contact our sales department.

The PT range of portable tool transformers with 240V 1ph input are suitable for a number of applications. There are four models available from 1kVA to 5kVA (20 minute tool ratings). The transformers within this range are for general use with continuous ratings between 700VA and 2.2kVA. All units are fitted with thermal overload protection and a manual reset button.

## Transformer Tool Ratings

- PT 1000/2 1.0kVA with 2 x 110V 16A sockets
- PT 1500/2 1.5kVA with 2 x 110V 16A sockets
- PT 3300/2 3.3kVA with 2 x 110V 16A sockets
- PT 5000/3 5.0kVA with 2 x 110V 16A sockets  
and 1 x 110V 32A socket



PT 1000/2

## Specification and Construction

- Designed for a 230~240V 50 Hz input.
- Input via a 2 m cable and 13A UK plug (1kVA to 3.3kVA models).
- Input via a 2 m cable only (PT 5000/3) due to an input current > 20A.
- 110V output centre tapped to earth (55/0/55V).
- Designed to EN 61558-1: 2005.
- CE marked.
- Full thermal overload protection.
- IP44 output sockets designed to BS 4343.
- High impact polyester/glass enclosures.
- All models are manufactured in the UK by ETE.



PT 5000/3

Reference	20 minute Tool Rating	Continuous Rating	Input Connection	Input Thermal Overload Rating	Output Sockets	Weight (kg)
PT 1000/2	1.0kVA	700VA	2 m cable and 13A plug	5A	2 x 110V 16A	10.5
PT 1500/2	1.5kVA	1.0kVA	2 m cable and 13A plug	10A	2 x 110V 16A	12.0
PT 3300/2	3.3kVA	1.5kVA	2 m cable and 13A plug	18A	2 x 110V 16A	16.0
PT 5000/3	5.0kVA	2.2kVA	2 m cable only	30A	1 x 110V 16A and 1 x 110V 32A	29.0

## 4 Way Splitter Box

To give 4 way multiple outputs from a single 110V 16A transformer supply. Output sockets to BS 4343.

Reference	Output Sockets	Input Connections	Weight (kg)
PTSB 4-2	4 x 110V 16A	3 m of arctic cable and 16A 110V plug	2



PTSB 4-2



## STANDARD RANGE OF THREE-PHASE MAINS DISTRIBUTION BOARD UNITS FROM 100A TO 250A AND DISTRIBUTION BOARD STAND

Mains distribution units for use with portable site equipment.

Three-phase + neutral (3ph + N) units.

Available in 100A, 200A, and 250A types.

For wall or stand mounting (stand supplied separately).

Unique compact design with IP55 epoxy powder coated mild steel enclosure.

Hinged access door lockable using a padlock.

Removable base plate with cable gland knockouts.

Mains distribution units for construction sites, dockside, and general industrial applications. The compact MCB compact pan assembly units are available in 100~250A 3ph + N sizes. Incoming connection is via 4 pole 100~250A 300mA RCD. Units are designed for wall or stand mounting (see our range of distribution board stands below). Output connections via 8 way MCB pan assembly 3 pole + N. The units within this range feature a unique compact design with IP55 rating. The hinged access door is lockable using a padlock. All types have a removable base plate fitted with multiple gland knockouts. The steel enclosure is to Class 1 construction and is phosphor pre-treated and epoxy powder coated in RAL 3020 traffic red.

### Other Bespoke Options:

- Wide range of single-phase and three-phase options.
- From 12 way to 72 way single pole.
- From 6 way to 36 way double pole.
- From 6 way to 24 way treble pole.
- Units with multiple 24V, 110V, 240V, and 415V sockets fitted.
- Units with transformers fitted.

For more information contact our sales department.



Reference	Rating	Description	Number of MCB Outputs	Dimensions D x W x H (mm)	Weight (kg)
PA100A	100A	3ph distribution board	8 x 3 pole 3 way + N	197 x 525 x 565	35
PA200A	200A	3ph distribution board	8 x 3 pole 3 way + N	244 x 430 x 850	45
PA250A	250A	3ph distribution board	8 x 3 pole 3 way + N	244 x 430 x 850	45

### Distribution Board Stands

Reference	Corresponding Distribution Boards	Dimensions D x W x H (mm)	Weight (kg)
UFPA	PA100A, PA200A, and PA250A	650 x 600 x 1,250	10

## 240V Single-Phase (1ph) Site Transformers

### SFS 3000 240 - 3kVA continuous and 4kVA intermittent

- 240/0/2 - 2 x 20 mm cable glands for lighting applications
- 240/1/0 - 1 x 110V 32A socket
- 240/2/0 - 2 x 110V 16A sockets

### SFS 5000 240 - 5kVA continuous and 6kVA intermittent

- 240/0/4 - 4 x 20 mm cable glands for lighting applications
- 240/2/0 - 2 x 110V 32A sockets
- 240/2/2 - 1 x 110V 16A socket and 1 x 110V 32A socket  
- 2 x 20 mm cable glands for lighting applications
- 240/3/0 - 2 x 110V 16A sockets and 1 x 110V 32A socket



SFS 5000 240/0/4

The SFS range of portable site transformers with 240V 1ph input are suitable for a number of applications. There are seven models available from 3kVA to 5kVA (continuously rated). The transformers within this range are for heating, lighting, and general use with 1 hour tool ratings of 4kVA to 6kVA. There are 3 different output types in regards to the 3kVA units and 4 different output types in regards to the 5kVA units. All models feature full input protection via 1 pole MCB and output protection via double pole MCB with MCBs being mounted behind an IP65, high impact, hinged window. The steel enclosure is to Class 1 construction and is phosphor pre-treated and epoxy powder coated red and yellow.

### Specification and Construction

- Designed for a 230~240V 50 Hz 1ph input via 25 mm cable entry.
- 110V output centre tapped to earth (55/0/55V).
- Designed to EN 61558-1: 2005 and CE marked.
- Full input protection via 1 pole MCB.
- Output protection via type D double pole MCB.
- IP44 output sockets designed to BS 4343.

Reference	Continuous Rating	1 hour Tool Rating	Input MCB	Output Connection Options	Output MCB	Weight (kg)
SFS 3000 240/0/2	3kVA	4kVA	32A 1 pole	2 x 20 mm cable glands	1 x 32A DP	40
SFS 3000 240/1/0	3kVA	4kVA	32A 1 pole	1 x 110V 32A socket	1 x 32A DP	40
SFS 3000 240/2/0	3kVA	4kVA	32A 1 pole	2 x 110V 16A sockets	1 x 32A DP	40
SFS 5000 240/0/4	5kVA	6kVA	50A 1 pole	4 x 20 mm cable glands	2 x 32A DP	55
SFS 5000 240/2/0	5kVA	6kVA	50A 1 pole	2 x 110V 32A sockets	2 x 32A DP	55
SFS 5000 240/2/2	5kVA	6kVA	50A 1 pole	1 x 110V 16A socket, 1 x 110V 32A socket, and 2 x 20 mm cable glands	2 x 32A DP	55
SFS 5000 240/3/0	5kVA	6kVA	50A 1 pole	2 x 110V 16A sockets and 1 x 110V 32A socket	2 x 32A DP	55

### WARNING:

Great care should be taken when lifting or moving all portable site transformers.  
Weights between **40 kg and 55 kg** dependent on size / rating.



# STOCK RANGE OF 2PH AND 3PH PORTABLE SITE TRANSFORMERS FROM 3KVA TO 5KVA FOR HEATING, LIGHTING, AND GENERAL APPLICATIONS

## 415V Two-Phase (2ph) and Three-Phase (3ph) Site Transformers

### SFS 3000 415 - 3kVA continuous and 4kVA intermittent

- 415/0/2 - 2 x 20 mm cable glands for lighting applications
- 415/1/0 - 1 x 110V 32A socket
- 415/2/0 - 2 x 110V 16A sockets

### SFS 5000 415 - 5kVA continuous and 6kVA intermittent

### TFS 5000 415 - 5kVA continuous and 6kVA intermittent

- 415/0/4 - 4 x 20 mm cable glands for lighting applications
- 415/2/0 - 2 x 110V 32A sockets
- 415/2/2 - 1 x 110V 16A socket and 1 x 110V 32A socket  
- 2 x 20 mm cable glands for lighting applications
- 415/3/0 - 2 x 110V 16A sockets and 1 x 110V 32A socket



TFS 5000 415/3/0

The SFS (2ph) / TFS (3ph) ranges of portable site transformers with 415V 2ph or 415V 3ph input are suitable for a number of applications. There are 11 models available from 3kVA to 5kVA (continuously rated). The transformers within this range are for heating, lighting, and general use with 1 hour tool ratings of 4kVA to 6kVA. There are 3 different output types in regards to the 3kVA units and 4 different output types in regards to the 5kVA units. All models feature full input protection via 2 pole (SFS) or 3 pole (TFS) MCB and output protection via double pole MCB with MCBs being mounted behind an IP65, high impact, hinged window. The steel enclosure is to Class 1 construction and is phosphor pre-treated and epoxy powder coated red and yellow.

### Specification and Construction

- Designed for a 400~415V 50 Hz 2ph or 3ph input via 25 mm cable entry.
- 110V output centre tapped to earth (55/0/55V).
- Designed to EN 61558-1: 2005 and CE marked.
- Full input protection via 2 pole or 3 pole MCB.
- Output protection via type D double pole MCB.
- IP44 output sockets designed to BS 4343.

Reference	Continuous Rating	1 hour Tool Rating	Input MCB	Output Connection Options	Output MCB	Weight (kg)
SFS 3000 415/0/2	3kVA	4kVA	20A 2 pole	2 x 20 mm cable glands	1 x 32A DP	40
SFS 3000 415/1/0	3kVA	4kVA	20A 2 pole	1 x 110V 32A socket	1 x 32A DP	40
SFS 3000 415/2/0	3kVA	4kVA	20A 2 pole	2 x 110V 16A sockets	1 x 32A DP	40
SFS 5000 415/0/4	5kVA	6kVA	32A 2 pole	4 x 20 mm cable glands	2 x 32A DP	55
SFS 5000 415/2/0	5kVA	6kVA	32A 2 pole	2 x 110V 32A sockets	2 x 32A DP	55
SFS 5000 415/2/2	5kVA	6kVA	32A 2 pole	1 x 110V 16A socket, 1 x 110V 32A socket, and 2 x 20 mm cable glands	2 x 32A DP	55
SFS 5000 415/3/0	5kVA	6kVA	32A 2 pole	2 x 110V 16A sockets and 1 x 110V 32A socket	2 x 32A DP	55
TFS 5000 415/0/4	5kVA	6kVA	20A 3 pole	4 x 20 mm cable glands	2 x 32A DP	60
TFS 5000 415/2/0	5kVA	6kVA	20A 3 pole	2 x 110V 32A sockets	2 x 32A DP	60
TFS 5000 415/2/2	5kVA	6kVA	20A 3 pole	1 x 110V 16A socket, 1 x 110V 32A socket, and 2 x 20 mm cable glands	2 x 32A DP	60
TFS 5000 415/3/0	5kVA	6kVA	20A 3 pole	2 x 110V 16A sockets and 1 x 110V 32A socket	2 x 32A DP	60

### WARNING:

Great care should be taken when lifting or moving all portable site transformers.  
Weights between **40 kg and 60 kg** dependent on size / rating.

## 240V Single-Phase (1ph) Site Transformers

- SFS 8/10/6** - 8kVA continuous and 10kVA intermittent  
 - 4 x 110V 16A sockets via 2 x 16A DP MCBs  
 - 2 x 110V 32A sockets via 2 x 32A DP MCBs

- SFS 10/12/6** - 10kVA continuous and 12kVA intermittent  
 - 4 x 110V 16A sockets via 2 x 16A DP MCBs  
 - 2 x 110V 32A sockets via 2 x 32A DP MCBs

## 415V Two-Phase (2ph) Site Transformers

- SFS 8/10/6** - 8kVA continuous and 10kVA intermittent  
 - 4 x 110V 16A sockets via 2 x 16A DP MCBs  
 - 2 x 110V 32A sockets via 2 x 32A DP MCBs

- SFS 10/12/6** - 10kVA continuous and 12kVA intermittent  
 - 4 x 110V 16A sockets via 2 x 16A DP MCBs  
 - 2 x 110V 32A sockets via 2 x 32A DP MCBs



SFS 8/10/6 240V

The SFS range of portable site transformers with 230~240V 1ph or 400~415V 2ph inputs are suitable for a number of applications. There are four models available from 8kVA (10kVA tool rated) to 10kVA (12kVA tool rated). All units are fitted with 6 socket outlets comprising 4 x 110V 16A and 2 x 110V 32A. All inputs and outputs are fully MCB protected with the MCBs mounted behind a IP65 rated, high impact, hinged window. The steel enclosure is to Class 1 construction and is phosphor pre-treated and epoxy powder coated red and yellow.

## Specification and Construction

- Designed for a 230~240V 50 Hz 1ph input via 25 mm cable entry or 400~415V 50 Hz 2ph input via 25 mm cable entry.
- 110V output centre tapped to earth (55/0/55V).
- Designed to EN 61558-1: 2005 and CE marked.
- Full input and output type D MCB protection.
- IP44 output sockets to BS 4343.

Reference	Continuous Rating	1 hour Tool Rating	Input MCB	Output Connection Options	Output MCB	Weight (kg)
SFS 8/10/6 240V	8kVA	10kVA	50A 1 pole	4 x 110V 16A sockets and 2 x 110V 32A sockets	2 x 16A DP MCBs and 2 x 32A DP MCBs	70
SFS 8/10/6 415V	8kVA	10kVA	50A 1 pole	4 x 110V 16A sockets and 2 x 110V 32A sockets	2 x 16A DP MCBs and 2 x 32A DP MCBs	70
SFS 10/12/6 240V	10kVA	12kVA	63A 1 pole	4 x 110V 16A sockets and 2 x 110V 32A sockets	2 x 16A DP MCBs and 2 x 32A DP MCBs	80
SFS 10/12/6 415V	10kVA	12kVA	63A 1 pole	4 x 110V 16A sockets and 2 x 110V 32A sockets	2 x 16A DP MCBs and 2 x 32A DP MCBs	80

### WARNING:

Lifting and movement of all the above site transformers should be with a fork lift between the skids.  
 Weight between **70 kg and 80 kg** dependent on size / rating.

## 415V Three-Phase (3ph) Site Transformers

**TFS 10000/6** - 10kVA continuous and 12.5kVA intermittent  
 - 4 x 110V 16A sockets via 2 x 16A DP MCBs  
 - 2 x 110V 32A sockets via 2 x 32A DP MCBs

**TFS 15000/9** - 15kVA continuous and 18.5kVA intermittent  
 - 6 x 110V 16A sockets via 3 x 16A DP MCBs  
 - 3 x 110V 32A sockets via 3 x 32A DP MCBs

**TFS 20000/12** - 20kVA continuous and 25kVA intermittent  
 - 8 x 110V 16A sockets via 4 x 16A DP MCBs  
 - 4 x 110V 32A sockets via 4 x 32A DP MCBs

**TFS 25000/12** - 25kVA continuous and 30kVA intermittent  
 - 8 x 110V 16A sockets via 4 x 16A DP MCBs  
 - 4 x 110V 32A sockets via 4 x 32A DP MCBs

**TFS 30000/12** - 30kVA continuous and 35kVA intermittent  
 - 8 x 110V 16A sockets via 4 x 16A DP MCBs  
 - 4 x 110V 32A sockets via 4 x 32A DP MCBs



TFS 30000/12

The TFS range of portable site transformers with 400~420V 3ph delta connected input are suitable for a number of applications. There are five models from 10kVA (12.5kVA tool rated) to 30kVA (35kVA tool rated). Units are fitted with either 6, 9, or 12 sockets with all inputs and outputs being MCB protected with the MCBs mounted behind an IP65 rated, high impact, hinged window. The steel enclosure is to Class 1 construction and is phosphor pre-treated and epoxy powder coated red and yellow.

### Specification and Construction

- Designed for 400~420V 50 Hz 3ph delta connected input via 25 mm cable entry.
- 110V ph/ph star connected output with neutral taken to earth.
- Designed to EN 60076-1 and CE marked.
- Full input and output type D MCB protection.
- IP44 output sockets to BS 4343.

Reference	Continuous Rating	1 hour Tool Rating	Input MCB	Output Connection Options	Output MCB	Weight (kg)
TFS 10000/6	10.0kVA	12.5kVA	30A 3 pole	4 x 110V 16A sockets and 2 x 110V 32A sockets	2 x 16A DP MCBs and 2 x 32A DP MCBs	90
TFS 15000/9	15.0kVA	18.5kVA	45A 3 pole	6 x 110V 16A sockets and 3 x 110V 32A sockets	3 x 16A DP MCBs and 3 x 32A DP MCBs	120
TFS 20000/12	20.0kVA	25.0kVA	50A 3 pole	8 x 110V 16A sockets and 4 x 110V 32A sockets	4 x 16A DP MCBs and 4 x 32A DP MCBs	150
TFS 25000/12	25.0kVA	30.0kVA	63A 3 pole	8 x 110V 16A sockets and 4 x 110V 32A sockets	4 x 16A DP MCBs and 4 x 32A DP MCBs	180
TFS 30000/12	30.0kVA	35.0kVA	63A 3 pole	8 x 110V 16A sockets and 4 x 110V 32A sockets	4 x 16A DP MCBs and 4 x 32A DP MCBs	210

### WARNING:

Lifting and movement of all the above site transformers should be with a fork lift between the skids.  
 Weight between **90 kg and 210 kg** dependent on size / rating.



# STOCK RANGE OF IP23 ENCLOSED TRANSFORMERS FOR WALL OR FLOOR MOUNTING WITH 110V SOCKET OUTLETS

For 'hardwired' workshop applications to supply 110V power tools.

Stock (MV) range of single-phase (1ph) or two-wire (2ph) enclosed transformers with 110V centre tapped (55/0/55V) outputs.

Inputs of 220~250V 50 / 60 Hz 1ph or 380~440V 50 / 60 Hz 2ph.

Enclosures to IP23 for wall or floor mounting.

Available with or without MCB output protection. MCBs mounted behind an IP65 accessible hinged cover.



WSP 3000/2 P2S1

A range of stock single-phase (1ph) or two-phase (2ph) enclosed multi-voltage (MV) transformers for workshop applications. The transformers within this range are enclosed in an EPN style IP23 enclosure with 110V centre tap to earth outputs. The models are continuously rated from 1.5kVA to 3kVA with 20 minute tool ratings from 3kVA to 6kVA. Output sockets are to BS EN 60309-1 (BS 4343) with 110V 16A or 110V 32A sockets fitted. Units are supplied with or without output socket MCB protection and input protection is via thermal overload on 220~250V versions or type D double pole MCB on 380~440V versions. All MCBs are mounted behind an IP65 hinged cover.

Reference	Input Voltages and Input Protection	Transformer Rating	Sockets	Enclosure Reference and Dimensions L x W X H (mm)	Output Protection (DP Type D)	Weight (kg)
WS 3000/2 P1S1	220/230/240/250V Thermal overload	1.5kVA continuous or 3.0kVA tool rated	2 x 110V 16A	EPN 5 350 x 242 x 353	None	18
WS 4000/3 P1S1	220/230/240/250V Thermal overload	2.0kVA continuous or 4.0kVA tool rated	3 x 110V 16A	EPN 5 350 x 242 x 353	None	22
WS 5000/2 P1S1	220/230/240/250V Thermal overload	2.5kVA continuous or 5.0kVA tool rated	1 x 110V 16A 1 x 110V 32A	EPN 6 384 x 305 x 454	None	28
WS 6000/3 P1S1	220/230/240/250V Thermal overload	3.0kVA continuous or 6.0kVA tool rated	2 x 110V 16A 1 x 110V 32A	EPN 6 384 x 305 x 454	None	32
WSP 3000/2 P1S1	220/230/240/250V Thermal overload	1.5kVA continuous or 3.0kVA tool rated	2 x 110V 16A	EPN 5 350 x 242 x 353	1 x 16A	18
WSP 4000/3 P1S1	220/230/240/250V Thermal overload	2.0kVA continuous or 4.0kVA tool rated	3 x 110V 16A	EPN 5 350 x 242 x 353	1 x 16A 1 x 32A	22
WSP 5000/2 P1S1	220/230/240/250V Thermal overload	2.5kVA continuous or 5.0kVA tool rated	1 x 110V 16A 1 x 110V 32A	EPN 6 384 x 305 x 454	1 x 16A 1 x 32A	28
WSP 6000/3 P1S1	220/230/240/250V Thermal overload	3.0kVA continuous or 6.0kVA tool rated	2 x 110V 16A 1 x 110V 32A	EPN 6 384 x 305 x 454	1 x 16A 1 x 32A	32

Reference	Input Voltages and Input Protection	Transformer Rating	Sockets	Enclosure Reference and Dimensions L x W X H (mm)	Output Protection (DP Type D)	Weight (kg)
WS 3000/2 P2S1	380/400/420/440V 20A DP MCB	1.5kVA continuous or 3.0kVA tool rated	2 x 110V 16A	EPN 5 350 x 242 x 353	None	18
WS 4000/3 P2S1	380/400/420/440V 25A DP MCB	2.0kVA continuous or 4.0kVA tool rated	3 x 110V 16A	EPN 5 350 x 242 x 353	None	22
WS 5000/2 P2S1	380/400/420/440V 32A DP MCB	2.5kVA continuous or 5.0kVA tool rated	1 x 110V 16A 1 x 110V 32A	EPN 6 384 x 305 x 454	None	28
WS 6000/3 P2S1	380/400/420/440V 40A DP MCB	3.0kVA continuous or 6.0kVA tool rated	2 x 110V 16A 1 x 110V 32A	EPN 6 384 x 305 x 454	None	32
WSP 3000/2 P2S1	380/400/420/440V 20A DP MCB	1.5kVA continuous or 3.0kVA tool rated	2 x 110V 16A	EPN 5 350 x 242 x 353	1 x 16A	18
WSP 4000/3 P2S1	380/400/420/440V 25A DP MCB	2.0kVA continuous or 4.0kVA tool rated	3 x 110V 16A	EPN 5 350 x 242 x 353	1 x 16A 1 x 32A	22
WSP 5000/2 P2S1	380/400/420/440V 32A DP MCB	2.5kVA continuous or 5.0kVA tool rated	1 x 110V 16A 1 x 110V 32A	EPN 6 384 x 305 x 454	1 x 16A 1 x 32A	28
WSP 6000/3 P2S1	380/400/420/440V 40A DP MCB	3.0kVA continuous or 6.0kVA tool rated	2 x 110V 16A 1 x 110V 32A	EPN 6 384 x 305 x 454	1 x 16A 1 x 32A	32



# CUSTOM-BUILT RANGE OF ENCLOSED TRANSFORMERS AND COMPLETE CONTROL PANELS

Custom-built single-phase (1ph) and three-phase (3ph) enclosed transformers with accessories.

Wall, floor, or portable enclosures from IP20 to IP65.

Available with fuse, MCB, or thermal protection.

Accessories available include: input or output plugs and sockets, wheels, cooling fans, indicator lamps, meters, and mains isolator switches.

*Three-phase custom-built enclosed transformer*



A range of custom-built single-phase (1ph) or three-phase (3ph) transformers with accessories. The transformers within this range can be cased in a variety of fixed or portable enclosures from IP20 to IP65. Transformers within non-ventilated enclosures are designed with low loss cores and reduced losses in the windings. Fuse, MCB, or thermal protection can be incorporated as well as a wide range of accessories. Available accessories include: input and output plugs and sockets (to many international standards), wheels (for ease of movement), cooling fans, indicator lamps, a variety of metering, and mains isolator switches.

Special Requirements	Typical Options Available
Enclosure type	IP20 or IP23 fixed or portable types with or without fan ventilation (can be made up to IP65)
Input or output protection	Fuse or MCB protection on input and/or outputs mounted inside or outside the enclosure
Indicator lamps	LED: 22 mm panel indicators in various colours
Metering	Digital or analogue, including voltage, current, frequency and power
Mains isolators	From single pole on/off switches to high current multi-pole isolator switches

Custom-built control panels incorporating single-phase (1ph) and three-phase (3ph) transformers.

Can be produced to detailed drawings and specific requirements.

Units from IP23 to IP55 with forced air or air-conditioning.

Fully wired and tested to IEC standards.

Panels can incorporate door interlocks and mains isolators; circuit protection (including MCBs and fusing); and can be monitored with analogue or digital metering to measure voltage, current, frequency, and power.

As well as offering a wide range of transformers for delivering various voltage and power requirements we work alongside a highly reputable UK-based panel builder to offer a full power and panel building service. Our panels can range from IP23 to IP55 and cover a wide range of power applications from a few VA up to 500kVA. We can work from detailed electrical schematics or from specific instructions within a verbal brief. Internal connections can be from DIN rail terminals to high current busbar. Please contact our sales team to discuss your requirements.



*Custom-built control panel*

XMS Class II ex stock range of transformers.  
 Designed to EN 61558 2-4/6 with Class F insulation.  
 High specification Class II (no provision for earth) units.  
 IP20 touch-proof terminals in a flame retardant moulded housing to UL 94 V-0.  
 Ambient temperature range between  $-10^{\circ}\text{C}$  and  $+35^{\circ}\text{C}$ .  
 DIN rail or chassis mounting up to 200VA.  
 Chassis mounting only from 250VA to 300VA.



XMS 200 P4S6

A new and unique range of ex stock single-phase (1ph) Class II (with no provision for earth) transformers. All units are enclosed in a high quality grey flame retardant moulded housing to UL 94 V-0 with terminals protected to IP20. Sizes range from 50VA to 300VA. Those from 50VA to 200VA are DIN rail and chassis mountable, whereas models from 250VA to 300VA are for chassis mounting only. The transformers are designed to EN 61558 2-4/6 with the ambient temperature range from  $-10^{\circ}\text{C}$  to  $+35^{\circ}\text{C}$ .

Reference	VA Rating	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)	P0S6	P4S4	P4S6	P5S4	P5S6
XMS 50	50VA	90.0	106.0	87.0	68.5	90.0	4.5	1.3	■	■	■	■	■
XMS 100	100VA	90.0	106.0	96.0	68.5	90.0	4.5	2.2	■	■	■	■	■
XMS 150	150VA	102.0	115.5	106.0	82.0	101.5	5.0	3.0	■	■	■	■	■
XMS 200	200VA	102.0	115.5	126.0	82.0	101.5	5.0	4.0	■	■	■	■	■
XMS 250	250VA	126.0	136.0	127.0	96.0	121.0	5.5	4.6	■	■	■	■	■
XMS 300	300VA	126.0	136.0	127.0	96.0	121.0	5.5	5.0	■	■	■	■	■

### Input and Output Codes for XMS Range

Single Voltage Primary Input	Input Code	Single Voltage Secondary Output	Output Code
0/110V 50 / 60 Hz	P0	0/110V	S4
0/240V 50 / 60 Hz	P4	0/240V	S5
0/415V 50 / 60 Hz	P5	0/24V	S6

XMB Class II custom-built transformers.  
 Designed to EN 61558 2-4/6 with Class F insulation.  
 High specification Class II (no provision for earth) units.  
 IP20 touch-proof terminals, in a flame retardant, moulded housing to UL 94 V-0.  
 Ambient temperature range between  $-10^{\circ}\text{C}$  and  $+35^{\circ}\text{C}$ .  
 DIN rail mounting or chassis mounting up to 200VA.  
 Chassis mounting only from 250VA to 300VA.



XMB 100

A unique range of custom-built single-phase (1ph) Class II (with no provision for earth) transformers. All units are enclosed in a high quality grey flame retardant moulded housing to UL 94 V-0 with terminals protected to IP20. Sizes range from 50VA to 300VA. Those from 50VA to 200VA are DIN rail and chassis mountable, whereas models from 250VA to 300VA are for chassis mounting only. The ambient temperature range is between  $-10^{\circ}\text{C}$  and  $+35^{\circ}\text{C}$  with the maximum voltage being 750V. The frequency for the models in this range is 50 / 60 Hz.

Reference	VA Rating	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)	Maximum Number of Terminals (Input + Output)
XMB 50	50VA	90.0	106.0	87.0	68.5	90.0	4.5	1.3	5 + 5
XMB 75	75VA	90.0	106.0	87.0	68.5	90.0	4.5	1.5	5 + 5
XMB 100	100VA	90.0	106.0	96.0	68.5	90.0	4.5	2.2	5 + 5
XMB 125	125VA	90.0	106.0	106.0	68.5	90.0	4.5	2.6	5 + 5
XMB 150	150VA	102.0	115.5	106.0	82.0	101.5	5.0	3.0	6 + 6
XMB 175	175VA	102.0	115.5	116.0	82.0	101.5	5.0	3.4	6 + 6
XMB 200	200VA	102.0	115.5	126.0	82.0	101.5	5.0	4.0	6 + 6
XMB 250	250VA	126.0	136.0	117.0	96.0	121.0	5.5	4.6	7 + 7
XMB 300	300VA	126.0	136.0	127.0	96.0	121.0	5.5	5.0	7 + 7



# CUSTOM-BUILT RANGE OF ENCAPSULATED TRANSFORMERS AND CHASSIS MOUNTING TRANSFORMERS FROM 25VA TO 300VA

WZ Class II custom-built transformers for DIN rail mounting.  
 Rating options of 25VA and 50VA.  
 Designed to EN 61558 2-4/6 with Class E insulation.  
 High specification Class II (no provision for earth).  
 IP20 touch-proof terminals.  
 Encapsulated in flame retardant moulded housing.  
 Standard ambient temperature range from  $-10^{\circ}\text{C}$  to  $+35^{\circ}\text{C}$ .  
 Suitable for DIN rail mounting on TS 35-7.5 and TS 35-15 rails.



WZ 50

A new and unique range of DIN rail mountable, fully encapsulated, custom-built single-phase transformers meeting Class II double insulated (with no provision for earth). All transformers are enclosed in a black, high quality, flame retardant housing to UL 94. Rating options are from 25VA to 50VA with IP20 touch-proof terminals. The ambient temperature range is between  $-10^{\circ}\text{C}$  to  $+35^{\circ}\text{C}$  with the maximum voltage being 500V. The frequency for the models within this range is 50 / 60 Hz.

Reference	VA Rating	W (mm)	H of case (mm)	H with DIN clip (mm)	D Overall (mm)	D with Terminals (mm)	Maximum Number of Terminals (Input and Output)
WZ 25	25VA	72	70	80	72	81	6 x 4 mm <sup>2</sup> x 2 rows
WZ 50	50VA	85	77	86	82	91	6 x 4 mm <sup>2</sup> x 2 rows

Custom-built range of chassis mounting transformers.

Ratings from 25VA to 90VA with 2 fixing wrap over clamp.

Ratings from 25VA to 300VA with universal frames or base clamps.

Open types with solder tag or amp tag connections.

Encapsulated types from 28VA to 120VA with solder tags.

A comprehensive range of custom-built chassis mounting transformers. All are designed and manufactured to customers' own requirements using top grade materials and employing the most advanced manufacturing technology. Ratings start at 25VA and go up to 300VA. Standards include EN 60742 and EN 61558.



Chassis mounting transformer with wrap over cover



Chassis mounting transformer with base clamps

Description and Type	Fixing Type	VA Ratings
Open-type with solder tags	Using two fixing wrap over clamping brackets	From 25VA to 90VA
Open-type with solder tags	Using four fixing universal frames or base clamps	From 25VA to 300VA
Open-type with amp tags	Using four fixing universal frames or base clamps	From 25VA to 300VA
Encapsulated	Using multi-fixing moulded cases	From 28VA to 120VA

Single-phase (1ph) and three-phase (3ph) options.

Accuracy Classes of either 0.5, 1, and 3.

Designed to IEC 61869-1:2009.

Class E insulation system.

Insulation system up to 1.1kV.

Frequency of 50 / 60 Hz.

Ambient temperature range from  $-5^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ .

Maximum voltage of 750V.



TVT 100/3

A range of single-phase (1ph) and three-phase (3ph) voltage transformers (VT) for measuring and instrumentation. The designs are low loss with accuracy Classes of either 0.5 (0.5%), 1 (1%), and 3 (3%). Three-phase units wound with zero phase angle shift. Class E insulation is used on all types. Designs up to 750V can be produced. For other VT requirements please contact our sales department.

Reference	Number of Phases	VA Rating	Accuracy (Class)	Equivalent Frame	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)
SVT 10/0.5	1ph	10VA	0.5	SE 150	96	80	103	84	59	5	2.3
SVT 20/0.5	1ph	20VA	0.5	SE 300	120	100	120	90	82	5	4.7
SVT 30/0.5	1ph	30VA	0.5	SE 500	120	120	120	90	102	5	6.2
SVT 50/0.5	1ph	50VA	0.5	SE 750	150	108	140	122	84	6	7.6
SVT 100/0.5	1ph	100VA	0.5	SE 1000	150	125	140	122	101	6	9.8
SVT 20/1	1ph	20VA	1	SE 200	96	90	103	84	69	5	2.8
SVT 30/1	1ph	30VA	1	SE 300	120	100	120	90	82	5	4.7
SVT 50/1	1ph	50VA	1	SE 500	120	120	120	90	102	5	6.2
SVT 100/1	1ph	100VA	1	SE 750	150	108	140	122	84	6	7.6
SVT 150/1	1ph	150VA	1	SE 1000	150	125	140	122	101	6	9.8
SVT 30/3	1ph	30VA	3	SE 150	96	80	103	84	59	5	2.3
SVT 50/3	1ph	50VA	3	SE 250	120	88	120	90	70	5	3.9
SVT 100/3	1ph	100VA	3	SE 500	120	120	120	90	102	5	6.2
SVT 200/3	1ph	200VA	3	SE 750	150	108	140	122	84	6	7.6
SVT 300/3	1ph	300VA	3	SE 1000	150	125	140	122	101	6	9.8

Reference	Number of Phases	VA Rating	Accuracy (Class)	Equivalent Frame	L (mm)	W (mm)	H (mm)	FC L (mm)	FC W (mm)	FC diam. (mm)	Weight (kg)
TVT 10/0.5	3ph	10VA	0.5	TE 200	120	90	125	100	54	5	3
TVT 15/0.5	3ph	15VA	0.5	TE 350	150	100	150	125	50	5	4
TVT 20/0.5	3ph	20VA	0.5	TE 500	150	115	150	125	65	5	6
TVT 30/0.5	3ph	30VA	0.5	TE 650	180	120	190	150	60	6	8
TVT 50/0.5	3ph	50VA	0.5	TE 900	180	140	190	150	80	6	10
TVT 100/0.5	3ph	100VA	0.5	TE 1300	180	165	190	150	105	6	14
TVT 15/1	3ph	15VA	1	TE 120	120	80	125	100	44	5	2
TVT 20/1	3ph	20VA	1	TE 200	120	90	125	100	54	5	3
TVT 30/1	3ph	30VA	1	TE 350	150	100	150	125	50	5	4
TVT 50/1	3ph	50VA	1	TE 900	180	140	190	150	80	6	10
TVT 100/1	3ph	100VA	1	TE 1300	180	165	190	150	105	6	14
TVT 30/3	3ph	30VA	3	TE 120	120	80	125	100	44	5	2
TVT 50/3	3ph	50VA	3	TE 200	120	90	125	100	54	5	3
TVT 100/3	3ph	100VA	3	TE 350	150	100	150	125	50	5	4



Special connection requirements for 3ph transformers.

Insulation systems: Class E, Class F, or Class H (dependent on size).

Insulation system up to 1.1kV.

Frequency of 50 / 60 Hz.

Scott connection for 3ph to 2ph or 2ph to 3ph.

Le Blanc connection for 3ph to 2ph.

Also zig-zag, hex phase, PST connection options available.



*SCOT5000  
Scott-connected  
transformer*

As well as offering standard 3ph to 3ph and 3ph to 1ph connection options for custom-built transformers we can design and manufacture transformers with other special connection requirements using either standard or non-standard core frames. These connection configurations offer special solutions to some complex technical requirements such as phase load balancing, earth grounding, harmonic suppression, and phase displacement. Our current kVA capacity is up to 500kVA using standard three-phase vector groups. For other requirements please contact our sales department.

## **SCOTT CONNECTED 3PH TO 2PH OR 2PH TO 3PH**

There are applications where it is necessary to convert 3ph supplies to 2ph supplies and maintain a balanced load. This configuration can be used where there is an existing 2ph system needing a new supply from a 3ph system. The supply can be used to provide power for 2ph systems from a 3ph existing supply. This configuration can be used to interlink a 2ph system to a 3ph system or vice versa. If there are two single-phase loads that are not connected in any way they can be supplied from this configuration and the input load remains in balance.

## **LE BLANC CONNECTED 3PH TO 2PH**

Le Blanc transformers are an alternative to Scott connected transformers for transforming 3ph to 2ph supplies. This design method is an acceptable model. It is not as well known as the Scott connection method and therefore has not gained the same popularity.

## **ZIG-ZAG CONNECTED 3PH CONNECTION**

The delta zig-zag connection provides the same benefits as the conventional delta/star connection but it has some other main advantages. It is less costly for grounding purposes, better for third harmonic suppression, better for ground current isolation, and there is no phase angle displacement.

## **HEX PHASE AND PHASE SHIFTING TRANSFORMERS (PST)**

Hex phase and phase shifting transformers (PST) designs can be produced to customer requirements.

**To discuss your specific needs for any of the above special connection requirements please contact our technical sales department.**

Custom-built single-phase (1ph) autotransformers.

Can be either open or enclosed.

Non-safety isolating.

Insulation classes: Class E or Class F.

Ideal where the output voltage is similar to the input voltage and where safety isolation is not required.

Accessories include: plugs and sockets, castors, cooling fans, indicator lamps, meters, and mains isolator switches.



*1ph autotransformer*

A comprehensive range of custom-built single-phase (1ph) open or enclosed autotransformers.

Major reductions in both size and cost can be achieved using autotransformers. They should only be used in applications where an isolated output is not a safety requirement. Autotransformers are single winding units and offer no isolation between input and output circuits. They are frequently used to adjust voltages for exported or imported machines or equipment.

Our sales department will calculate the size and cost reductions where autotransformers can be utilised.

Autotransformer Type	Design and Specification Criteria
Single-phase open-type	Up to 1,000V and less than 500A; naturally air cooled
Single-phase enclosed in standard IP20 to IP23 enclosures	Up to 1,000V and less than 500A per phase; naturally air cooled or fan cooled
Single-phase enclosed in IP65 or Ex enclosures	Up to 1,000V and less than 500A (dependent on enclosure size); naturally air cooled utilising high grade core materials

Custom-built three-phase (3ph) autotransformers.

Can be either open or enclosed.

Non-safety isolating.

Insulation classes: Class E or Class F.

Ideal where the output voltage(s) are similar to input voltage(s) and safety isolation is not required.

Accessories include plugs and sockets, castors, cooling fans, indicator lamps, meters, and mains isolator switches.



*3ph autotransformer*

A comprehensive range of custom-built three-phase (3ph) open or enclosed autotransformers.

Major reductions in both size and cost can be achieved using autotransformers. They should only be used in applications where an isolated output is not a safety requirement. Autotransformers are single winding units and offer no isolation between the input and the output circuits. They are frequently used to adjust voltages for exported or imported machines or equipment.

Our sales department will calculate the size and cost reductions where autotransformers can be utilised.

Autotransformer Type	Design and Specification Criteria
Three-phase open-type	Up to 1,000V and less than 500A per phase, naturally air cooled
Three-phase in IP23 enclosures	Up to 1,000V and less than 500A per phase, naturally air cooled or fan cooled
Three-phase enclosed in IP65 or Ex enclosures	Up to 1,000V and less than 500A per phase (dependent on enclosure size); naturally air cooled utilising high grade core materials



# CUSTOM-BUILT RANGE OF THREE-PHASE AUTO WOUND MOTOR STARTING TRANSFORMERS

Class E or Class F options.

2-6 starts per hour, 7-15 starts per hour, and 16-40 starts per hour.

Maximum run up/start time 45 seconds.

Minimum tapping 40%.

Can be either open or enclosed from IP23 to IP55.



Auto wound motor starting transformer

Two ranges of either Class E (120 °C) or Class F (155 °C) auto wound motor starting transformers. These units are custom-built and can be supplied as open or enclosed units. All transformers are air cooled and fully varnish impregnated with a Class H varnish finish. Connections are via high current, non-rotating stud terminals. These connections are shrouded with a Perspex cover plate. Heat sensors or thermal cutouts can be fitted to each winding. A full range of ventilated enclosures is available for all types.

Reference (Class E) 2-6 Starts per hour	Size (Class E)	HP Rating	kW Rating	Reference (Class E) 7-15 Starts per hour	Size (Class E)	HP Rating	kW Rating	Reference (Class E) 16-40 Starts per hour	Size (Class E)	HP Rating	kW Rating	Enclosure Reference
MS/20/2-6/E	TE 2400	20	15	MS/13/7-15/E	TE 2400	13	10	MS/9/16-40/E	TE 2400	9	7	EPN 4
MS/27/2-6/E	TE 3200	27	20	MS/20/7-15/E	TE 3200	20	15	MS/12/16-40/E	TE 3200	12	9	EPN 4
MS/34/2-6/E	TE 4000	34	25	MS/27/7-15/E	TE 4000	27	20	MS/13/16-40/E	TE 4000	13	10	ETT 2
MS/40/2-6/E	TE 5000	40	30	MS/34/7-15/E	TE 5000	34	25	MS/16/16-40/E	TE 5000	16	12	ETT 2
MS/47/2-6/E	TE 6000	47	35	MS/40/7-15/E	TE 6000	40	30	MS/18/16-40/E	TE 6000	18	13	ETT 2
MS/60/2-6/E	TE 7000	60	45	MS/47/7-15/E	TE 7000	47	35	MS/22/16-40/E	TE 7000	22	16	ETT 3
MS/74/2-6/E	TE 8000	74	55	MS/53/7-15/E	TE 8000	53	40	MS/27/16-40/E	TE 8000	27	20	ETT 3
MS/107/2-6/E	TE 10000	107	80	MS/67/7-15/E	TE 10000	67	50	MS/32/16-40/E	TE 10000	32	24	ETT 3
MS/134/2-6/E	TE 12500	134	100	MS/80/7-15/E	TE 12500	80	60	MS/40/16-40/E	TE 12500	40	30	ETT 3
MS/175/2-6/E	TE 16000	175	130	MS/107/7-15/E	TE 16000	107	80	MS/51/16-40/E	TE 16000	51	38	ETT 3
MS/215/2-6/E	TE 20000	215	160	MS/134/7-15/E	TE 20000	134	100	MS/65/16-40/E	TE 20000	65	48	ETT 4
MS/270/2-6/E	TE 25000	270	200	MS/160/7-15/E	TE 25000	160	120	MS/80/16-40/E	TE 25000	80	60	ETT 4
MS/335/2-6/E	TE 31500	335	250	MS/200/7-15/E	TE 31500	200	150	MS/100/16-40/E	TE 31500	100	75	ETT 5
MS/430/2-6/E	TE 40000	430	320	MS/255/7-15/E	TE 40000	255	190	MS/134/16-40/E	TE 40000	134	100	ETT 5
MS/540/2-6/E	TE 50000	540	400	MS/320/7-15/E	TE 50000	320	240	MS/160/16-40/E	TE 50000	160	120	ETT 5

Reference (Class F) 2-6 Starts per hour	Size (Class E)	HP Rating	kW Rating	Reference (Class F) 7-15 Starts per hour	Size (Class E)	HP Rating	kW Rating	Reference (Class F) 16-40 Starts per hour	Size (Class E)	HP Rating	kW Rating	Enclosure Reference
MS/134/2-6/F	TE 10000	134	100	MS/80/7-15/F	TE 10000	80	60	MS/40/16-40/F	TE 10000	40	30	ETT 3
MS/175/2-6/F	TE 12500	175	130	MS/107/7-15/F	TE 12500	107	80	MS/51/16-40/F	TE 12500	51	38	ETT 3
MS/215/2-6/F	TE 16000	215	160	MS/134/7-15/F	TE 16000	134	100	MS/65/16-40/F	TE 16000	65	48	ETT 3
MS/270/2-6/F	TE 20000	270	200	MS/160/7-15/F	TE 20000	160	120	MS/80/16-40/F	TE 20000	80	60	ETT 4
MS/335/2-6/F	TE 25000	335	250	MS/200/7-15/F	TE 25000	200	150	MS/100/16-40/F	TE 25000	100	75	ETT 4
MS/430/2-6/F	TE 31500	430	320	MS/255/7-15/F	TE 31500	255	190	MS/134/16-40/F	TE 31500	134	100	ETT 5
MS/540/2-6/F	TE 40000	540	400	MS/320/7-15/F	TE 40000	320	240	MS/160/16-40/F	TE 40000	160	120	ETT 5
MS/670/2-6/F	TE 50000	670	500	MS/400/7-15/F	TE 50000	400	300	MS/174/16-40/F	TE 50000	174	130	ETT 5

**\*To allow for increased height including stud terminals add 120 mm\***

**Information required when ordering:**

Line/line voltage, frequency, HP or KW rating, Class of insulation (E or F), whether the transformer is to be open or enclosed, number of starts per hour, % voltage tapplings, whether a thermistor or auto reset cutout is to be fitted, and run up time (if in excess of 45 seconds).

# SINGLE-PHASE OPEN-TYPE VARIABLE AUTOTRANSFORMERS FOR PANEL MOUNTING FROM 1A TO 60A

Open-type single-phase (1ph) range of variable autotransformers for panel mounting from 1A to 60A (motorised versions from 4A to 60A).

Standard input 240V 50 Hz; output 0...270V 50 Hz 1ph.

High efficiency with no output voltage distortion.

Ambient temperature rating up to 45 °C.

Long life, high quality wiper design.



\*Stock items

6F-1

A comprehensive range of single-phase (1ph) variable autotransformers covering ratings from 1A to 60A. Used for the variable control of voltages from 0V up to 270V 1ph with low power losses. Units are open-type with the option of double wound transformers to give total isolation. The units can also be supplied to give a variable DC output via a bridge rectifier. Larger units can be supplied by paralleling two or more stacked versions. All types can be fully protected from overload and short circuits. They can also be fitted with full metering if required. The unique silver or nickel plated wiper path design gives high reliability and long life. All windings are wound on high quality, low loss toroidal cores, giving efficiencies up to 98%.

Reference	Description	Input Voltage	Output Voltage	Output Current	Maximum VA Rating	L (mm)	W (mm)	H (mm)	Shaft diam. (mm)	Shaft L (mm)	Weight (kg)
1F-1	For panel mounting 1ph	240V	0...270V	1A	270VA	85.0	105.0	100.0	4.0	25.0	1.6
2F-1*	For panel mounting 1ph	240V	0...270V	2A	540VA	110.0	140.0	125.0	7.5	31.0	2.9
3F-1	For panel mounting 1ph	240V	0...270V	3A	810VA	110.0	140.0	135.0	7.5	31.0	3.3
4F-1	For panel mounting 1ph	240V	0...270V	4A	1.08kVA	175.0	195.0	150.0	10.0	41.0	5.9
6F-1*	For panel mounting 1ph	240V	0...270V	6A	1.62kVA	175.0	195.0	165.0	10.0	41.0	6.8
8F-1	For panel mounting 1ph	240V	0...270V	8A	2.16kVA	175.0	195.0	175.0	10.0	41.0	8.0
10F-1*	For panel mounting 1ph	240V	0...270V	10A	2.70kVA	175.0	195.0	185.0	10.0	41.0	9.0
15F-1	For panel mounting 1ph	240V	0...270V	15A	4.05kVA	200.0	250.0	180.0	10.0	41.0	13.5
20F-1*	For panel mounting 1ph	240V	0...270V	20A	5.40kVA	200.0	250.0	190.0	10.0	41.0	15.0
28F-1*	For panel mounting 1ph	240V	0...270V	28A	7.56kVA	295.0	325.0	230.0	10.0	41.0	22.0
40F-1	For panel mounting 1ph	240V	0...270V	40A	10.80kVA	418.0	333.0	340.0	15.8	122.0	30.0
50F-1	For panel mounting 1ph	240V	0...270V	50A	13.50kVA	418.0	333.0	340.0	15.8	116.0	31.0
60F-1	For panel mounting 1ph	240V	0...270V	60A	16.20kVA	418.0	333.0	340.0	15.8	101.0	32.0

A comprehensive range of single-phase (1ph) motorised variable autotransformers covering ratings from 4A to 60A. Used for the variable control of voltages from 0V up to 270V 1ph with low power losses. Units are open-type with the option of double wound transformers to give total isolation. The units can also be supplied to give a variable DC output via a bridge rectifier. Larger units can be supplied by paralleling two or more stacked versions. All types can be fully protected from overload and short circuits. They can also be fitted with full metering if required. The unique silver or nickel plated wiper path design gives high reliability and long life. All windings are wound on high quality, low loss toroidal cores, giving efficiencies up to 98%.

Reference	Description	Input Voltage	Output Voltage	Output Current	Maximum VA Rating	L (mm)	W (mm)	H (mm)	Shaft diam. (mm)	Weight (kg)
4FM-1	For panel mounting 1ph	240V	0...270V	4A	1.08kVA	230.0	210.0	255.0	9.5	7.8
6FM-1	For panel mounting 1ph	240V	0...270V	6A	1.62kVA	230.0	210.0	255.0	9.5	9.4
8FM-1	For panel mounting 1ph	240V	0...270V	8A	2.16kVA	230.0	210.0	255.0	9.5	9.3
10FM-1	For panel mounting 1ph	240V	0...270V	10A	2.70kVA	230.0	210.0	255.0	9.5	10.6
12FM-1	For panel mounting 1ph	240V	0...270V	12A	3.24kVA	230.0	210.0	255.0	9.5	12.4
15FM-1	For panel mounting 1ph	240V	0...270V	15A	4.05kVA	250.0	210.0	330.0	15.8	15.7
20FM-1	For panel mounting 1ph	240V	0...270V	20A	5.40kVA	250.0	210.0	330.0	15.8	18.3
25FM-1	For panel mounting 1ph	240V	0...270V	25A	6.75kVA	250.0	210.0	330.0	15.8	20.3
28FM-1	For panel mounting 1ph	240V	0...270V	28A	7.56kVA	280.0	280.0	350.0	15.8	26.7
30FM-1	For panel mounting 1ph	240V	0...270V	30A	8.10kVA	280.0	280.0	350.0	15.8	28.9
40FM-1	For panel mounting 1ph	240V	0...270V	40A	10.80kVA	425.0	337.0	387.0	15.8	31.0
50FM-1	For panel mounting 1ph	240V	0...270V	50A	13.50kVA	425.0	337.0	387.0	15.8	32.0
60FM-1	For panel mounting 1ph	240V	0...270V	60A	16.20kVA	425.0	337.0	387.0	15.8	33.0

# SINGLE-PHASE ENCLOSED VARIABLE AUTOTRANSFORMERS FOR BENCH MOUNTING FROM 1A TO 28A

Enclosed single-phase (1ph) range of autotransformers for bench mounting from 1A to 28A.

Standard input 240V 50 Hz; output 0...270V 50 Hz 1ph.

High efficiency with no output voltage distortion.

Ambient temperature rating up to 45 °C.

Long life, high quality wiper design.



\*Stock items

6P-1

A comprehensive range of single-phase (1ph) variable autotransformers with output currents from 1A to 28A. Used for the variable control of voltages from 0V up to 270V 1ph with low power losses. IP23 enclosed-type with the option of double wound transformers to give total isolation. Units can also be supplied to give a variable DC output via a bridge rectifier. Larger units can be supplied by paralleling two or more stacked versions. All types can be fully protected from overload and short circuits. Can be fitted with full metering if required. The unique silver or nickel plated wiper path design gives high reliability and long life. All windings are wound on high quality, low loss toroidal cores, giving efficiencies up to 98%.

Reference	Description	Input Voltage	Output Voltage	Output Current	Maximum VA Rating	L (mm)	W (mm)	H (mm)	Weight (kg)
1P-1	For test bench mounting 1ph	240V	0...270V	1A	270VA	125	130	130	2.3
2P-1*	For test bench mounting 1ph	240V	0...270V	2A	540VA	130	130	155	4.2
3P-1	For test bench mounting 1ph	240V	0...270V	3A	810VA	130	130	155	4.6
4P-1	For test bench mounting 1ph	240V	0...270V	4A	1.08kVA	175	225	160	7.5
6P-1*	For test bench mounting 1ph	240V	0...270V	6A	1.62kVA	175	225	160	8.0
8P-1	For test bench mounting 1ph	240V	0...270V	8A	2.16kVA	175	225	185	9.5
10P-1*	For test bench mounting 1ph	240V	0...270V	10A	2.70kVA	175	225	185	10.0
15P-1	For test bench mounting 1ph	240V	0...270V	15A	4.05kVA	235	270	200	15.5
20P-1*	For test bench mounting 1ph	240V	0...270V	20A	5.40kVA	235	270	200	18.0
28P-1	For test bench mounting 1ph	240V	0...270V	28A	7.56kVA	320	375	225	26.0

# THREE-PHASE OPEN-TYPE VARIABLE AUTOTRANSFORMERS FOR FLOOR MOUNTING FROM 1A TO 60A

Open-type three-phase range (3ph) of variable autotransformers for floor mounting from 1A to 60A per phase (motorised versions from 4A to 60A per phase).

Standard input 415V 50 Hz; output 0...470V 50 Hz 3ph.

High efficiency with no output voltage distortion.

Ambient temperature rating up to 45 °C.

Long life, high quality wiper design.

\*Stock items



20F-3

A comprehensive range of three-phase (3ph) variable autotransformers covering ratings from 1A to 60A per phase. Used for the variable control of voltages from 0V up to 470V 3ph with low power losses. Units are open-type with the option of double wound transformers to give total isolation. Units can also be supplied to give a variable DC output via a bridge rectifier. Larger units can be supplied by paralleling two or more stacked versions. All types can be fully protected from overload and short circuits. They can also be fitted with full metering if required. The unique silver or nickel plated wiper path design gives high reliability and long life. All windings are wound on high quality, low loss toroidal cores giving efficiencies up to 98%.

Reference	Description	Input Voltage	Output Voltage	Output Current	Maximum VA Rating	L (mm)	W (mm)	H (mm)	Shaft diam. (mm)	Shaft L (mm)	Weight (kg)
2F-3*	For floor mounting 3ph	415V	0...470V	2A	1.63kVA	110.0	140.0	360.0	7.5	30.0	9.7
3F-3	For floor mounting 3ph	415V	0...470V	3A	2.44kVA	110.0	140.0	360.0	7.5	30.0	10.9
4F-3	For floor mounting 3ph	415V	0...470V	4A	3.26kVA	175.0	195.0	410.0	10.0	50.0	19.4
6F-3*	For floor mounting 3ph	415V	0...470V	6A	4.89kVA	175.0	195.0	410.0	10.0	50.0	22.0
8F-3	For floor mounting 3ph	415V	0...470V	8A	6.51kVA	175.0	195.0	410.0	10.0	50.0	26.0
10F-3*	For floor mounting 3ph	415V	0...470V	10A	8.14kVA	175.0	195.0	410.0	10.0	50.0	29.1
15F-3	For floor mounting 3ph	415V	0...470V	15A	12.21kVA	220.0	250.0	465.0	10.0	50.0	41.0
20F-3*	For floor mounting 3ph	415V	0...470V	20A	16.28kVA	220.0	250.0	465.0	10.0	50.0	49.0
28F-3	For floor mounting 3ph	415V	0...470V	28A	22.79kVA	325.0	325.0	535.0	10.0	50.0	75.0
40F-3	For floor mounting 3ph	415V	0...470V	40A	32.56kVA	418.0	333.0	340.0	15.8	140.0	94.0
50F-3	For floor mounting 3ph	415V	0...470V	50A	40.70kVA	418.0	333.0	340.0	15.8	140.0	97.0
60F-3	For floor mounting 3ph	415V	0...470V	60A	48.84kVA	418.0	333.0	340.0	15.8	140.0	100.0

A comprehensive range of three-phase (3ph) motorised variable autotransformers covering ratings from 4A to 60A per phase. Used for the variable control of voltages from 0V up to 470V 3ph with low power losses. Units are open-type with the option of double wound transformers to give total isolation. Units can also be supplied to give a variable DC output via a bridge rectifier. Larger units can be supplied by paralleling two or more stacked versions. All types can be fully protected from overload and short circuits. They can also be fitted with full metering if required. The unique silver or nickel plated wiper path design gives high reliability and long life. All windings are wound on high quality, low loss toroidal cores giving efficiencies up to 98%.

Reference	Description	Input Voltage	Output Voltage	Output Current	Maximum VA Rating	L (mm)	W (mm)	H (mm)	Shaft diam. (mm)	Weight (kg)
4FM-3	For floor mounting 3ph	415V	0...470V	4A	3.26kVA	230.0	210.0	660.0	9.5	21.8
6FM-3	For floor mounting 3ph	415V	0...470V	6A	4.89kVA	230.0	210.0	660.0	9.5	24.5
8FM-3	For floor mounting 3ph	415V	0...470V	8A	6.51kVA	230.0	210.0	660.0	9.5	28.4
10FM-3	For floor mounting 3ph	415V	0...470V	10A	8.14kVA	230.0	210.0	660.0	9.5	31.5
12FM-3	For floor mounting 3ph	415V	0...470V	12A	9.77kVA	230.0	210.0	660.0	9.5	34.5
15FM-3	For floor mounting 3ph	415V	0...470V	15A	12.21kVA	250.0	210.0	710.0	15.8	43.5
20FM-3	For floor mounting 3ph	415V	0...470V	20A	16.28kVA	250.0	210.0	710.0	15.8	51.5
25FM-3	For floor mounting 3ph	415V	0...470V	25A	20.35kVA	250.0	210.0	710.0	15.8	56.0
28FM-3	For floor mounting 3ph	415V	0...470V	28A	22.79kVA	280.0	280.0	760.0	15.8	77.8
40FM-3	For floor mounting 3ph	415V	0...470V	40A	32.56kVA	425.0	337.0	588.0	15.8	94.0
50FM-3	For floor mounting 3ph	415V	0...470V	50A	40.70kVA	425.0	337.0	588.0	15.8	97.0
60FM-3	For floor mounting 3ph	415V	0...470V	60A	48.84kVA	425.0	337.0	588.0	15.8	100.0

## THREE-PHASE ENCLOSED FREE STANDING VARIABLE AUTOTRANSFORMERS FROM 1A TO 28A

Enclosed three-phase (3ph) range of free standing variable autotransformers from 1A to 28A.

Standard input 415V 50 Hz; output 0...470V 50 Hz 3ph.

High efficiency with no output voltage distortion.

Ambient temperature rating up to 45 °C.

Long life, high quality wiper design.

\*Stock items



2P-3

A comprehensive range of three-phase variable autotransformers covering ratings from 1A to 28A per phase. Used for the variable control of voltages from 0V up to 470V 3ph with low power losses. IP23 enclosed-type with the option of double wound transformers to give total isolation. Units can also be supplied to give a variable DC output via a bridge rectifier. Larger units can be supplied by paralleling two or more stacked versions. All types can be fully protected from overload and short circuits. They can also be fitted with full metering if required. The unique silver or nickel plated wiper path design gives high reliability and long life. All windings are wound on high quality, low loss toroidal cores giving efficiencies up to 98%.

Reference	Description	Input Voltage	Output Voltage	Output Current	Maximum VA Rating	L (mm)	W (mm)	H (mm)	Weight (kg)
1P-3	Free standing 3ph	415V	0...470V	1A	814VA	120	150	270	7.3
2P-3*	Free standing 3ph	415V	0...470V	2A	1.63kVA	170	145	430	13.0
3P-3	Free standing 3ph	415V	0...470V	3A	2.44kVA	170	145	430	13.5
4P-3	Free standing 3ph	415V	0...470V	4A	3.26kVA	190	245	520	27.5
6P-3*	Free standing 3ph	415V	0...470V	6A	4.89kVA	190	245	520	29.0
8P-3	Free standing 3ph	415V	0...470V	8A	6.51kVA	190	245	520	32.0
10P-3*	Free standing 3ph	415V	0...470V	10A	8.14kVA	190	245	520	34.0
15P-3	Free standing 3ph	415V	0...470V	15A	12.21kVA	240	310	560	51.5
20P-3*	Free standing 3ph	415V	0...470V	20A	16.28kVA	240	310	560	59.0
28P-3	Free standing 3ph	415V	0...470V	28A	22.79kVA	240	400	630	86.0

Standard range of line reactors for AC motor controllers from 15A to 40A.

Fast delivery on standard listed designs.  
Economical and compact sizes.  
Class E insulation system.  
Easy to install.



LR 50uH0015A

A comprehensive range of standard design inductive reactors used in conjunction with AC motor controllers. They are fitted to the input side of the drive and connected in with the incoming line. They help mitigate harmonics and are able to act as a buffer for surges and other transients. This will cause a typical volt drop of between 2-4% of the nominal mains voltage. This can cause under voltage trips in the system where the input voltage is not stable. Also this voltage drop can lower the DC bus voltage and negatively affect the output of the drive. These chokes are supplied with a fast delivery and economical pricing. The insulation class is Class E.

The LR 50uH0015A has an inductance value of 50uH and a maximum current rating of 15A. It is supplied with IP20 touch-proof terminals with cable capacity of up to 4 mm<sup>2</sup>.

Reference	Inductance and Current	L (mm)	W (mm)	H (mm)	FC L (mm)	FC min W (mm)	FC max W (mm)	FC diam. (mm)	Weight (kg)
LR 50uH0015A	50uH 15A	120	65	136	100	35	50	6	1.6

The LR 50uH0035A has an inductance value of 50uH and a maximum current rating of 35A. It is supplied with IP20 touch-proof terminals with cable capacity of up to 6 mm<sup>2</sup>.



LR 50uH0035A

Reference	Inductance and Current	L (mm)	W (mm)	H (mm)	FC L (mm)	FC min W (mm)	FC max W (mm)	FC diam. (mm)	Weight (kg)
LR 50uH0035A	50uH 35A	120	65	130	100	35	50	6	1.8

The LR 50uH0040A has an inductance value of 50uH and a maximum current rating of 40A. It is supplied with DIN rail mountable terminals with cable capacity of up to 10 mm<sup>2</sup>.



LR 50uH0040A

Reference	Inductance and Current	L (mm)	W (mm)	H (mm)	FC L (mm)	FC min W (mm)	FC max W (mm)	FC diam. (mm)	Weight (kg)
LR 50uH0040A	50uH 40A	65	88	160	100	35	50	6	2

Standard range of line reactors for AC motor controllers from 70A to 830A.

Fast delivery on standard listed designs.  
Economical and compact sizes.  
Class E insulation system.  
Easy to install.



LR 50uH00180A

A comprehensive range of standard design inductive reactors used in conjunction with AC motor controllers. They are fitted to the input side of the drive and connected in with the incoming line. They help mitigate harmonics and they are able to act as a buffer for surges and other transients. This will cause a typical volt drop of between 2-4% of the nominal mains voltage. This can cause under voltage trips in the systems where the input voltage is not stable. Also this voltage drop can lower the DC bus voltage and negatively affect the output of the drive. These chokes are supplied with a fast delivery and economical pricing. The insulation class is Class E.

The line reactors within this range have an inductance value of 50uH and current rating from 70A to 380A. There are 6 sizes and each are supplied with high current copper lug terminations.

Reference	Inductance and Current	L (mm)	W including terminals (mm)	H (mm)	FC L (mm)	FC min W (mm)	FC max W (mm)	FC diam. (mm)	Weight (kg)
LR 50uH0070A	50uH 70A	150	190	130	125	65	75	6	4.9
LR 50uH0110A	50uH 110A	180	210	150	150	70	90	8	8.4
LR 50uH0165A	50uH 165A	180	250	155	150	95	115	8	13.1
LR 50uH0180A	50uH 180A	240	260	210	200	170	190	8	13.2
LR 50uH0270A	50uH 270A	240	260	210	200	170	190	8	14.8
LR 50uH0380A	50uH 380A	240	260	210	200	170	190	8	15.1

The line reactors within this range have inductance values of either 20uH or 25uH and current ratings from 500A to 830A. The 3 sizes are each supplied with high conductivity copper busbar terminations pre-drilled as shown.



LR 20uH00725A

Reference	Inductance and Current	L (mm)	W (mm)	H including terminals (mm)	Busbar holes	FC L (mm)	FC min W (mm)	FC max W (mm)	FC diam. (mm)	Weight (kg)
LR 25uH0500A	25uH 500A	340	360	230	1 x 8 mm	270	290	310	12	29
LR 20uH0725A	20uH 725A	420	430	240	1 x 12 mm	300	355	380	15	51
LR 20uH0830A	20uH 830A	420	430	240	2 x 12 mm	300	355	380	15	47

Custom-built three-phase output chokes for use with inverter drives.

Custom-built DC link chokes.

Custom-built three-phase reactors/chokes and DC chokes.

Designed to customer requirements using either our standard design or customers' own drawings or specifications.



*3ph output choke*

Three-phase output chokes are used with inverter drives with long cable runs. Cable run is the accumulated actual cable length connected to the inverter output terminals feeding either single or multiple motors. They reduce both rising and falling times of output voltage edges and voltage peaks at the motor terminals. As such, they protect the motor and decrease current leakages caused by the long motor cables.

Information Required

Inductance, current rating, voltage, and specific frequency requirements

Dimensions and any special constructional requirements

These custom-built three-phase DC link chokes are connected between the rectifier and the DC bus and can be used to remove unwanted harmonics. They can be more or less effective than AC line reactors depending on the harmonics in the line and they add the necessary impedance for harmonic reduction without a drop in voltage. DC link chokes can also protect against current surges. Units can be produced to customers' own drawings and requirements.



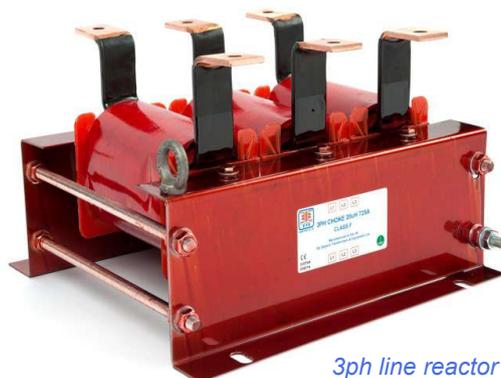
*DC link choke*

Information Required

Inductance, current rating, and voltage

Dimensions and any special constructional requirements

A comprehensive range of custom-built AC reactors and DC chokes. These reactors and chokes are custom-built or can be designed to customer drawings or requirements. Where dimensions are not critical these units are designed around our standard frame sizes. Alternatively units can be produced to customers' own drawings and requirements.



*3ph line reactor*

Information Required

Inductance, current rating, voltage, and frequency requirements

Dimensions and any special constructional requirements

Products manufactured by ETE are produced to the highest standards and each unit is fully tested and inspected prior to despatch. Simple test certificates or certificates of conformity can be issued if required. Where fully documented test and inspection reports are required however, complete routine or routine and type testing can be carried out to IEC 60076-1:2001. Contact our sales team for more information regarding these test procedures and costs.

The tests and inspections are as follows:

**IEC 60076-1 Clause 3.11.1 states:**

**Routine test:** A test to which each individual transformer is subjected.

**Documented routine tests include:**

- Measurement of winding resistances (Clause 11.2.1 General)
- Measurement of voltage ratio and check for phase displacement (Clause 1.3).
- Measurement of short-circuit impedance and load loss (Clause 11.4)
- Measurement of the no load loss and current (Clause 11.5)
- Dielectric routine tests (IEC 60076-3)
- Induced voltage test using 2 x working voltage at 100 Hz (using 100 Hz generator)

**Additional tests (if required):**

- Sound measurement test using digital sound meter at 1 m

**The following inspection references are also included:**

- Inspection of overall finish
- Inspection of terminations and connections
- Inspection of fixings and overall measurements to drawings
- Inspection of markings and labelling

**IEC 60076-1 Clause 3.11.2 states:**

**Type test:** A test made on a transformer which is representative of other transformers, to demonstrate that these transformers comply with the specified requirements not covered by the routine tests. A transformer is considered to be representative of others if it is built to the same drawings using the same techniques and materials in the same factory.

**Documented type tests include:**

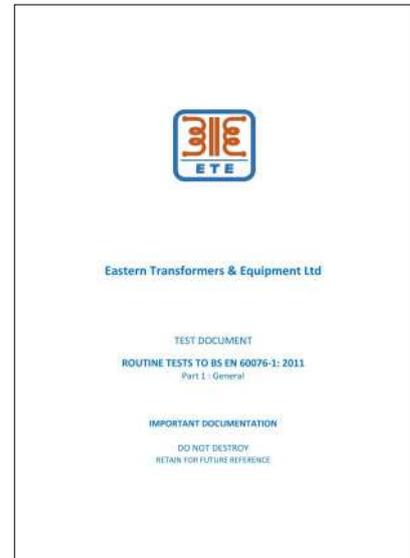
- All of the documented routine tests listed above
- Temperature-rise type test (IEC 60076-2 - Clause 1.1.3a)

**Additional tests (if required):**

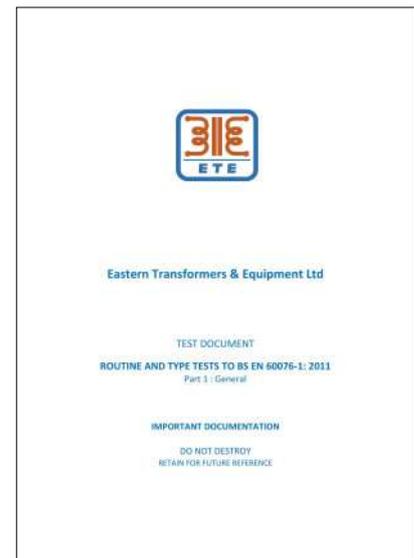
- Plotted temperature rise graph to peak running temperature
- Dielectric type tests (IEC 60076-3 - Clause 11.1.3b)
- Determination of sound level (IEC 60076-10) for each method of cooling for which a guaranteed sound level is specified (Clause 11.1.3c)

**Further additional tests (if applicable):**

- Measurement of power taken by the fan and liquid pump motors (Clause 11.1.3d)
- Measurement of no load loss and current at 90% and 110% of rated voltage (Clause 11.1.3e)



*Routine tests documentation*



*Routine and type tests documentation*

ETE is a leading UK transformer manufacturer as well as an key National Distributor of a variety of power electronics for the controls and automation markets. Our range of power supplies is one of the most comprehensive in the whole UK with a wide selection of units available from stock on a next day delivery. In addition, we offer comprehensive ranges of EMC filters, UPS units, industrial battery chargers, and much more.

## Contents Summary



# Power Electronics



Approved UK  
National Distributor



- DIN Rail Switched-Mode Power Supplies
- Enclosed Switched-Mode Power Supplies
- Open-Frame Switched-Mode Power Supplies
- Security Series of Switched-Mode Power Supplies
- LED Drivers
- All-in-One Battery Chargers, Power Supplies, and UPS Units
- Battery Chargers
- Uninterruptible Power Supplies (UPS)
- Enclosed DC to DC Converters
- 1ph and 3ph EMC Filters
- Much more...

ETE's power products cover a wide range of application criteria. Our technical team is ready to assist in the selection and pricing of your requirements whatever the quantity. We represent some of the world's leading power product manufacturers, many of whom are exclusive to ETE within the UK. A wide variety of our product ranges are available ex stock through us directly or via our extensive network of UK distributors.

## Detailed Contents

# Power Electronics

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Competitive prices and ex stock for immediate despatch.

High quality and approved to EN, UL and CE.

Rated from 10 Watts to 100 Watts.

Narrow profile optimising the space on the DIN rail.

Wide input range 85V~264V AC 1ph.

Output voltages of 5V, 12V, 15V, 24V, and 48V DC.

EMC standards: EN 55022 Class B, EN 61000-3-2/3 (All), and EN 55024.



MDR-20-24

A high quality, highly cost-effective range of DIN rail mountable switched-mode power supplies from 10W to 100W. These units possess a special narrow profile perfect for optimising space on the DIN rail where space is of a premium. All units are available ex stock for immediate despatch, usually, on a next day delivery. They are available with a variety of output voltages including 5V, 12V, 15V, 24V, and 48V DC. The models are approved to EN and UL standards and are CE marked. They have universal inputs and all units are fully protected against overload, short circuit, and over voltage. Each is subjected to a 100% full load burn-in test and an LED indicator lights up to signal 'power on'. Units have a DC output adjuster to increase the rated output voltage and safety standards are to EN and UL requirements. The ambient temperature range of the power supplies within this series is from -15 °C to +55 °C and all models have a full 3 year warranty.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x D x H (mm)
MDR-10-5	10 Watt	85~264V AC 1ph 120~370V DC	5V DC 2.00A	+/- 1.0%	80mVp-p	77%	22.5 x 100.0 x 90.0
MDR-10-12	10 Watt	85~264V AC 1ph 120~370V DC	12V DC 0.80A	+/- 1.0%	120mVp-p	81%	22.5 x 100.0 x 90.0
MDR-10-15	10 Watt	85~264V AC 1ph 120~370V DC	15V DC 0.60A	+/- 1.0%	120mVp-p	81%	22.5 x 100.0 x 90.0
MDR-10-24	10 Watt	85~264V AC 1ph 120~370V DC	24V DC 0.40A	+/- 1.0%	150mVp-p	84%	22.5 x 100.0 x 90.0
MDR-20-5	20 Watt	85~264V AC 1ph 120~370V DC	5V DC 3.00A	+/- 2.0%	80mVp-p	76%	22.5 x 100.0 x 90.0
MDR-20-12	20 Watt	85~264V AC 1ph 120~370V DC	12V DC 1.67A	+/- 1.0%	120mVp-p	80%	22.5 x 100.0 x 90.0
MDR-20-15	20 Watt	85~264V AC 1ph 120~370V DC	15V DC 1.34A	+/- 1.0%	120mVp-p	81%	22.5 x 100.0 x 90.0
MDR-20-24	20 Watt	85~264V AC 1ph 120~370V DC	24V DC 1.00A	+/- 1.0%	150mVp-p	84%	22.5 x 100.0 x 90.0
MDR-40-5	40 Watt	85~264V AC 1ph 120~370V DC	5V DC 6.00A	+/- 2.0%	80mVp-p	78%	40.0 x 100.0 x 90.0
MDR-40-12	40 Watt	85~264V AC 1ph 120~370V DC	12V DC 3.33A	+/- 1.0%	120mVp-p	86%	40.0 x 100.0 x 90.0
MDR-40-24	40 Watt	85~264V AC 1ph 120~370V DC	24V DC 1.70A	+/- 1.0%	150mVp-p	88%	40.0 x 100.0 x 90.0
MDR-40-48	40 Watt	85~264V AC 1ph 120~370V DC	48V DC 0.83A	+/- 1.0%	200mVp-p	88%	40.0 x 100.0 x 90.0
MDR-60-5	60 Watt	85~264V AC 1ph 120~370V DC	5V DC 10.00A	+/- 1.5%	80mVp-p	78%	40.0 x 100.0 x 90.0
MDR-60-12	60 Watt	85~264V AC 1ph 120~370V DC	12V DC 5.00A	+/- 1.0%	120mVp-p	86%	40.0 x 100.0 x 90.0
MDR-60-24	60 Watt	85~264V AC 1ph 120~370V DC	24V DC 2.50A	+/- 1.0%	150mVp-p	88%	40.0 x 100.0 x 90.0
MDR-60-48	60 Watt	85~264V AC 1ph 120~370V DC	48V DC 1.25A	+/- 1.0%	200mVp-p	87%	40.0 x 100.0 x 90.0
MDR-100-12	100 Watt	85~264V AC 1ph 120~370V DC	12V DC 7.50A	+/- 1.0%	120mVp-p	85%	55.0 x 100.0 x 90.0
MDR-100-24	100 Watt	85~264V AC 1ph 120~370V DC	24V DC 4.00A	+/- 1.0%	150mVp-p	86%	55.0 x 100.0 x 90.0
MDR-100-48	100 Watt	85~264V AC 1ph 120~370V DC	48V DC 2.00A	+/- 1.0%	200mVp-p	88%	55.0 x 100.0 x 90.0

Competitive prices and ex stock for immediate despatch.

To isolation Class II.

High quality and approved to UL, CUL, TUV, CB, and CE.

Ratings from 15 Watts to 100 Watts.

Input range from 85V to 264V AC 1ph.

Output voltages of 5V, 12V, 15V, and 24V.

EMC standards: EN 55024 Class B, EN 61000-2/3/4/5/6/8/11, EN 61000-6-2, EN 61204-3 Heavy Industry Level Criteria A.



DR-60-12

A high quality, highly cost-effective range of DIN rail mountable switched-mode power supplies from 15W to 100W. These units are designed to isolation Class II with no provision for earth and are ex stock for immediate despatch, usually, on a next day delivery. They are available in a variety of output voltages including 5V, 12V, 15V, and 24V. The models are approved to UL, CUL, and TUV standards and are CE marked. They have universal inputs of 85~264V AC 1ph in 15W, 30W, 60W, and 100W types and are fully protected against overload, short circuit, over voltage, and over temperature. Each is subjected to a 100% full load burn-in test and an LED indicator lights up to signal 'power on'. Units have a DC output adjuster to increase the rated output voltage and safety standards are to EN requirements (see above). The ambient temperature range of the power supplies within this series is from 0 °C to 45 °C and all models have a full 3 years warranty.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x D x H (mm)
DR-15-5	15 Watt	85~264V AC 1ph 120~370V DC	5V DC 2.40A	+/- 2%	80mVp-p	77%	25 x 56 x 93
DR-15-12	15 Watt	85~264V AC 1ph 120~370V DC	12V DC 1.25A	+/- 1%	120mVp-p	84%	25 x 56 x 93
DR-15-15	15 Watt	85~264V AC 1ph 120~370V DC	15V DC 1.00A	+/- 1%	120mVp-p	83%	25 x 56 x 93
DR-15-24	15 Watt	85~264V AC 1ph 120~370V DC	24V DC 0.63A	+/- 1%	150mVp-p	85%	25 x 56 x 93
DR-30-5	30 Watt	85~264V AC 1ph 120~370V DC	5V DC 3.00A	+/- 2%	80mVp-p	74%	78 x 56 x 93
DR-30-12	30 Watt	85~264V AC 1ph 120~370V DC	12V DC 2.00A	+/- 1%	120mVp-p	81%	78 x 56 x 93
DR-30-15	30 Watt	85~264V AC 1ph 120~370V DC	15V DC 2.00A	+/- 1%	120mVp-p	82%	78 x 56 x 93
DR-30-24	30 Watt	85~264V AC 1ph 120~370V DC	24V DC 1.50A	+/- 1%	150mVp-p	83%	78 x 56 x 93
DR-60-5	60 Watt	85~264V AC 1ph 120~370V DC	5V DC 6.50A	+/- 2%	80mVp-p	76%	78 x 56 x 93
DR-60-12	60 Watt	85~264V AC 1ph 120~370V DC	12V DC 4.50A	+/- 1%	120mVp-p	83%	78 x 56 x 93
DR-60-15	60 Watt	85~264V AC 1ph 120~370V DC	15V DC 4.00A	+/- 1%	120mVp-p	84%	78 x 56 x 93
DR-60-24	60 Watt	85~264V AC 1ph 120~370V DC	24V DC 2.50A	+/- 1%	150mVp-p	86%	78 x 56 x 93
DR-100-12	100 Watt	85~264V AC 1ph 120~370V DC	12V DC 7.50A	+/- 1%	120mVp-p	84%	100 x 56 x 93
DR-100-15	100 Watt	85~264V AC 1ph 120~370V DC	15V DC 6.50A	+/- 1%	120mVp-p	85%	100 x 56 x 93
DR-100-24	100 Watt	85~264V AC 1ph 120~370V DC	24V DC 4.20A	+/- 1%	150mVp-p	86%	100 x 56 x 93

- Competitive prices.
- High quality and approved to EN, UL, and CE.
- Complete with moulded case.
- Rated at 45 Watts.
- Wide input range of 85~240V AC 1ph.
- Output voltages of 5V, 12V, 15V, and 24V DC.
- EMC standards: EN 55022 Class B, EN 61000-3-2/3 (All), and EN 55024.
- Ambient temperature range from 0 °C to 45 °C.



DR-45-12

A high quality and highly cost-effective range of 45 Watt DIN rail mountable switched-mode power supplies in a moulded case. All units are ex stock and a variety of output voltages are available. They are approved to EN and UL and are CE marked. Models have universal inputs of 85~264V AC 1ph and all units are fully protected against overload, short circuit, and over voltage. The power supplies are subjected to a 100% full load burn-in test and possess a DC output adjuster to increase the rated output voltage. Each has an LED indicator to signal 'power on' and a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x D x H (mm)
DR-45-05	45 Watt	85~264V AC 1ph 120~370V DC	5V DC 5.0A	+/- 2%	100mVp-p	72%	78 x 67 x 93
DR-45-12	45 Watt	85~264V AC 1ph 120~370V DC	12V DC 3.5A	+/- 1%	200mVp-p	77%	78 x 67 x 93
DR-45-15	45 Watt	85~264V AC 1ph 120~370V DC	15V DC 2.8A	+/- 1%	240mVp-p	77%	78 x 67 x 93
DR-45-24	45 Watt	85~264V AC 1ph 120~370V DC	24V DC 2.0A	+/- 1%	480mVp-p	80%	78 x 67 x 93

- Competitive prices and ex stock for immediate despatch.
- High quality and approved to UL, CUL, TUV, CB, and CE.
- Ratings from 75 Watts to 480 Watts with a wide input range.
- Output voltages of 12V, 24V, and 48V DC.

EMC standards: EN 55022 Class B, EN 61000-3-2/3, EN 61000-4-2/3/4/5/6/8/11, and EN 61000-6-2.



DR-75-12

A high quality and highly cost-effective ex stock range of DIN rail mountable switched-mode power supplies from 75W to 480W. These units are available with a variety of output voltages and are fully approved to UL, CUL, TUV, CB, and CE. They have universal inputs of 85~264V AC 1ph in 75W and 240W models. The 120W range is from 88~264V AC 1ph selected by a switch and the 480W units have inputs of either 180~264V AC 1ph or 90~264V AC 1ph. All units are fully protected against overload, short circuit, over voltage, and over temperature and have an LED 'power on' indicator. Each is subjected to a 100% full load burn-in test and meet the EN 505022 Class B, EN 61000-2-3/3, EN 61000-4-2/3/4/5/6/8/11, and EN 61000-6-2 safety standards. All models have a DC output adjuster to provide +10% of rated output voltage. They are designed for an ambient temperature range of between -10 °C and +60 °C (DR-75/120) or -20 °C and +70 (DRP-240/480) and have a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x D x H (mm)
DR-75-12	75 Watt	85~264V AC 1ph 120~370V DC	12V DC 6.3A	+/- 2%	100mVp-p	76%	55.5 x 100.0 x 25.2
DR-75-24	75 Watt	85~264V AC 1ph 120~370V DC	24V DC 3.2A	+/- 1%	150mVp-p	80%	55.5 x 100.0 x 125.2
DR-75-48	75 Watt	85~264V AC 1ph 120~370V DC	48V DC 1.6A	+/- 1%	240mVp-p	81%	55.5 x 100.0 x 125.2
DR-120-12	120 Watt	88~132V / 176~264V AC 1ph 248~370V DC	12V DC 10.0A	+/- 2%	80mVp-p	80%	65.5 x 100.0 x 125.2
DR-120-24	120 Watt	88~132V / 176~264V AC 1ph 248~370V DC	24V DC 5.0A	+/- 1%	80mVp-p	84%	65.5 x 100.0 x 125.2
DR-120-48	120 Watt	88~132V / 176~264V AC 1ph 248~370V DC	48V DC 2.5A	+/- 1%	100mVp-p	85%	65.5 x 100.0 x 125.2
DRP-240-24	240 Watt	85~264V AC 1ph 120~370V DC	24V DC 10.0A	+/- 1%	80mVp-p	84%	125.5 x 100.0 x 125.2
DRP-240-48	240 Watt	85~264V AC 1ph 120~370V DC	48V DC 5.0A	+/- 1%	150mVp-p	85%	125.5 x 100.0 x 125.2
DRP-480-24	480 Watt	180~264V AC 1ph 254~370V DC	24V DC 20.0A	+/- 1%	120mVp-p	89%	227.0 x 100.0 x 125.2
DRP-480-48	480 Watt	180~264V AC 1ph 254~370V DC	48V DC 10.0A	+/- 1%	120mVp-p	89%	227.0 x 100.0 x 125.2
DRP-480S-24	480 Watt	90~132V / 180~264V AC 1ph 254~370V DC	24V DC 20.0A	+/- 1%	120mVp-p	89%	227.0 x 100.0 x 125.2
DRP-480S-48	480 Watt	90~132V / 180~264V AC 1ph 254~370V DC	48V DC 10.0A	+/- 1%	120mVp-p	89%	227.0 x 100.0 x 125.2



# STOCK RANGES OF AC TO DC DIN RAIL MOUNTABLE SWITCHED-MODE POWER SUPPLIES FROM 120 WATTS TO 960 WATTS

- Two-wire (2ph) and three-phase (3ph) inputs.
- Competitive prices and ex stock for immediate despatch.
- High quality and approved to UL, CUL, TUV, CB, and CE.
- Ratings from 120 Watts to 960 Watts.

Input ranges of 340~550V 2ph (120W models) and 340~550V 3ph (240W, 480W, and 960W models).

Output voltages of 12V, 24V and 48V DC.

EMC standards: EN 55022 Class B, EN 61000-3-2/3, EN 61000-4-2/3/4/5/6/8/11, and EN 61000-6-2.



DRT-240-24

A high quality and highly cost-effective ex stock range of DIN rail mountable switched-mode power supplies from 120W to 960W. These units are available with a variety of output voltages and are fully approved to UL, CUL, TUV, CB, and CE. They have universal inputs of 340~550V AC 2ph in the 120W models and 340~550V AC 3ph in the 240W, 480W, and 960W models. All units are fully protected against overload, short circuit, over voltage, and over temperature and have an LED 'power on' indicator. Each unit is subjected to a 100% full load burn-in test and meet the EN 505022 Class B, EN 61000-2-3/3, EN 61000-4-2/3/4/5/6/8/11, and EN 61000-6-2 safety standards. All models have a DC output adjuster to provide +10% of rated output voltage. They are designed for an ambient temperature range of between 0 °C and 45 °C and have a full 3 year warranty.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x D x H (mm)
DRH-120-24	120 Watt	340~550V AC 2ph 480~780V DC	24V DC 5.0A	+/- 1%	80mVp-p	85%	65.5 x 100.0 x 125.2
DRH-120-48	120 Watt	340~550V AC 2ph 480~780V DC	48V DC 2.5A	+/- 1%	80mVp-p	85%	65.5 x 100.0 x 125.2
DRT-240-24	240 Watt	340~550V AC 3ph 480~780V DC	24V DC 10.0A	+/- 1%	80mVp-p	89%	125.5 x 100.0 x 125.2
DRT-240-48	240 Watt	340~550V AC 3ph 480~780V DC	48V DC 5.0A	+/- 1%	80mVp-p	89%	125.5 x 100.0 x 125.2
DRT-480-24	480 Watt	340~550V AC 3ph 480~780V DC	24V DC 20.0A	+/- 1%	80mVp-p	89%	227.0 x 100.0 x 125.2
DRT-480-48	480 Watt	340~550V AC 3ph 480~780V DC	48V DC 10.0A	+/- 1%	80mVp-p	89%	227.0 x 100.0 x 125.2
DRT-960-24	960 Watt	340~550V AC 3ph 480~780V DC	24V DC 40.0A	+/- 1%	80mVp-p	91%	275.0 x 100.0 x 125.2
DRT-960-48	960 Watt	340~550V AC 3ph 480~780V DC	48V DC 20.0A	+/- 1%	80mVp-p	92%	275.0 x 100.0 x 125.2

HDR economical and ultra slim DIN rail power supplies.

Ratings from 15 Watts to 30 Watts.

To isolation Class II.

Input range from 85V to 264V AC 1ph.

Output voltages of 5V, 12V, 15V, 24V, and 48V.

Approved to UL 60950-1, UL 508, TUV EN 61558-2-16, and IEC 60950-1 safety standards and CE marked.

Full 3 year warranty.



HDR-15-5

A high quality, highly cost-effective range of economical ultra slim DIN rail mountable switched-mode power supplies from 15W to 30W. These units are designed to isolation Class II with no provision for earth and are available in a variety of output voltages including 5V, 12V, 15V, 24V, and 48V. The models are approved to UL, CUL, and TUV standards and are CE marked. They have universal inputs of 85~264V AC 1ph in 15W and 30W types and are fully protected against overload, short circuit, and over voltage. Each has an LED indicator that lights up to signal 'power on' and a DC output adjuster to increase the rated output voltage. The models are ideal for a wide range of applications including household control systems, building automation, industrial control systems, factory automation, and electro-mechanical apparatus. Lastly, all units come with a full 3 year warranty for complete peace of mind.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x D x H (mm)
HDR-15-5	15 Watt	85~264V AC 1ph 120~370V DC	5V DC 2.40A	+/- 2.0%	80mVp-p	80.0%	17.5 x 54.5 x 90.0
HDR-15-12	15 Watt	85~264V AC 1ph 120~370V DC	12V DC 1.25A	+/- 1.0%	120mVp-p	85.0%	17.5 x 54.5 x 90.0
HDR-15-15	15 Watt	85~264V AC 1ph 120~370V DC	15V DC 1.00A	+/- 1.0%	120mVp-p	85.5%	17.5 x 54.5 x 90.0
HDR-15-24	15 Watt	85~264V AC 1ph 120~370V DC	24V DC 0.63A	+/- 1.0%	150mVp-p	86.0%	17.5 x 54.5 x 90.0
HDR-15-48	15 Watt	85~264V AC 1ph 120~370V DC	48V DC 0.32A	+/- 1.0%	240mVp-p	87.0%	17.5 x 54.5 x 90.0
HDR-30-5	30 Watt	85~264V AC 1ph 120~370V DC	5V DC 3.00A	+/- 2.0%	80mVp-p	82.0%	35.0 x 54.5 x 90.0
HDR-30-12	30 Watt	85~264V AC 1ph 120~370V DC	12V DC 2.00A	+/- 1.0%	120mVp-p	88.0%	35.0 x 54.5 x 90.0
HDR-30-15	30 Watt	85~264V AC 1ph 120~370V DC	15V DC 2.00A	+/- 1.0%	120mVp-p	89.0%	35.0 x 54.5 x 90.0
HDR-30-24	30 Watt	85~264V AC 1ph 120~370V DC	24V DC 1.50A	+/- 1.0%	150mVp-p	89.0%	35.0 x 54.5 x 90.0
HDR-30-48	30 Watt	85~264V AC 1ph 120~370V DC	48V DC 0.75A	+/- 1.0%	240mVp-p	90.0%	35.0 x 54.5 x 90.0

HDR economical and ultra slim DIN rail power supplies.  
 Ratings from 60 Watts to 100 Watts.  
 To isolation Class II.  
 Input range from 85V to 264V AC 1ph.  
 Output voltages of 5V, 12V, 15V, 24V, and 48V.  
 Approved to UL 60950-1, UL 508, TUV EN 61558-2-16,  
 and IEC 60950-1 safety standards and CE marked.  
 Full 3 year warranty.

**No suffix - 92W max; pass LPS with a narrower output adjustable range**

**N Type - 100 W max; non-LPS with a wider output adjustable range**



HDR-100-48

A high quality, highly cost-effective range of economical ultra slim DIN rail mountable switched-mode power supplies from 60W to 100W. These units are designed to isolation Class II with no provision for earth and are available in a variety of output voltages including 5V, 12V, 15V, 24V, and 48V. The models are approved to UL, CUL, and TUV standards and are CE marked. They have universal inputs of 85~264V AC 1ph in 60W and 100W types and are fully protected against overload, short circuit, and over voltage. Each has an LED indicator that lights up to signal 'power on' and a DC output adjuster to increase the rated output voltage. These models are ideal for a wide range of applications including household control systems, building automation, industrial control systems, factory automation, and electro-mechanical apparatus. Lastly, all units come with a full 3 year warranty for complete peace of mind.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x D x H (mm)
HDR-60-5	60 Watt	85~264V AC 1ph 120~370V DC	5V DC 6.50A	+/- 2.0%	80mVp-p	85%	52.5 x 54.5 x 90.0
HDR-60-12	60 Watt	85~264V AC 1ph 120~370V DC	12V DC 4.50A	+/- 1.0%	120mVp-p	89%	52.5 x 54.5 x 90.0
HDR-60-15	60 Watt	85~264V AC 1ph 120~370V DC	15V DC 4.00A	+/- 1.0%	120mVp-p	89%	52.5 x 54.5 x 90.0
HDR-60-24	60 Watt	85~264V AC 1ph 120~370V DC	24V DC 2.50A	+/- 1.0%	150mVp-p	90%	52.5 x 54.5 x 90.0
HDR-60-48	60 Watt	85~264V AC 1ph 120~370V DC	48V DC 1.25A	+/- 1.0%	240mVp-p	91%	52.5 x 54.5 x 90.0
HDR-100-12	100 Watt	85~264V AC 1ph 120~370V DC	12V DC 7.10A	+/- 2.0%	120mVp-p	88%	70.0 x 54.5 x 90.0
HDR-100-15	100 Watt	85~264V AC 1ph 120~370V DC	15V DC 6.13A	+/- 1.0%	120mVp-p	89%	70.0 x 54.5 x 90.0
HDR-100-24	100 Watt	85~264V AC 1ph 120~370V DC	24V DC 3.83A	+/- 1.0%	150mVp-p	90%	70.0 x 54.5 x 90.0
HDR-100-48	100 Watt	85~264V AC 1ph 120~370V DC	48V DC 1.92A	+/- 1.0%	240mVp-p	90%	70.0 x 54.5 x 90.0

EDR series with models from 75 Watts to 150 Watts and  
NDR series with models from 75 Watts to 480 Watts.

Input range of 90~264V AC 1ph 47~63 Hz or 127~370V DC.

Competitive prices and ex stock for immediate despatch.

High quality and approved to UL 508 and TUV EN 60950-1.

Output voltages of 12V, 24V, and 48V DC.

100% full load burn-in test.

Full 2 year (EDR series) / 3 year (NDR series) warranty.



A new high quality economical range of wide input voltage DIN rail mountable switched mode power supplies from 75W to 150W. These units have a special narrow profile to optimise space on the DIN rail and all types are ex stock. They are available with a variety of output voltages and are approved to UL 508 (Industrial Control Equipment) with UL, CUL, TUV, CB, and CE pending. Units are fully protected against overload, short circuit, over voltage, and over temperature and have an LED indicator to signal 'power on'. Each unit has a DC output adjuster to increase the rated output voltage by 15% and all are subjected to a 100% full load burn-in test. EMC standards are to EN 61000-6-2 (EN 50082-2) and the power supplies within this range are designed for a wide ambient temperature range of between -20 °C and +60 °C. All models have a full 2 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions D x W x H (mm)
EDR-75-12	75 Watt	90~264V AC 1ph 127~370V DC	12V DC 6.3A	+/- 2%	100mVp-p	82%	102.0 x 32.0 x 125.2
EDR-75-24	75 Watt	90~264V AC 1ph 127~370V DC	24V DC 3.2A	+/- 1%	150mVp-p	84%	102.0 x 32.0 x 125.2
EDR-75-48	75 Watt	90~264V AC 1ph 127~370V DC	48V DC 1.6A	+/- 1%	240mVp-p	85%	102.0 x 32.0 x 125.2
EDR-120-12	120 Watt	90~264V AC 1ph 127~370V DC	12V DC 10.0A	+/- 2%	100mVp-p	82%	113.5 x 40.0 x 125.2
EDR-120-24	120 Watt	90~264V AC 1ph 127~370V DC	24V DC 5.0A	+/- 1%	100mVp-p	84%	113.5 x 40.0 x 125.2
EDR-120-48	120 Watt	90~264V AC 1ph 127~370V DC	48V DC 2.5A	+/- 1%	120mVp-p	85%	113.5 x 40.0 x 125.2
EDR-150-24	150 Watt	90~264V AC 1ph 127~370V DC	24V DC 6.5A	+/- 1%	150mVp-p	87%	113.5 x 40.0 x 125.2

A new high quality economical range of wide input voltage DIN rail mountable switched mode power supplies from 75W to 480W. These units have a special narrow profile to optimise space on the DIN rail and all types are ex stock. They are available with a variety of output voltages and are approved to UL 508 (Industrial Control Equipment) with UL, CUL, TUV, CB, and CE pending. Units are fully protected against overload, short circuit, over voltage, and over temperature and have an LED indicator to signal 'power on'. Each unit has a DC output adjuster to increase the rated output by 15% and all are subjected to a 100% full load burn-in test. EMC standards are to EN 61000-6-2 (EN 50082-2) and are the power supplies within this range are designed for a wide ambient temperature range of between -20 °C and +70 °C. All models have a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions D x W x H (mm)
NDR-75-12	75 Watt	90~264V AC 1ph 127~370V DC	12V DC 6.3A	+/- 2%	80mVp-p	85.5%	102.0 x 32.0 x 125.2
NDR-75-24	75 Watt	90~264V AC 1ph 127~370V DC	24V DC 3.2A	+/- 1%	120mVp-p	88.0%	102.0 x 32.0 x 125.2
NDR-75-48	75 Watt	90~264V AC 1ph 127~370V DC	48V DC 1.6A	+/- 1%	150mVp-p	89.0%	102.0 x 32.0 x 125.2
NDR-120-12	120 Watt	90~264V AC 1ph 127~370V DC	12V DC 10.0A	+/- 2%	100mVp-p	85.5%	113.5 x 40.0 x 125.2
NDR-120-24	120 Watt	90~264V AC 1ph 127~370V DC	24V DC 5.0A	+/- 1%	120mVp-p	88.0%	113.5 x 40.0 x 125.2
NDR-120-48	120 Watt	90~264V AC 1ph 127~370V DC	48V DC 2.5A	+/- 1%	150mVp-p	89.0%	113.5 x 40.0 x 125.2
NDR-240-24	240 Watt	90~264V AC 1ph 127~370V DC	24V DC 10.0A	+/- 1%	150mVp-p	88.5%	113.5 x 63.0 x 125.2
NDR-240-48	240 Watt	90~264V AC 1ph 127~370V DC	48V DC 5.0A	+/- 1%	150mVp-p	90.0%	113.5 x 63.0 x 125.2
NDR-480-24	480 Watt	90~264V AC 1ph 127~370V DC	24V DC 20.0A	+/- 1%	150mVp-p	92.5%	128.5 x 85.5 x 125.2
NDR-480-48	480 Watt	90~264V AC 1ph 127~370V DC	48V DC 10.0A	+/- 1%	150mVp-p	92.5%	128.5 x 85.5 x 125.2

High efficiency and slimline construction.

Competitive prices.

High quality and approved to EN, UL, and CE.

Ratings from 75 Watts to 960 Watts.

Wide input range of 88~264V AC.

Output voltages of 12V, 24V, and 48V DC.

EMC standards: EN 55022 Class B, EN 61000-4-2/3/4/5/6/8/11, EN 55024, EN 61000-6-2, and EN 61204-3.



SDR-75-24

A high quality and highly cost-effective range of DIN rail mountable switched-mode power supplies from 75W to 960W. The SDR series features slim and very efficient power supplies. The unit within this range feature profiles as narrow as 32 mm designed for optimising space on the DIN rail; perfect for where space is of a premium. All models are ex stock and are approved to EN and UL and are CE marked. They have universal inputs of 88~264V AC and all units are fully protected against overload, short circuit, and over voltage. Units have an LED indicator to signal 'power on' and each is subjected to a 100% full load burn-in test. Each has a DC output adjuster to increase the rated output voltage and safety standards are to EN and UL requirements. The power supplies within this series have a wide ambient temperature range of between -25 °C and +70 °C and a full 3 year warranty. The SDR-480P models feature built-in active PFC function and parallel function.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x D x H (mm)
SDR-75-12	75 Watt	88~264V AC 1ph 124~370V DC	12V DC 6.3A	+/- 1.0%	100mVp-p	88.5%	32.0 x 113.5 x 125.0
SDR-75-24	75 Watt	88~264V AC 1ph 124~370V DC	24V DC 3.2A	+/- 1.0%	100mVp-p	89.0%	32.0 x 113.5 x 125.0
SDR-75-48	75 Watt	88~264V AC 1ph 124~370V DC	48V DC 1.6A	+/- 1.0%	120mVp-p	90.0%	32.0 x 113.5 x 125.0
SDR-120-12	120 Watt	88~264V AC 1ph 124~370V DC	12V DC 10.0A	+/- 1.0%	100mVp-p	89.0%	40.0 x 113.5 x 125.0
SDR-120-24	120 Watt	88~264V AC 1ph 124~370V DC	24V DC 5.0A	+/- 1.0%	100mVp-p	91.0%	40.0 x 113.5 x 125.0
SDR-120-48	120 Watt	88~264V AC 1ph 124~370V DC	48V DC 2.5A	+/- 1.0%	120mVp-p	90.0%	40.0 x 113.5 x 125.0
SDR-240-24	240 Watt	88~264V AC 1ph 124~370V DC	24V DC 10.0A	+/- 1.0%	100mVp-p	94.0%	63.0 x 113.5 x 125.0
SDR-240-48	240 Watt	88~264V AC 1ph 124~370V DC	48V DC 5.0A	+/- 1.0%	120mVp-p	94.0%	63.0 x 113.5 x 125.0
SDR-480-24	480 Watt	90~264V AC 1ph 127~370V DC	24V DC 20.0A	+/- 1.0%	100mVp-p	94.0%	85.5 x 128.5 x 125.0
SDR-480-48	480 Watt	90~264V AC 1ph 127~370V DC	48V DC 10.0A	+/- 1.0%	120mVp-p	94.0%	85.5 x 128.5 x 125.0
SDR-480P-24	480 Watt	90~264V AC 1ph 127~370V DC	24V DC 20.0A	+/- 1.2%	100mVp-p	94.0%	85.5 x 128.5 x 125.0
SDR-480P-48	480 Watt	90~264V AC 1ph 127~370V DC	48V DC 10.0A	+/- 1.0%	120mVp-p	94.0%	85.5 x 128.5 x 125.2
SDR-960-24	960 Watt	180~264V AC 1ph 254~370V DC	24V DC 40.0A	+/- 1.0%	180mVp-p	94.0%	110.0 x 150.0 x 125.2
SDR-960-48	960 Watt	180~264V AC 1ph 254~370V DC	48V DC 20.0A	+/- 1.0%	250mVp-p	94.0%	110.0 x 150.0 x 125.2

- Wide input range of 180~550V two-wire (1ph or 2ph).
- Competitive prices and ex stock for immediate despatch.
- High quality and approved to UL, CUL, TUV, and CE.
- Ratings from 120 Watts to 480 Watts.
- Output voltages of 12V, 24V, and 48V DC.

EMC standards: EN 55011, EN 55022 Class B, EN 61000-4-2/3/4/5/6/8/11, EN 50204, EN 61000-6-2, EN 61204-3 Heavy Industrial Level.



WDR-240-24

A high quality and highly cost-effective range of wide input range DIN rail mountable switched-mode power supplies from 120W to 480W. These units are a special wide input range of 180~550V AC 2ph. All types are ex stock for immediate despatch, usually, on a next day delivery. Units are available in a variety of output voltages and approved to EN, UL, and CE. They are fully protected against overload, short circuit, and over voltage and have been subjected to a 100% full load burn-in test. All models have a built-in 'DC OK' relay contact and an LED indicator to signal 'power on'. Units have a DC output adjuster to increase the rated output voltage and are designed for a wide ambient temperature range of between -25° C to +70 °C. Safety standards are to EN and UL requirements and CE marking is standard. The power supplies within this range boast up to 94% efficiency and have a full 2 year warranty.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions D x W x H (mm)
WDR-120-12	120 Watt	180~550V AC 2ph 254~780V DC	12V DC 10.0A	+/- 1.5%	80mVp-p	88%	113.5 x 40.0 x 125.2
WDR-120-24	120 Watt	180~550V AC 2ph 254~780V DC	24V DC 5.0A	+/- 1.0%	80mVp-p	89%	113.5 x 40.0 x 125.2
WDR-120-48	120 Watt	180~550V AC 2ph 254~780V DC	48V DC 2.5A	+/- 1.0%	80mVp-p	89%	113.5 x 40.0 x 125.2
WDR-240-24	240 Watt	180~550V AC 2ph 254~780V DC	24V DC 10.0A	+/- 1.0%	120mVp-p	90%	113.5 x 63.0 x 125.2
WDR-240-48	240 Watt	180~550V AC 2ph 254~780V DC	48V DC 5.0A	+/- 1.0%	120mVp-p	90%	113.5 x 63.0 x 125.2
WDR-480-24	480 Watt	180~550V AC 2ph 254~780V DC	24V DC 20.0A	+/- 1.0%	100mVp-p	94%	128.5 x 85.5 x 125.2
WDR-480-48	480 Watt	180~550V AC 2ph 254~780V DC	48V DC 10.0A	+/- 1.0%	120mVp-p	94%	128.5 x 85.5 x 125.2

- TDR series of 3ph wide input range power supplies (2ph input also possible).
- Compact design with width from just 85 mm.
- Ex stock for immediate despatch.
- High efficiency up to 94.5%.
- Approved to UL 508 (Industrial Control Equipment).
- Ratings of 480W or 960W with 24V or 48V DC output voltages.
- Industrial immunity level EN 61000-6-2 (EN 50082-2).
- Current sharing with 4 units up to 3,840 Watts in parallel.
- 100% full load burn-in test.
- Full 3 year warranty.



TDR-960-48

A range of four high quality and high efficiency DIN rail mountable switched-mode power supplies from 480W to 960W. These units have a special wide input range of 340~550V AC 3ph. Models ex stock and available with 24V and 48V DC output voltages. They are approved to UL 508 and IEC 60950-1 CB approved by SIQ. They are CE marked and they are fully protected against overload, short circuit, over voltage, and over temperature. The units have an LED indicator to signal 'power on' and a built-in 'DC OK' relay contact. To give a total power rating of up to 3.84kW, four units can be parallel connected to the output. Each unit has a DC output adjuster to increase the rated output voltage by up to 15% and all are subjected to a 100% full load burn-in test. Safety standards are to UL 508 requirements and CE marking is standard. Models are designed for a wide ambient temperature range of between -30 °C and +70 °C and all types have a full 3 year warranty.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions D x W x H (mm)
TDR-480-24	480 Watt	340~550V AC 3ph 480~780V DC	24V DC 20A	+/- 0.5%	150mVp-p	92.5%	125.2 x 85.5 x 128.5
TDR-480-48	480 Watt	340~550V AC 3ph 480~780V DC	48V DC 10A	+/- 0.5%	150mVp-p	93.0%	125.2 x 85.5 x 128.5
TDR-960-24	960 Watt	340~550V AC 3ph 480~780V DC	24V DC 40A	+/- 1.0%	180mVp-p	94.0%	150.0 x 110.0 x 125.0
TDR-960-48	960 Watt	340~550V AC 3ph 480~780V DC	48V DC 20A	+/- 1.0%	180mVp-p	94.5%	150.0 x 110.0 x 125.0

DRA series of DIN rail power supplies with adjustable output current. Universal input 90~264V AC 47~63 Hz or 127~370V DC. Protected against short circuit, overload, and over voltage. Voltage adjustable with internal potentiometer. Ratings of 40 Watts or 60 Watts with output voltages of 12~24V DC. Current adjustable through 1~10V DC, PWM signal, or resistance. Pass LPS. LED indicator to signal 'power on'. 100% full load burn-in test. Full 3 year warranty.



DRA-60-24

DRA series of 40 Watt to 60 Watt AC to DC DIN rail power supplies featuring adjustable output current. This range targets the industrial inspection equipment market where LED dimming is used. Users are easily able to change the constant current level, or the LED dimming level, via 1~10V DC, PWM signal, or resistance. All types can be mounted on TS-35-7.5/15 DIN rail and all units have a narrow profile of just 40 mm wide, perfect for where space is of a premium. The input range is universal between 90V AC and 264V AC with efficiency levels of between 85% to 87%. The entire series can operate, under free air convection, from -30 °C to +70 °C. For full data sheets including dimming adjustment and circuit wiring please contact our sales department.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions D x W x H (mm)
DRA-40-12	40 Watt	90~264V AC 1ph 127~370V DC	12V DC 3.34A	+/- 1%	120mVp-p	85%	100 x 40 x 90
DRA-40-24	40 Watt	90~264V AC 1ph 127~370V DC	24V DC 1.70A	+/- 1%	150mVp-p	87%	100 x 40 x 90
DRA-60-12	60 Watt	90~264V AC 1ph 127~370V DC	12V DC 5.00A	+/- 1%	120mVp-p	85%	100 x 40 x 90
DRA-60-24	60 Watt	90~264V AC 1ph 127~370V DC	24V DC 2.50A	+/- 1%	150mVp-p	87%	100 x 40 x 90

Reference	Constant Current Region	Current Range	Voltage Adjustable Range	Safety Standards	Mean Time Between Failures (MTBF)
DRA-40-12	3~12V	0~3.34A	12~15V DC	UL 60950-1 / TUV EN 60950-1 approved	439,300 hrs minimum MIL-HDBK-217F @ 25 °C
DRA-40-24	3~24V	0~1.70A	24~30V DC	UL 60950-1 / TUV EN 60950-1 approved	439,300 hrs minimum MIL-HDBK-217F @ 25 °C
DRA-60-12	3~12V	0~5.00A	12~15V DC	UL 60950-1 / TUV EN 60950-1 approved	436,400 hrs minimum MIL-HDBK-217F @ 25 °C
DRA-60-24	3~24V	0~2.50A	24~30V DC	UL 60950-1 / TUV EN 60950-1 approved	436,400 hrs minimum MIL-HDBK-217F @ 25 °C



DR-RDN20

Two additional DIN rail mountable power products for 24V DC operation:

- A redundancy module rated at 21~28V DC 20A with relay contact signal output and LED indicator for input failure alarm.
- A DC-UPS module rated at 24~29V DC 40A for battery back up of 24V DC DIN rail mounted power systems.

Reference	Output Voltage and Current	Description
DR-RDN20	21~28V DC 20A	Suitable for redundant operation of 24V system
DR-UPS40	24~29V DC 40A	Battery controller for DIN rail UPS system



DR-UPS40

# UNREGULATED AND SMOOTHED SINGLE-PHASE AND THREE-PHASE 24V DC POWER SUPPLIES FOR CHASSIS AND DIN RAIL MOUNTING FROM 1A TO 40A

Unregulated and smoothed 24V DC outputs.

Single-phase input with 1A to 16A DC output with 5% ripple.  
Three-phase input with 6A to 40A DC output with 3% or 6% ripple.

Off load voltage < 30.2V with 6% line over voltage.  
Full load voltage > 20.4V with 10% line under voltage.

DIN rail mounting option for models from 1A to 2.5A DC.

145-125.001



Three ranges of unregulated 24V DC conventional power supplies:

- Single-phase range with either 230V +/- 5% or 400V +/- 5% inputs and a 24V DC output from 1A to 6A with 5% ripple.
- Single-phase range with dual inputs of 230 / 400V +/- 5% and a 24V DC output from 10A to 16A with 5% ripple.
- Three-phase range with 400V +/- 5% inputs and a 24V DC output from 6A to 40A with either 6% or 3% ripple.

The transformers are to VDE 0551 Class 1 construction and are suitable for ambient temperatures of up to 60 °C. The connections are touch protected screw terminals and all units are designed for chassis mounting. Single-phase units up to 2.5A DC are suitable for DIN rail mounting using of an easy fit DIN rail adaptor.

Reference (Input Voltage 230V 1ph +/- 5%)	Reference (Input Voltage 400V 1ph +/- 5%)	Output Voltage and Current	Dimensions L x W x H (mm)	FC L x W x diam. (mm)	Weight (kg)
145-113	145-113.001	24V DC 1.00A	78.0 x 70.0 x 112.0	65.0 x 52.0 x 4.8	1.3
145-114	145-114.001	24V DC 1.60A	78.0 x 70.0 x 112.0	65.0 x 52.0 x 4.8	1.3
145-125	145-125.001	24V DC 2.50A	84.0 x 86.0 x 120.0	70.0 x 70.0 x 4.8	2.2
145-116	145-116.001	24V DC 3.15A	84.0 x 86.0 x 120.0	70.0 x 70.0 x 4.8	2.2
145-117	145-117.001	24V DC 4.00A	105.0 x 96.0 x 140.0	88.0 x 71.0 x 5.3	3.0
145-119	145-119.001	24V DC 6.00A	105.0 x 96.0 x 140.0	88.0 x 71.0 x 5.3	3.6



145-114

Reference (Input Voltage 230 / 400V 1ph +/- 5%)	Output Voltage and Current	Dimensions L x W x H (mm)	FC L x W x diam. (mm)	Weight (kg)
148-110	24V DC 10A	126.0 x 105.0 x 186.0	90.0 x 86.0 x 5.8	6.0
148-116	24V DC 16A	195.0 x 112.0 x 210.0	123.0 x 90.0 x 7.0	14.8



148-110

Reference (Input Voltage 400V 3ph +/- 5% with 6% Ripple)	Reference (Input Voltage 400V 3ph +/- 5% with 3% Ripple)	Output Voltage and Current	Dimensions L x W x H (mm)	FC L x W x diam. (mm)	Weight (kg)
137-106	137-106.200	24V DC 6A	125.0 x 80.0 x 154.0	100.0 x 56.0 x 5.0	3.1
137-110	137-110.200	24V DC 10A	156.0 x 140.0 x 105.0	140.0 x 112.0 x 4.3	5.5
137-116	137-116.200	24V DC 16A	185.0 x 165.0 x 120.0	167.0 x 132.0 x 7.0	8.1
137-125	137-125.200	24V DC 25A	185.0 x 165.0 x 190.0	167.0 x 132.0 x 7.0	12.1
137-140	137-140.200	24V DC 40A	215.0 x 212.0 x 185.0	194.0 x 157.0 x 7.0	18.1



137-106

Reference (Input Voltage 200/230/400/415/440/460/480/500V 3ph with 3% Ripple)	Output Voltage and Current	Dimensions L x W x H (mm)	FC L x W x diam. (mm)	Weight (kg)
137-106.201	24V DC 6A	125.0 x 80.0 x 154.0	100.0 x 56.0 x 5.0	3.6
137-110.201	24V DC 10A	156.0 x 140.0 x 105.0	140.0 x 112.0 x 4.3	6.0
137-116.202	24V DC 16A	185.0 x 165.0 x 120.0	167.0 x 132.0 x 7.0	8.5
137-125.201	24V DC 25A	185.0 x 165.0 x 190.0	167.0 x 132.0 x 7.0	12.7
137-140.201	24V DC 40A	215.0 x 212.0 x 185.0	194.0 x 157.0 x 7.0	19.0

# STOCK RANGE OF 1PH AND 3PH SLIMLINE SWITCHED-MODE DIN RAIL POWER SUPPLIES WITH SPECIAL OPTIONAL FUNCTIONS FROM 1.25A TO 20A

Competent COSMO slimline series.  
 Narrow construction to maximise space on the DIN rail.  
 Covered input connections.  
 Output current of 1.25~20A at 24~31.2V DC.  
 Power factor correction to EN 61000-3-2 (except 149002-21001/31007/41001 and 149001-61013).  
 Extended output voltage range.  
 Balanced load sharing when wired in parallel.  
 Low ripple < 50mV.  
 Overload indicator.  
 Approvals include UL and CUL.  
 Special optional functions.



149001-51056

The Competent COSMO slimline series offers the design engineer the optimum in design excellence for a comprehensive range of 24V and 31.2V DC applications. The narrow construction maximises space on the DIN rail for where space is of a premium. Units from 5A to 20A have a unique termination cover to protect the connections and the wiring. Certain models use cage clamp terminations for ease of wiring and consistent reliability. Units comply with EN 61000-3-2 for the latest power factor correction requirements (except 149002-21001/31007/41001 and 149001-61013). The DC output voltage is adjustable as shown in the table below and when models are wired in parallel the load is balanced automatically between the units. The output ripple is below 50mV and in the event of an overload a red LED indicator is activated. Special optional functions include remote ON/OFF control, overload signalling, power failure signalling, and the options of 'hiccup mode' or 'turn-off mode' for output overload protection. The units are fully approved to the highest standards including UL, CUL, and LGA.

Reference	Input Range (47~63 Hz)	Output Voltage and Current	D (mm)	W (mm)	H (mm)	Weight (kg)	Typical Efficiency	Output Adjustment Range	Terminals
149002-21001	94~265V AC 1ph	24.0V DC 1.25A	105.0	45.0	72.0	0.20	85%	23.3~24.7V DC	Screw
149002-31001	94~265V AC 1ph	24.0V DC 2.00A	105.0	45.0	72.0	0.20	89%	23.3~24.7V DC	Screw
149002-31007	94~265V AC 1ph	31.2V DC 1.80A (2.00A for 2 mins)	105.0	45.0	72.0	0.20	88%	30.3~32.1V DC	Screw clamp
149002-41001	94~265V AC 1ph	24.0V DC 2.50A	105.0	45.0	72.0	0.26	89%	23.0~29.0V DC	Screw
149001-51030	90~132V AC / 190~265V AC 1ph	31.2V DC 8.00A	141.0	70.0	151.0	0.90	89%	23.0~30.0V DC (30.0V DC max. 8.0A)	Screw plug
149001-51032	195~500V AC 2ph	31.2V DC 8.00A	141.0	70.0	151.0	1.20	88%	30.9~31.5V DC	Screw plug
149001~51034	195~500V AC / 210~700V DC 2ph	24.0V DC 10.00A	141.0	70.0	151.0	1.20	89%	23.0~30.0V DC (30.0V DC max. 8.0A)	Cage clamp
149001-51056	90~265V AC 1ph	24.0V DC 5.00A	139.0	70.0	132.0	0.90	89%	23.0~30.0V DC (30.0V DC max. 4.0A)	Cage clamp
149001-51061	90~265V AC 1ph	31.2V DC 4.00A	128.0	70.0	126.0	0.79	89%	30.9~31.5V DC	Screw plug
149001-51063	90~265V AC 1ph	24.0V DC 5.00A	128.0	70.0	126.0	0.90	89%	23.0~30.0V DC (30.0V DC max. 4.0A)	Cage clamp
149001-51071	92~265V AC 1ph	24.0V DC 5.00A	124.0	39.0	134.0	0.65	90%	24.0~30.0V DC	Push-in spring
149001-51111	93~132V AC / 187~265V AC 1ph	24.0V DC 10.00A	164.0	70.0	147.0	1.20	90%	23.0~30.0V DC (30.0V DC max. 8.0A)	Cage clamp
149001-51301	340~550V AC 3ph	24.0V DC 10.00A	160.0	81.0	153.0	1.40	90%	23.0~30.0V DC (30.0V DC max. 8.0A)	Cage clamp
149001-61013	342~550V AC 3ph	24.0V DC 20.00A (40.00A for 2 secs)	123.3	85.3	133.3	2.00	89%	24.0~29.0V DC (29.0V DC max. 16.6A)	Cage clamp
149001-61114	190~265V AC 1ph	24.0V DC 20.00A	173.0	86.0	227.0	2.00	89%	23.0~29.0V DC (29.0V DC max. 16.6A)	Screw
149001-61116	340~550V AC 3ph	24.0V DC 20.00A	173.0	86.0	227.0	2.00	89%	23.0~29.0V DC (29.0V DC max. 16.6A)	Screw

# STOCK RANGE OF 1PH AND 3PH 24V DC CONVENTIONAL SWITCHED-MODE DIN RAIL POWER SUPPLIES WITH SPECIAL OPTIONAL FUNCTIONS FROM 1.25A TO 40A

Competent COSMO conventional series.  
 High quality and high reliability.  
 Output current from 1.25A to 40A at 24V DC.  
 Single-phase and three-phase inputs.  
 Overload indicator.  
 Safety standards to IEC 950, EN 60950, and VDE 0805.  
 RFI suppression to EN 55011 / EN 5022 Class B.  
 Noise immunity to EN 50082-1/2.



149001-51101

The Competent COSMO conventional 24V DC range offers high specification power supplies with proven reliability. This series has been extensively used throughout the world and has a proven track record for long term reliability and high quality. Units are available from 1.25A to 40A at 24V DC and are offered with both single-phase or three-phase inputs. RFI suppression is to EN 55011 / EN 5022 Class B and noise immunity is to EN 50082-1/2. The units are fully protected against overload and short circuit and are in accordance with IEC 950, EN 60950, and VDE 0805 safety requirements. All units have an inbuilt 'power on' indicator and are DIN rail mountable.

Reference	Input Range (47-63 Hz)	Output Voltage and Current	D (mm)	W (mm)	H (mm)	Weight (kg)	Typical Efficiency	Output Adjustment Range	Terminations
149002-21003	105~250V AC 1ph	24V DC 1.25A	105.0	91.0	74.0	0.25	85%	23.3~24.7V DC	Screw clamp
149001-41001	94~265V AC 1ph	24V DC 2.50A	65.0	108.0	123.0	0.60	86%	23.0~27.0V DC	Screw plug
149001-51051	94~265V AC 1ph	24V DC 5.00A	86.0	147.0	123.0	0.80	86%	23.0~27.0V DC (27.0V DC max. 4.4A)	Screw plug
149001-51101	97~132V AC / 195~265V AC 1ph	24V DC 10.00A	86.0	205.0	123.0	1.20	89%	23.0~27.0V DC (27.0V DC max. 8.8A)	Screw plug
149001-61101	340~550V AC 3ph	24V DC 20.00A	86.0	240.0	153.0	1.90	90%	23.0~27.0V DC	Screw plug
149001-61103	195~265V AC 1ph	24V DC 20.00A	86.0	240.0	153.0	1.90	88%	23.0~27.0V DC (27.0V DC max. 17.7A)	Screw plug
149001-71001	342~550V AC 3ph	24V DC 40.00A (80.00A for 2 secs)	127.5	202.0	132.0	2.50	93%	22.5~27.5V DC	Screw plug + cage clamp
149001-71101	340~550V AC 3ph	24V DC 40.00A	130.0	292.0	195.0	3.60	90%	23.0~27.0V DC	Screw plug

PS series of switched-mode power supplies.  
 Ratings from 5 Watts to 35 Watts.  
 Various output voltages from 3.3V to 48V.  
 Cooling by free air convection.  
 100% full load burn-in test.  
 High reliability.  
 UL, TUV, and EN approvals.  
 CE marked.  
 Full 2 year warranty.



PS-25-24

A high quality and cost-effective range of single-phase input switched-mode power supplies from 5W to 35W. All units are available with a variety of output voltages and have each been subjected to a 100% full load burn-in test. Models are fully protected against overload, short circuit, and over voltage with the PS-5/15/25 units additionally protected against over temperature. They are approved to UL, TUV, and EN standards and are CE marked. Models are designed for chassis mounting and a wide ambient temperature range of  $-10\text{ }^{\circ}\text{C}$  to  $+60\text{ }^{\circ}\text{C}$  (PS-5/15/25) or  $-20\text{ }^{\circ}\text{C}$  to  $+65\text{ }^{\circ}\text{C}$  (PS-35). All units come with a full 2 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
PS-5-5	5 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 1.00A	+/- 2%	100mVp-p	70%	75.0 x 40.0 x 20.0
PS-5-12	5 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 0.45A	+/- 2%	120mVp-p	75%	75.0 x 40.0 x 20.0
PS-5-15	5 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 0.35A	+/- 2%	120mVp-p	75%	75.0 x 40.0 x 20.0
PS-5-24	5 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 0.22A	+/- 2%	200mVp-p	76%	75.0 x 40.0 x 20.0
PS-5-48	5 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 0.11A	+/- 1%	200mVp-p	76%	75.0 x 40.0 x 20.0
PS-15-5	15 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 2.80A	+/- 2%	100mVp-p	74%	94.0 x 49.0 x 25.0
PS-15-12	15 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 1.25A	+/- 2%	120mVp-p	77%	94.0 x 49.0 x 25.0
PS-15-15	15 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 1.00A	+/- 2%	120mVp-p	78%	94.0 x 49.0 x 25.0
PS-15-24	15 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 0.63A	+/- 2%	150mVp-p	79%	94.0 x 49.0 x 25.0
PS-15-48	15 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 0.31A	+/- 2%	200mVp-p	77%	94.0 x 49.0 x 25.0
PS-25-3.3	25 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 5.00A	+/- 3%	80mVp-p	66%	107.0 x 61.0 x 28.0
PS-25-5	25 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 5.00A	+/- 2%	80mVp-p	74%	107.0 x 61.0 x 28.0
PS-25-7.5	25 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 3.30A	+/- 2%	80mVp-p	76%	107.0 x 61.0 x 28.0
PS-25-12	25 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 2.10A	+/- 2%	100mVp-p	78%	107.0 x 61.0 x 28.0
PS-25-13.5	25 Watt	85~264V AC 1ph 120~370V DC	13.5V DC 1.90A	+/- 2%	100mVp-p	78%	107.0 x 61.0 x 28.0
PS-25-15	25 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 1.70A	+/- 2%	100mVp-p	78%	107.0 x 61.0 x 28.0
PS-25-24	25 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 1.00A	+/- 2%	240mVp-p	79%	107.0 x 61.0 x 28.0
PS-25-27	25 Watt	85~264V AC 1ph 120~370V DC	27.0V DC 0.90A	+/- 2%	240mVp-p	79%	107.0 x 61.0 x 28.0
PS-25-48	25 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 0.50A	+/- 2%	350mVp-p	79%	107.0 x 61.0 x 28.0
PS-35-3.3	35 Watt	90~264V AC 1ph 127~370V DC	3.3V DC 6.00A	+/- 2%	80mVp-p	70%	101.6 x 50.8 x 24.0
PS-35-5	35 Watt	90~264V AC 1ph 127~370V DC	5.0V DC 6.00A	+/- 2%	100mVp-p	78%	101.6 x 50.8 x 24.0
PS-35-7.5	35 Watt	90~264V AC 1ph 127~370V DC	7.5V DC 4.70A	+/- 2%	100mVp-p	80%	101.6 x 50.8 x 24.0
PS-35-12	35 Watt	90~264V AC 1ph 127~370V DC	12.0V DC 3.00A	+/- 1%	120mVp-p	81%	101.6 x 50.8 x 24.0
PS-35-13.5	35 Watt	90~264V AC 1ph 127~370V DC	13.5V DC 2.60A	+/- 1%	120mVp-p	81%	101.6 x 50.8 x 24.0
PS-35-15	35 Watt	90~264V AC 1ph 127~370V DC	15.0V DC 2.40A	+/- 1%	150mVp-p	81%	101.6 x 50.8 x 24.0
PS-35-24	35 Watt	90~264V AC 1ph 127~370V DC	24.0V DC 1.50A	+/- 1%	200mVp-p	85%	101.6 x 50.8 x 24.0
PS-35-48	35 Watt	90~264V AC 1ph 127~370V DC	48.0V DC 0.75A	+/- 1%	240mVp-p	84%	101.6 x 50.8 x 24.0

PS series of switched-mode power supplies.  
 Ratings from 45 Watts to 65 Watts.  
 Various output voltages from 3.3V to 48V.  
 Cooling by free air convection.  
 100% full load burn-in test.  
 High reliability.  
 UL, TUV, and EN approvals.  
 CE marked.  
 Full 2 year warranty.



PS-45-12

A high quality and cost-effective range of single-phase input switched-mode power supplies from 45W to 65W. All units are available with a variety of output voltages and have each been subjected to a 100% full load burn-in test. Models are fully protected against overload, short circuit, and over voltage and possess a low leakage current of below 0.75mA. They are approved to UL, TUV, and EN standards and are CE marked. This range has been designed for chassis mounting and a wide ambient temperature range of  $-10^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ . All units come with a full 2 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
PS-45-3.3	45 Watt	90~264V AC 1ph 127~370V DC	3.3V DC 8.00A	+/- 3%	80mVp-p	69%	127 x 76 x 28
PS-45-5	45 Watt	90~264V AC 1ph 127~370V DC	5.0V DC 8.00A	+/- 3%	100mVp-p	74%	127 x 76 x 28
PS-45-7.5	45 Watt	90~264V AC 1ph 127~370V DC	7.5V DC 5.40A	+/- 3%	100mVp-p	75%	127 x 76 x 28
PS-45-12	45 Watt	90~264V AC 1ph 127~370V DC	12.0V DC 3.70A	+/- 2%	100mVp-p	76%	127 x 76 x 28
PS-45-13.5	45 Watt	90~264V AC 1ph 127~370V DC	13.5V DC 3.30A	+/- 2%	100mVp-p	77%	127 x 76 x 28
PS-45-15	45 Watt	90~264V AC 1ph 127~370V DC	15.0V DC 3.00A	+/- 2%	100mVp-p	77%	127 x 76 x 28
PS-45-24	45 Watt	90~264V AC 1ph 127~370V DC	24.0V DC 1.90A	+/- 2%	100mVp-p	78%	127 x 76 x 28
PS-45-27	45 Watt	90~264V AC 1ph 127~370V DC	27.0V DC 1.70A	+/- 2%	100mVp-p	78%	127 x 76 x 28
PS-45-48	45 Watt	90~264V AC 1ph 127~370V DC	48.0V DC 1.00A	+/- 2%	100mVp-p	78%	127 x 76 x 28
PS-65-3.3	65 Watt	90~264V AC 1ph 127~370V DC	3.3V DC 12.00A	+/- 3%	80mVp-p	69%	127 x 76 x 42
PS-65-5	65 Watt	90~264V AC 1ph 127~370V DC	5.0V DC 12.00A	+/- 3%	100mVp-p	76%	127 x 76 x 42
PS-65-7.5	65 Watt	90~264V AC 1ph 127~370V DC	7.5V DC 8.00A	+/- 3%	100mVp-p	79%	127 x 76 x 42
PS-65-12	65 Watt	90~264V AC 1ph 127~370V DC	12.0V DC 5.20A	+/- 2%	100mVp-p	79%	127 x 76 x 42
PS-65-13.5	65 Watt	90~264V AC 1ph 127~370V DC	13.5V DC 4.70A	+/- 2%	100mVp-p	79%	127 x 76 x 42
PS-65-15	65 Watt	90~264V AC 1ph 127~370V DC	15.0V DC 4.20A	+/- 2%	100mVp-p	79%	127 x 76 x 42
PS-65-24	65 Watt	90~264V AC 1ph 127~370V DC	24.0V DC 2.70A	+/- 2%	100mVp-p	80%	127 x 76 x 42
PS-65-27	65 Watt	90~264V AC 1ph 127~370V DC	27.0V DC 2.40A	+/- 2%	100mVp-p	80%	127 x 76 x 42
PS-65-48	65 Watt	90~264V AC 1ph 127~370V DC	48.0V DC 1.35A	+/- 2%	100mVp-p	80%	127 x 76 x 42

- RS series of economical switched-mode power supplies.
- Ratings from 15 Watts to 150 Watts.
- Various output voltages from 3.3V to 48V DC.
- Miniature size and high power density.
- High efficiency and reliability with long life expectancy.
- LED indicator to signal 'power on'.
- 100% full load burn-in test.
- Suitable for critical applications.
- UL, TUV, and EN approvals.
- CE marked.
- Full 3 year warranty.



RS-25-24

A high quality and highly cost-effective range of single-phase input switched-mode power supplies for chassis mounting from 15W to 150W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage. They are approved to UL, TUV, and EN and are CE marked. Models have an LED indicator to signal 'power on' and have all been subjected to a 100% full load burn-in test. The units have a DC output adjuster to increase or decrease the rated output voltage by 10%. DIN rail adaptors can be fitted to all units for ease of mounting to DIN rail. The RS series models are designed for a wide ambient temperature range of between -20 °C and +70 °C and can withstand a surge of 300V AC for 5 seconds without damage. All units come with a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
RS-15-3.3	15 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 3.00A	+/- 3%	80mVp-p	72%	62.5 x 51.0 x 28.0
RS-15-5	15 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 3.00A	+/- 2%	80mVp-p	77%	62.5 x 51.0 x 28.0
RS-15-12	15 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 1.30A	+/- 1%	120mVp-p	81%	62.5 x 51.0 x 28.0
RS-15-15	15 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 1.00A	+/- 1%	120mVp-p	81%	62.5 x 51.0 x 28.0
RS-15-24	15 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 0.63A	+/- 1%	200mVp-p	82%	62.5 x 51.0 x 28.0
RS-15-48	15 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 0.31A	+/- 1%	200mVp-p	82%	62.5 x 51.0 x 28.0
RS-25-3.3	25 Watt	88~264V AC 1ph 125~373V DC	3.3V DC 6.00A	+/- 3%	80mVp-p	73%	78.0 x 51.0 x 28.0
RS-25-5	25 Watt	88~264V AC 1ph 125~373V DC	5.0V DC 5.00A	+/- 2%	80mVp-p	78%	78.0 x 51.0 x 28.0
RS-25-12	25 Watt	88~264V AC 1ph 125~373V DC	12.0V DC 2.10A	+/- 1%	120mVp-p	81%	78.0 x 51.0 x 28.0
RS-25-15	25 Watt	88~264V AC 1ph 125~373V DC	15.0V DC 1.70A	+/- 1%	120mVp-p	83%	78.0 x 51.0 x 28.0
RS-25-24	25 Watt	88~264V AC 1ph 125~373V DC	24.0V DC 1.10A	+/- 1%	120mVp-p	86%	78.0 x 51.0 x 28.0
RS-25-48	25 Watt	88~264V AC 1ph 125~373V DC	48.0V DC 0.57A	+/- 1%	200mVp-p	85%	78.0 x 51.0 x 28.0
RS-35-3.3	35 Watt	88~264V AC 1ph 125~373V DC	3.3V DC 7.00A	+/- 3%	80mVp-p	76%	99.0 x 82.0 x 36.0
RS-35-5	35 Watt	88~264V AC 1ph 125~373V DC	5.0V DC 7.00A	+/- 2%	80mVp-p	80%	99.0 x 82.0 x 36.0
RS-35-12	35 Watt	88~264V AC 1ph 125~373V DC	12.0V DC 3.00A	+/- 1%	120mVp-p	84%	99.0 x 82.0 x 36.0
RS-35-15	35 Watt	88~264V AC 1ph 125~373V DC	15.0V DC 2.40A	+/- 1%	120mVp-p	86%	99.0 x 82.0 x 36.0
RS-35-24	35 Watt	88~264V AC 1ph 125~373V DC	24.0V DC 1.50A	+/- 1%	120mVp-p	88%	99.0 x 82.0 x 36.0
RS-35-48	35 Watt	88~264V AC 1ph 125~373V DC	48.0V DC 0.80A	+/- 1%	200mVp-p	88%	99.0 x 82.0 x 36.0
RS-50-3.3	50 Watt	88~264V AC 1ph 125~373V DC	3.3V DC 10.00A	+/- 3%	80mVp-p	78%	99.0 x 97.0 x 36.0
RS-50-5	50 Watt	88~264V AC 1ph 125~373V DC	5.0V DC 10.00A	+/- 2%	80mVp-p	83%	99.0 x 97.0 x 36.0
RS-50-12	50 Watt	88~264V AC 1ph 125~373V DC	12.0V DC 4.20A	+/- 1%	120mVp-p	84%	99.0 x 97.0 x 36.0
RS-50-15	50 Watt	88~264V AC 1ph 125~373V DC	15.0V DC 3.40A	+/- 1%	120mVp-p	86%	99.0 x 97.0 x 36.0
RS-50-24	50 Watt	88~264V AC 1ph 125~373V DC	24.0V DC 2.20A	+/- 1%	120mVp-p	88%	99.0 x 97.0 x 36.0
RS-50-48	50 Watt	88~264V AC 1ph 125~373V DC	48.0V DC 1.10A	+/- 1%	200mVp-p	89%	99.0 x 97.0 x 36.0
RS-75-3.3	75 Watt	88~264V AC 1ph 125~373V DC	3.3V DC 15.00A	+/- 3%	80mVp-p	75%	129.0 x 97.0 x 38.0
RS-75-5	75 Watt	88~264V AC 1ph 125~373V DC	5.0V DC 12.00A	+/- 2%	80mVp-p	79%	129.0 x 97.0 x 38.0
RS-75-12	75 Watt	88~264V AC 1ph 125~373V DC	12.0V DC 6.00A	+/- 1%	120mVp-p	84%	129.0 x 97.0 x 38.0
RS-75-15	75 Watt	88~264V AC 1ph 125~373V DC	15.0V DC 5.00A	+/- 1%	120mVp-p	86%	129.0 x 97.0 x 38.0
RS-75-24	75 Watt	88~264V AC 1ph 125~373V DC	24.0V DC 3.20A	+/- 1%	120mVp-p	88%	129.0 x 97.0 x 38.0
RS-75-48	75 Watt	88~264V AC 1ph 125~373V DC	48.0V DC 1.60A	+/- 1%	200mVp-p	89%	129.0 x 97.0 x 38.0
RS-100-3.3	100 Watt	88~264V AC 1ph 125~373V DC	3.3V DC 20.00A	+/- 3%	80mVp-p	74%	159.0 x 97.0 x 38.0
RS-100-5	100 Watt	88~264V AC 1ph 125~373V DC	5.0V DC 16.00A	+/- 2%	80mVp-p	77%	159.0 x 97.0 x 38.0
RS-100-12	100 Watt	88~264V AC 1ph 125~373V DC	12.0V DC 8.50A	+/- 1%	120mVp-p	81%	159.0 x 97.0 x 38.0
RS-100-15	100 Watt	88~264V AC 1ph 125~373V DC	15.0V DC 7.00A	+/- 1%	120mVp-p	82%	159.0 x 97.0 x 38.0
RS-100-24	100 Watt	88~264V AC 1ph 125~373V DC	24.0V DC 4.50A	+/- 1%	120mVp-p	84%	159.0 x 97.0 x 38.0
RS-100-48	100 Watt	88~264V AC 1ph 125~373V DC	48.0V DC 2.30A	+/- 1%	200mVp-p	84%	159.0 x 97.0 x 38.0
RS-150-3.3	150 Watt	115V AC / 230V AC 1ph by switch	3.3V DC 30.00A	+/- 3%	80mVp-p	74%	199.0 x 98.0 x 38.0
RS-150-5	150 Watt	115V AC / 230V AC 1ph by switch	5.0V DC 26.00A	+/- 2%	80mVp-p	78%	199.0 x 98.0 x 38.0
RS-150-12	150 Watt	115V AC / 230V AC 1ph by switch	12.0V DC 12.50A	+/- 1%	120mVp-p	83%	199.0 x 98.0 x 38.0
RS-150-15	150 Watt	115V AC / 230V AC 1ph by switch	15.0V DC 10.00A	+/- 1%	120mVp-p	84%	199.0 x 98.0 x 38.0
RS-150-24	150 Watt	115V AC / 230V AC 1ph by switch	24.0V DC 6.50A	+/- 1%	120mVp-p	86%	199.0 x 98.0 x 38.0
RS-150-48	150 Watt	115V AC / 230V AC 1ph by switch	48.0V DC 3.30A	+/- 1%	200mVp-p	87%	199.0 x 98.0 x 38.0

- RSP series of economical switched-mode power supplies.
- Extra low profile of 30 mm.
- Ratings from 75 Watts to 150 Watts.
- Various output voltages from 3.3V to 48V DC.
- Built-in active PFC function.
- Cooling by free air convection.
- LED indicator to signal 'power on'.
- Built-in constant current limiting.
- Remote ON/OFF control.
- UL, TUV, and EN approvals.
- CE marked.
- Full 3 year warranty.



RSP-150-24

A high quality and highly cost-effective range of single-phase input chassis mountable switched-mode power supplies from 75W to 150W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage. They are approved to UL, TUV, and EN and are CE marked. Models have an LED indicator to signal 'power on' and a DC output adjuster to decrease the rated output voltage by 5% or increase the rated output voltage by 10%. The units are designed for a wide ambient temperature range of between -25 °C and +70 °C (RSP-75) or -30 °C to +70 °C (RSP-100/150). All types have a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
RSP-75-3.3	75 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 15.0A	+/- 2%	80mVp-p	76%	159 x 97 x 30
RSP-75-5	75 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 15.0A	+/- 2%	80mVp-p	82%	159 x 97 x 30
RSP-75-7.5	75 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 10.0A	+/- 2%	80mVp-p	84%	159 x 97 x 30
RSP-75-12	75 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 6.3A	+/- 2%	120mVp-p	85%	159 x 97 x 30
RSP-75-13.5	75 Watt	85~264V AC 1ph 120~370V DC	13.5V DC 5.6A	+/- 2%	120mVp-p	85%	159 x 97 x 30
RSP-75-15	75 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 5.0A	+/- 2%	120mVp-p	86%	159 x 97 x 30
RSP-75-24	75 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 3.2A	+/- 1%	120mVp-p	87%	159 x 97 x 30
RSP-75-27	75 Watt	85~264V AC 1ph 120~370V DC	27.0V DC 2.8A	+/- 1%	120mVp-p	88%	159 x 97 x 30
RSP-75-48	75 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 1.6A	+/- 1%	200mVp-p	89%	159 x 97 x 30
RSP-100-3.3	100 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 20.0A	+/- 2%	100mVp-p	83%	179 x 99 x 30
RSP-100-5	100 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 20.0A	+/- 2%	100mVp-p	86%	179 x 99 x 30
RSP-100-7.5	100 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 13.5A	+/- 2%	100mVp-p	87%	179 x 99 x 30
RSP-100-12	100 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 8.5A	+/- 1%	100mVp-p	86%	179 x 99 x 30
RSP-100-13.5	100 Watt	85~264V AC 1ph 120~370V DC	13.5V DC 7.5A	+/- 1%	100mVp-p	86%	179 x 99 x 30
RSP-100-15	100 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 6.7A	+/- 1%	100mVp-p	87%	179 x 99 x 30
RSP-100-24	100 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 4.2A	+/- 1%	150mVp-p	87%	179 x 99 x 30
RSP-100-27	100 Watt	85~264V AC 1ph 120~370V DC	27.0V DC 3.8A	+/- 1%	150mVp-p	87%	179 x 99 x 30
RSP-100-48	100 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 2.1A	+/- 1%	250mVp-p	88%	179 x 99 x 30
RSP-150-3.3	150 Watt	88~264V AC 1ph 124~370V DC	3.3V DC 30.0A	+/- 2%	100mVp-p	81%	199 x 99 x 30
RSP-150-5	150 Watt	88~264V AC 1ph 124~370V DC	5.0V DC 30.0A	+/- 2%	100mVp-p	87%	199 x 99 x 30
RSP-150-7.5	150 Watt	88~264V AC 1ph 124~370V DC	7.5V DC 20.0A	+/- 2%	100mVp-p	88%	199 x 99 x 30
RSP-150-12	150 Watt	88~264V AC 1ph 124~370V DC	12.0V DC 12.5A	+/- 2%	100mVp-p	90%	199 x 99 x 30
RSP-150-13.5	150 Watt	88~264V AC 1ph 124~370V DC	13.5V DC 11.2A	+/- 2%	100mVp-p	87%	199 x 99 x 30
RSP-150-15	150 Watt	88~264V AC 1ph 124~370V DC	15.0V DC 10.0A	+/- 2%	100mVp-p	88%	199 x 99 x 30
RSP-150-24	150 Watt	88~264V AC 1ph 124~370V DC	24.0V DC 6.3A	+/- 1%	150mVp-p	89%	199 x 99 x 30
RSP-150-27	150 Watt	88~264V AC 1ph 124~370V DC	27.0V DC 5.6A	+/- 1%	150mVp-p	89%	199 x 99 x 30
RSP-150-48	150 Watt	88~264V AC 1ph 124~370V DC	48.0V DC 3.2A	+/- 1%	250mVp-p	90%	199 x 99 x 30

- RSP series of economical switched-mode power supplies.
- Extra low profile of 30 mm.
- Ratings from 200 Watts to 320 Watts.
- Various output voltages from 2.5V to 48V DC.
- Built-in active PFC function.
- Cooling by free air convection (RSP-200) or fan (RSP-320).
- LED indicator to signal 'power on'.
- Remote ON/OFF control.
- UL, TUV, and EN approvals.
- CE marked.
- Full 3 year warranty.



RSP-320-24

A high quality and highly cost-effective range of single-phase input chassis mountable switched-mode power supplies from 200W to 320W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage. They are approved to UL, TUV, and EN and are CE marked. Models have an LED indicator to signal 'power on' and a DC output adjuster to decrease the rated output voltage by 5% (RSP-200) or 10% (RSP-320) or increase the rated output voltage by 10%. The units are designed for a wide ambient temperature range of between  $-30^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ . All types have a full 3 year warranty for complete peace of mind after purchase. The RSP-320-5CC has conformal coating and is suitable for moving LED sign applications (MOQ required - please contact our sales department for further information).

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
RSP-200-2.5	200 Watt	88~264V AC 1ph 124~370V DC	2.5V DC 40.00A	+/- 2%	100mVp-p	79%	215 x 115 x 30
RSP-200-3.3	200 Watt	88~264V AC 1ph 124~370V DC	3.3V DC 40.00A	+/- 2%	100mVp-p	81%	215 x 115 x 30
RSP-200-4	200 Watt	88~264V AC 1ph 124~370V DC	4.0V DC 40.00A	+/- 2%	100mVp-p	84%	215 x 115 x 30
RSP-200-5	200 Watt	88~264V AC 1ph 124~370V DC	5.0V DC 40.00A	+/- 2%	100mVp-p	85%	215 x 115 x 30
RSP-200-7.5	200 Watt	88~264V AC 1ph 124~370V DC	7.5V DC 26.70A	+/- 2%	150mVp-p	89%	215 x 115 x 30
RSP-200-12	200 Watt	88~264V AC 1ph 124~370V DC	12.0V DC 16.70A	+/- 1%	150mVp-p	89%	215 x 115 x 30
RSP-200-13.5	200 Watt	88~264V AC 1ph 124~370V DC	13.5V DC 14.90A	+/- 1%	150mVp-p	89%	215 x 115 x 30
RSP-200-15	200 Watt	88~264V AC 1ph 124~370V DC	15.0V DC 13.40A	+/- 1%	150mVp-p	89%	215 x 115 x 30
RSP-200-24	200 Watt	88~264V AC 1ph 124~370V DC	24.0V DC 8.40A	+/- 1%	150mVp-p	89%	215 x 115 x 30
RSP-200-27	200 Watt	88~264V AC 1ph 124~370V DC	27.0V DC 7.50A	+/- 1%	200mVp-p	89%	215 x 115 x 30
RSP-200-36	200 Watt	88~264V AC 1ph 124~370V DC	36.0V DC 5.56A	+/- 1%	220mVp-p	90%	215 x 115 x 30
RSP-200-48	200 Watt	88~264V AC 1ph 124~370V DC	48.0V DC 4.20A	+/- 1%	240mVp-p	90%	215 x 115 x 30
RSP-320-2.5	320 Watt	88~264V AC 1ph 124~370V DC	2.5V DC 60.00A	+/- 2%	100mVp-p	75%	215 x 115 x 30
RSP-320-3.3	320 Watt	88~264V AC 1ph 124~370V DC	3.3V DC 60.00A	+/- 2%	100mVp-p	79%	215 x 115 x 30
RSP-320-4	320 Watt	88~264V AC 1ph 124~370V DC	4.0V DC 60.00A	+/- 2%	100mVp-p	81%	215 x 115 x 30
RSP-320-5	320 Watt	88~264V AC 1ph 124~370V DC	5.0V DC 60.00A	+/- 2%	150mVp-p	83%	215 x 115 x 30
RSP-320-5CC	320 Watt	88~264V AC 1ph 124~370V DC	5.0V DC 60.00A	+/- 2%	150mVp-p	83%	215 x 115 x 30
RSP-320-7.5	320 Watt	88~264V AC 1ph 124~370V DC	7.5V DC 40.00A	+/- 2%	150mVp-p	88%	215 x 115 x 30
RSP-320-12	320 Watt	88~264V AC 1ph 124~370V DC	12.0V DC 26.70A	+/- 1%	150mVp-p	88%	215 x 115 x 30
RSP-320-13.5	320 Watt	88~264V AC 1ph 124~370V DC	13.5V DC 23.80A	+/- 1%	150mVp-p	88%	215 x 115 x 30
RSP-320-15	320 Watt	88~264V AC 1ph 124~370V DC	15.0V DC 21.40A	+/- 1%	150mVp-p	88%	215 x 115 x 30
RSP-320-24	320 Watt	88~264V AC 1ph 124~370V DC	24.0V DC 13.40A	+/- 1%	150mVp-p	89%	215 x 115 x 30
RSP-320-27	320 Watt	88~264V AC 1ph 124~370V DC	27.0V DC 11.90A	+/- 1%	200mVp-p	89%	215 x 115 x 30
RSP-320-36	320 Watt	88~264V AC 1ph 124~370V DC	36.0V DC 8.90A	+/- 1%	220mVp-p	89%	215 x 115 x 30
RSP-320-48	320 Watt	88~264V AC 1ph 124~370V DC	48.0V DC 6.70A	+/- 1%	240mVp-p	90%	215 x 115 x 30

RSP & PSP series of switched-mode power supplies.  
 Low profile design (RSP-500/750/1000).  
 Ratings from 500W to 1,000W.  
 Various output voltages from 3.3V to 48V DC.  
 Built-in active PFC function.  
 Forced air cooling by fan.  
 LED indicator to signal 'power on' and remote ON/OFF control.  
 UL, TUV, and EN approvals.  
 CE marked.  
 Full 3 year (RSP-500/700 and PSP-600) or  
 5 year (RSP-1000) warranty.



PSP-600-24

A high quality and highly cost-effective range of single-phase input chassis mountable switched-mode power supplies from 500W to 1,000W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage. They are approved to UL, TUV, and EN and are CE marked. Models have an LED indicator to signal 'power on' and a DC output adjuster to increase or decrease the rated output voltage by 10%. The units are designed for a wide ambient temperature range of between -30 °C to +70 °C (RSP-500/750) or -20 °C and +60 °C (PSP-600 and RSP-1000). All types have a full 3 year (RSP-500/750 and PSP-600) or 5 year (RSP-1000) warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
RSP-500-3.3	500 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 90.00A	+/- 2%	120mVp-p	81%	230.0 x 127.0 x 40.5
RSP-500-4	500 Watt	85~264V AC 1ph 120~370V DC	4.0V DC 90.00A	+/- 2%	120mVp-p	83%	230.0 x 127.0 x 40.5
RSP-500-5	500 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 90.00A	+/- 2%	150mVp-p	83%	230.0 x 127.0 x 40.5
RSP-500-12	500 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 41.70A	+/- 1%	150mVp-p	89%	230.0 x 127.0 x 40.5
RSP-500-15	500 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 33.34A	+/- 1%	150mVp-p	88%	230.0 x 127.0 x 40.5
RSP-500-24	500 Watt	85~264V AC 1ph 124~370V DC	24.0V DC 21.00A	+/- 1%	150mVp-p	89%	230.0 x 127.0 x 40.5
RSP-500-27	500 Watt	85~264V AC 1ph 124~370V DC	27.0V DC 18.60A	+/- 1%	200mVp-p	89%	230.0 x 127.0 x 40.5
RSP-500-48	500 Watt	85~264V AC 1ph 124~370V DC	48.0V DC 10.50A	+/- 1%	240mVp-p	90%	230.0 x 127.0 x 40.5
PSP-600-5	600 Watt	88~264V AC 1ph 124~370V DC	5.0V DC 80.00A	+/- 2%	180mVp-p	79%	170.0 x 120.0 x 93.0
PSP-600-12	600 Watt	88~264V AC 1ph 124~370V DC	12.0V DC 50.00A	+/- 1%	240mVp-p	84%	170.0 x 120.0 x 93.0
PSP-600-13.5	600 Watt	88~264V AC 1ph 124~370V DC	13.5V DC 44.50A	+/- 1%	240mVp-p	85%	170.0 x 120.0 x 93.0
PSP-600-15	600 Watt	88~264V AC 1ph 124~370V DC	15.0V DC 40.00A	+/- 1%	240mVp-p	85%	170.0 x 120.0 x 93.0
PSP-600-24	600 Watt	88~264V AC 1ph 124~370V DC	24.0V DC 25.00A	+/- 1%	240mVp-p	86%	170.0 x 120.0 x 93.0
PSP-600-27	600 Watt	88~264V AC 1ph 124~370V DC	27.0V DC 22.20A	+/- 1%	240mVp-p	86%	170.0 x 120.0 x 93.0
PSP-600-48	600 Watt	88~264V AC 1ph 124~370V DC	48.0V DC 12.50A	+/- 1%	300mVp-p	87%	170.0 x 120.0 x 93.0
RSP-750-5	750 Watt	90~264V AC 1ph 127~370V DC	5.0V DC 100.00A	+/- 2%	150mVp-p	82%	250.0 x 127.0 x 41.0
RSP-750-12	750 Watt	90~264V AC 1ph 127~370V DC	12.0V DC 62.50A	+/- 1%	150mVp-p	87%	250.0 x 127.0 x 41.0
RSP-750-15	750 Watt	90~264V AC 1ph 127~370V DC	15.0V DC 50.00A	+/- 1%	150mVp-p	89%	250.0 x 127.0 x 41.0
RSP-750-24	750 Watt	90~264V AC 1ph 127~370V DC	24.0V DC 31.30A	+/- 1%	150mVp-p	90%	250.0 x 127.0 x 41.0
RSP-750-27	750 Watt	90~264V AC 1ph 127~370V DC	27.0V DC 27.80A	+/- 1%	150mVp-p	90%	250.0 x 127.0 x 41.0
RSP-750-48	750 Watt	90~264V AC 1ph 127~370V DC	48.0V DC 15.70A	+/- 1%	150mVp-p	92%	250.0 x 127.0 x 41.0
RSP-1000-12	1,000 Watt	90~264V AC 1ph 127~370V DC	12.0V DC 60.00A	+/- 1%	150mVp-p	83%	295.0 x 127.0 x 41.0
RSP-1000-15	1,000 Watt	90~264V AC 1ph 127~370V DC	15.0V DC 50.00A	+/- 1%	150mVp-p	85%	295.0 x 127.0 x 41.0
RSP-1000-24	1,000 Watt	90~264V AC 1ph 127~370V DC	24.0V DC 40.00A	+/- 1%	150mVp-p	88%	295.0 x 127.0 x 41.0
RSP-1000-27	1,000 Watt	90~264V AC 1ph 127~370V DC	27.0V DC 37.00A	+/- 1%	150mVp-p	88%	295.0 x 127.0 x 41.0
RSP-1000-48	1,000 Watt	90~264V AC 1ph 127~370V DC	48.0V DC 21.00A	+/- 1%	150mVp-p	90%	295.0 x 127.0 x 41.0

RSP & RST series of switched-mode power supplies.  
 RSP with 1ph input and RST with 3ph + N input.  
 Ratings from 1,500W to 3,000W (RSP series) and 5,000W to 10,000W (RST series).  
 Various output voltages from 5V to 48V DC.  
 Built-in active PFC function.  
 Forced by cooling by fan.  
 LED indicator to signal 'power on' and remote ON/OFF control.  
 UL, TUV, and EN approvals.  
 CE marked.  
 Full 5 year warranty.



A high quality and highly cost-effective range of single-phase input chassis mountable switched-mode power supplies from 1,500W to 10,000W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage. They are approved to UL, TUV, and EN and are CE marked. Models have an LED indicator to signal 'power on' and a DC output adjuster to decrease the rated output voltage by 2% (RST-5000/10000), 10% (RSP-2000/2400/3000) or 30% (RSP-1500/1600) or increase the rated output voltage by 10% (RSP series) or 20% (RST series). The units have alarm an signal output and a full 5 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
RSP-1500-5	1,500 Watt	90~264V AC 1ph 127~370V DC	5V DC 240.0A	+/- 2.0%	150mVp-p	80.0%	278.0 x 127.0 x 83.5
RSP-1500-12	1,500 Watt	90~264V AC 1ph 127~370V DC	12V DC 125.0A	+/- 1.0%	150mVp-p	87.0%	278.0 x 127.0 x 83.5
RSP-1500-15	1,500 Watt	90~264V AC 1ph 127~370V DC	15V DC 100.0A	+/- 1.0%	150mVp-p	87.0%	278.0 x 127.0 x 83.5
RSP-1500-24	1,500 Watt	90~264V AC 1ph 127~370V DC	24V DC 63.0A	+/- 1.0%	150mVp-p	90.0%	278.0 x 127.0 x 83.5
RSP-1500-27	1,500 Watt	90~264V AC 1ph 127~370V DC	27V DC 56.0A	+/- 1.0%	150mVp-p	90.0%	278.0 x 127.0 x 83.5
RSP-1500-48	1,500 Watt	90~264V AC 1ph 127~370V DC	48V DC 32.0A	+/- 1.0%	200mVp-p	91.0%	278.0 x 127.0 x 83.5
RSP-1600-12	1,600 Watt	90~264V AC 1ph 127~370V DC	12V DC 125.0A	+/- 1.0%	150mVp-p	89.0%	300.0 x 85.0 x 41.0
RSP-1600-24	1,600 Watt	90~264V AC 1ph 127~370V DC	24V DC 67.0A	+/- 1.0%	200mVp-p	91.5%	300.0 x 85.0 x 41.0
RSP-1600-27	1,600 Watt	90~264V AC 1ph 127~370V DC	27V DC 59.0A	+/- 1.0%	200mVp-p	92.0%	300.0 x 85.0 x 41.0
RSP-1600-36	1,600 Watt	90~264V AC 1ph 127~370V DC	36V DC 44.5A	+/- 1.0%	250mVp-p	92.0%	300.0 x 85.0 x 41.0
RSP-1600-48	1,600 Watt	90~264V AC 1ph 127~370V DC	48V DC 33.5A	+/- 1.0%	300mVp-p	93.0%	300.0 x 85.0 x 41.0
RSP-2000-12	2,000 Watt	90~264V AC 1ph 127~370V DC	12V DC 100.0A	+/- 2.0%	150mVp-p	87.0%	295.0 x 127.0 x 41.0
RSP-2000-24	2,000 Watt	90~264V AC 1ph 127~370V DC	24V DC 80.0A	+/- 1.0%	200mVp-p	90.0%	295.0 x 127.0 x 41.0
RSP-2000-48	2,000 Watt	90~264V AC 1ph 127~370V DC	48V DC 42.0A	+/- 1.0%	300mVp-p	92.0%	295.0 x 127.0 x 41.0
RSP-2400-12	2,400 Watt	180~264V AC 1ph 254~270V DC	12V DC 166.7A	+/- 1.0%	150mVp-p	87.0%	278.0 x 178.0 x 63.5
RSP-2400-24	2,400 Watt	180~264V AC 1ph 254~270V DC	24V DC 100.0A	+/- 1.0%	150mVp-p	90.0%	278.0 x 178.0 x 63.5
RSP-2400-48	2,400 Watt	180~264V AC 1ph 254~270V DC	48V DC 50.0A	+/- 1.0%	200mVp-p	91.0%	278.0 x 178.0 x 63.5
RSP-3000-12	3,000 Watt	180~264V AC 1ph 254~270V DC	12V DC 200.0A	+/- 1.0%	150mVp-p	86.0%	278.0 x 178.0 x 63.5
RSP-3000-24	3,000 Watt	180~264V AC 1ph 254~270V DC	24V DC 125.0A	+/- 1.0%	150mVp-p	89.0%	278.0 x 178.0 x 63.5
RSP-3000-48	3,000 Watt	180~264V AC 1ph 254~270V DC	48V DC 62.5A	+/- 2.0%	200mVp-p	90.0%	278.0 x 178.0 x 63.5
RST-5000-24	5,000 Watt	196~205V AC 3ph 3-wire Delta / 340~530V AC 3ph 4-wire Star	24V DC 200.0A	+/- 1.0%	150mVp-p	89.0%	480.0 x 211.0 x 83.5
RST-5000-48	5,000 Watt	196~205V AC 3ph 3-wire Delta / 340~530V AC 3ph 4-wire Star	48V DC 105.0A	+/- 1.0%	200mVp-p	91.0%	480.0 x 211.0 x 83.5
RST-10000-24	10,000 Watt	196~205V AC 3ph 3-wire Delta / 340~530V AC 3ph 4-wire Star	24V DC 400.0A	+/- 1.0%	150mVp-p	89.0%	540.0 x 424.0 x 83.5
RST-10000-36	10,000 Watt	196~205V AC 3ph 3-wire Delta / 340~530V AC 3ph 4-wire Star	36V DC 276.0A	+/- 1.0%	200mVp-p	90.0%	540.0 x 424.0 x 83.5
RST-10000-48	10,000 Watt	196~205V AC 3ph 3-wire Delta / 340~530V AC 3ph 4-wire Star	48V DC 210.0A	+/- 1.0%	200mVp-p	91.0%	540.0 x 424.0 x 83.5

- SP series of switched-mode power supplies.
- Low profile design (SP-75).
- Ratings from 75 Watts to 240 Watts.
- Various output voltages from 3.3V to 48V DC.
- Built-in active PFC function.
- Cooling by free air convection (SP-75/100/150).
- Forced air cooling by built-in DC fan (SP-200/240).
- LED indicator to signal 'power on'.
- Remote ON/OFF control (SP-75/100/150/200).
- UL, TUV, and EN approvals.
- CE marked.
- Full 3 year warranty.

SP-200-24



A high quality and highly cost-effective range of single-phase input chassis mountable switched-mode power supplies from 75W to 240W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage (SP-150/200/240). They are approved to UL, TUV, and EN and are CE marked. Models have an LED indicator to signal 'power on' and a DC output adjuster to decrease the rated output voltage by 5% or increase the rated output voltage by 10%. The units are designed for a wide ambient temperature range of  $-10\text{ }^{\circ}\text{C}$  to  $+60\text{ }^{\circ}\text{C}$  (SP-75/100/150),  $-10\text{ }^{\circ}\text{C}$  to  $+55\text{ }^{\circ}\text{C}$  (SP-200), or  $-20\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$  (SP-240). All types have a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
SP-75-3.3	75 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 15.0A	+/- 2%	80mVp-p	70.0%	179 x 97 x 33
SP-75-5	75 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 15.0A	+/- 2%	80mVp-p	76.0%	179 x 97 x 33
SP-75-7.5	75 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 10.0A	+/- 2%	80mVp-p	79.0%	179 x 97 x 33
SP-75-12	75 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 6.3A	+/- 2%	80mVp-p	81.0%	179 x 97 x 33
SP-75-13.5	75 Watt	85~264V AC 1ph 120~370V DC	13.5V DC 5.6A	+/- 2%	80mVp-p	82.0%	179 x 97 x 33
SP-75-15	75 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 5.0A	+/- 2%	80mVp-p	82.0%	179 x 97 x 33
SP-75-24	75 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 3.2A	+/- 1%	100mVp-p	83.0%	179 x 97 x 33
SP-75-27	75 Watt	85~264V AC 1ph 120~370V DC	27.0V DC 2.8A	+/- 1%	100mVp-p	83.0%	179 x 97 x 33
SP-75-48	75 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 1.6A	+/- 1%	100mVp-p	83.0%	179 x 97 x 33
SP-100-3.3	100 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 20.0A	+/- 2%	100mVp-p	75.0%	179 x 99 x 45
SP-100-5	100 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 20.0A	+/- 2%	100mVp-p	70.0%	179 x 99 x 45
SP-100-7.5	100 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 13.5A	+/- 2%	100mVp-p	82.0%	179 x 99 x 45
SP-100-12	100 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 8.5A	+/- 2%	100mVp-p	82.5%	179 x 99 x 45
SP-100-13.5	100 Watt	85~264V AC 1ph 120~370V DC	13.5V DC 7.5A	+/- 2%	100mVp-p	83.0%	179 x 99 x 45
SP-100-15	100 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 6.7A	+/- 2%	100mVp-p	84.0%	179 x 99 x 45
SP-100-24	100 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 4.2A	+/- 1%	100mVp-p	87.0%	179 x 99 x 45
SP-100-27	100 Watt	85~264V AC 1ph 120~370V DC	27.0V DC 3.8A	+/- 1%	150mVp-p	88.0%	179 x 99 x 45
SP-100-48	100 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 2.1A	+/- 1%	150mVp-p	84.0%	179 x 99 x 45
SP-150-3.3	150 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 30.0A	+/- 2%	250mVp-p	73.0%	199 x 99 x 50
SP-150-5	150 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 30.0A	+/- 2%	100mVp-p	77.5%	199 x 99 x 50
SP-150-7.5	150 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 20.0A	+/- 2%	100mVp-p	81.0%	199 x 99 x 50
SP-150-12	150 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 12.5A	+/- 2%	100mVp-p	84.0%	199 x 99 x 50
SP-150-13.5	150 Watt	85~264V AC 1ph 120~370V DC	13.5V DC 11.2A	+/- 2%	100mVp-p	84.0%	199 x 99 x 50
SP-150-15	150 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 10.0A	+/- 2%	100mVp-p	85.0%	199 x 99 x 50
SP-150-24	150 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 6.3A	+/- 1%	150mVp-p	85.0%	199 x 99 x 50
SP-150-27	150 Watt	85~264V AC 1ph 120~370V DC	27.0V DC 5.6A	+/- 1%	150mVp-p	85.0%	199 x 99 x 50
SP-150-48	150 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 3.2A	+/- 1%	250mVp-p	85.0%	199 x 99 x 50
SP-200-3.3	200 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 40.0A	+/- 2%	100mVp-p	69.0%	199 x 99 x 50
SP-200-5	200 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 40.0A	+/- 2%	100mVp-p	76.0%	199 x 99 x 50
SP-200-7.5	200 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 26.7A	+/- 2%	100mVp-p	78.5%	199 x 99 x 50
SP-200-12	200 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 16.7A	+/- 2%	100mVp-p	84.0%	199 x 99 x 50
SP-200-13.5	200 Watt	85~264V AC 1ph 120~370V DC	13.5V DC 14.9A	+/- 2%	100mVp-p	84.0%	199 x 99 x 50
SP-200-15	200 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 13.4A	+/- 2%	100mVp-p	84.0%	199 x 99 x 50
SP-200-24	200 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 8.4A	+/- 1%	150mVp-p	85.0%	199 x 99 x 50
SP-200-27	200 Watt	85~264V AC 1ph 120~370V DC	30.0V DC 7.5A	+/- 1%	150mVp-p	85.0%	199 x 99 x 50
SP-200-48	200 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 4.2A	+/- 1%	250mVp-p	85.0%	199 x 99 x 50
SP-240-5	240 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 45.0A	+/- 2%	150mVp-p	79.0%	190 x 93 x 50
SP-240-7.5	240 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 32.0A	+/- 2%	150mVp-p	83.0%	190 x 93 x 50
SP-240-12	240 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 20.0A	+/- 1%	150mVp-p	86.0%	190 x 93 x 50
SP-240-15	240 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 16.0A	+/- 1%	150mVp-p	86.0%	190 x 93 x 50
SP-240-24	240 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 10.0A	+/- 1%	150mVp-p	87.0%	190 x 93 x 50
SP-240-30	240 Watt	85~264V AC 1ph 120~370V DC	30.0V DC 8.0A	+/- 1%	150mVp-p	88.0%	190 x 93 x 50
SP-240-48	240 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 5.0A	+/- 1%	150mVp-p	89.0%	190 x 93 x 50

SP series of switched-mode power supplies.  
 Low profile design (SP-480).  
 Ratings from 320 Watts to 750 Watts.  
 Various output voltages from 3.3V to 48V DC.  
 Built-in active PFC function.  
 Forced air cooling by built-in DC fan.  
 LED indicator to signal 'power on'.  
 Remote ON/OFF control (SP-480/750).  
 UL, TUV, and EN approvals.  
 CE marked.  
 Full 3 year warranty.



SP-320-24

A high quality and highly cost-effective range of single-phase input chassis mountable switched-mode power supplies from 320W to 480W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage. They are approved to UL, TUV, and EN and are CE marked. Models have an LED indicator to signal 'power on' and a DC output adjuster to increase or decrease the rated output voltage by 10%. The units are designed for a wide ambient temperature range of -20 °C to +65 °C. All types have a full 3 year warranty for complete peace of mind after purchase. The SP-320-5PNC has conformal coating and is suitable for moving LED sign applications (MOQ required - please contact our sales department for further information).

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
SP-320-3.3	320 Watt	88~264V AC 1ph	3.3V DC 60.0A	+/- 1.0%	150mVp-p	74%	215.0 x 115.0 x 50.0
SP-320-5	320 Watt	88~264V AC 1ph	5.0V DC 55.0A	+/- 2.0%	150mVp-p	79%	215.0 x 115.0 x 50.0
SP-320-5PNC	320 Watt	88~264V AC 1ph	5.0V DC 55.0A	+/- 2.0%	150mVp-p	80%	215.0 x 115.0 x 50.0
SP-320-7.5	320 Watt	88~264V AC 1ph	7.5V DC 40.0A	+/- 2.0%	150mVp-p	83%	215.0 x 115.0 x 50.0
SP-320-12	320 Watt	88~264V AC 1ph	12.0V DC 25.0A	+/- 1.0%	150mVp-p	86%	215.0 x 115.0 x 50.0
SP-320-13.5	320 Watt	88~264V AC 1ph	13.5V DC 25.0A	+/- 1.0%	150mVp-p	86%	215.0 x 115.0 x 50.0
SP-320-15	320 Watt	88~264V AC 1ph	15.0V DC 20.0A	+/- 1.0%	150mVp-p	86%	215.0 x 115.0 x 50.0
SP-320-24	320 Watt	88~264V AC 1ph	24.0V DC 13.0A	+/- 1.0%	150mVp-p	87%	215.0 x 115.0 x 50.0
SP-320-27	320 Watt	88~264V AC 1ph	27.0V DC 11.7A	+/- 1.0%	200mVp-p	88%	215.0 x 115.0 x 50.0
SP-320-36	320 Watt	88~264V AC 1ph	36.0V DC 8.8A	+/- 1.0%	220mVp-p	87%	215.0 x 115.0 x 50.0
SP-320-48	320 Watt	88~264V AC 1ph	48.0V DC 6.7A	+/- 1.0%	240mVp-p	89%	215.0 x 115.0 x 50.0
SP-480-3.3	480 Watt	88~264V AC 1ph	3.3V DC 85.0A	+/- 2.0%	80mVp-p	73%	278.0 x 127.0 x 43.0
SP-480-5	480 Watt	88~264V AC 1ph	5.0V DC 85.0A	+/- 2.0%	80mVp-p	79%	278.0 x 127.0 x 43.0
SP-480-12	480 Watt	88~264V AC 1ph	12.0V DC 43.0A	+/- 1.5%	120mVp-p	85%	278.0 x 127.0 x 43.0
SP-480-15	480 Watt	88~264V AC 1ph	15.0V DC 35.0A	+/- 1.5%	150mVp-p	85%	278.0 x 127.0 x 43.0
SP-480-24	480 Watt	88~264V AC 1ph	24.0V DC 22.0A	+/- 1.0%	150mVp-p	87%	278.0 x 127.0 x 43.0
SP-480-48	480 Watt	88~264V AC 1ph	48.0V DC 11.0A	+/- 1.0%	240mVp-p	89%	278.0 x 127.0 x 43.0
SP-750-5	750 Watt	88~264V AC 1ph	5.0V DC 120.0A	+/- 2.0%	120mVp-p	80%	278.0 x 127.0 x 63.5
SP-750-12	750 Watt	88~264V AC 1ph	12.0V DC 62.5A	+/- 1.0%	120mVp-p	85%	278.0 x 127.0 x 63.5
SP-750-15	750 Watt	88~264V AC 1ph	15.0V DC 50.0A	+/- 1.0%	120mVp-p	87%	278.0 x 127.0 x 63.5
SP-750-24	750 Watt	88~264V AC 1ph	24.0V DC 31.3A	+/- 1.0%	120mVp-p	89%	278.0 x 127.0 x 63.5
SP-750-27	750 Watt	88~264V AC 1ph	27.0V DC 27.8A	+/- 1.0%	120mVp-p	89%	278.0 x 127.0 x 63.5
SP-750-48	750 Watt	88~264V AC 1ph	48.0V DC 15.7A	+/- 1.0%	120mVp-p	90%	278.0 x 127.0 x 63.5

- HRPG series of switched-mode power supplies.
- Low profile design.
- Ratings from 150 Watts to 200 Watts.
- Various output voltages from 3.3V to 48V.
- High efficiency up to 89%.
- Built-in active PFC function.
- Cooling by free air convection.
- Remote ON/OFF control.
- UL, TUV, and EN approvals.
- CE marked.
- Full 5 year warranty.



HRPG-150-24

A high quality and highly cost-effective range of single-phase input switched-mode power supplies for chassis mounting from 150W to 200W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage. They are approved to UL, TUV, and EN standards and are CE marked. Models have remote ON/OFF control and are designed for a wide ambient temperature range of between  $-40\text{ }^{\circ}\text{C}$  and  $+60\text{ }^{\circ}\text{C}$  (HRPG-150) or  $-40\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$  (HRPG-200). The units can withstand a surge of 300V AC for 5 seconds without damage and all come with a full 5 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
HRPG-150-3.3	150 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 30.0A	+/- 2.5%	80mVp-p	78.5%	159 x 97 x 38
HRPG-150-5	150 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 26.0A	+/- 2.5%	80mVp-p	85.0%	159 x 97 x 38
HRPG-150-7.5	150 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 20.0A	+/- 2.5%	100mVp-p	87.0%	159 x 97 x 38
HRPG-150-12	150 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 13.0A	+/- 1.5%	120mVp-p	88.0%	159 x 97 x 38
HRPG-150-15	150 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 10.0A	+/- 1.5%	150mVp-p	88.0%	159 x 97 x 38
HRPG-150-24	150 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 6.5A	+/- 1.5%	150mVp-p	88.0%	159 x 97 x 38
HRPG-150-36	150 Watt	85~264V AC 1ph 120~370V DC	36.0V DC 4.3A	+/- 1.5%	200mVp-p	89.0%	159 x 97 x 38
HRPG-150-48	150 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 3.3A	+/- 1.5%	240mVp-p	89.0%	159 x 97 x 38
HRPG-200-3.3	200 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 40.0A	+/- 2.0%	80mVp-p	80.0%	199 x 98 x 38
HRPG-200-5	200 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 35.0A	+/- 2.0%	90mVp-p	84.0%	199 x 98 x 38
HRPG-200-7.5	200 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 26.7A	+/- 2.0%	100mVp-p	86.0%	199 x 98 x 38
HRPG-200-12	200 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 16.7A	+/- 1.0%	120mVp-p	88.0%	199 x 98 x 38
HRPG-200-15	200 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 13.4A	+/- 1.0%	150mVp-p	88.0%	199 x 98 x 38
HRPG-200-24	200 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 8.4A	+/- 1.0%	150mVp-p	88.0%	199 x 98 x 38
HRPG-200-36	200 Watt	85~264V AC 1ph 120~370V DC	36.0V DC 5.7A	+/- 1.0%	250mVp-p	89.0%	199 x 98 x 38
HRPG-200-48	200 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 4.3A	+/- 1.0%	250mVp-p	89.0%	199 x 98 x 38

HRPG series of switched-mode power supplies.  
 Low profile design (HRPG-300/450).  
 Ratings from 300 Watts to 600 Watts.  
 Various output voltages from 3.3V to 48V.  
 High efficiency up to 89.5%.  
 Built-in active PFC function.  
 Forced air cooling by built-in DC fan.  
 Remote ON/OFF control.  
 UL, TUV, and EN approvals.  
 CE marked.  
 Full 3 year warranty.



HRPG-300-24

A high quality and highly cost-effective range of single-phase input switched-mode power supplies for chassis mounting from 300W to 600W. All units are available with a variety of output voltages and are fully protected against overload, short circuit, over temperature, and over voltage. They are approved to UL, TUV, and EN standards and are CE marked. Models have a remote ON/OFF control and are designed for a wide ambient temperature range of  $-40^{\circ}\text{C}$  and  $+70^{\circ}\text{C}$ . The units can withstand a surge of 300V AC for 5 seconds without damage and all come with a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
HRPG-300-3.3	300 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 60.0A	+/- 2.5%	80mVp-p	80.0%	199.0 x 105.0 x 41.0
HRPG-300-5	300 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 60.0A	+/- 2.0%	90mVp-p	82.0%	199.0 x 105.0 x 41.0
HRPG-300-7.5	300 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 40.0A	+/- 2.0%	100mVp-p	86.0%	199.0 x 105.0 x 41.0
HRPG-300-12	300 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 27.0A	+/- 1.0%	120mVp-p	88.0%	199.0 x 105.0 x 41.0
HRPG-300-15	300 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 22.0A	+/- 1.0%	150mVp-p	88.0%	199.0 x 105.0 x 41.0
HRPG-300-24	300 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 14.0A	+/- 1.0%	150mVp-p	87.0%	199.0 x 105.0 x 41.0
HRPG-300-36	300 Watt	85~264V AC 1ph 120~370V DC	36.0V DC 9.0A	+/- 1.0%	250mVp-p	88.0%	199.0 x 105.0 x 41.0
HRPG-300-48	300 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 7.0A	+/- 1.0%	250mVp-p	89.0%	199.0 x 105.0 x 41.0
HRPG-450-3.3	450 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 90.0A	+/- 2.0%	80mVp-p	80.0%	218.0 x 105.0 x 41.0
HRPG-450-5	450 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 90.0A	+/- 2.0%	80mVp-p	83.0%	218.0 x 105.0 x 41.0
HRPG-450-7.5	450 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 60.0A	+/- 2.0%	100mVp-p	86.5%	218.0 x 105.0 x 41.0
HRPG-450-12	450 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 37.5A	+/- 1.0%	120mVp-p	88.0%	218.0 x 105.0 x 41.0
HRPG-450-15	450 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 30.0A	+/- 1.0%	150mVp-p	89.0%	218.0 x 105.0 x 41.0
HRPG-450-24	450 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 18.8A	+/- 1.0%	150mVp-p	88.0%	218.0 x 105.0 x 41.0
HRPG-450-36	450 Watt	85~264V AC 1ph 120~370V DC	36.0V DC 12.5A	+/- 1.0%	240mVp-p	89.0%	218.0 x 105.0 x 41.0
HRPG-450-48	450 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 9.5A	+/- 1.0%	240mVp-p	89.5%	218.0 x 105.0 x 41.0
HRPG-600-3.3	600 Watt	85~264V AC 1ph 120~370V DC	3.3V DC 120.0A	+/- 2.0%	100mVp-p	78.5%	218.0 x 105.0 x 63.5
HRPG-600-5	600 Watt	85~264V AC 1ph 120~370V DC	5.0V DC 120.0A	+/- 2.0%	100mVp-p	82.0%	218.0 x 105.0 x 63.5
HRPG-600-7.5	600 Watt	85~264V AC 1ph 120~370V DC	7.5V DC 80.0A	+/- 2.0%	100mVp-p	87.0%	218.0 x 105.0 x 63.5
HRPG-600-12	600 Watt	85~264V AC 1ph 120~370V DC	12.0V DC 53.0A	+/- 1.0%	120mVp-p	88.0%	218.0 x 105.0 x 63.5
HRPG-600-15	600 Watt	85~264V AC 1ph 120~370V DC	15.0V DC 43.0A	+/- 1.0%	150mVp-p	88.0%	218.0 x 105.0 x 63.5
HRPG-600-24	600 Watt	85~264V AC 1ph 120~370V DC	24.0V DC 27.0A	+/- 1.0%	150mVp-p	88.0%	218.0 x 105.0 x 63.5
HRPG-600-36	600 Watt	85~264V AC 1ph 120~370V DC	36.0V DC 17.5A	+/- 1.0%	200mVp-p	89.0%	218.0 x 105.0 x 63.5
HRPG-600-48	600 Watt	85~264V AC 1ph 120~370V DC	48.0V DC 13.0A	+/- 1.0%	240mVp-p	89.0%	218.0 x 105.0 x 63.5

- DRC security series for mounting on TS-35-7.5/15 DIN rail.
- Single output with battery charger and UPS functionality.
- Ratings from 40 Watts to 100 Watts.
- Input of 90~264V AC and 127~370V DC.
- Outputs of 13.8V and 27.6V DC.
- Two channels (main power and charging circuit).
- Alarm signal for 'AC OK' and 'battery low'.
- LED indicator for 'power on'.
- 100% full load burn-in test.
- Full 3 year warranty.



DRC-60B

A comprehensive range of DIN rail mountable power supplies for security applications with battery charger and UPS function (external batteries required). These units have a single output voltage of either 13.8V or 27.6V for the main power or charging circuit through two channels. The power supplies within this range accept the universal input of between 90V and 264V AC. The efficiency of the models spans from 86% to 89% and they are short circuit, overload, over voltage, and 'battery low' protected. Further, the units are battery reverse protected using a fuse. Cooling is by free air convection and the DC adjustment range on Channel 1 for 13.8V is 12~15V and 27.6V is 24~30V. The models feature an LED indicator for 'power on' and have each been subjected to a 100% full load burn-in test. The working temperature is -30 °C to +70 °C and all units are designed and approved to the safety standards UL 60950-1 and TUV EN 60950-1. A full 3 year warranty is given upon purchase to ensure complete peace of mind.

### APPLICATIONS INCLUDE:

Security systems, emergency lighting systems, alarm systems,  
DC UPS systems, central monitoring systems,  
and access systems

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
DRC-40A	40 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 2.90A CH2: 13.8V DC 1.00A	+/- 1% -	120mVp-p -	86% 86%	40 x 90 x 100
DRC-40B	40 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 1.45A CH2: 27.6V DC 0.50A	+/- 1% -	200mVp-p -	87% 87%	40 x 90 x 100
DRC-60A	60 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 4.30A CH2: 13.8V DC 1.50A	+/- 1% -	120mVp-p -	86% 86%	40 x 90 x 100
DRC-60B	60 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 2.15A CH2: 27.6V DC 0.75A	+/- 1% -	200mVp-p -	88% 88%	40 x 90 x 100
DRC-100A	100 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 7.00A CH2: 13.8V DC 2.50A	+/- 1% -	120mVp-p -	87% 87%	55 x 90 x 100
DRC-100B	100 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 3.50A CH2: 27.6V DC 1.25A	+/- 1% -	240mVp-p -	89% 89%	55 x 90 x 100

Open frame or enclosed switched-mode power supplies with battery charger.  
 Ratings from 35 Watts to 160 Watts.  
 Output voltages either 13.8V or 27.6V DC.  
 Built-in PFC function (PSC-160).  
 Compact size.  
 Cooling by free air convection.  
 100% full load burn-in test.  
 Approved to UL and EN standards.  
 Full 2 year warranty.

PSC-160A-C



PSC-160A



A high quality and highly cost-effective range of open frame switched-mode power supplies for chassis mounting with battery charger from 35W to 65W. Units are available with either 13.8V or 27.6V DC output voltages and have each been subjected to a 100% full load burn-in test. The battery charger has UPS function and the PSC-160 features built-in PFC function. Models are fully protected against low battery and are battery reverse protected using a fuse. They are approved to UL 60950-1 and TUV EN 60950-1 and designed for a wide ambient temperature range of -20 °C to +70 °C. All units come with a full 2 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
PSC-35A	35 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 2.60A CH2: 13.8V DC 0.90A	+/- 1% -	120mVp-p -	84% 84%	84.6 x 50.8 x 24.0
PSC-35B	35 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 1.30A CH2: 27.6V DC 0.45A	+/- 1% -	240mVp-p -	86% 86%	84.6 x 50.8 x 24.0
PSC-60A	60 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 4.30A CH2: 13.8V DC 1.50A	+/- 1% -	120mVp-p -	84% 84%	101.6 x 50.8 x 29.0
PSC-60B	60 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 2.15A CH2: 27.6V DC 0.75A	+/- 1% -	240mVp-p -	84% 84%	101.6 x 50.8 x 29.0
PSC-100A	100 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 7.00A CH2: 13.8V DC 2.50A	+/- 1% -	100mVp-p -	86% 86%	127.9 x 76.2 x 31.0
PSC-100B	100 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 3.50A CH2: 27.6V DC 1.25A	+/- 1% -	100mVp-p -	88% 88%	127.9 x 76.2 x 31.0
PSC-160A	160 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 11.60A CH2: 13.8V DC 4.00A	+/- 1% -	150mVp-p -	88% 88%	152.4 x 76.2 x 32.0
PSC-160B	160 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 5.80A CH2: 27.6V DC 2.00A	+/- 1% -	240mVp-p -	90% 90%	152.4 x 76.2 x 32.0

A high quality and highly cost-effective range of enclosed switched-mode power supplies for chassis mounting with battery charger from 35W to 65W. Units are available with either 13.8V or 27.6V DC output voltages and have each been subjected to a 100% full load burn-in test. The battery charger has UPS function and the PSC-160 features built-in PFC function. Models are fully protected against low battery and are battery reverse protected using a fuse. They are approved to UL 60950-1 and TUV EN 60950-1 and designed for a wide ambient temperature range of -20 °C to +70 °C. All units come with a full 2 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
PSC-35A-C	35 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 2.60A CH2: 13.8V DC 0.90A	+/- 1% -	120mVp-p -	84% 84%	86.4 x 59.6 x 30.0
PSC-35B-C	35 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 1.30A CH2: 27.6V DC 0.45A	+/- 1% -	240mVp-p -	86% 86%	86.4 x 59.6 x 30.0
PSC-60A-C	60 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 4.30A CH2: 13.8V DC 1.50A	+/- 1% -	120mVp-p -	84% 84%	103.4 x 62.0 x 37.0
PSC-60B-C	60 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 2.15A CH2: 27.6V DC 0.75A	+/- 1% -	240mVp-p -	84% 84%	103.4 x 62.0 x 37.0
PSC-100A-C	100 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 7.00A CH2: 13.8V DC 2.50A	+/- 1% -	100mVp-p -	86% 86%	130.0 x 85.0 x 37.0
PSC-100B-C	100 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 3.50A CH2: 27.6V DC 1.25A	+/- 1% -	100mVp-p -	88% 88%	130.0 x 85.0 x 37.0
PSC-160A-C	160 Watt	90~264V AC 1ph 127~370V DC	CH1: 13.8V DC 11.60A CH2: 13.8V DC 4.00A	+/- 1% -	150mVp-p -	88% 88%	155.4 x 85.0 x 37.0
PSC-160B-C	160 Watt	90~264V AC 1ph 127~370V DC	CH1: 27.6V DC 5.80A CH2: 27.6V DC 2.00A	+/- 1% -	240mVp-p -	90% 90%	155.4 x 85.0 x 37.0

SCP security series of enclosed power supplies.  
 Ratings from 35 Watts to 75 Watts.  
 Output voltages of either 13.8V or 27.6V DC.  
 Cooling by free air convection.  
 100% full load burn-in test.  
 Suitable for installation in metallic and non-metallic systems enclosure.  
 UL, TUV, and EN approvals.  
 CE marked.  
 Full 2 year warranty.



SCP-75-24

A high quality and cost-effective range of single-phase input switched-mode power supplies for chassis mounting from 35W to 75W. Units are available with output voltages of either 13.8V or 27.6V DC and are protected against short circuit, overload, and over voltage. In addition, models feature battery reverse polarity protection by the fuse. They are approved to UL 60950-1 and are CE marked. The power supplies within this range possess a temperature compensation function and a wide ambient temperature range of -20 °C and +60 °C. All units come with a full 2 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
SCP-35-12	35 Watt	85~264V AC 1ph 120~370V DC	13.8V DC 2.6A	+/- 2%	120mVp-p	83%	99 x 97 x 36
SCP-35-24	35 Watt	85~264V AC 1ph 120~370V DC	27.6V DC 1.4A	+/- 1%	200mVp-p	86%	99 x 97 x 36
SCP-50-12	50 Watt	85~264V AC 1ph 120~370V DC	13.8V DC 3.6A	+/- 2%	120mVp-p	81%	129 x 98 x 39
SCP-50-24	50 Watt	85~264V AC 1ph 120~370V DC	27.6V DC 1.8A	+/- 1%	200mVp-p	85%	129 x 98 x 39
SCP-75-12	75 Watt	85~264V AC 1ph 120~370V DC	13.8V DC 5.4A	+/- 2%	120mVp-p	81%	159 x 97 x 38
SCP-75-24	75 Watt	85~264V AC 1ph 120~370V DC	27.6V DC 2.7A	+/- 1%	200mVp-p	85%	159 x 97 x 38

Single 12V, 24V, or 48V DC output with 3A or 4A DC to DC converter.  
 Input of 88~264V AC and 124~370V DC.  
 155 Watt models with PFC function.  
 Short circuit, overload, and over voltage protected.  
 100% full load burn-in test.  
 Ambient temperature range from -10 °C to +60 °C.  
 Full 2 year warranty.



ADS-55B

Reference	Wattage	Output Voltage and Current	Load Regulation	Line Regulation	Output V Adjustment	Ripple & Noise	Output V Tolerance	Efficiency	Dimensions D x W x H (mm)
ADS-55-12	55 Watts	CH1: 12V DC 4.0A CH2: 5V DC 4.0A	+/- 0.5% +/- 0.5%	+/- 0.5% +/- 0.5%	10.8~13.2V DC -	100mVp-p 100mVp-p	+/- 1.0% +/- 3.0%	76% 76%	97 x 159 x 38
ADS-55-24	55 Watts	CH1: 24V DC 2.5A CH2: 5V DC 4.0A	+/- 1.0% +/- 1.0%	+/- 0.5% +/- 0.5%	21.6~26.4V DC -	100mVp-p 100mVp-p	+/- 1.0% +/- 3.0%	79% 79%	97 x 159 x 38
ADS-155-12	155 Watts	CH1: 12V DC 12.5A CH2: 5V DC 3.0A	+/- 0.5% +/- 1.0%	+/- 0.5% +/- 2.0%	10.8~13.2V DC -	150mVp-p 100mVp-p	+/- 2.0% +/- 3.0%	77% 77%	110 x 199 x 50
ADS-155-24	155 Watts	CH1: 24V DC 6.5A CH2: 5V DC 3.0A	+/- 0.5% +/- 0.5%	+/- 0.5% +/- 2.0%	21.6~26.4V DC -	150mVp-p 100mVp-p	+/- 1.0% +/- 3.0%	82% 82%	110 x 199 x 50
ADS-155-48	155 Watts	CH1: 48V DC 3.2A CH2: 5V DC 3.0A	+/- 0.5% +/- 1.0%	+/- 0.5% +/- 1.0%	43.2~52.8V DC -	240mVp-p 100mVp-p	+/- 1.0% +/- 5.0%	82% 82%	110 x 199 x 50

Single 12V or 24V DC output plus battery charger with UPS function.  
 Input of 88~264V AC and 124~370V DC.  
 155 Watt models with PFC function.  
 Short circuit, overload, and over voltage protected.  
 Battery low protection.  
 100% full load burn-in test.  
 Ambient temperature range from -10 °C to +60 °C.  
 Full 2 year warranty.



AD-155B

Reference	Wattage	Output Voltage and Current	Load Regulation	Line Regulation	Output V Adjustment	Ripple & Noise	Output V Tolerance	Efficiency	Dimensions D x W x H (mm)
AD-55A	55 Watts	CH1: 13.8V DC 4.00A CH2: 13.4V DC 0.23A	+/- 0.5% -	+/- 0.5% -	12.0~14.5V DC -	100mVp-p -	+/- 1.0% -	71% 71%	97 x 159 x 38
AD-55B	55 Watts	CH1: 27.6V DC 2.00A CH2: 26.5V DC 0.16A	+/- 0.5% -	+/- 0.5% -	24.0~29.0V DC -	100mVp-p -	+/- 1.0% -	74% 74%	97 x 159 x 38
AD-155A	155 Watts	CH1: 13.8V DC 11.50A CH2: 13.3V DC 0.50A	+/- 0.5% -	+/- 0.5% -	12.0~14.5V DC -	150mVp-p -	+/- 1.0% -	80% 80%	110 x 199 x 50
AD-155B	155 Watts	CH1: 27.6V DC 5.50A CH2: 27.1V DC 0.50A	+/- 0.5% -	+/- 0.5% -	24.0~29.0V DC -	150mVp-p -	+/- 1.0% -	84% 84%	110 x 199 x 50

Dual 12V, 24V, or 48V DC output plus battery charger with UPS function.  
 Input of 88~264V AC and 124~370V DC.  
 155 Watt models come with PFC function.  
 Short circuit, overload, and over voltage protected.  
 Battery low protection.  
 100% full load burn-in test.  
 Ambient temperature range from -10 °C to +60 °C.  
 Full 2 year warranty.



ADD-155C

Reference	Wattage	Output Voltage and Current	Load Regulation	Line Regulation	Output V Adjustment	Ripple & Noise	Output V Tolerance	Efficiency	Dimensions D x W x H (mm)
ADD-55A	55 Watts	CH1: 13.8V DC 2.50A CH2: 5.0V DC 3.00A CH3: 13.4V DC 0.23A	+/- 1.0% +/- 0.5% -	+/- 1.0% +/- 0.5% -	12.0~14.5V DC - -	100mVp-p 100mVp-p -	+/- 1.0% +/- 3.0% -	71% 71% 71%	97 x 159 x 38
ADD-55B	55 Watts	CH1: 27.6V DC 1.30A CH2: 5.0V DC 3.00A CH3: 26.5V DC 0.16A	+/- 1.0% +/- 0.5% -	+/- 1.0% +/- 0.5% -	24.0~29.0V DC - -	150mVp-p 150mVp-p -	+/- 1.0% +/- 3.0% -	74% 74% 74%	97 x 159 x 38
ADD-155A	155 Watts	CH1: 13.8V DC 9.50A CH2: 5.0V DC 3.00A CH3: 13.3V DC 0.50A	+/- 1.0% +/- 2.0% -	+/- 1.0% +/- 0.5% -	12.0~14.5V DC - -	150mVp-p 100mVp-p -	+/- 2.0% +/- 3.0% -	78% 78% 78%	110 x 199 x 50
ADD-155B	155 Watts	CH1: 27.6V DC 4.50A CH2: 5.0V DC 3.00A CH3: 27.1V DC 0.50A	+/- 1.0% +/- 2.0% -	+/- 1.0% +/- 0.5% -	24.0~29.0V DC - -	200mVp-p 100mVp-p -	+/- 1.0% +/- 3.0% -	81% 81% 81%	110 x 199 x 50
ADD-155C	155 Watts	CH1: 54.0V DC 2.30A CH2: 5.0V DC 3.00A CH3: 53.5V DC 0.20A	+/- 1.0% +/- 2.0% -	+/- 1.0% +/- 0.5% -	48.0~58.0V DC - -	240mVp-p 100mVp-p -	+/- 1.0% +/- 5.0% -	81% 81% 81%	110 x 199 x 50

- Universal AC input up to 305V AC full range.
- Built-in PFC function.
- Efficiency up to 90.5%.
- IP65 or IP67 rated for indoor and outdoor use.
- Class 2 with four types:
- No suffix - IP67 rated with input and output cables.
- A Type - IP65 rated with output voltage and current adjustable through internal potentiometer.**
- B Type - IP67 rated with built-in 3-in-1 dimming function (1~10V DC, PWM signal, or resistance dimming).
- D Type - IP67 rated with timer dimming function.
- Full 5 year warranty.



HLG-40H-12A

A comprehensive range of harsh environment LED power supplies with input ranges of 90~305V AC and 127~431V DC. These units have a single output voltage and are short circuit, over current, over voltage, and over temperature protected. They are cooled by free air convection and are suitable for dry, damp, and wet locations. The HLG series cover a number of applications such as: LED lighting, street lighting, and standard power supply use. The units meet the 4kV surge immunity level to IEC 61000-4-5 and are approved to the following safety standards: UL 8750, TUV EN 61347-1, EN 61347-2-13, PSE J61347-1, and PSE J61347-2-13. Full data sheets are available upon request.

Reference	Wattage	Output Voltage and Current	Output Adjuster	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
HLG-40H-12A	40 Watt	12V DC 3.33A	+/- 10%	+/- 2.5%	150mVp-p	86.5%	171.0 x 61.5 x 36.8
HLG-40H-15A	40 Watt	15V DC 2.67A	+/- 10%	+/- 2.0%	150mVp-p	86.5%	171.0 x 61.5 x 36.8
HLG-40H-20A	40 Watt	20V DC 2.00A	+/- 10%	+/- 1.0%	150mVp-p	88.0%	171.0 x 61.5 x 36.8
HLG-40H-24A	40 Watt	24V DC 1.67A	+/- 10%	+/- 1.0%	200mVp-p	88.0%	171.0 x 61.5 x 36.8
HLG-40H-30A	40 Watt	30V DC 1.34A	+/- 10%	+/- 1.0%	200mVp-p	88.5%	171.0 x 61.5 x 36.8
HLG-40H-36A	40 Watt	36V DC 1.12A	+/- 10%	+/- 1.0%	200mVp-p	88.5%	171.0 x 61.5 x 36.8
HLG-40H-42A	40 Watt	42V DC 0.96A	+/- 10%	+/- 1.0%	200mVp-p	88.5%	171.0 x 61.5 x 36.8
HLG-40H-48A	40 Watt	48V DC 0.84A	+/- 10%	+/- 1.0%	300mVp-p	89.5%	171.0 x 61.5 x 36.8
HLG-40H-54A	40 Watt	54V DC 0.75A	+/- 10%	+/- 1.0%	300mVp-p	89.5%	171.0 x 61.5 x 36.8
HLG-60H-15A	60 Watt	15V DC 4.00A	+/- 10%	+/- 2.0%	150mVp-p	87.5%	171.0 x 61.5 x 36.8
HLG-60H-20A	60 Watt	20V DC 3.00A	+/- 10%	+/- 1.0%	150mVp-p	89.0%	171.0 x 61.5 x 36.8
HLG-60H-24A	60 Watt	24V DC 2.50A	+/- 10%	+/- 1.0%	150mVp-p	89.5%	171.0 x 61.5 x 36.8
HLG-60H-30A	60 Watt	30V DC 2.00A	+/- 10%	+/- 1.0%	200mVp-p	90.0%	171.0 x 61.5 x 36.8
HLG-60H-36A	60 Watt	36V DC 1.70A	+/- 10%	+/- 1.0%	200mVp-p	90.0%	171.0 x 61.5 x 36.8
HLG-60H-42A	60 Watt	42V DC 1.45A	+/- 10%	+/- 1.0%	300mVp-p	90.0%	171.0 x 61.5 x 36.8
HLG-60H-48A	60 Watt	48V DC 1.30A	+/- 10%	+/- 1.0%	300mVp-p	90.5%	171.0 x 61.5 x 36.8
HLG-60H-54A	60 Watt	54V DC 1.15A	+/- 10%	+/- 1.0%	300mVp-p	90.5%	171.0 x 61.5 x 36.8



# CONSTANT CURRENT AND CONSTANT VOLTAGE LED POWER SUPPLIES FOR HARSH ENVIRONMENTS WITH PFC FROM 80 WATTS TO 120 WATTS

Universal AC input up to 305V AC full range.  
 Built-in PFC function and efficiency up to 93.5%.  
 IP65, IP66, or IP67 rated for indoor and outdoor use.

Class 2 with five types:

No suffix - IP67 rated with input and output cables.

**A Type - IP65 rated with output voltage and current adjustable through internal potentiometer.**

**B Type - IP67 rated with built-in 3-in-1 dimming function (1~10V DC, PWM signal, or resistance dimming).**

**BL Type - IP66 rated with junction box**

**D Type: IP67 rated with timer dimming function**

Full 5 year warranty.



HLG-80H-24A

A comprehensive range of harsh environment LED power supplies with input ranges of 90~305V AC and 127~431V DC. These units have a single output voltage and are short circuit, over current, over voltage, and over temperature protected. They are cooled by free air convection and are suitable for dry, damp, and wet locations. The HLG series cover a number of applications such as: LED lighting, street lighting, and standard power supply use. The units meet the 4kV surge immunity level to IEC 61000-4-5 and are approved to the following safety standards: UL 8750, TUV EN 61347-1, EN 61347-2-13, PSE J61347-1, and PSE J61347-2-13. Full data sheets are available upon request. The BL Type option is only available for HLG-80H models.

Reference	Wattage	Output Voltage and Current	Output Adjuster	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
HLG-80H-12A	80 Watt	12V DC 5.00A	+/- 10%	+/- 2.5%	150mVp-p	88.0%	195.6 x 61.5 x 38.8
HLG-80H-15A	80 Watt	15V DC 5.00A	+/- 10%	+/- 2.0%	150mVp-p	89.0%	195.6 x 61.5 x 38.8
HLG-80H-20A	80 Watt	20V DC 4.00A	+/- 10%	+/- 1.0%	150mVp-p	90.0%	195.6 x 61.5 x 38.8
HLG-80H-24A	80 Watt	24V DC 3.40A	+/- 10%	+/- 1.0%	150mVp-p	90.5%	195.6 x 61.5 x 38.8
HLG-80H-30A	80 Watt	30V DC 2.70A	+/- 10%	+/- 1.0%	200mVp-p	91.0%	195.6 x 61.5 x 38.8
HLG-80H-36A	80 Watt	36V DC 2.30A	+/- 10%	+/- 1.0%	200mVp-p	91.0%	195.6 x 61.5 x 38.8
HLG-80H-42A	80 Watt	42V DC 1.95A	+/- 10%	+/- 1.0%	200mVp-p	91.0%	195.6 x 61.5 x 38.8
HLG-80H-48A	80 Watt	48V DC 1.70A	+/- 10%	+/- 1.0%	200mVp-p	91.0%	195.6 x 61.5 x 38.8
HLG-80H-54A	80 Watt	54V DC 1.50A	+/- 10%	+/- 1.0%	200mVp-p	91.0%	195.6 x 61.5 x 38.8
HLG-100H-20A	100 Watt	20V DC 4.80A	+/- 10%	+/- 1.0%	150mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-100H-24A	100 Watt	24V DC 4.00A	+/- 10%	+/- 1.0%	150mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-100H-30A	100 Watt	30V DC 3.20A	+/- 10%	+/- 1.0%	200mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-100H-36A	100 Watt	36V DC 2.65A	+/- 10%	+/- 1.0%	200mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-100H-42A	100 Watt	42V DC 2.28A	+/- 10%	+/- 1.0%	200mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-100H-48A	100 Watt	48V DC 2.00A	+/- 10%	+/- 1.0%	200mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-100H-54A	100 Watt	54V DC 1.77A	+/- 10%	+/- 1.0%	200mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-120H-12A	120 Watt	12V DC 10.00A	+/- 10%	+/- 2.5%	150mVp-p	92.0%	220.0 x 68.0 x 38.8
HLG-120H-15A	120 Watt	15V DC 8.00A	+/- 10%	+/- 2.0%	150mVp-p	92.0%	220.0 x 68.0 x 38.8
HLG-120H-20A	120 Watt	20V DC 6.00A	+/- 10%	+/- 1.0%	150mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-120H-24A	120 Watt	24V DC 5.00A	+/- 10%	+/- 1.0%	150mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-120H-30A	120 Watt	30V DC 4.00A	+/- 10%	+/- 1.0%	200mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-120H-36A	120 Watt	36V DC 3.40A	+/- 10%	+/- 1.0%	200mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-120H-42A	120 Watt	42V DC 2.90A	+/- 10%	+/- 1.0%	200mVp-p	93.0%	220.0 x 68.0 x 38.8
HLG-120H-48A	120 Watt	48V DC 2.50A	+/- 10%	+/- 1.0%	200mVp-p	93.5%	220.0 x 68.0 x 38.8
HLG-120H-54A	120 Watt	54V DC 2.30A	+/- 10%	+/- 1.0%	200mVp-p	93.5%	220.0 x 68.0 x 38.8

- Universal AC input up to 305V AC full range.
- Built-in PFC function and efficiency up to 94%.
- IP65 or IP67 rated for indoor and outdoor use.
- Class 2 with five types:
- No suffix - IP67 rated with input and output cables.
- A Type - IP65 rated with output voltage and current adjustable through internal potentiometer.**
- B Type - IP67 rated with built-in 3-in-1 dimming function (1~10V DC, PWM signal or resistance dimming).
- C Type - Terminal block for input and output connections.
- D Type - IP67 rated with timer dimming function.
- Full 5 year warranty.



HLG-185H-12A

A comprehensive range of harsh environment LED power supplies with input ranges of 90~305V AC and 127~431V DC. These units have a single output voltage and are short circuit, over current, over voltage, and over temperature protected. They are cooled by free air convection and are suitable for dry, damp, and wet locations. The HLG series cover a number of applications such as: LED lighting, street lighting, and standard power supply use. The units meet the 4kV surge immunity level to IEC 61000-4-5 and are approved to the following safety standards: UL 8750, TUV EN 61347-1, EN 61347-2-13, PSE J61347-1, and PSE J61347-2-13. Full data sheets are available upon request. The C Type option is only available for HLG-240H models.

Reference	Wattage	Output Voltage and Current	Output Adjuster	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
HLG-150H-12A	150 Watts	12V DC 12.50A	+/- 10%	+/- 2.5%	150mVp-p	91.5%	228.0 x 68.0 x 38.8
HLG-150H-15A	150 Watts	15V DC 10.00A	+/- 10%	+/- 2.0%	150mVp-p	92.0%	228.0 x 68.0 x 38.8
HLG-150H-20A	150 Watts	20V DC 7.50A	+/- 10%	+/- 1.0%	150mVp-p	93.0%	228.0 x 68.0 x 38.8
HLG-150H-24A	150 Watts	24V DC 6.30A	+/- 10%	+/- 1.0%	150mVp-p	93.0%	228.0 x 68.0 x 38.8
HLG-150H-30A	150 Watts	30V DC 5.00A	+/- 10%	+/- 1.0%	200mVp-p	93.5%	228.0 x 68.0 x 38.8
HLG-150H-36A	150 Watts	36V DC 4.20A	+/- 10%	+/- 1.0%	200mVp-p	93.5%	228.0 x 68.0 x 38.8
HLG-150H-42A	150 Watts	42V DC 3.60A	+/- 10%	+/- 1.0%	200mVp-p	94.0%	228.0 x 68.0 x 38.8
HLG-150H-48A	150 Watts	48V DC 3.20A	+/- 10%	+/- 1.0%	200mVp-p	94.0%	228.0 x 68.0 x 38.8
HLG-150H-54A	150 Watts	54V DC 2.80A	+/- 10%	+/- 1.0%	200mVp-p	94.0%	228.0 x 68.0 x 38.8
HLG-185H-12A	185 Watts	12V DC 13.00A	+/- 10%	+/- 2.5%	150mVp-p	91.5%	228.0 x 68.0 x 38.8
HLG-185H-15A	185 Watts	15V DC 11.50A	+/- 10%	+/- 2.0%	150mVp-p	92.0%	228.0 x 68.0 x 38.8
HLG-185H-20A	185 Watts	20V DC 9.30A	+/- 10%	+/- 1.0%	150mVp-p	93.0%	228.0 x 68.0 x 38.8
HLG-185H-24A	185 Watts	24V DC 7.80A	+/- 10%	+/- 1.0%	150mVp-p	93.5%	228.0 x 68.0 x 38.8
HLG-185H-30A	185 Watts	30V DC 6.20A	+/- 10%	+/- 1.0%	200mVp-p	93.5%	228.0 x 68.0 x 38.8
HLG-185H-36A	185 Watts	36V DC 5.20A	+/- 10%	+/- 1.0%	200mVp-p	93.5%	228.0 x 68.0 x 38.8
HLG-185H-42A	185 Watts	42V DC 4.40A	+/- 10%	+/- 1.0%	200mVp-p	94.0%	228.0 x 68.0 x 38.8
HLG-185H-48A	185 Watts	48V DC 3.90A	+/- 10%	+/- 1.0%	200mVp-p	94.0%	228.0 x 68.0 x 38.8
HLG-185H-54A	185 Watts	54V DC 3.45A	+/- 10%	+/- 1.0%	200mVp-p	94.0%	228.0 x 68.0 x 38.8
HLG-240H-12A	240 Watts	12V DC 16.00A	+/- 10%	+/- 2.5%	150mVp-p	90.0%	244.0 x 68.0 x 38.8
HLG-240H-15A	240 Watts	15V DC 15.00A	+/- 10%	+/- 2.0%	150mVp-p	90.0%	244.0 x 68.0 x 38.8
HLG-240H-20A	240 Watts	20V DC 12.00A	+/- 10%	+/- 1.0%	150mVp-p	91.5%	244.0 x 68.0 x 38.8
HLG-240H-24A	240 Watts	24V DC 10.00A	+/- 10%	+/- 1.0%	150mVp-p	92.5%	244.0 x 68.0 x 38.8
HLG-240H-30A	240 Watts	30V DC 8.00A	+/- 10%	+/- 1.0%	200mVp-p	92.5%	244.0 x 68.0 x 38.8
HLG-240H-36A	240 Watts	36V DC 6.70A	+/- 10%	+/- 1.0%	250mVp-p	92.5%	244.0 x 68.0 x 38.8
HLG-240H-42A	240 Watts	42V DC 5.72A	+/- 10%	+/- 1.0%	250mVp-p	92.5%	244.0 x 68.0 x 38.8
HLG-240H-48A	240 Watts	48V DC 5.00A	+/- 10%	+/- 1.0%	250mVp-p	93.0%	244.0 x 68.0 x 38.8
HLG-240H-54A	240 Watts	54V DC 4.45A	+/- 10%	+/- 1.0%	250mVp-p	93.5%	244.0 x 68.0 x 38.8

Universal AC input up to 305V AC full range.  
 Built-in PFC function and efficiency up to 96%.  
 IP65 or IP67 rated for indoor and outdoor use.  
 Class 2 with five types:

No suffix - IP67 rated with input and output cables.

**A Type - IP65 rated with output voltage and current adjustable through internal potentiometer.**

**B Type - IP67 rated with built-in 3-in-1 dimming function (1~10V DC, PWM signal or resistance dimming).**

**C Type - Terminal block for input and output connections.**

**D Type - IP67 rated with timer dimming function.**

**D2 Type - IP67 rated with timer dimming and programmable function.**

Full 5 year warranty.



HLG-320H-24A

A comprehensive range of harsh environment LED power supplies with input ranges of 90~305V AC and 127~431V DC. These units have a single output voltage and are short circuit, over current, over voltage, and over temperature protected. They are cooled by free air convection and are suitable for dry, damp, and wet locations. The HLG series cover a number of applications such as: LED lighting, street lighting, and standard power supply use. The units meet the 4kV surge immunity level to IEC 61000-4-5 and are approved to the following safety standards: UL 8750, UL 60950-1 (HLG-600H), EN 61347-1, EN 61347-2-13, EN 62384 (HLG-600H), PSE J61347-1, and PSE J61347-2-13 (except for HLG-320-12/15/20/24/30/36/42/48/54-C). Full data sheets are available upon request. The C Type option is only available for HLG-320H models with the D2 type only available for HLG-480H models.

Reference	Wattage	Output Voltage and Current	Output Adjuster	Output V Tolerance	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)
HLG-320H-12A	320 Watts	12V DC 22.00A	-15.0% to +13.3%	+/- 3.0%	150mVp-p	91.0%	252.0 x 90.0 x 43.8
HLG-320H-15A	320 Watts	15V DC 19.00A	-15.0% to +13.3%	+/- 2.0%	150mVp-p	92.5%	252.0 x 90.0 x 43.8
HLG-320H-20A	320 Watts	20V DC 15.00A	-15.0% to +13.3%	+/- 1.5%	150mVp-p	93.5%	252.0 x 90.0 x 43.8
HLG-320H-24A	320 Watts	24V DC 13.34A	-15.0% to +13.3%	+/- 1.0%	150mVp-p	94.0%	252.0 x 90.0 x 43.8
HLG-320H-30A	320 Watts	30V DC 10.70A	-15.0% to +13.3%	+/- 1.0%	200mVp-p	94.0%	252.0 x 90.0 x 43.8
HLG-320H-36A	320 Watts	36V DC 8.90A	-15.0% to +13.3%	+/- 1.0%	250mVp-p	94.5%	252.0 x 90.0 x 43.8
HLG-320H-42A	320 Watts	42V DC 7.65A	-15.0% to +13.3%	+/- 1.0%	250mVp-p	95.0%	252.0 x 90.0 x 43.8
HLG-320H-48A	320 Watts	48V DC 6.70A	-15.0% to +13.3%	+/- 1.0%	250mVp-p	95.0%	252.0 x 90.0 x 43.8
HLG-320H-54A	320 Watts	54V DC 5.95A	-15.0% to +13.3%	+/- 1.0%	350mVp-p	95.0%	252.0 x 90.0 x 43.8
HLG-480H-24A	480 Watts	24V DC 20.00A	-15.0% to +5.0%	+/- 1.0%	200mVp-p	94.0%	262.0 x 125.0 x 43.8
HLG-480H-30A	480 Watts	30V DC 16.00A	-15.0% to +5.0%	+/- 1.0%	200mVp-p	94.5%	262.0 x 125.0 x 43.8
HLG-480H-36A	480 Watts	36V DC 13.30A	-15.0% to +5.0%	+/- 1.0%	250mVp-p	95.0%	262.0 x 125.0 x 43.8
HLG-480H-42A	480 Watts	42V DC 11.40A	-15.0% to +5.0%	+/- 1.0%	250mVp-p	95.0%	262.0 x 125.0 x 43.8
HLG-480H-48A	480 Watts	48V DC 10.00A	-15.0% to +5.0%	+/- 1.0%	250mVp-p	94.5%	262.0 x 125.0 x 43.8
HLG-480H-54A	480 Watts	54V DC 8.90A	-15.0% to +5.0%	+/- 1.0%	350mVp-p	95.0%	262.0 x 125.0 x 43.8
HLG-600H-12A	600 Watts	12V DC 40.00A	-15.0% to +5.0%	+/- 3.0%	150mVp-p	92.0%	280.0 x 144.0 x 48.5
HLG-600H-15A	600 Watts	15V DC 36.00A	-15.0% to +5.0%	+/- 2.0%	150mVp-p	93.5%	280.0 x 144.0 x 48.5
HLG-600H-20A	600 Watts	20V DC 28.00A	-15.0% to +5.0%	+/- 1.5%	150mVp-p	94.5%	280.0 x 144.0 x 48.5
HLG-600H-24A	600 Watts	24V DC 25.00A	-15.0% to +5.0%	+/- 1.0%	150mVp-p	95.0%	280.0 x 144.0 x 48.5
HLG-600H-30A	600 Watts	30V DC 20.00A	-15.0% to +5.0%	+/- 1.0%	200mVp-p	95.0%	280.0 x 144.0 x 48.5
HLG-600H-36A	600 Watts	36V DC 16.70A	-15.0% to +5.0%	+/- 1.0%	250mVp-p	95.5%	280.0 x 144.0 x 48.5
HLG-600H-42A	600 Watts	42V DC 14.30A	-15.0% to +5.0%	+/- 1.0%	250mVp-p	96.0%	280.0 x 144.0 x 48.5
HLG-600H-48A	600 Watts	48V DC 12.50A	-15.0% to +5.0%	+/- 1.0%	250mVp-p	96.0%	280.0 x 144.0 x 48.5
HLG-600H-54A	600 Watts	54V DC 11.20A	-15.0% to +5.0%	+/- 1.0%	350mVp-p	96.0%	280.0 x 144.0 x 48.5

# DIN RAIL MOUNTABLE ALL-IN-ONE POWER SUPPLIES, BATTERY CHARGERS, AND UPS UNITS WITH CONTINUITY BACKUP FUNCTION FROM 36 WATTS TO 500 WATTS

CBI all-in-one single DC output power supply, battery charger, and UPS unit with continuity backup function.

Short circuit, overload, over voltage, and reverse battery protected.

Mains or backup, low battery, and faulty battery output signals.

Cooling by free air convection.

3kV AC isolation voltage.

Efficiencies between 83% and 91%.



The CBI series is a comprehensive range of high quality and highly cost-effective DIN rail mountable 'all-in-one' power supplies, battery chargers, and UPS units. The products within this range have an input of either 90~305V AC, 90~135V AC / 180~305V AC, or 180~264V AC / 330~550V AC 47~63 Hz depending on the model (see specifications table). Each has three charging levels with auto diagnostics and they are suitable for all battery types. The units possess charge current limiting as well as mains or backup, low battery, and faulty battery output signals. They are also short circuit, overload, over voltage, and reverse battery protected and have a continuity backup function. All are cooled by free air convection with an ambient temperature range of between -25 °C and +70 °C. The units offer between 81% and 91% efficiency and are fast becoming one of our most popular ranges.

Reference	Input Voltage	Output Voltage, Current, and Wattage	Battery Charger Output Voltage	Load Output and Current	Charging Current	Efficiency	Dimensions D x W x H (mm)
CBI 123A	90~305V AC 1ph	12V DC 3A 36W	14.4V DC	11.0~14.4V DC 1.1 x 3A +/- 5%	20~100%	90%	135 x 65 x 115
CBI 126A	90~305V AC 1ph	12V DC 6A 72W	14.4V DC	10.0~14.4V DC 1.1 x 6A +/- 5%	20~100%	90%	135 x 65 x 115
CBI 1210A	90~305V AC 1ph	12V DC 10A 120W	14.4V DC	10.0~14.4V DC 1.1 x 10A +/- 5%	20~100%	90%	135 x 65 x 115
CBI 1235A	90~135V AC / 180~305V AC 1ph	12V DC 35A 420W	14.4V DC	10.0~14.4V DC 1.1 x 35A +/- 5%	10~100%	91%	135 x 150 x 115
CB 2801224A	90~135V / 180~305V AC 1ph	12V DC 15A / 24V DC 10A	14.4V DC / 28.8V DC	11.0~14.4V DC 1.1 x 15A +/- 5% / 22.0~28.8V DC 1.1 x 10A +/- 5%	10~100%	91%	135 x 115 x 115
CB 2801224B	180~264V / 330~550V AC 1ph	12V DC 15A / 24V DC 10A	14.4V DC / 28.8V DC	11.0~14.4V DC 1.1 x 15A +/- 5% / 22.0~28.8V DC 1.1 x 10A +/- 5%	10~100%	91%	135 x 115 x 115
CBI 243A	90~305V AC 1ph	24V DC 3A 72W	28.8V DC	22.0~28.8V DC 1.1 x 3A +/- 5%	20~100%	90%	135 x 65 x 115
CBI 245A	90~305V AC 1ph	24V DC 5A 120W	28.8V DC	22.0~28.8V DC 1.1 x 5A +/- 5%	20~100%	90%	135 x 65 x 115
CBI 2410A	90~135V / 180~305V AC 1ph	24V DC 10A 240W	28.8V DC	22.0~28.8V DC 1.1 x 10A +/- 5%	20~100%	83%	135 x 100 x 115
CBI 2420A	90~135V / 180~305V AC 1ph	24V DC 20A 500W	28.8V DC	22.0~28.8V DC 1.1 x 20A +/- 5%	10~100%	91%	115 x 150 x 135
CBI 2803648A	90~135V / 180~305V AC 1ph	36V DC 7A / 48V DC 5A 270W	43.2V DC / 57.6V DC	33.0~43.2V DC 1.1 x 7A +/- 5% 33.0~57.6V DC 1.1 x 5A +/- 5%	10~100%	91%	135 x 115 x 115
CBI 485A	90~135V / 180~305V AC 1ph	48V DC 5A 240W	57.6V DC	44.0~57.6V DC 1.1 x 5A +/- 5%	20~100%	83%	135 x 100 x 115
CBI 4810A	90~135V / 180~305V AC 1ph	48V DC 10A 500W	57.6V DC	44.0~57.6V DC 1.1 x 5A +/- 5%	10~100%	91%	115 x 150 x 135

# DIN RAIL MOUNTABLE AC TO DC BATTERY CHARGERS FROM 36 WATTS TO 480 WATTS WITH OUTPUT VOLTAGES OF 12V TO 36V AND OUTPUT CURRENTS OF 3A TO 20A

DIN rail mountable battery chargers from 36 Watts to 480 Watts.  
 Inputs voltages of 115V or 230V 47~63 Hz.  
 Outputs voltages of 12V, 24V, or 36V DC.  
 Output currents from 3A to 20A.  
 Protection Class I with provision for earth.  
 Ambient temperature range of between -10 °C and +50 °C.  
 3kV AC isolation voltage.



CB 2420A

A comprehensive range of DIN rail mountable AC to DC battery chargers with input voltages of 115V or 240V AC and output voltages of either 12V, 24V, or 36V DC. All units are short circuit, overload, over voltage and reverse battery protected. The efficiency per unit is 81% to 82% and they are suitable for all battery types. All models are fitted with an internal input fuse and are suitable for jumper charging configuration. The CB 123A/126A/12245A/243A/245A/2410A/2420A units have output signals that include low battery and faulty battery and the CB 245A and CB 2410A models have mains or backup power output signals. The CB 123ALC and 243ALC have no output signals. The rated input voltage range is 90~305V AC for all types and all have an isolation voltage of 3,000V AC. Models feature charge current limiting and have three charging levels with auto diagnostics. The ambient temperature range for the chargers is between -10 °C and +50 °C.

Reference	Output Voltage and Current	Output Adjuster	Boost Charge	Trickle Charge	Maximum Charging Current	Dimensions D x W x H (mm)
CB 123ALC	12V DC 3A	None	14.40V DC	13.75V DC	3A +/- 5%	100 x 45 x 100
CB 123A	12V DC 3A	20~100%	14.40V DC	13.75V DC	3A +/- 5%	100 x 45 x 100
CB 126A	12V DC 6A	20~100%	14.40V DC	13.75V DC	6A +/- 5%	100 x 45 x 100
CB 12245A	12V DC 6A / 24V DC 5A	20~100%	14.40V DC / 28.80V DC	13.75V DC / 27.50V DC	6A +/- 5% / 5A +/- 5%	100 x 45 x 105
CB 243ALC	24V DC 3A	None	28.80V DC	27.50V DC	3A +/- 5%	100 x 45 x 100
CB 243A	24V DC 3A	20~100%	28.80V DC	27.50V DC	3A +/- 5%	100 x 45 x 100
CB 245A	24V DC 5A	20~100%	28.80V DC	27.50V DC	5A +/- 5%	135 x 65 x 115
CB 2410A	24V DC 10A	20~100%	28.80V DC	27.50V DC	10A +/- 5%	135 x 100 x 115
CB 2420A	24V DC 20A	20~100%	28.80V DC	27.50V DC	20A +/- 5%	135 x 150 x 115
CB 363AV	36V DC 3A	20~100%	43.20V DC	41.25V DC	3A +/- 5%	105 x 45 x 110

Intelligent battery chargers using multi-stage proportional timing technology.

Ambient temperature range from 0 °C to 40 °C.

For indoor use with lead-acid batteries only.

Ready for connection to UK mains sockets.



YPC 2A6

The Yu-Power YPC series of intelligent battery chargers utilise multi-stage proportional timing technology to ensure safe and efficient charging of lead-acid batteries. Multi-stage proportional timing technology makes sure that a maximum state of charge is occurring without any risk of damage to the battery. Additionally, the chargers within this range use 'float mode' which ensures batteries are charged in an economical manner to save power. Their intelligence is further demonstrated by the combination of cutoff systems present that prevent over charging. Within the YPC Yu-Power series there are charger types suitable for a host of applications including valve-regulated lead-acid batteries, car batteries, and motorcycle batteries. Furthermore, a range of special fixing brackets for DIN rail or chassis mounting is available for all types.

Reference	Input Voltage at 50 Hz	Output Voltage Absorption	Output Voltage Float	Output Current	Dimensions L x W x H (mm)	Weight (kg)
YPC 09A12 MC	230V AC	14.40V DC	13.30~13.60V DC	0.9A	95.5 x 66.0 x 87.5	0.51
YPC 2A6	220~260V AC	7.20V DC	6.83V DC	2.0A	140.0 x 65.0 x 42.0	0.45
YPC 2A12	220~260V AC	14.40V DC	13.65V DC	2.0A	140.0 x 65.0 x 42.0	0.45
YPC 4A12	220~260V AC	14.40V DC	13.65V DC	4.0A	164.0 x 85.0 x 55.0	0.62
YPC 8A12	220~260V AC	14.40V DC	13.65V DC	8.0A	190.0 x 92.0 x 55.0	0.86
YPC 4A24	220~260V AC	28.80V DC	27.30V DC	4.0A	190.0 x 92.0 x 55.0	0.86

Reference	Input Connector	Output Connector	Battery Charging Capacity	For Battery Chemistry
YPC 09A12 MC	UK plug top	1.2 m power lead Vehicle/trailer to clips	Up to 20Ah	All lead-acid MC types
YPC 2A6	1.8 m power lead with UK plug	1.2 m power lead Vehicle/trailer to clips	6Ah to 20Ah	All lead-acid types
YPC 2A12	1.8 m power lead with UK plug	1.2 m power lead Vehicle/trailer to clips	6Ah to 20Ah	All lead-acid types
YPC 4A12	1.8 m power lead with UK plug	1.2 m power lead YPC CLIP	12Ah to 40Ah	All lead-acid types
YPC 8A12	1.8 m power lead with UK plug	1.2 m power lead YPC CLIP	30Ah to 100Ah	All lead-acid types
YPC 4A24	1.8 m power lead with UK plug	1.2 m power lead YPC CLIP	12Ah to 40Ah	All lead-acid types

## 12V Battery Checker

Reference	Input Voltage	Dimensions (mm) L x W x H	Weight (kg)	Input Connector	Input Adaptors	Suitable Battery Capacity Range	For Battery Chemistry
YPC TEST MC	3~14V AC	46 x 20 x 13	0.01	Vehicle/trailer	Vehicle/trailer to clips	Any 12V lead-acid battery	All lead-acid MC types

## Accessories

Reference	Accessory Type	Supplied with Charger Type
YPC CLIP	Torbury to clips adaptor	YPC 4A12, YPC 8A12, YPC 4A24
YPC CLIP MC	Motorcycle plug to clips adaptor	YPC 09A12 MC, YPC 2A6, YPC 2A12
YPC PK	Torbury to Powakaddy adaptor	YPC 4A12, YPC 8A12, YPC 4A24
YPC RING MC	Motorcycle plug to ring connectors with fuse	-

# LINE INTERACTIVE UNINTERRUPTIBLE POWER SUPPLIES (UPS) FROM 400VA TO 3kVA

- AVR boost and buck.
- Cold start function.
- Smart USB to RS-232 interface for power management.
- Built-in self-diagnostic function.
- Modem/LAN internet protection.
- Compatible with generator set.
- LCD or LED display options.
- Fastest charging capacity.
- Auto charging at off mode.
- Auto restart function.



MICRO 400 LED    MICRO 400 LCD

The line interactive range of uninterruptible power supplies are designed to offer total power protection to a broad range of commercial and industrial environments. They provide clean and reliable backup power to ensure continued data integrity and optimum performance under a wide range of mains power conditions. This high level of power protection can be incorporated with the advance power and management diagnosis software package that will allow your IT manager of systems integrator to remotely monitor and manage both the UPS and the network server. These UPS units have an input voltage of 220~240V AC (162~290V AC voltage range) and transfer time of 2~6 ms (typical) and 10 ms (maximum). Models with an input voltage of 110~120V AC (81~145V AC voltage range) are available on request. The wave form in battery mode is simulated sine wave. The output AC voltage regulation is +/- 10% with the output frequency range being +/- 1 Hz. The typical recharging time is between 6 and 8 hours recovering to 90% capacity. All types have overload and overcharge protection and feature a noise level less than 40dB. Management data is via the USB to RS-232 port and it supports Windows 2000/2003/XP/Vista/7, Unix, and MAC. The operational environment has a humidity range of 0~90% RH at 40 °C (non-condensing).

Alarm modes for all types are as follows:

Battery mode	Sounds every 10 seconds
Low battery	Sounds every 1 second
Overload	Sounds every 0.5 seconds
Battery replacement alarm	Sounds every 2 seconds
Fault	Sounds continuously

Reference	VA Rating	Wattage	Selectable Input Voltage	Input Voltage Range	Battery Type	Dimensions D x W x H (mm)	Weight (kg)
MICRO 400 LCD / MICRO 400 LED	400VA	240 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	1 x 12V 4.5Ah	298.0 x 101.0 x 142.0	3.55
MICRO 600 LCD / MICRO 600 LED	600VA	360 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	1 x 12V 7.0Ah	298.0 x 101.0 x 142.0	4.25
MICRO 800 LCD / MICRO 800 LED	800VA	480 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	1 x 12V 9.0Ah	298.0 x 101.0 x 142.0	4.70
MICRO 1000 LCD / MICRO 1000 LED	1.0kVA	600 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	2 x 12V 7.0Ah	338.0 x 149.3 x 162.0	7.80
MICRO 1200 LCD / MICRO 1200 LED	1.2kVA	720 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	2 x 12V 7.0Ah	338.0 x 149.3 x 162.0	8.00
MICRO 1500 LCD / MICRO 1500 LED	1.5kVA	900 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	2 x 12V 9.0Ah	380.0 x 158.0 x 198.0	10.10
MICRO 2000 LCD / MICRO 2000 LED	2.0kVA	1,200 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	2 x 12V 9.0Ah	380.0 x 158.0 x 198.0	10.50
MICRO 2400 LCD / MICRO 2400 LED	2.4kVA	1,440 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	4 x 12V 7.0Ah	436.0 x 213.0 x 145.0	19.80
MICRO 3000 LCD / MICRO 3000 LED	3.0kVA	1,800 Watts	110/120V AC or 220/230/240V AC	81~145V AC or 162~290V AC	4 x 12V 9.0Ah	436.0 x 213.0 x 145.0	23.00

Indicators	MICRO 400~1200	MICRO 1500~3000
AC mode	Green LED lighting	Green LED lighting
Battery mode	Amber LED lighting	Green LED lighting
Fault	Red LED lighting	Red LED lighting

# AC TO DC AND DC TO DC CONVERTERS FROM 2.5 WATTS TO 480 WATTS WITH OUTPUT VOLTAGES OF 1.25V TO 24V DC AND OUTPUT CURRENTS OF 2A TO 20A

SW range of AC to DC and DC to DC converters.  
 Rated from 15 Watts to 168 Watts.  
 Various input ranges (see table).  
 Output voltages of either 5V, 10V, 12V, or 24V DC.  
 Output currents of between 3A to 7A.  
 Protection Class I with provision for earth.  
 Ambient temperature range from  $-10^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ .  
 Extremely small in size.  
 DIN rail mountable.



SW247HP

A comprehensive range of AC to DC and DC to DC converters with various input ranges (see table). Output voltage options are 5V, 10V, 12V, or 24V. Output currents range from 3A to 7A and units are rated from 15 Watts to 168 Watts. Models are short circuit and overload protected with efficiency ratings up to 88%. All units are IP20 rated and DIN rail mountable. The SW range are particularly small in size, optimising space on the DIN rail. The residual ripple on all units is  $< 60\text{mV}$  and the ambient temperature range for all models is between  $-10^{\circ}\text{C}$  and  $+70^{\circ}\text{C}$ .

Reference	Input Voltage	Output Voltage and Current	Output Adjuster	Internal Input Fuse	Maximum Current	Continuous Current	Dimensions D x W x H (mm)	Weight (kg)
SW 053LC	13.0~28.0V AC 1ph 17.5~45.0V DC	5V DC 3A	N/A	N/A	3.0A +/- 7%	3.0A	61 x 50 x 95	0.20
SW 103LC	17.0~28.0V AC 1ph 17.5~45.0V DC	10V DC 3A	N/A	N/A	3.0A +/- 7%	3.0A	61 x 50 x 95	0.20
SW 243LC	24.0~32.0V AC 1ph 33.0~45.0V DC	24V DC 3A	N/A	N/A	3.0A +/- 7%	3.0A	61 x 50 x 95	0.20
SW 125HP	17.0~28.0V AC 1ph 17.5~45.0V DC	12V DC 5A	N/A	N/A	5.0A +/- 7%	3.5A	61 x 50 x 95	0.20
SW 245HP	24.0~32.0V AC 1ph 33.0~45.0V DC	24V DC 5A	N/A	N/A	5.0A +/- 7%	3.5A	61 x 50 x 95	0.20
SW 245HP/48	25.0~51.0V AC 1ph 36.0~72.0V DC	24V DC 5A	N/A	N/A	5.0A +/- 7%	3.5A	61 x 50 x 95	0.20
SW 247HP	24.0~32.0V AC 1ph 33.0~45.0V DC	24V DC 7A	N/A	N/A	7.0A +/- 7%	5.0A	61 x 70 x 95	0.35

PFAL range of AC to DC and DC to DC converters.  
 Rated from 2.5 Watts to 480 Watts.  
 Various input ranges (see table).  
 Output voltages of either 1.25~8V (PFALVP3) or 24V DC.  
 Output currents of between 2A and 20A.  
 Protection Class I with provision for earth.  
 Ambient temperature range from  $-10^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ .  
 DIN rail mountable.



PFAL247

A comprehensive range of AC to DC and DC to DC converters with various input ranges (see table). Output voltages are either 1.25~8V (PFALVP3) or 24V DC. Output currents range from 2A to 20A and units are rated from 2.5 Watts to 480 Watts. Models are short circuit, over voltage, and overload protected with efficiency ratings up to 85%. All units are IP20 rated and DIN rail mountable. The 24V DC models feature an output adjustment range of +/- 10% and an internal input fuse. The residual ripple on all units is  $< 60\text{mV}$  and the ambient temperature range for all models is between  $-10^{\circ}\text{C}$  and  $+70^{\circ}\text{C}$ .

Reference	Input Voltage	Output Voltage and Current	Output Adjuster	Internal Input Fuse	Maximum Current	Continuous Current	Dimensions D x W x H (mm)	Weight (kg)
PFAL VP3	6.00~28.00V AC 1ph 8.00~39.00V DC	1.25~8.00V DC 2A	Yes	N/A	2A +/- 7%	2A	61 x 50 x 95	0.20
PFAL 247	24.00~32.00V AC 1ph 33.00~45.00V DC	24.00V DC 7A	+/- 10%	10A	7A +/- 7%	5A	63 x 108 x 94	0.40
PFAL 2410	24.00~32.00V AC 1ph 33.00~45.00V DC	24.00V DC 10A	+/- 10%	15A	10A +/- 7%	7A	73 x 124 x 94	0.55
PFAL 2415	24.00~32.00V AC 1ph 33.00~45.00V DC	24.00V DC 15A	+/- 10%	20A	15A +/- 7%	10A	96 x 150 x 115	0.95
PFAL 2420	24.00~32.00V AC 1ph 33.00~45.00V DC	24.00V DC 20A	+/- 10%	25A	20A +/- 7%	15A	96 x 150 x 115	1.15
PFAL 2420/48	36.00~72.00V DC 1ph	24.00V DC 20A	+/- 10%	25A	20A +/- 7%	15A	96 x 150 x 115	1.15

SD range of DC to DC converters.  
 Rated from 15 Watts to 50 Watts.  
 Single 5~24V DC output.  
 Universal DC input: 2 to 1 wide input range.  
 Various input voltages (see table).  
 Short circuit, overload, and over voltage protected.  
 100% full load burn-in test.  
 Built-in EMI filter ensuring low ripple noise.  
 Full 2 year warranty.



SD-50B-24

A comprehensive range of DC to DC converters with various input ranges (see table). The units have a single output voltage of 5~24V DC and are short circuit, overload, and over voltage protected. Models are cooled by free air convection and have a built-in EMC filter to ensure low ripple noise. All types have been subjected to a 100% full load burn-in test and are meet LVD safety standards. Models are CE marked and come with a full 2 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Input / Output Isolation	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)	Weight (kg)
SD-15A-5	15 Watt	9.2~18.0V DC	5V DC 3.00A	2,000V DC	100mVp-p	68%	78 x 51 x 28	0.18
SD-15A-12	15 Watt	9.2~18.0V DC	12V DC 1.25A	2,000V DC	120mVp-p	72%	78 x 51 x 28	0.18
SD-15A-24	15 Watt	9.2~18.0V DC	24V DC 0.63A	2,000V DC	150mVp-p	70%	78 x 51 x 28	0.18
SD-15B-5	15 Watt	18.0~36.0V DC	5V DC 3.00A	2,000V DC	100mVp-p	76%	78 x 51 x 28	0.18
SD-15B-12	15 Watt	18.0~36.0V DC	12V DC 1.25A	2,000V DC	120mVp-p	76%	78 x 51 x 28	0.18
SD-15B-24	15 Watt	18.0~36.0V DC	24V DC 0.63A	2,000V DC	150mVp-p	77%	78 x 51 x 28	0.18
SD-15C-5	15 Watt	36.0~72.0V DC	5V DC 3.00A	2,000V DC	100mVp-p	75%	78 x 51 x 28	0.18
SD-15C-12	15 Watt	36.0~72.0V DC	12V DC 1.25A	2,000V DC	120mVp-p	79%	78 x 51 x 28	0.18
SD-15C-24	15 Watt	36.0~72.0V DC	24V DC 0.63A	2,000V DC	150mVp-p	78%	78 x 51 x 28	0.18
SD-25A-5	25 Watt	9.2~18.0V DC	5V DC 5.00A	1,500V DC	100mVp-p	71%	99 x 97 x 36	0.38
SD-25A-12	25 Watt	9.2~18.0V DC	12V DC 2.10A	1,500V DC	120mVp-p	72%	99 x 97 x 36	0.38
SD-25A-24	25 Watt	9.2~18.0V DC	24V DC 1.10A	1,500V DC	150mVp-p	75%	99 x 97 x 36	0.38
SD-25B-5	25 Watt	19.0~36.0V DC	5V DC 5.00A	1,500V DC	100mVp-p	72%	99 x 97 x 36	0.38
SD-25B-12	25 Watt	19.0~36.0V DC	12V DC 2.10A	1,500V DC	120mVp-p	75%	99 x 97 x 36	0.38
SD-25B-24	25 Watt	19.0~36.0V DC	24V DC 1.10A	1,500V DC	150mVp-p	78%	99 x 97 x 36	0.38
SD-25C-5	25 Watt	36.0~72.0V DC	5V DC 5.00A	1,500V DC	100mVp-p	74%	99 x 97 x 36	0.38
SD-25C-12	25 Watt	36.0~72.0V DC	12V DC 2.10A	1,500V DC	120mVp-p	78%	99 x 97 x 36	0.38
SD-25C-24	25 Watt	36.0~72.0V DC	24V DC 1.10A	1,500V DC	150mVp-p	81%	99 x 97 x 36	0.38
SD-50A-5	50 Watt	9.2~18.0V DC	5V DC 10.00A	1,500V DC	100mVp-p	70%	159 x 97 x 38	0.53
SD-50A-12	50 Watt	9.2~18.0V DC	12V DC 4.20A	1,500V DC	120mVp-p	72%	159 x 97 x 38	0.53
SD-50A-24	50 Watt	9.2~18.0V DC	24V DC 2.10A	1,500V DC	150mVp-p	74%	159 x 97 x 38	0.53
SD-50B-5	50 Watt	19.0~36.0V DC	5V DC 10.00A	1,500V DC	100mVp-p	73%	159 x 97 x 38	0.53
SD-50B-12	50 Watt	19.0~36.0V DC	12V DC 4.20A	1,500V DC	120mVp-p	75%	159 x 97 x 38	0.53
SD-50B-24	50 Watt	19.0~36.0V DC	24V DC 2.10A	1,500V DC	150mVp-p	80%	159 x 97 x 38	0.53
SD-50C-5	50 Watt	36.0~72.0V DC	5V DC 10.00A	1,500V DC	100mVp-p	76%	159 x 97 x 38	0.53
SD-50C-12	50 Watt	36.0~72.0V DC	12V DC 4.20A	1,500V DC	120mVp-p	78%	159 x 97 x 38	0.53
SD-50C-24	50 Watt	36.0~72.0V DC	24V DC 2.10A	1,500V DC	150mVp-p	83%	159 x 97 x 38	0.53

SD range of DC to DC converters.  
 Rated from 100 Watts to 150 Watts.  
 Single 5~24V DC output.  
 Universal DC input: 2 to 1 wide input range.  
 Various input voltages (see table).  
 Short circuit, overload, and over voltage protected.  
 100% full load burn-in test.  
 Built-in EMI filter ensuring low ripple noise.  
 Full 2 year warranty.



SD-100B-24

A comprehensive range of DC to DC converters with various input ranges (see table). The units have a single output voltage of 5~24V DC and are short circuit, overload, and over voltage protected. Models are cooled by free air convection and have a built-in EMC filter to ensure low ripple noise. All types have been subjected to a 100% full load burn-in test with the SD-100D approved to TUV EN 60950-1 CB safety standards. Models are CE marked and come with a full 2 year warranty for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Input / Output Isolation	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)	Weight (kg)
SD-100A-5	100 Watt	9.5~18.0V DC	5V DC 18.0A	1,500V DC	100mVp-p	78%	199 x 98 x 38	0.65
SD-100A-12	100 Watt	9.5~18.0V DC	12V DC 8.5A	1,500V DC	120mVp-p	82%	199 x 98 x 38	0.65
SD-100A-24	100 Watt	9.5~18.0V DC	24V DC 4.2A	1,500V DC	150mVp-p	84%	199 x 98 x 38	0.65
SD-100B-5	100 Watt	19.0~36.0V DC	5V DC 20.0A	1,500V DC	100mVp-p	74%	199 x 98 x 38	0.65
SD-100B-12	100 Watt	19.0~36.0V DC	12V DC 8.5A	1,500V DC	120mVp-p	75%	199 x 98 x 38	0.65
SD-100B-24	100 Watt	19.0~36.0V DC	24V DC 4.2A	1,500V DC	150mVp-p	78%	199 x 98 x 38	0.65
SD-100C-5	100 Watt	36.0~72.0V DC	5V DC 20.0A	1,500V DC	100mVp-p	75%	199 x 98 x 38	0.65
SD-100C-12	100 Watt	36.0~72.0V DC	12V DC 8.5A	1,500V DC	120mVp-p	77%	199 x 98 x 38	0.65
SD-100C-24	100 Watt	36.0~72.0V DC	24V DC 4.2A	1,500V DC	150mVp-p	81%	199 x 98 x 38	0.65
SD-100D-5	100 Watt	72.0~144.0V DC / 85.0~132.0V AC	5V DC 20.0A	1,500V DC	100mVp-p	76%	199 x 98 x 38	0.65
SD-100D-12	100 Watt	72.0~144.0V DC / 85.0~132.0V AC	12V DC 8.5A	1,500V DC	120mVp-p	80%	199 x 98 x 38	0.65
SD-100D-24	100 Watt	72.0~144.0V DC / 85.0~132.0V AC	24V DC 4.2A	1,500V DC	150mVp-p	83%	199 x 98 x 38	0.65
SD-150B-12	150 Watt	19.0~36.0V DC	12V DC 12.5A	1,500V DC	120mVp-p	75%	199 x 110 x 150	0.86
SD-150B-24	150 Watt	19.0~36.0V DC	24V DC 6.3A	1,500V DC	240mVp-p	77%	199 x 110 x 150	0.86
SD-150C-12	150 Watt	36.0~72.0V DC	12V DC 12.5A	1,500V DC	120mVp-p	77%	199 x 110 x 150	0.86
SD-150C-24	150 Watt	36.0~72.0V DC	24V DC 6.3A	1,500V DC	240mVp-p	80%	199 x 110 x 150	0.86
SD-150D-12	150 Watt	72.0~144.0V DC / 85.0~132.0V AC	12V DC 12.5A	1,500V DC	120mVp-p	79%	199 x 110 x 150	0.86
SD-150D-24	150 Watt	72.0~144.0V DC / 85.0~132.0V AC	24V DC 6.3A	1,500V DC	240mVp-p	82%	199 x 110 x 150	0.86

SD range of DC to DC converters.  
 Rated from 200 Watts to 1,000 Watts.  
 Single 5~48V DC output.  
 Universal DC input: 2 to 1 wide input range (SD-200/350)  
 or 4 to 1 wide input range (SD-500/1000).  
 Short circuit, over voltage, overload,  
 and over temperature protected.  
 100% full load burn-in test.  
 Built-in EMI filter ensuring low ripple noise.  
 Full 2 year warranty.

SD-500H-48



A comprehensive range of DC to DC converters with various input ranges (see table). The units have a single output voltage of 5~48V DC and are short circuit, over voltage, overload, and over temperature protected. The SD-500 also features input polarity. The SD-200 types are cooled by free air convection whereas the SD-350/500/1000 types utilise forced air cooling by a built-in DC fan. All models have been subjected to a 100% full load burn-in test and possess a built-in EMC filter to ensure low ripple noise. The SD-500/1000 units are approved to TUV IEC 60950-1 CB with the SD-200D/300D approved to TUV EN 60950-1 CB standards. Models are CE marked and come with a full 2 year (SD-350/500) or 3 year warranty (SD-500/1000) for complete peace of mind after purchase.

Reference	Wattage	Input Voltage	Output Voltage and Current	Input / Output Isolation	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)	Weight (kg)
SD-200B-5	200 Watt	19~36V DC	5V DC 34.0A	1,500V DC	100mVp-p	79%	215 x 115 x 50	0.65
SD-200B-12	200 Watt	19~36V DC	12V DC 16.7A	1,500V DC	120mVp-p	82%	215 x 115 x 50	0.65
SD-200B-24	200 Watt	19~36V DC	24V DC 8.4A	1,500V DC	150mVp-p	85%	215 x 115 x 50	0.65
SD-200B-48	200 Watt	19~36V DC	48V DC 4.2A	1,500V DC	200mVp-p	86%	215 x 115 x 50	0.65
SD-200C-5	200 Watt	36~72V DC	5V DC 40.0A	1,500V DC	100mVp-p	81%	215 x 115 x 50	0.65
SD-200C-12	200 Watt	36~72V DC	12V DC 16.7A	1,500V DC	120mVp-p	84%	215 x 115 x 50	0.65
SD-200C-24	200 Watt	36~72V DC	24V DC 8.4A	1,500V DC	150mVp-p	86%	215 x 115 x 50	0.65
SD-200C-48	200 Watt	36~72V DC	48V DC 4.2A	1,500V DC	200mVp-p	86%	215 x 115 x 50	0.65
SD-200D-5	200 Watt	72~144V DC	5V DC 40.0A	1,500V DC	100mVp-p	82%	215 x 115 x 50	0.65
SD-200D-12	200 Watt	72~144V DC	12V DC 16.7A	1,500V DC	120mVp-p	82%	215 x 115 x 50	0.65
SD-200D-24	200 Watt	72~144V DC	24V DC 8.4A	1,500V DC	150mVp-p	84%	215 x 115 x 50	0.65
SD-200D-48	200 Watt	72~144V DC	48V DC 4.2A	1,500V DC	200mVp-p	90%	215 x 115 x 50	0.65
SD-350B-5	350 Watt	19~36V DC	5V DC 57.0A	1,500V DC	100mVp-p	74%	215 x 115 x 50	1.10
SD-350B-12	350 Watt	19~36V DC	12V DC 27.5A	1,500V DC	120mVp-p	80%	215 x 115 x 50	1.10
SD-350B-24	350 Watt	19~36V DC	24V DC 14.6A	1,500V DC	150mVp-p	80%	215 x 115 x 50	1.10
SD-350B-48	350 Watt	19~36V DC	48V DC 7.3A	1,500V DC	200mVp-p	84%	215 x 115 x 50	1.10
SD-350C-5	350 Watt	36~72V DC	5V DC 60.0A	1,500V DC	100mVp-p	76%	215 x 115 x 50	1.10
SD-350C-12	350 Watt	36~72V DC	12V DC 27.5A	1,500V DC	120mVp-p	81%	215 x 115 x 50	1.10
SD-350C-24	350 Watt	36~72V DC	24V DC 14.6A	1,500V DC	150mVp-p	81%	215 x 115 x 50	1.10
SD-350C-48	350 Watt	36~72V DC	48V DC 7.3A	1,500V DC	200mVp-p	82%	215 x 115 x 50	1.10
SD-350D-5	350 Watt	72~144V DC	5V DC 60.0A	1,500V DC	100mVp-p	78%	215 x 115 x 50	1.10
SD-350D-12	350 Watt	72~144V DC	12V DC 29.2A	1,500V DC	120mVp-p	83%	215 x 115 x 50	1.10
SD-350D-24	350 Watt	72~144V DC	24V DC 14.6A	1,500V DC	150mVp-p	87%	215 x 115 x 50	1.10
SD-350D-48	350 Watt	72~144V DC	48V DC 7.3A	1,500V DC	200mVp-p	89%	215 x 115 x 50	1.10
SD-500L-12	500 Watt	19~72V DC	12V DC 40.0A	2,000V DC	150mVp-p	86%	215 x 115 x 50	1.15
SD-500L-24	500 Watt	19~72V DC	24V DC 21.0A	2,000V DC	150mVp-p	88%	215 x 115 x 50	1.15
SD-500L-48	500 Watt	19~72V DC	48V DC 10.5A	2,000V DC	150mVp-p	89%	215 x 115 x 50	1.15
SD-500H-12	500 Watt	72~144V DC	12V DC 40.0A	2,000V DC	150mVp-p	87%	215 x 115 x 50	1.15
SD-500H-24	500 Watt	72~144V DC	24V DC 21.0A	2,000V DC	150mVp-p	89%	215 x 115 x 50	1.15
SD-500H-48	500 Watt	72~144V DC	48V DC 10.5A	2,000V DC	150mVp-p	90%	215 x 115 x 50	1.15
SD-1000L-12	1,000 Watt	19~72V DC	12V DC 60.0A	2,000V DC	150mVp-p	84%	295 x 127 x 41	1.94
SD-1000L-24	1,000 Watt	19~72V DC	24V DC 40.0A	2,000V DC	150mVp-p	88%	295 x 127 x 41	1.94
SD-1000L-48	1,000 Watt	19~72V DC	48V DC 21.0A	2,000V DC	150mVp-p	90%	295 x 127 x 41	1.94
SD-1000H-12	1,000 Watt	72~144V DC	12V DC 60.0A	2,000V DC	150mVp-p	85%	295 x 127 x 41	1.94
SD-1000H-24	1,000 Watt	72~144V DC	24V DC 40.0A	2,000V DC	150mVp-p	89%	295 x 127 x 41	1.94
SD-1000H-48	1,000 Watt	72~144V DC	48V DC 21.0A	2,000V DC	150mVp-p	92%	295 x 127 x 41	1.94

RSD range of railway standard DC to DC converters.  
 Rated from 30 Watts to 150 Watts.  
 Universal DC input: 2 to 1 wide input range (RSD-30/60)  
 or 4 to 1 wide input range (RSD-100/150).  
 Half encapsulated (5G vibration).  
 Input / output isolation: 4,000V.  
 Compliance to EN 50155 and EN 45545-2  
 railway standards.  
 Short circuit, overload, and over voltage protected.  
 Full 3 year warranty.



RSD-100D-12

A comprehensive range of railway standard DC to DC converters with various input ranges (see table). The units have a single output voltage of 3.3~24V DC and are short circuit, overload, and over voltage protected. In addition, the units within this range feature input polarity and built-in constant current limiting. This range of DC to DC converters are ultra compact and posses a 1U low profile. Models all use 105 °C long life electrolytic capacitors and comply with EN 50155, EN 45545-2, and IEC 60571 railway safety standards. All types are CE marked and come with a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Continuous Voltage Range	1 second Input Range	Output Voltage and Current	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)	Weight (kg)
RSD-30G-3.3	30 Watts	9.0~36.0V DC	N/A	3.3V DC 6.00A	70mVp-p	84.0%	113 x 60 x 25	0.25
RSD-30G-5	30 Watts	9.0~36.0V DC	N/A	5.0V DC 6.00A	70mVp-p	85.0%	113 x 60 x 25	0.25
RSD-30G-12	30 Watts	9.0~36.0V DC	N/A	12.0V DC 2.50A	60mVp-p	86.5%	113 x 60 x 25	0.25
RSD-30G-24	30 Watts	9.0~36.0V DC	N/A	24.0V DC 1.25A	50mVp-p	89.0%	113 x 60 x 25	0.25
RSD-30L-3.3	30 Watts	18.0~72.0V DC	N/A	3.3V DC 6.00A	70mVp-p	84.0%	113 x 60 x 25	0.25
RSD-30L-5	30 Watts	18.0~72.0V DC	N/A	5.0V DC 6.00A	70mVp-p	86.0%	113 x 60 x 25	0.25
RSD-30L-12	30 Watts	18.0~72.0V DC	N/A	12.0V DC 2.50A	60mVp-p	90.0%	113 x 60 x 25	0.25
RSD-30L-24	30 Watts	18.0~72.0V DC	N/A	24.0V DC 1.25A	50mVp-p	91.0%	113 x 60 x 25	0.25
RSD-30H-3.3	30 Watts	40.0~160.0V DC	N/A	3.3V DC 6.00A	70mVp-p	87.0%	113 x 60 x 25	0.25
RSD-30H-5	30 Watts	40.0~160.0V DC	N/A	5.0V DC 6.00A	70mVp-p	89.0%	113 x 60 x 25	0.25
RSD-30H-12	30 Watts	40.0~160.0V DC	N/A	12.0V DC 2.50A	60mVp-p	89.0%	113 x 60 x 25	0.25
RSD-30H-24	30 Watts	40.0~160.0V DC	N/A	24.0V DC 1.25A	50mVp-p	89.0%	113 x 60 x 25	0.25
RSD-60G-3.3	60 Watts	9.0~36.0V DC	N/A	3.3V DC 12.00A	60mVp-p	86.5%	128 x 60 x 25	0.29
RSD-60G-5	60 Watts	9.0~36.0V DC	N/A	5.0V DC 12.00A	100mVp-p	88.0%	128 x 60 x 25	0.29
RSD-60G-12	60 Watts	9.0~36.0V DC	N/A	12.0V DC 5.00A	50mVp-p	92.0%	128 x 60 x 25	0.29
RSD-60G-24	60 Watts	9.0~36.0V DC	N/A	24.0V DC 2.50A	50mVp-p	90.0%	128 x 60 x 25	0.29
RSD-60L-3.3	60 Watts	18.0~72.0V DC	N/A	3.3V DC 12.00A	60mVp-p	88.5%	128 x 60 x 25	0.29
RSD-60L-5	60 Watts	18.0~72.0V DC	N/A	5.0V DC 12.00A	60mVp-p	89.0%	128 x 60 x 25	0.29
RSD-60L-12	60 Watts	18.0~72.0V DC	N/A	12.0V DC 5.00A	50mVp-p	93.0%	128 x 60 x 25	0.29
RSD-60L-24	60 Watts	18.0~72.0V DC	N/A	24.0V DC 2.50A	50mVp-p	91.5%	128 x 60 x 25	0.29
RSD-60H-3.3	60 Watts	40.0~160.0V DC	N/A	3.3V DC 12.00A	80mVp-p	87.5%	128 x 60 x 25	0.29
RSD-60H-5	60 Watts	40.0~160.0V DC	N/A	5.0V DC 12.00A	60mVp-p	89.0%	128 x 60 x 25	0.29
RSD-60H-12	60 Watts	40.0~160.0V DC	N/A	12.0V DC 5.00A	50mVp-p	92.5%	128 x 60 x 25	0.29
RSD-60H-24	60 Watts	40.0~160.0V DC	N/A	24.0V DC 2.50A	50mVp-p	91.5%	128 x 60 x 25	0.29
RSD-100B-5	100 Watts	16.8~31.2V DC	14.4~33.6V DC	5.0V DC 20.00A	100mVp-p	88.0%	161 x 68 x 36	0.60
RSD-100B-12	100 Watts	16.8~31.2V DC	14.4~33.6V DC	12.0V DC 8.40A	120mVp-p	88.0%	161 x 68 x 36	0.60
RSD-100B-24	100 Watts	16.8~31.2V DC	14.4~33.6V DC	24.0V DC 4.20A	150mVp-p	89.0%	161 x 68 x 36	0.60
RSD-100C-5	100 Watts	33.6~62.4V DC	28.8~67.2V DC	5.0V DC 20.00A	100mVp-p	89.0%	161 x 68 x 36	0.60
RSD-100C-12	100 Watts	33.6~62.4V DC	28.8~67.2V DC	12.0V DC 8.40A	120mVp-p	91.0%	161 x 68 x 36	0.60
RSD-100C-24	100 Watts	33.6~62.4V DC	28.8~67.2V DC	24.0V DC 4.20A	150mVp-p	91.0%	161 x 68 x 36	0.60
RSD-100D-5	100 Watts	67.2~143.0V DC	57.6~154.0V DC	5.0V DC 20.00A	100mVp-p	89.5%	161 x 68 x 36	0.60
RSD-100D-12	100 Watts	67.2~143.0V DC	57.6~154.0V DC	12.0V DC 8.40A	120mVp-p	91.0%	161 x 68 x 36	0.60
RSD-100D-24	100 Watts	67.2~143.0V DC	57.6~154.0V DC	24.0V DC 4.20A	150mVp-p	90.0%	161 x 68 x 36	0.60
RSD-150B-5	150 Watts	16.8~31.2V DC	14.4~33.6V DC	5.0V DC 30.00A	100mVp-p	89.0%	189 x 77 x 36	0.80
RSD-150B-12	150 Watts	16.8~31.2V DC	14.4~33.6V DC	12.0V DC 12.50A	120mVp-p	90.0%	189 x 77 x 36	0.80
RSD-150B-24	150 Watts	16.8~31.2V DC	14.4~33.6V DC	24.0V DC 6.30A	150mVp-p	90.0%	189 x 77 x 36	0.80
RSD-150C-5	150 Watts	33.6~62.4V DC	28.8~67.2V DC	5.0V DC 30.00A	100mVp-p	90.0%	189 x 77 x 36	0.80
RSD-150C-12	150 Watts	33.6~62.4V DC	28.8~67.2V DC	12.0V DC 12.50A	120mVp-p	92.0%	189 x 77 x 36	0.80
RSD-150C-24	150 Watts	33.6~62.4V DC	28.8~67.2V DC	24.0V DC 6.30A	150mVp-p	91.0%	189 x 77 x 36	0.80
RSD-150D-5	150 Watts	67.2~143.0V DC	57.6~154.0V DC	5.0V DC 30.00A	100mVp-p	90.0%	189 x 77 x 36	0.80
RSD-150D-12	150 Watts	67.2~143.0V DC	57.6~154.0V DC	12.0V DC 12.50A	120mVp-p	92.0%	189 x 77 x 36	0.80
RSD-150D-24	150 Watts	67.2~143.0V DC	57.6~154.0V DC	24.0V DC 6.30A	150mVp-p	91.0%	189 x 77 x 36	0.80

RSD range of railway standard DC to DC converters.  
 Rated from 200 Watts to 300 Watts.  
 Universal DC input: 2 to 1 wide input range.  
 Half encapsulated (5G vibration).  
 Input / output isolation: 4,000V.  
 Compliance to EN 50155 and EN 45545-2  
 railway standards.  
 Short circuit, overload, and over voltage protected.  
 Full 3 year warranty.



RSD-300B-24

A comprehensive range of railway standard DC to DC converters with various input ranges (see table). The units have a single output voltage of 3.3~48V DC and are short circuit, overload, and over voltage protected. In addition, the units within this range feature input polarity and built-in constant current limiting. This series of DC to DC converters possess a 1U low profile and all use 105 °C long life electrolytic capacitors. Models are cooled by free air convection and comply with EN 50155, EN 45545-2, and IEC 60571 railway safety standards. All types are CE marked and come with a full 3 year warranty for complete peace of mind after purchase.

Reference	Wattage	Continuous Voltage Range	1 second Input Range	Output Voltage and Current	Ripple & Noise	Efficiency	Dimensions L x W x H (mm)	Weight (kg)
RSD-200B-12	200 Watts	16.8~31.2V DC	14.4~33.6V DC	12V DC 16.7A	120mVp-p	89.0%	191 x 86 x 40	0.94
RSD-200B-24	200 Watts	16.8~31.2V DC	14.4~33.6V DC	24V DC 8.4A	150mVp-p	89.0%	191 x 86 x 40	0.94
RSD-200B-48	200 Watts	16.8~31.2V DC	14.4~33.6V DC	48V DC 4.2A	180mVp-p	89.0%	191 x 86 x 40	0.94
RSD-200C-12	200 Watts	33.6~62.4V DC	28.8~67.2V DC	12V DC 16.7A	120mVp-p	91.0%	191 x 86 x 40	0.94
RSD-200C-24	200 Watts	33.6~62.4V DC	28.8~67.2V DC	24V DC 8.4A	150mVp-p	91.0%	191 x 86 x 40	0.94
RSD-200C-48	200 Watts	33.6~62.4V DC	28.8~67.2V DC	48V DC 4.2A	180mVp-p	91.0%	191 x 86 x 40	0.94
RSD-200D-12	200 Watts	67.2~143.0V DC	57.6~154.0V DC	12V DC 16.7A	120mVp-p	91.0%	191 x 86 x 40	0.94
RSD-200D-24	200 Watts	67.2~143.0V DC	57.6~154.0V DC	24V DC 8.4A	150mVp-p	91.0%	191 x 86 x 40	0.94
RSD-200D-48	200 Watts	67.2~143.0V DC	57.6~154.0V DC	48V DC 4.2A	180mVp-p	91.0%	191 x 86 x 40	0.94
RSD-300B-5	300 Watts	16.8~31.2V DC	14.4~33.6V DC	5V DC 42.0A	100mVp-p	89.0%	216 x 97 x 40	1.19
RSD-300B-12	300 Watts	16.8~31.2V DC	14.4~33.6V DC	12V DC 22.5A	120mVp-p	89.5%	216 x 97 x 40	1.19
RSD-300B-24	300 Watts	16.8~31.2V DC	14.4~33.6V DC	24V DC 11.3A	150mVp-p	90.0%	216 x 97 x 40	1.19
RSD-300B-48	300 Watts	16.8~31.2V DC	14.4~33.6V DC	48V DC 5.7A	180mVp-p	91.5%	216 x 97 x 40	1.19
RSD-300C-5	300 Watts	33.6~62.4V DC	28.8~67.2V DC	5V DC 42.0A	100mVp-p	90.5%	216 x 97 x 40	1.19
RSD-300C-12	300 Watts	33.6~62.4V DC	28.8~67.2V DC	12V DC 25.0A	120mVp-p	91.0%	216 x 97 x 40	1.19
RSD-300C-24	300 Watts	33.6~62.4V DC	28.8~67.2V DC	24V DC 12.5A	150mVp-p	91.5%	216 x 97 x 40	1.19
RSD-300C-48	300 Watts	33.6~62.4V DC	28.8~67.2V DC	48V DC 6.3A	180mVp-p	92.0%	216 x 97 x 40	1.19
RSD-300D-5	300 Watts	67.2~143.0V DC	57.6~154.0V DC	5V DC 42.0A	100mVp-p	90.0%	216 x 97 x 40	1.19
RSD-300D-12	300 Watts	67.2~143.0V DC	57.6~154.0V DC	12V DC 25.0A	120mVp-p	91.5%	216 x 97 x 40	1.19
RSD-300D-24	300 Watts	67.2~143.0V DC	57.6~154.0V DC	24V DC 12.5A	150mVp-p	91.5%	216 x 97 x 40	1.19
RSD-300D-48	300 Watts	67.2~143.0V DC	57.6~154.0V DC	48V DC 6.3A	180mVp-p	91.5%	216 x 97 x 40	1.19
RSD-300E-5	300 Watts	25.2~46.3V DC	21.6~50.4V DC	5V DC 42.0A	100mVp-p	88.0%	216 x 97 x 40	1.19
RSD-300E-12	300 Watts	25.2~46.3V DC	21.6~50.4V DC	12V DC 25.0A	120mVp-p	90.0%	216 x 97 x 40	1.19
RSD-300E-24	300 Watts	25.2~46.3V DC	21.6~50.4V DC	24V DC 12.5A	150mVp-p	91.0%	216 x 97 x 40	1.19
RSD-300E-48	300 Watts	25.2~46.3V DC	21.6~50.4V DC	48V DC 6.3A	180mVp-p	91.0%	216 x 97 x 40	1.19
RSD-300F-5	300 Watts	50.4~93.6V DC	43.2~100.8V DC	5V DC 42.0A	100mVp-p	89.0%	216 x 97 x 40	1.19
RSD-300F-12	300 Watts	50.4~93.6V DC	43.2~100.8V DC	12V DC 25.0A	120mVp-p	91.0%	216 x 97 x 40	1.19
RSD-300F-24	300 Watts	50.4~93.6V DC	43.2~100.8V DC	24V DC 12.5A	150mVp-p	91.0%	216 x 97 x 40	1.19
RSD-300F-48	300 Watts	50.4~93.6V DC	43.2~100.8V DC	48V DC 6.3A	180mVp-p	91.5%	216 x 97 x 40	1.19

# STOCK RANGE OF SINGLE-PHASE EMC FILTERS FOR INDUSTRIAL POWER APPLICATIONS FROM 3A TO 75A

Comprehensive range of single-phase EMC filters.

From 10A to 65A with various terminal options.

Designed for a wide range of industrial power applications.

The EMK 1 series of single-phase RFI filters have been designed for industrial frequency inverters, drive systems, and industrial power applications to assist design engineers in meeting the various requirements of the relevant EMC legislation. The models range from 10A to 65A and feature a standard voltage of 250V AC. The filters are an economic solution for general uses with high attenuation performance. The units possess low leakage current and boast a compact size making the units easy to install.



EMK 1035

Reference	Current	Voltage	Terminations	Leakage Current	Power Loss	Dimensions L x W x H (mm)
EMK 1010	10A	250V AC 1ph	Shrouded	< 3.2mA	3.8 Watts	150 x 55 x 45
EMK 1015	15A	250V AC 1ph	Shrouded	< 3.2mA	6.5 Watts	150 x 55 x 45
EMK 1020	20A	250V AC 1ph	Shrouded	< 3.2mA	10.0 Watts	170 x 80 x 55
EMK 1035	35A	250V AC 1ph	Shrouded	< 3.2mA	15.0 Watts	170 x 80 x 55
EMK 1065	65A	250V AC 1ph	Shrouded	< 3.2mA	22.0 Watts	250 x 110 x 60

Comprehensive range of single-phase EMC filters.

From 3A to 75A with various terminal options.

Designed for a wide range of industrial power applications.

Comprehensive range of single-phase RFI filters. These filters are used to assist design engineers in meeting the various requirements of the relevant EMC legislation. These units range from 3A to 24A and are available with a variety of termination types. The voltage of the filters is 250V AC 1ph. The models in this series range from FIN 33 to FIN 50 (in ascending attenuation levels) with all units possessing a frequency of 50 / 60 Hz. The operational temperature range of all filters is between -25 °C and +85 °C.



FIN 40.024.M

Reference	Current	Voltage	Termination	Leakage Current	Single Stage or Two Stage	Dimensions L x W x H (mm)
FIN 33.003.F	3A	250V AC 1ph	Faston	< 1.0mA	Single stage	66.0 x 61.0 x 20.5
FIN 33.006.F	6A	250V AC 1ph	Faston	< 1.0mA	Single stage	66.0 x 61.0 x 20.5
FIN 33.010.F	10A	250V AC 1ph	Faston	< 1.0mA	Single stage	66.0 x 61.0 x 20.5
FIN 33.020.F	20A	250V AC 1ph	Faston	< 1.0mA	Single stage	84.0 x 51.8 x 39.0
FIN 33.040.V	40A	250V AC 1ph	Screws	< 1.0mA	Single stage	96.0 x 140.0 x 40.0
FIN 33.050.V	50A	250V AC 1ph	Screws	< 1.0mA	Single stage	125.0 x 280.0 x 50.0
FIN 33.075.V	75A	250V AC 1ph	Screws	< 1.0mA	Single stage	152.0 x 242.0 x 72.0
FIN 35.005.C	5A	250V AC 1ph	Cables	< 1.0mA	Two stage	84.5 x 51.0 x 33.0
FIN 35.005.F	5A	250V AC 1ph	Faston	< 1.0mA	Two stage	84.5 x 51.0 x 33.0
FIN 35.010.F	10A	250V AC 1ph	Faston	< 1.0mA	Two stage	97.0 x 51.0 x 39.5
FIN 35.024.M	24A	250V AC 1ph	Terminal block	< 1.0mA	Two stage	119.0 x 70.0 x 49.5
FIN 40.005.C	5A	250V AC 1ph	Cables	< 1.5mA	Two stage	84.5 x 51.0 x 29.0
FIN 40.005.F	5A	250V AC 1ph	Faston	< 1.5mA	Two stage	84.5 x 51.0 x 29.0
FIN 40.010.F	10A	250V AC 1ph	Faston	< 1.5mA	Two stage	84.5 x 51.0 x 33.0
FIN 40.016.F	16A	250V AC 1ph	Faston	< 1.5mA	Two stage	97.0 x 51.0 x 39.5
FIN 40.024.M	24A	250V AC 1ph	Terminal block	< 1.5mA	Two stage	119.0 x 70.0 x 49.5
FIN 50.005.F	5A	250V AC 1ph	Faston	< 2.2mA	Two stage	84.5 x 51.0 x 39.0
FIN 50.010.F	10A	250V AC 1ph	Faston	< 2.2mA	Two stage	97.0 x 51.0 x 49.5
FIN 50.016.F	16A	250V AC 1ph	Faston	< 2.2mA	Two stage	126.5 x 105.0 x 45.0
FIN 50.024.M	24A	250V AC 1ph	Terminal block	< 2.2mA	Two stage	125.5 x 105.0 x 49.5

## THREE-PHASE RANGE OF EMC FILTERS FOR INDUSTRIAL POWER APPLICATIONS FROM 5A TO 180A

Current ratings from 5A to 30A.

High differential and common mode attenuation.

Low leakage current.

DIN rail mountable.

Compact design and easy to install.



*FIN 538.030.M*

The FIN 538 series of three-phase RFI filters with a standard input of 480V AC 3ph. Current ratings range from 5A to 30A with all units featuring a low leakage current of less than 10mA in normal conditions. All models are IP20 rated and DIN rail mountable. The EMC filters within this range boast a very compact design and are easy to install. They are suitable for a number of applications including conveyors, testing equipment, highly technical machinery, and automated machinery.

Reference	Current	Voltage	Terminations	Leakage Current	Dimensions L x W x H (mm)
FIN 538.005.M	5A	480V AC 3ph	Terminal blocks	< 10mA	59 x 130 x 146
FIN 538.010.M	10A	480V AC 3ph	Terminal blocks	< 10mA	59 x 130 x 146
FIN 538.016.M	16A	480V AC 3ph	Terminal blocks	< 10mA	59 x 130 x 146
FIN 538.025.M	25A	480V AC 3ph	Terminal blocks	< 10mA	59 x 130 x 146
FIN 538.030.M	30A	480V AC 3ph	Terminal blocks	< 10mA	59 x 130 x 146

Current ratings from 10A to 180A.

Very high differential and common mode attenuation.

Low leakage current.

Compact design.

Suitable for medical applications.



*FIN 1740ESM.072.M*

The FIN 1740ESM series of three-phase + neutral RFI filters with a standard input of 480V AC 3ph. Current ratings range from 10A to 180A with all units featuring a low leakage current of less than 3mA in normal conditions. All models are IP20 rated and are suitable for medical applications. The EMC filters within this range boast a compact design and terminal block terminations. They are suitable for a number of applications including conveyors, automated machinery, 3D printers, and medical equipment.

Reference	Current	Voltage	Terminations	Leakage Current	Dimensions L x W x H (mm)
FIN 1740ESM.010.M	10A	480V AC 3ph + N	Terminal blocks	< 3mA	130 x 100 x 153
FIN 1740ESM.018.M	18A	480V AC 3ph + N	Terminal blocks	< 3mA	130 x 100 x 153
FIN 1740ESM.036.M	36A	480V AC 3ph + N	Terminal blocks	< 3mA	130 x 100 x 153
FIN 1740ESM.072.M	72A	480V AC 3ph + N	Terminal blocks	< 3mA	118 x 125 x 153
FIN 1740ESM.100.M	100A	480V AC 3ph + N	Terminal blocks	< 3mA	180 x 140 x 170
FIN 1740ESM.135.M	135A	480V AC 3ph + N	Terminal blocks	< 3mA	180 x 140 x 170
FIN 1740ESM.180.M	180A	480V AC 3ph + N	Terminal blocks	< 3mA	200 x 160 x 170

# STOCK RANGE OF THREE-PHASE EMC FILTERS FOR INDUSTRIAL POWER APPLICATIONS FROM 7A TO 180A

Current ratings from 7A to 180A.

High attenuation in asymmetric and symmetric modes.

Low leakage current.

Slimline construction.

Easy to install.

Terminal block connections.

Designed for long cable lengths (50 m).

Standard voltage of 480V AC.



MLC 3016, MLC 3075, MLC 3100

The MLC 3 series of three-phase RFI filters have been designed for industrial frequency inverters, drive systems, and industrial power applications to assist design engineers in meeting the various requirements of the relevant EMC legislation. The models range from 7A to 180A and feature a standard voltage of 480V AC. The filters are an economic solution for general uses with high attenuation performance. The units possess low leakage current and boast slimline construction making the units easy to install.

Reference	Current	Voltage	Terminations	Leakage Current	Power Loss	Dimensions L x W x H (mm)
MLC 3007	7A	480V AC 3ph 3 wire + earth	Terminal blocks	0.50~27.00mA	4.5W	190 x 40 x 70
MLC 3016	16A	480V AC 3ph 3 wire + earth	Terminal blocks	0.50~27.00mA	9.0W	250 x 45 x 70
MLC 3030	30A	480V AC 3ph 3 wire + earth	Terminal blocks	0.50~27.00mA	14.0W	270 x 50 x 85
MLC 3042	42A	480V AC 3ph 3 wire + earth	Terminal blocks	0.50~27.00mA	19.0W	310 x 50 x 85
MLC 3055	55A	480V AC 3ph 3 wire + earth	Terminal blocks	0.50~27.00mA	20.0W	250 x 85 x 90
MLC 3075	75A	480V AC 3ph 3 wire + earth	Terminal blocks	0.50~27.00mA	20.0W	270 x 80 x 135
MLC 3100	100A	480V AC 3ph 3 wire + earth	Terminal blocks	0.75~130.00mA	36.0W	270 x 90 x 150
MLC 3130	130A	480V AC 3ph 3 wire + earth	Terminal blocks	0.75~130.00mA	40.0W	270 x 90 x 150
MLC 3180	180A	480V AC 3ph 3 wire + earth	Terminal blocks	0.75~130.00mA	61.0W	380 x 120 x 170

# STOCK RANGE OF THREE-PHASE EMC FILTERS FOR INDUSTRIAL POWER APPLICATIONS FROM 150A TO 4,000A

Current ratings from 150A to 4,000A.

High attenuation filters.

Low leakage current.

One of the most compact high current range of filters available in the EMC market today.

Easy to install.

High current copper busbar connections.

Standard voltage of 520V AC with 690V AC and 760V AC variations also available.



VPE 3250/B

The VPE 3/B series of three-phase RFI filters have been designed for industrial power applications to assist design engineers in meeting the various requirements of the relevant EMC legislation. The models range from 150A to 4,000A and feature a standard voltage of 520V AC. The filters are an economic solution for general uses with high attenuation performance. The units possess low leakage current and boast one of the most compact designs available in the high current EMC market today making the units easy to install.

Reference	Current	Voltage	Terminations	Leakage Current	Power Loss	Dimensions L x W x H (mm)
VPE 3150/B	150A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	28 Watts	260 x 170 x 120
VPE 3180/B	180A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	38 Watts	260 x 170 x 120
VPE 3250/B	250A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	57 Watts	300 x 190 x 116
VPE 3320/B	320A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	40 Watts	300 x 260 x 116
VPE 3400/B	400A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	50 Watts	300 x 260 x 116
VPE 3600/B	600A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	65 Watts	300 x 260 x 116
VPE 31000/B	1,000A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	91 Watts	350 x 280 x 166
VPE 31600/B	1,600A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	180 Watts	400 x 300 x 166
VPE 32500/B	2,500A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	400 Watts	600 x 385 x 200
VPE 34000/B	4,000A	520V AC 3ph 3 wire + earth	Busbar	< 6mA	400 Watts	600 x 400 x 200

ETE is a leading UK manufacturer of transformers and wound components as well as a key distributor of an extensive range of thermal management products for electrical enclosures and control panels. Our ranges of thermal management products are one of the most comprehensive and competitive in the whole UK with many units available from stock on a next day delivery.

## Contents Summary



# Thermal Management Products



- AC Cooling Fans
- DC Cooling Fans
- Cooling Fan Accessories
- AC Filter Fans
- DC Filter Fans
- Exhaust Filters
- Roof Fans or Top Ventilators
- Thermostats
- Hygrostats
- Anti-Condensation Heaters
- Much more...

ETE's thermal management products cover a wide range of application criteria for the cooling and heating of electrical enclosures. Our technical team is ready to assist in the selection and pricing of your requirements whatever the quantity. We represent some of the world's key thermal management product manufacturers most of whom give ETE exclusive rights to distribute their product ranges in the UK. Many product ranges are available ex stock either direct or via our extensive network of UK distributors.

### Detailed Contents

# Thermal Management Products

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# STOCK RANGE OF AC AND DC COOLING FANS WITH AIRFLOW RATES FROM 0.74 CU M/MIN TO 18.8 CU M/MIN

High quality range of economy AC and DC cooling fans.

AC versions with either 115~120V or 230~240V 50 / 60 Hz supplies.

DC versions with either 12V DC or 24V DC supplies.

The housing of the fans is either die cast aluminium or PBT thermoplastic to UL 94V-0 with the impeller being PBT thermoplastic to UL 94V-0.

Minimum operating temperature range between -10 °C and +70 °C.

Ball or sleeve bearing options available.



Cooling fans group

DC range of cooling fans with airflow rates from 1.13 cu m/min to 4.76 cu m/min. The housing and impeller of the units are comprised of PBT thermoplastic to UL 94V-0 with the insulation resistance being 10 MΩ/min at 500V DC from frame to terminals. Their dielectric strength is a maximum of 5mA at 500V AC 60 Hz for 1 minute from frame to terminals.

Reference	Input Voltage and Current	Terminals	Ball or Sleeve Bearing	Airflow (cu ft/min)	Airflow (cu m/min)	Noise (dBA) at 1 m	Dimensions D x W x H (mm)
D8025.12	12V DC 0.20A	Cables	Ball	40.0	1.13	35	25 x 80 x 80
D8025.24	24V DC 0.12A	Cables	Ball	40.0	1.13	35	25 x 80 x 80
D12025.12	12V DC 0.38A	Cables	Ball	88.3	2.50	48	25 x 120 x 120
D12025.24	24V DC 0.24A	Cables	Ball	88.3	2.50	48	25 x 120 x 120
D12038.12	12V DC 0.32A	Cables	Ball	168.0	4.76	50	38 x 120 x 120
D12038.24	24V DC 0.18A	Cables	Ball	168.0	4.76	50	38 x 120 x 120



A12038.115S



A15055.115

AC range of cooling fans with airflow rates from 0.74 cu m/min to a maximum of 18.8 cu m/min. The housing of the units is comprised of die cast aluminium with the impeller made from PBT thermoplastic to UL 94V-0. The fans are insulation Class B and their dielectric strength is 1,500V AC for 1 minute from frame to terminals.

Reference	Input Voltage and Current	Terminals	Ball or Sleeve Bearing	Airflow (cu ft/min)	Airflow (cu m/min)	Noise (dBA) at 1 m	Dimensions D x W x H (mm)
A8038.115	115V 0.11A	Cables	Ball	26~32	0.74~0.91	33~36	38 x 80 x 80
A8038.230	230V 0.056A	Cables	Ball	26~32	0.74~0.91	33~36	38 x 80 x 80
A12025.115	115V 0.15A	Terminals	Ball	70~81	1.90~2.20	38~42	25 x 120 x 120
A12025.230	230V 0.07A	Terminals	Ball	70~81	1.90~2.20	38~42	25 x 120 x 120
A12038.115	115V 0.15A	Terminals	Ball	60~65	1.71~1.84	36~38	38 x 120 x 120
A12038.115S	115V 0.15A	Terminals	Sleeve	60~65	1.71~1.84	36~38	38 x 120 x 120
A12038.230	230V 0.07A	Terminals	Ball	60~65	1.71~1.84	36~38	38 x 120 x 120
A12038.230S	230V 0.07A	Terminals	Sleeve	60~65	1.71~1.84	36~38	38 x 120 x 120
A15055.115	115V 0.32A	Terminals	Ball	200~240	5.66~6.79	50~53	55 x 150 x 150
A15055.230	230V 0.146A	Terminals	Ball	200~240	5.66~6.79	50~53	55 x 150 x 150
A17251.115	115V 0.22A	Terminals	Ball	190~235	5.40~6.70	55~59	51 x 172 x 172
A17251.230	230V 0.11A	Terminals	Ball	190~235	5.40~6.70	55~59	51 x 172 x 172
A25489.115	115V 0.23A	Terminals	Ball	600~665	17.00~18.80	50~52	89 x 254 x 254
A25489.230	230V 0.15A	Terminals	Ball	600~665	17.00~18.80	50~52	89 x 254 x 254



A17251.115



A25489.230S

## STOCK RANGE OF COOLING FAN PLASTIC GUARDS, FILTER GUARDS, METAL FINGER GUARDS, AND MESH GUARDS

A comprehensive stock range of fan accessories for our AC and DC series of cooling fans including plastic fan guards, plastic filters guards, replacement filter mats, metal finger guards, and metal mesh guards.

For fans sizes from 80 mm<sup>2</sup> to 150 mm in diameter.

Metal mesh guards can be used for protection and/or EMC grounding.

Plastic and metal finger guards are used for contact protection.

Plastic fan guards with filter media fitted are used for dust protection with replaceable filter mats.



*Axial fan accessories*

A comprehensive stock range of AC and DC axial fan accessories to compliment our high quality series of cooling fans available for immediate despatch. As well as our stock range there is a wide array of non-stock accessories also available. Please get in touch with our sales department for further information.

Reference	Description	Dimensions L x H (mm)	Designed for Fan with Dimensions D x W x H (mm)
PG 80	Plastic guard	80 x 80	38 x 80 x 80
PG 120	Plastic guard	120 x 120	38 x 120 x 120
PG 150	Plastic guard	153 x 180	55 x 150 x 150
PFG 80	Plastic filter guard	80 x 80	38 x 80 x 80
PFG 120	Plastic filter guard	120 x 120	38 x 120 x 120
PFG 150	Plastic filter guard	153 x 180	55 x 150 x 150
FM 80	Replacement filter mat	80 x 80	38 x 80 x 80
FM 120	Replacement filter mat	120 x 120	38 x 120 x 120
FM 150	Replacement filter mat	150 x 150	55 x 150 x 150

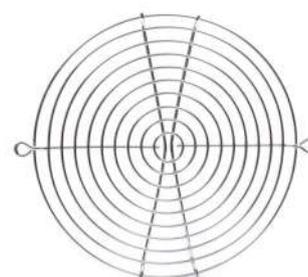


*PG 120*



*PFG 80*

Reference	Description	Dimensions L x H (mm)	Designed for Fan with Dimensions D x W x H (mm)
MFG 80	Metal finger guard	71 x 71	38 x 80 x 80
MFG 120	Metal finger guard	105 x 105	38 x 120 x 120
MFG 150	Metal finger guard	151 x 151	55 x 150 x 150
MFG 172	Metal finger guard	162 x 162	51 x 172 x 172
MFG 254	Metal finger guard	222 x 222	89 x 254 x 254



*MFG 172*

Reference	Description	Dimensions L x H (mm)	Designed for Fan with Dimensions D x W x H (mm)
MMG 80	Metal mesh guard	80 x 80	38 x 80 x 80
MMG 120	Metal mesh guard	120 x 120	38 x 120 x 120
MMG 150	Metal mesh guard	153 x 180	55 x 150 x 150



*MMG 150*

# STOCK RANGE OF AC FILTER FANS WITH AIRFLOW RATES FROM 20 CU M/HR TO 1,350 CU M/HR FREE BLOWING

FK and LFB series of standard stock AC filter fans to IP54.

The LFB series possess a reduced depth of 130 mm.

Airflow rates from 20 cu m/hr to 1,350 cu m/hr (free blowing) and from 15 cu m/hr to 780 cu m/hr with an exhaust filter fitted.

The AC axial filter fans feature a self-starting, screened, magnetic pole motor whereas the DC axial filter fans feature a direct current motor.

Ambient temperature range between -10 °C and +55 °C.

In RAL 7035 colour code.



FK 7726.230

A comprehensive range of IP54 rated DC axial filter fans with complimenting exhaust filters. A wide range of airflow rates are covered in both free blowing modes and restricted modes (with an exhaust filter or exhaust filters fitted). The LFB range have the advantage of a decreased depth for when space is an issue.

Power ratings and noise levels are as follows:

FK 7721.115	12~15	Watts	41~46	dBa	and	FK 7721.230	12~15	Watts	41~46	dBa
FK 7722.115	22~26	Watts	41~46	dBa	and	FK 7722.230	22~30	Watts	46~49	dBa
FK 7724.115	43~48	Watts	54~56	dBa	and	FK 7724.230	47~59	Watts	54~56	dBa
FK 7725.115	42~47	Watts	54~56	dBa	and	FK 7725.230	46~59	Watts	54~56	dBa
LFB 5000.115	150~180	Watts	59~61	dBa	and	LFB 5000.230	120~138	Watts	59~61	dBa
FK 7726.115	150~180	Watts	68~71	dBa	and	FK 7726.230	120~138	Watts	68~71	dBa
LFB 7000.115	150~180	Watts	59~68	dBa	and	LFB 7000.230	120~138	Watts	59~68	dBa

## AC Filter Fans

Reference	Input Voltage and Current	Airflow cu m/hr (Free Blowing)	Airflow in cu m/hr with 1 or (2) Exhaust Filters Fitted	Dimensions D x W x H (mm)	Cutout Dimensions W x H (mm)
FK 7721.115	115V AC 0.16A	20~25	15~18	60 x 105 x 105	93 x 93
FK 7721.230	230V AC 0.09A	20~25	15~18	60 x 105 x 105	93 x 93
FK 7722.115	115V AC 0.24A	55~66	43~50 (48~55)	71 x 150 x 150	126 x 126
FK 7722.230	230V AC 0.12A	55~66	43~50 (48~55)	71 x 150 x 150	126 x 126
FK 7724.115	115V AC 0.42A	160~180	115~138 (130~148)	131 x 250 x 250	224 x 224
FK 7724.230	230V AC 0.26A	160~180	115~138 (130~148)	131 x 250 x 250	224 x 224
FK 7725.115	115V AC 0.53A	230~265	170~205 (200~230)	131 x 250 x 250	224 x 224
FK 7725.230	230V AC 0.28A	230~265	170~205 (200~230)	131 x 250 x 250	224 x 224
LFB 5000.115	115V AC 0.61A	500~560	360~390 (423~490)	130 x 325 x 325	291 x 291
LFB 5000.230	230V AC 0.29A	500~560	360~390 (423~490)	130 x 325 x 325	291 x 291
FK 7726.115	115V AC 1.70A	1,020~1,050	550~580 (620~680)	167 x 325 x 325	291 x 291
FK 7726.230	230V AC 0.60A	1,020~1,050	550~580 (620~680)	167 x 325 x 325	291 x 291
LFB 7000.115	115V AC 0.95A	1,200~1,350	600~780 (680~830)	130 x 325 x 325	291 x 291
LFB 7000.230	230V AC 0.46A	1,200~1,350	600~780 (680~830)	130 x 325 x 325	291 x 291

# STOCK RANGE OF DC FILTER FANS WITH AIRFLOW RATES FROM 20 CU M/HR TO 265 CU M/HR FREE BLOWING AND ACCOMPANYING EXHAUST FILTERS

FK series of standard stock DC filter fans and exhaust filters to IP54 for the FK (AC and DC versions) and LFB range filter fans.

Airflow rates from 20 cu m/hr to 230 cu m/hr (free blowing) and from 15 cu m/hr to 200 cu m/hr with an exhaust filter fitted.

In RAL 7035 colour code.

Non-stock ranges of AC or DC fans available with special features.

Non-stock range of crossflow fans also available.



FK 7722.024

A comprehensive range of IP54 rated DC axial filter fans and exhaust filters (with filter mats) designed for use with the FK (AC and DC versions) and LFB range filter fans. A wide range of airflow rates are covered in both free blowing modes and restricted modes (with an exhaust filter or exhaust filters fitted).

Power ratings and noise levels are as follows:

FK 7721.024	4.3 Watts	41~46 dBA
FK 7722.024	7.2 Watts	46~49 dBA
FK 7724.024	14.0 Watts	54~56 dBA
FK 7725.024	14.0 Watts	54~56 dBA

## DC Filter Fans

Reference	Input Voltage and current	Airflow cu m/hour (Free Blowing)	Airflow cu m/hour with 1 or (2) Exhaust Filters Fitted	Dimensions D x W x H (mm)	Cutout Dimensions W x H (mm)
FK 7721.024	24V DC 0.18A	20~25	15~18	60 x 105 x 105	93 x 93
FK 7722.024	24V DC 0.15A	55~66	43~50 (48~55)	71 x 150 x 150	126 x 126
FK 7724.024	24V DC 0.58A	160~180	115 (165)	131 x 250 x 250	224 x 224
FK 7725.024	24V DC 0.58A	230~265	170~205 (200~230)	131 x 250 x 250	224 x 224

## Exhaust Filters

Reference	Designed for (AC fans)	Designed for (DC fans)	Dimensions D x W x H (mm)	Cutout Dimensions W x H (mm)
FK 7721.300	FK 7721.115 and FK 7721.230	FK 7721.024	15 x 105 x 105	93 x 93
FK 7722.300	FK 7722.115 and FK 7722.230	FK 7722.024	27 x 150 x 150	126 x 126
FK 7725.300	FK 7724.115 and FK 7724.230 FK 7725.115 and FK 7725.230	FK 7724.024 FK 7725.024	31 x 250 x 250	224 x 224
FK 7726.300	FK 7726.115 and FK 7726.230 LFB 5000.115 and LFB 5000.230 LFB 7000.115 and LFB 7000.230	-	36 x 325 x 325	291 x 291

## Non-Stock Ranges

- Fan units with various airflows from 80 mm<sup>2</sup> up to 254 mm in diameter and larger.
- Filter fans in RAL 7032, filter fans with EMC compliance, and filter fans to UL requirements.
- Exhaust filters in RAL 7032 and exhaust filters with EMC compliance
- High power cross flow fans.

Contact our sales department for further information.

# STOCK RANGE OF ENCLOSURE ROOF FANS OR TOP VENTILATORS AND ACCOMPANYING AIR INPUT GRILLS OR FILTER INLETS

F2E series of enclosure roof fans with an input voltage of 230V AC 50 / 60 Hz.

With airflows from 570 cu m/hr to 1,340 cu m/hr free blowing and 456 cu m/hr to 960 cu m/hr air input filters fitted.

Air input filter FK 7726.300 in single or in multiple units.

The fans are axial with capacitor start.

Temperature range between -10 °C and +55 °C.

In RAL 7035 colour code.



F2E 225-230-DP

F2E series of enclosure roof fans or top ventilators.

These top ventilators should only be used when the external ambient temperature is lower than the internal enclosure temperature.

The high power centrifugal fans have lower noise levels due to less air flow friction.

These fans do not take up valuable enclosure space and the FK 7726.300 exhaust filter can be used with or without the filter media fitted.

The airflow direction is illustrated and the air inlet should be situated at the base of the enclosure or cabinet.

## AC Roof / Cabin Fans or Top Ventilators

Reference	Input Voltage and Current	Power (W)	Airflow cu m/hr (Free Blowing)	Airflow cu m/hr with Exhaust Filter Fitted	Noise Level (dBA)	Dimensions D x W x H (mm)
F2E 190-230-DP	230V 0.26~0.34A	58~75	570~620	456~496	62~64	103 x 400 x 350
F2E 220-230-DP	230V 0.38~0.40A	85~90	860~900	688~540	73~74	103 x 400 x 350
F2E 225-230-DP	230V 0.60~0.88A	135~200	1,200~1,340	960~1,072	69~71	103 x 400 x 350

## Air Input Grills / Filter Inlets

Reference	For Roof Fans	Dimensions D x W x H (mm)
FK 7726.300	F2E 190-230-DP	36 x 325 x 325
FK 7726.300	F2E 220-230-DP	36 x 325 x 325
FK 7726.300	F2E 225-230-DP	36 x 325 x 325



Direction of airflow

# ENCLOSURE ROOF FANS OR TOP VENTILATORS WITH AIRFLOW RATES FROM 400 CU M/HR TO 970 CU M/HR

PFF and PTS ranges of enclosure roof fans with input voltages of 230V AC 50 / 60 Hz.

With airflows from 400 cu m/hr to 970 cu m/hr.

The PFF models come with M4 screw mounting whereas the PTS models come with fast clip on mounting.

Operating temperature range from -10 °C to +70 °C.

UL 94 V0 ABA flame retardant casing.

CE marked.



PTS5500

PFF and PTS ranges of enclosure roof fans or top ventilators with input voltages of 230V AC 50 / 60 Hz.

These top ventilators should only be used when the external ambient temperature range is lower than the internal enclosure temperature.

The high power centrifugal fans have lower noise levels due to less air flow friction and do not take up valuable enclosure space.

	PFF4000	PFF5500	PFF6000	PTS4000	PTS5500	PTS6000
<b>Input Voltage and Current</b>	230V 0.11~0.15A	230V 0.26~0.34A	230V 0.38~0.44A	230V 0.11~0.15A	230V 0.26~0.34A	230V 0.38~0.44A
<b>Power (W)</b>	25~32	58~75	85~90	25~32	58~75	85~90
<b>Airflow (cu m/hr)</b>	400	560	970	400	560	970
<b>Overcurrent Protection</b>	Thermal	Thermal	Thermal	Thermal	Thermal	Thermal
<b>Electrical Connection</b>	3 pole terminal	4 pole terminal	4 pole terminal	3 pole terminal	3 pole terminal	3 pole terminal
<b>Operating Temperature (°C)</b>	-10 to +70					
<b>IP Rating</b>	IP54	IP54	IP54	IP54	IP54	IP54
<b>Noise Level (dBA)</b>	57~61	62~64	72~73	62~64	62~64	72~73
<b>Flow Direction</b>	Inside / out					
<b>Bearing</b>	Ball	Ball	Ball	Ball	Ball	Ball
<b>Service Life (hrs)</b>	50,000	50,000	50,000	50,000	50,000	50,000
<b>Plastic Material</b>	UL 94 V0 ABS flame retardant					
<b>Gasket</b>	Polyurethane sealing					
<b>Mounting</b>	8 x M4 screws	8 x M4 screws	8 x M4 screws	Fast clip on	Fast clip on	Fast clip on
<b>Dimensions D x W x H (mm)</b>	107 x 364 x 364					
<b>Weight (kg)</b>	2.68	3.16	3.74	2.60	3.16	3.74
<b>Conformity</b>	CE	CE	CE	CE	CE	CE

# STOCK RANGE OF HEATING, COOLING, AND DOUBLE THERMOSTATS WITH TEMPERATURE RANGE SETTINGS FROM 0 °C TO 60 °C

Heating, cooling, and double thermostats.

PTHT thermostat with normally closed (NC) contacts for heating devices.

PTVT thermostat with normally open (NO) contacts for cooling devices.

PTHVT double thermostat with dual contacts for heating and cooling devices.

Small size, simple to mount, and high switching performance.

All with mounting for 35 mm DIN rail.



Three varieties of control devices for the accurate control of heat and condensation. The PTHT and PTVT thermostats operate with a snap-action, bi-metallic, two pole contact set. The PTHVT double thermostat offers dual control in a single unit, maximising space and simplifying wiring. Normally closed contacts are used for regulating heaters and normally open contacts are used for regulating cooling fans, heat exchangers, or switching signalling devices. Heaters and cooling equipment can be switched independently with a temperature offset rather than the usual changeover contacts. All units are protected to IP20 and have been designed for mounting on 35 mm DIN rail. The models are made from UL94 V0 ABS flame retardant plastic.

	PTHT	PTVT	PTHVT
<b>Contact Function</b>	NC	NO	NC + NO
<b>Temperature Setting Range (°C)</b>	0 to +60	0 to +60	0 to +60
<b>Colour of Potentiometer</b>	Red	Blue	Red / Blue
<b>Load at 250V AC / 120V AC or 24~72V DC</b>	10A AC / 15A AC 30W DC	10A AC / 15A AC 30W DC	10A AC / 15A AC 30W DC
<b>Sensor Type</b>	Bimetal	Bimetal	Bimetal
<b>Contact Type</b>	Snap-action	Snap-action	Snap-action
<b>Service Life</b>	> 100,000 cycles	> 100,000 cycles	> 100,000 cycles
<b>Electrical Connection</b>	2 pole terminal	2 pole terminal	4 pole terminal
<b>Plastic Casing</b>	UL 94 V0 ABS flame retardant	UL 94 V0 ABS flame retardant	UL 94 V0 ABS flame retardant
<b>IP Rating</b>	IP20	IP20	IP20
<b>Operating Temperature (°C)</b>	-25 to +80	-25 to +80	-25 to +80
<b>Storage Temperature (°C)</b>	-45 to +80	-45 to +80	-45 to +80
<b>Mounting</b>	Clip for mounting on 35 mm DIN rail	Clip for mounting on 35 mm DIN rail	Clip for mounting on 35 mm DIN rail
<b>Installation Position</b>	Variable	Variable	Variable
<b>Conformity</b>	CE	CE	CE
<b>Dimensions D x W x H (mm)</b>	38 x 34 x 61	38 x 34 x 61	42 x 59 x 65
<b>Weight (kg)</b>	0.05	0.05	0.08

# STOCK RANGE OF HEATING, COOLING, AND DOUBLE THERMOSTATS WITH TEMPERATURE RANGE SETTINGS FROM -10 °C TO +80 °C

Comprehensive range of heating, cooling, and double thermostats.

TSNO thermostats with normally open (NO) contacts for cooling devices.

TSNC thermostats with normally closed (NC) contacts for heating devices.

DTS double thermostats with dual contacts for heating and cooling devices.

Large setting range, small size, simple to mount and high switching performance.

All with mounting for 35 mm EN 50022 DIN rail.



TSNO 060

Three ranges of control devices for the accurate control of heat and condensation. The TSNO and TSNC thermostats operate with a snap-action, bi-metallic, two pole contact set. The DTS double thermostat offers dual control in a single unit, maximising space and simplifying wiring. Normally closed contacts are used for regulating heaters and normally open contacts are used for regulating cooling fans, heat exchangers, or switching signalling devices. Heaters and cooling equipment can be switched independently with a temperature offset rather than the usual changeover contacts. All units are designed of mounting on a 35 mm DIN rail.

Reference	Contact Function	Temperature Range (°C)	Load at 250V AC / 120V AC or 24~72V DC	Connections	Dimensions D x W x H (mm)
TSNC 060	NC	0 to +60	10A AC / 15A AC 30W DC	2 pole terminal	43 x 33 x 60
TSNO 060	NO	0 to +60	10A AC / 15A AC 30W DC	2 pole terminal	43 x 33 x 60
TSNC 1050	NC	-10 to +50	10A AC / 15A AC 30W DC	2 pole terminal	43 x 33 x 60
TSNO 1050	NO	-10 to +50	10A AC / 15A AC 30W DC	2 pole terminal	43 x 33 x 60
TSNC 2080	NC	+20 to +80	10A AC / 15A AC 30W DC	2 pole terminal	43 x 33 x 60
TSNO 2080	NO	+20 to +80	10A AC / 15A AC 30W DC	2 pole terminal	43 x 33 x 60



TSNO 060

Reference	IP Rating	Contact Resistance	Service Life	Plastic Casing	Weight (kg)
TSNO 060	IP20	< 10 mΩ	> 100,000 cycles	Light grey; UL 94 V0	0.04
TSNC 060	IP20	< 10 mΩ	> 100,000 cycles	Light grey; UL 94 V0	0.04
TSNO 1050	IP20	< 10 mΩ	> 100,000 cycles	Light grey; UL 94 V0	0.04
TSNC 1050	IP20	< 10 mΩ	> 100,000 cycles	Light grey; UL 94 V0	0.04
TSNO 2080	IP20	< 10 mΩ	> 100,000 cycles	Light grey; UL 94 V0	0.04
TSNC 2080	IP20	< 10 mΩ	> 100,000 cycles	Light grey; UL 94 V0	0.04



DTS 060

Reference	Contact Function	Temperature Range (°C)	Load at 250V AC / 120V AC or 24~72V DC	Connections	Dimensions D x W x H (mm)
DTS 060	NC / NO	0 to +60	10A AC / 15A AC 30W DC	4 pole terminal	67 x 50 x 45

Reference	IP Rating	Contact Resistance	Service Life	Plastic Casing	Weight (kg)
DTS 060	IP20	< 10 mΩ	> 100,000 cycles	Light grey; UL 94 V0	0.09

# ELECTRONIC THERMOSTAT, ELECTROMECHANICAL HYGROSTATS, AND ELECTRONIC HYGROSTATS

ETS electronic heating and cooling thermostat for inductive and resistive loads via internal changeover relay contacts.

HGS electromechanical hygrostats for control of enclosure heaters with high humidity or low temperature triggering.

EHGS range of electronic hygrostats for sensing the ambient temperature and the relative humidity (RH). There are four types with two voltage options and two RH options available.



ETS 2060

The ETS 2060 is an electronic thermostat for controlling heating, cooling, and signal devices. The adjuster has an inbuilt LED indicator to signify that the NC contact is closed. The sensor element is an NTC and the reaction time is 5 seconds.

The HGS 3595 electromechanical hygrostat triggers for high humidity or low temperature and has changeover contacts. Designed to control heaters when a critical relative humidity of 65% is reached.

The EHGS range of electronic hygrostats trigger for high humidity or low temperature. Units have changeover contacts and are designed to control heaters when a critical relative humidity is reached. EMC testing is to EN 55014-1-2, EN 61000-3-2, and EN 61000-3-3. The reaction time is 5 seconds and the adjuster has an inbuilt LED to indicate that the connected device is in operation.

Reference	Temperature Range (°C)	Max Switching Capacity at 250V AC / 120V AC or 24V DC	Max Relay Output	Connections	Dimensions D x W x H (mm)
ETS 2060	-20 to +60	8A AC 100W DC	1.6A AC	5 pole 2.5 mm <sup>2</sup> cable	38.0 x 42.0 x 64.5

Reference	IP Rating	Max Inrush Current	Service Life	Plastic Casing	Weight (kg)
ETS 2060	IP20	16A AC for 10 seconds	> 50,000 cycles	Light grey; UL 94 V-0	0.07

Reference	RH % Range	Minimum Switching Capacity	Maximum Switching Capacity	Connections	Dimensions D x W x H (mm)
HGS 3595	35% to 95%	20V AC 100mA / 20V DC 100mA	250V AC 5A	3 pole 2.5 mm <sup>2</sup> cable	38 x 50 x 67

Reference	IP Rating	Contact Resistance	Service Life	Plastic Casing	Weight (kg)
HGS 3595	IP20	< 10 mΩ	> 100,000 cycles	Light grey; UL 94 V-0	0.06



HGS 3595

Reference	RH % Range	Max Switching Capacity at 250V AC / 120V AC or 24V DC	Max Relay Output	Connections	Dimensions D x W x H (mm)
EHGS 120.4090	40 to 90%	8A AC 100W DC	1.6A AC	5 pole 2.5 mm <sup>2</sup> cable	38.0 x 42.0 x 64.5
EHGS 120.65	65% pre-set	8A AC 100W DC	1.6A AC	5 pole 2.5 mm <sup>2</sup> cable	38.0 x 42.0 x 64.5
EHGS 230.4090	40 to 90%	8A AC 100W DC	1.6A AC	5 pole 2.5 mm <sup>2</sup> cable	38.0 x 42.0 x 64.5
EHGS 230.65	65% pre-set	8A AC 100W DC	1.6A AC	5 pole 2.5 mm <sup>2</sup> cable	38.0 x 42.0 x 64.5

Reference	IP Rating	DIN Rail Mounting	Service Life	Plastic Casing	Weight (kg)
EHGS 120.4090	IP20	Vertical	> 50,000 cycles	Light grey; UL 94 V-0	0.07
EHGS 120.65	IP20	Vertical	> 50,000 cycles	Light grey; UL 94 V-0	0.07
EHGS 230.4090	IP20	Vertical	> 50,000 cycles	Light grey; UL 94 V-0	0.07
EHGS 230.65	IP20	Vertical	> 50,000 cycles	Light grey; UL 94 V-0	0.07



EHGS 230.4090

# ELECTROMECHANICAL HYGROTHERMS, ELECTRONIC HYGROTHERMS, AND SWITCH MODULES

HTNO and HTNC electromechanical hygrotherms with combined hygrostat and thermostat plus an LED indicator to indicate the hygrostat function. The thermostat function is with either normally open (NO) or normally closed (NC) contact sets.

EHGT electronic hygrotherms with combined hygrostat and thermostat plus an LED indicator to indicate the hygrostat function. The thermostat function has relay operated change over contacts.

DCSM switching module for switching high current DC appliances in either 24V DC or 48V DC. A separate conventional switch contact is used as a controller for temperature or humidity regulation in conjunction with the DC switch module.



HTNC 3595.60

The HTNO and HTNC electromechanical hygrotherms are for, both, humidity and temperature control. The hygrotherm function has a range of 35~95% relative humidity (RH) and when RH drops below the preset humidity the circuit is closed and the LED illuminates. The thermostat function has a range of 0 °C to 60 °C with either NO or NC contacts.

The EHGT range of electronic hygrotherms are for both humidity and temperature control. The hygrotherm function has a range of 50~90% RH and when RH drops below the preset humidity the circuit is closed and the LED illuminates. The thermostat function has a range of 0 °C to 60 °C with relay operated change over contacts. The units are available in either 120V AC or 230V AC types with a frequency of 50 / 60 Hz.

The DCSM DC switch module is to be used in conjunction with a thermostat, hygrostat, or a pressure regulator for switching DC currents up to 16A. The IP rating is IP20 and the housing is UL 94 V-0 light grey plastic.

Reference	RH % Range	Contact Function	Temperature Range (°C)	Load in at 250V AC / 250V DC	Connections	Dimensions D x W x H (mm)
HTNO 3595.60	35~95%	NO	0 to +60	5A AC / 30W DC	5 pole	40 x 63 x 70
HTNC 3995.60	35~95%	NC	0 to +60	5A AC / 30W DC	5 pole	40 x 63 x 70

Reference	IP Rating	Humidity Control	Service Life	Plastic Casing	Minimum Switching	Weight (kg)
HTNO 3595.60	IP20	5-10% of RH setting	> 750,000 cycles	Light grey; UL 94 V-0	20V AC 100mA / 20V DC 100mA	0.09
HTNC 3995.60	IP20	5-10% of RH setting	> 750,000 cycles	Light grey; UL 94 V-0	20V AC 100mA / 20V DC 100mA	0.09



HTNO 3595.60

Reference	Operating Voltage	RH % Range	Contacts	Temperature Range (°C)	Load in at 240V AC / 240V DC	Dimensions D x W x H (mm)
EHGT 120	120V AC	50~90%	Change over (relay)	0 to +60	8A AC / 100W DC	77 x 60 x 43
EHGT 230	230V AC	50~90%	Change over (relay)	0 to +60	6A AC / 100W DC	77 x 60 x 43

Reference	IP Rating	Service Life (NC)	Service Life (NO)	Plastic Casing	Connections	Weight (kg)
EHGT 230	IP20	> 50,000 cycles	> 100,000 cycles	Light grey; UL 94 V-0	5 pole	0.200
EHGT 120	IP20	> 50,000 cycles	> 100,000 cycles	Light grey; UL 94 V-0	5 pole	0.200



EHGT 230

Reference	Operating Voltage	Maximum Switching Current	Service Life	Contact Resistance	Connections	Dimensions D x W x H (mm)	Weight (kg)
DCSM 24	24V DC (20~28V DC)	16A DC	> 100,000 cycles	< 10 mΩ	6 pole	46 x 50 x 67	0.85
DCSM 48	48V DC (38~56V DC)	16A DC	> 100,000 cycles	< 10 mΩ	6 pole	46 x 50 x 67	0.85



DCSM 24

# STOCK RANGE OF ANTI-CONDENSATION HEATERS FROM 10 WATTS TO 400 WATTS FOR ENCLOSURES AND CONTROL PANELS

Comprehensive range of anti-condensation heaters for a wide range of applications and enclosure sizes. The different series are listed below:

NCHW self-regulating anti-condensation heaters with PTC resistor heating elements and wire connections. Power ratings range from 10 Watts to 30 Watts.

NCHT self-regulating anti-condensation heaters with PTC resistor heating elements and terminal connections. Power ratings range from 15 Watts to 150 Watts.

FCHT fan-assisted self-regulating anti-condensation heaters with PTC resistor heating elements and terminal connections. Power ratings range from 250 Watts to 400 Watts.

Fast and simple installation with mounting for 35 mm DIN rail.

The NCHW series of anti-condensation heaters with wire connections and power ratings from 10 Watts to 30 Watts. The heater is constructed from anodised extruded aluminium and the heater element is a PTC resistor with temperature limiting. Fitting position is with a vertical airflow and connections at the bottom.



NCHW 30

Reference	Voltage	Heating Capacity	IP Rating	Wire Connections	Dimensions D x W x H (mm)	Weight (kg)
NCHW 10	110~250V AC / 110~250V DC	10 Watts	IP44 Class I	300 mm silicon cable	25 x 50 x 52	0.1
NCHW 20	110~250V AC / 110~250V DC	20 Watts	IP44 Class I	300 mm silicon cable	25 x 50 x 60	0.2
NCHW 30	110~250V AC / 110~250V DC	30 Watts	IP44 Class I	300 mm silicon cable	25 x 50 x 70	0.2

The NCHT series of anti-condensation heaters with terminal connections and power ratings from 15 Watts to 150 Watts. The heater is constructed from anodised extruded aluminium and the heater element is a PTC resistor with temperature limiting. Fitting position is with a vertical airflow and connections at the bottom.



NCHT 100

Reference	Voltage	Heating Capacity	IP Rating	Terminal Connections (Solid Wire)	Dimensions D x W x H (mm)	Weight (kg)
NCHT 15	120~250V AC / 120~250V DC	15 Watts	IP20 Class I	0.5 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	60 x 70 x 75	0.3
NCHT 30	120~250V AC / 120~250V DC	30 Watts	IP20 Class I	0.5 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	60 x 70 x 75	0.3
NCHT 45	120~250V AC / 120~250V DC	45 Watts	IP20 Class I	0.5 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	60 x 70 x 75	0.3
NCHT 60	120~250V AC / 120~250V DC	60 Watts	IP20 Class I	0.5 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	60 x 70 x 75	0.3
NCHT 75	120~250V AC / 120~250V DC	75 Watts	IP20 Class I	0.5 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	60 x 70 x 75	0.3
NCHT 100	120~250V AC / 120~250V DC	100 Watts	IP20 Class I	0.5 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	60 x 70 x 145	0.5
NCHT 150	120~250V AC / 120~250V DC	150 Watts	IP20 Class I	0.5 mm <sup>2</sup> to 2.5 mm <sup>2</sup>	60 x 70 x 145	0.5

The FCHT series of fan-assisted anti-condensation heaters with terminal connections and power ratings from 250W to 400W. The models within this range are available with 230V 50 Hz / 60 Hz supply voltage. The heater is constructed from anodised extruded aluminium and the heater element is a PTC resistor with temperature safety cutout. Maximum surface temperature is 75 °C and fitting position is with vertical airflow and connections at the bottom.

Reference	Voltage	Heating Capacity	IP Rating	Connections	Dimensions D x W x H (mm)	Weight (kg)
FCHT 250	230V	250 Watts	IP20 Class I	Terminals	100 x 85 x 182	1.1
FCHT 400	230V	400 Watts	IP20 Class I	Terminals	100 x 85 x 222	1.4



FCHT 400

## FAN-ASSISTED ANTI-CONDENSATION HEATERS FROM 800 WATTS TO 1,500 WATTS FOR ENCLOSURES AND CONTROL PANELS

The comprehensive MCHT range of fan-assisted anti-condensation heaters with PTC resistor heating elements for a wide variety of applications and enclosure sizes.

Power ratings of either 800W; 1,000W; 1,200W; or 1,500W.

Supply voltages either 110V 50 Hz or 230V 50 Hz.

Simple to install by mounting on 35 mm DIN rail to EN 50022.

Terminal block connections black in colour and designed to V-0.

IP20 rated and CE marked.



*MCHT 1000.230*

The MCHT series of fan-assisted anti-condensation heaters with terminal connections and power ratings of 800W; 1,000W; 1,200W; or 1,500W. The models within this range are available with either a 110V 50 Hz or 230V 50 Hz supply voltage. The heater element is a PTC resistor with a temperature safety fuse in case of fan failure. The heater is a Class I earthed metal work with an extruded aluminium and anodised outer casing. The axial fan is a ball bearing and has a service life of 50,000 hours at 25 °C. Fitting position is with a vertical airflow and terminal block connections at the bottom. The terminal block is 2.5 mm<sup>2</sup> and the airflow rate is 35 cu m/hr free blowing.

Reference	Description	Voltage and Current	Heating Capacity	Airflow	Operating and Storage Temperature	Dimensions L x W x H (mm)	Weight (kg)
MCHT 800.110	Fan heater with thermal fuse	110V 8A	800 Watts	35 cu m/hr free blowing	-25 °C to +70 °C	168 x 146 x 132	1.5
MCHT 800.230	Fan heater with thermal fuse	230V 8A	800 Watts	35 cu m/hr free blowing	-25 °C to +70 °C	168 x 146 x 132	1.5
MCHT 1000.110	Fan heater with thermal fuse	110V 9A	1,000 Watts	35 cu m/hr free blowing	-25 °C to +70 °C	168 x 146 x 132	1.5
MCHT 1000.230	Fan heater with thermal fuse	230V 9A	1,00 Watts	35 cu m/hr free blowing	-25 °C to +70 °C	168 x 146 x 132	1.5
MCHT 1200.110	Fan heater with thermal fuse	110V 12A	1,200 Watts	35 cu m/hr free blowing	-25 °C to +70 °C	168 x 146 x 132	1.5
MCHT 1200.230	Fan heater with thermal fuse	230V 12A	1,200 Watts	35 cu m/hr free blowing	-25 °C to +70 °C	168 x 146 x 132	1.5
MCHT 1500.110	Fan heater with thermal fuse	110V 13A	1,500 Watts	35 cu m/hr free blowing	-25 °C to +70 °C	168 x 146 x 132	1.5
MCHT 1500.230	Fan heater with thermal fuse	230V 13A	1,500 Watts	35 cu m/hr free blowing	-25 °C to +70 °C	168 x 146 x 132	1.5

ETE is a leading UK transformer manufacturer as well as a key distributor for a comprehensive array of electrical power products for the control and automation markets. The products within this section compliment those of within our transformers and wound components, power electronics, and thermal management categories perfectly.

## Contents Summary



## Transformer and Panel Accessories



- Valve-Regulated Lead-Acid Batteries
- Battery Modules
- IP65 Front Panel Hinged Windows
- Distribution Blocks
- Panel and Enclosure Lighting
- DIN Rail Mountable Sockets
- Industrial Plugs and Sockets
- Busbar Insulators and Copper Busbar
- Transformer, Power Supply, Control Panel, and Enclosure Accessories
- Enclosures

ETE's transformer and panel accessories completes our extensive catalogue of electrical power products. Our technical team is ready to assist in the selection and pricing of your requirements whatever the quantity. Many products are available from stock, either direct, or, via our widespread network of distributors across the British Isles.

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# Transformer and Panel Accessories

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Maintenance free rechargeable batteries.  
In 4V, 6V, or 12V types from 1Ah to 65Ah.  
Superb recovery from deep discharge.  
No fear of electrolyte leakage regardless of orientation.  
Multipurpose float or cyclic use.  
Superior energy density.  
Lead calcium grids for extended life.  
Control of gas generation using oxygen recombination technology.



NP 7-12

### APPLICATIONS INCLUDE:

Control systems, standby power systems, emergency lighting, alarm systems, UPS control, and medical equipment

The NP series of valve-regulated lead-acid batteries come in a wide range of sizes to suit a variety of general applications. Their unique sealed construction ensures no electrolyte leakage from either the case or the terminals. Over 1,000 discharge / charge cycles can be expected (average depth of discharge dependent) with the anticipated life expectancy being 5 years in float mode. The extremely low self-discharge rate allows the batteries to be stored for up to one year at normal ambient temperatures without any permanent loss of capacity. The operating temperature range for the charge, discharge, and storage are as follows:  $-15^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  (charge),  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  (discharge), and  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  (storage at full charge).

- FR = Flame retardant casing
- L = large faston tab terminal (6.35 mm)
- LFR = Large faston tab terminal (6.35 mm) + flame retardant casing
- I = Internal thread (female)
- IFR = Internal thread (female) + flame retardant casing
- B = lug type terminal (through bolt)

Reference	Nominal Voltage	Nominal Capacity (20 hour rate)	Length (mm)	Width (mm)	Overall Height (mm)	Weight (kg)	Terminals
NP 1-6	6V	1.0Ah	51.0	42.5	54.5	0.25	Faston tab 187
NP 1.2-6	6V	1.2Ah	97.0	25.0	54.5	0.31	Faston tab 187
NP 2.8-6	6V	2.8Ah	134.0	34.0	64.0	0.57	Faston tab 187
NP 3-6	6V	3.0Ah	134.0	34.0	60.0	0.63	Faston tab 187
NP 4-6	6V	4.0Ah	70.0	47.0	105.5	0.87	Faston tab 187
NP 7-6	6V	7.0Ah	151.0	34.0	97.5	1.32	Faston tab 187
NP 10-6	6V	10.0Ah	151.0	50.0	97.5	1.93	Faston tab 187 / 250
NP 12-6	6V	12.0Ah	151.0	50.0	97.5	2.05	Faston tab 250
NP 0.8-12	12V	0.8Ah	96.0	25.0	61.5	0.35	JST # VHR-2N
NP 1.2-12	12V	1.2Ah	97.0	48.0	54.5	0.58	Faston tab 187
NP 1.2-12FR	12V	1.2Ah	97.0	48.0	54.5	0.58	Faston tab 187
NP 2-12	12V	2.0Ah	150.0	20.0	89.0	0.70	Faston tab 187
NP 2.1-12	12V	2.1Ah	178.0	34.0	64.0	0.82	Faston tab 187
NP 2.3-12	12V	2.3Ah	178.0	34.0	64.0	0.95	Faston tab 187
NP 2.7-12	12V	2.7Ah	79.0	55.0	106.0	1.10	Faston tab 187
NP 2.8-12	12V	2.8Ah	134.0	67.0	64.0	1.12	Faston tab 187
NP 3.2-12	12V	3.2Ah	134.0	67.0	64.0	1.20	Faston tab 187
NP 3.2-12FR	12V	3.2Ah	134.0	67.0	64.0	1.20	Faston tab 187
NP 4-12	12V	4.0Ah	90.0	70.0	106.0	1.75	Faston tab 187 / 250
NP 7-12	12V	7.0Ah	151.0	65.0	97.5	2.20	Faston tab 187 / 250
NP 7-12FR	12V	7.0Ah	151.0	65.0	97.5	2.20	Faston tab 187 / 250
NP 7-12L	12V	7.0Ah	151.0	65.0	97.5	2.20	Faston tab 250
NP 7-12LFR	12V	7.0Ah	151.0	65.0	97.5	2.20	Faston tab 250
NP 12-12	12V	12.0Ah	161.0	98.0	97.5	4.05	Faston tab 250
NP 12-12FR	12V	12.0Ah	161.0	98.0	97.5	4.05	Faston tab 250
NP 17-12I	12V	17.0Ah	181.0	76.0	167.0	6.10	M5 screw (female)
NP 17-12IFR	12V	17.0Ah	181.0	76.0	167.0	6.10	M5 screw (female)
NP 18-12B	12V	18.0Ah	180.0	76.0	167.0	6.20	M5 lug
NP 24-12I	12V	24.0Ah	166.0	175.0	125.0	9.00	M5 screw (female)
NP 38-12I	12V	38.0Ah	197.0	165.0	170.0	14.20	M5 screw (female)
NP 65-12I	12V	65.0Ah	350.0	166.0	174.0	22.80	M6 screw (female)

Maintenance free rechargeable batteries.  
 In 6V or 12V types from 24Ah to 200Ah.  
 Superb recovery from deep discharge.  
 No fear of electrolyte leakage regardless of orientation.  
 Multipurpose float or cyclic use.  
 Superior energy density.  
 Lead calcium grids for extended life.  
 Control of gas generation using oxygen recombination technology.



NPL 24-12FR

### APPLICATIONS INCLUDE:

Security and fire, control systems, standby power systems, telecommunications, emergency lighting, alarm systems, UPS control, and medical equipment

The NPL series of valve-regulated lead-acid batteries come in a wide range of sizes to suit a variety of general applications. Their unique sealed construction ensures no electrolyte leakage from either the case or the terminals. Over 1,000 discharge / charge cycles can be expected (average depth of discharge dependent) with the anticipated life expectancy being between 7 and 12 years in float mode. The extremely low self-discharge rate allows the batteries to be stored for up to one year at normal ambient temperatures without any permanent loss of capacity. The operating temperature range for the charge, discharge, and storage are as follows:  $-15^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  (charge),  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  (discharge), and  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  (storage at full charge).

IFR = Internal thread (female) + flame retardant casing  
 FR = Flame retardant casing  
 I = Internal thread (female)

Reference	Nominal Voltage	Nominal Capacity (20 hour rate)	Length (mm)	Width (mm)	Overall Height (mm)	Weight (kg)	Terminals
NPL 130-6IFR	6V	130Ah	350	166	174	23.0	M6 screw (female)
NPL 200-6	6V	6Ah	407	172	240	39.0	M10 lug
NPL 200-6FR	6V	6Ah	407	172	240	39.0	M10 lug
NPL 24-12I	12V	24Ah	166	175	125	9.0	M5 screw (female)
NPL 24-12IFR	12V	24Ah	166	175	125	9.0	M5 screw (female)
NPL 38-12I	12V	38Ah	197	165	170	14.2	M5 screw (female)
NPL 38-12IFR	12V	38Ah	197	165	170	14.2	M5 screw (female)
NPL 65-12I	12V	65Ah	350	166	174	23.0	M6 screw (female)
NPL 65-12IFR	12V	65Ah	350	166	174	23.0	M6 screw (female)
NPL 78-12IFR	12V	78Ah	380	166	174	39.0	M8 screw (female)
NPL 100-12	12V	100Ah	407	172	240	39.0	M10 lug
NPL 100-12FR	12V	100Ah	407	172	240	39.0	M10 lug

- Maintenance free rechargeable batteries.
- In 6V or 12V types from 1Ah to 200Ah.
- Superb recovery from deep discharge.
- No fear of electrolyte leakage regardless of orientation.
- Multipurpose float or cyclic use.
- Superior energy density.
- Lead calcium grids for extended life.
- Control of gas generation using oxygen recombination technology.



Y 9-12

### APPLICATIONS INCLUDE:

Standby power systems, alarm systems, emergency lighting, and general use

The Y series of valve-regulated lead-acid batteries come in a wide range of sizes to suit a variety of general applications. Their unique sealed construction ensures no electrolyte leakage from either the case or the terminals. Around 1,200 discharge / charge cycles can be expected (average depth of discharge dependent) with the anticipated life expectancy being 5 years in float mode. This models within this range are waterproof and high performance in permanent charge as well as cyclic charge. The operating temperature range for the charge, discharge, and storage are as follows: -20 °C to +60 °C (charge), -15 °C to +50 °C (discharge), and -20 °C to +60 °C (storage at full charge).

FR = Flame retardant casing

FT = Front terminal

L = Large faston tab terminal

Reference	Nominal Voltage	Nominal Capacity (20 hour rate)	Length (mm)	Width (mm)	Overall Height (mm)	Weight (kg)	Terminals
Y 1-6	6V	1.0Ah	51.0	42.5	54.5	0.25	Faston tab 187
Y 1.2-6	6V	1.2Ah	97.0	24.0	54.5	0.31	Faston tab 187
Y 2.8-6	6V	2.8Ah	134.0	34.0	64.0	0.60	Faston tab 187
Y 3.2-6	6V	3.2Ah	134.0	34.0	64.0	0.60	Faston tab 187
Y 4-6	6V	4.0Ah	70.0	47.0	105.5	0.87	Faston tab 187
Y 10-6	6V	10.0Ah	151.0	50.0	97.5	1.93	Faston tab 187
Y 12-6L	6V	12.0Ah	151.0	50.0	97.5	2.05	Faston tab 250
Y 0.8-12	12V	0.8Ah	96.0	25.0	61.5	0.35	Connector
Y 1.2-12	12V	1.2Ah	97.0	48.0	54.5	0.50	Faston tab 187
Y 1.2-12FR	12V	1.2Ah	97.0	48.0	54.5	0.50	Faston tab 187
Y 2.1-12	12V	2.1Ah	178.0	34.0	64.0	0.82	Faston tab 187
Y 2.1-12FR	12V	2.1Ah	178.0	34.0	64.0	0.82	Faston tab 187
Y 2.3-12	12V	2.3Ah	178.0	34.0	64.0	0.95	Faston tab 187
Y 2.8-12	12V	2.8Ah	134.0	67.0	64.0	1.20	Faston tab 187
Y 2.9-12	12V	2.9Ah	79.0	56.0	105.0	1.10	Faston tab 187
Y 3.2-12	12V	3.2Ah	134.0	67.0	64.0	1.20	Faston tab 187
Y 4-12	12V	4.0Ah	90.0	70.0	106.0	1.75	Faston tab 187
Y 5-12L	12V	5.0Ah	90.0	70.0	106.0	1.90	Faston tab 250
Y 7-12	12V	7.0Ah	151.0	65.0	97.5	2.65	Faston tab 187
Y 9-12	12V	9.0Ah	151.0	65.0	98.0	2.70	Faston tab 187
Y 12-12	12V	12.0Ah	151.0	98.0	97.5	4.05	Faston tab 250
Y 14-12L	12V	14.0Ah	151.0	98.0	98.0	4.10	Faston tab 250
Y 17-12	12V	17.0Ah	181.0	76.0	167.0	6.10	M5 screw
Y 17-12FR	12V	17.0Ah	181.0	76.0	167.0	6.10	M5 screw
Y 24-12	12V	24.0Ah	166.0	175.0	125.0	9.00	M5 bolt
Y 38-12	12V	38.0Ah	197.0	165.0	170.0	13.20	M5 bolt
Y 65-12	12V	65.0Ah	348.0	167.0	178.0	21.0	M6 bolt
Y 100-12	12V	100.0Ah	330.0	173.0	220.0	31.5	M8 screw
Y 100-12FT	12V	100.0Ah	330.0	173.0	220.0	31.5	M8 screw
Y 150-12	12V	150.0Ah	485.0	170.0	240.0	43.5	M8 screw
Y 150-12FT	12V	150.0Ah	485.0	170.0	240.0	43.5	M8 screw
Y 200-12	12V	200.0Ah	522.0	240.0	224.0	64.0	M8 screw
Y 200-12FT	12V	200.0Ah	522.0	240.0	224.0	64.0	M8 screw

## Valve-Regulated Lead-Acid Batteries

NPC series, EN series,  
ENL series, SWL series,  
TEV series, REC series,  
UXF series, UFH series,  
UXL series

## Other Battery Types

NiCd series  
NiMH series



REC 26-12

### APPLICATIONS INCLUDE:

UPS and back up power, standby power systems, emergency lighting, alarm systems, and medical equipment

Yuasa are one of the world's largest manufacturers and suppliers of valve-regulated lead-acid batteries with global manufacturing plants and an extensive marketing and distribution network throughout the UK and Europe. The Yuasa range provides one of the widest choices of battery types from a single source anywhere for an extensive array of applications. For detailed technical specifications go to [www.yuasa-battery.co.uk](http://www.yuasa-battery.co.uk) or contact our sales department.

Series	Voltage, Capacity, and Additional Information	Applications
NPC	12V types 24Ah, 38Ah, 65Ah, and 100Ah options (20 hour rate)	Wheelchairs, golf trolleys, lawn mowers, lights, toy cars, sprayers, photovoltaics, robots, communications, electric tools, pumps, measuring instruments, automatic guided vehicles, and magnetic lifts
EN	2V, 4V, and 6V types 80Ah, 100Ah, 160Ah, 180Ah, 320Ah, 480Ah, and 540Ah options (10 hour rate)	Standby power systems, telecommunications, UPS control, and emergency lighting
ENL	2V, 4V, 6V, and 12V types 100Ah, 160Ah, 320Ah, and 480Ah options (10 hour rate) FT variations comes with a front terminal	Standby power systems, telecommunications, UPS control, and emergency lighting
SWL	6V and 12V types 22.9Ah, 27.1Ah, 39.6Ah, 55Ah, 66Ah, 76Ah, 78Ah, 90Ah, 105Ah, 124Ah, 132Ah, 140Ah, and 180Ah options (10 hour rate) FR variations come with fire resistant casing High capacity, power, and discharge	Standby power systems, telecommunications, UPS control, and emergency lighting
TEV	12V types 18Ah, 21Ah, 26Ah, and 36Ah options (20 hour rate) High capacity	Wheelchairs, golf trolleys, lawn mowers, lights, toy cars, sprayers, photovoltaics, robots, communications, electric tools, pumps, measuring instruments, automatic guided vehicles, and magnetic lifts
REC	12V types 10Ah, 12Ah, 14Ah, 22Ah, 26Ah, 36Ah, 50Ah, and 80Ah options (20 hour rate) B variations come with M5 bolt terminals M variations are marine batteries	General use
UXF	12V types 90Ah, 100Ah, and 150Ah options (10 hour rate)	For high density applications and 48V 19 inch or 23 inch rack systems
UXH	6V type 100Ah (20 hour rate)	For high density applications and 48V 19 inch or 23 inch rack systems
UXL	2V types 220Ah, 330Ah, 550Ah, 1,100Ah, 1,550Ah, and 2,200Ah options (10 hour rate)	For high density applications and 48V 19 inch or 23 inch rack systems
NiCd	Cylindrical Nickel Cadmium Various models Miniature with high capacity	General use
NiMH	Cylindrical Metal Halide Various models Miniature with high capacity	General use

Stock range of IP20 battery modules from 1.2Ah to 12Ah.

Output voltages either 12V DC or 24V DC.

For use with 'all-in-one' and standard battery chargers.

Four hole fixing via M4 screws.

Short circuit protected via a 25A fuse.



BM 24:7

Comprehensive range of battery modules from 1.2Ah to 12Ah with output voltages of either 12V DC or 24V DC. The battery modules within this range are designed for use with 'all-in-one' or standard battery chargers and mounting is direct to a panel back plate via 4 x M4 screws. All units are fully short circuit protected with a 25A fuse and the operational ambient temperature range is from 5 °C to 40 °C. Storage temperature is between -20 °C and +50 °C and the protection class of the modules is to IP20. Separate battery holder only units are available (see below) to buy as well as replacement lead-acid batteries (see pages 106-108).

## Battery Modules

Reference	Output	End of Charge Voltage	Trickle Charge	Maximum Charging Current	Self-Discharge Rate	Dimensions L x W x H (mm)	Weight (kg)
BM 12:3.2	12.00V DC 3.2Ah	13.70V DC (20 °C)	13.50V DC (30 °C) 13.25V DC (40 °C)	0.3A	15% per month (20 °C)	105 x 85 x 135	1.5
BM 12:7	12.00V DC 7.0Ah	13.70V DC (20 °C)	13.50V DC (30 °C) 13.25V DC (40 °C)	0.8A	15% per month (20 °C)	105 x 120 x 180	2.6
BM 12:9	12.00V DC 9.1Ah	13.70V DC (20 °C)	13.50V DC (30 °C) 13.25V DC (40 °C)	1.0A	15% per month (20 °C)	105 x 120 x 180	2.6
BM 24:1.2	24.00V DC 1.2Ah	27.50V DC (20 °C)	27.00V DC (30 °C) 26.50V DC (40 °C)	0.3A	15% per month (20 °C)	170 x 75 x 100	1.6
BM 24:3.2	24.00V DC 3.2Ah	27.50V DC (20 °C)	27.00V DC (30 °C) 26.50V DC (40 °C)	0.8A	15% per month (20 °C)	170 x 85 x 140	3.1
BM 24:7	24.00V DC 7.0Ah	27.50V DC (20 °C)	27.00V DC (30 °C) 26.50V DC (40 °C)	1.7A	15% per month (20 °C)	170 x 120 x 150	5.2
BM 24:9	24.00V DC 9.0Ah	27.50V DC (20 °C)	27.00V DC (30 °C) 26.50V DC (40 °C)	<b>2.2A</b>	15% per month (20 °C)	170 x 120 x 150	5.2
BM 24:12	24.00V DC 12.0Ah	27.50V DC (20 °C)	27.00V DC (30 °C) 26.50V DC (40 °C)	2.8A	15% per month (20 °C)	230 x 120 x 150	7.6

## Buffering Times

Reference	Buffering Time with 1.5A Load	Buffering Time with 3.0A Load	Buffering Time with 5.0A Load	Buffering Time with 7.0A Load	Buffering Time with 10.0A Load
BM 12:3.2	120 mins	60 mins	30 mins	20 mins	10 mins
BM 12:7	250 mins	120 mins	80 mins	50 mins	30 mins
BM 12:9	360 mins	150 mins	100 mins	70 mins	None
BM 24:1.2	40 mins	20 mins	15 mins	25 mins	None
BM 24:3.2	120 mins	60 mins	30 mins	20 mins	10 mins
BM 24:7	250 mins	120 mins	80 mins	50 mins	30 mins
BM 24:9	360 mins	150 mins	100 mins	50 mins	None
BM 24:12	400 mins	200 mins	140 mins	100 mins	60 mins

## Battery Holders

Reference	Description	Required Battery Description	Required Battery Reference
BH 12:3.2	Battery holder only for 12V 3.2Ah battery	1 x 12V 3.2Ah battery	1 x NP 3.2-12
BH 12:7	Battery holder only for 12V 7.0Ah battery	1 x 12V 7.0Ah battery	1 x NP 7-12
BH 12:9	Battery holder only for 12V 9.0Ah battery	1 x 12V 9.0Ah battery	1 x Y 9-12
BH 24:1.2	Battery holder only for 24V 1.2Ah battery	2 x 12V 1.2Ah batteries	2 x NP 1.2-12
BH 24:3.2	Battery holder only for 24V 3.2Ah battery	2 x 12V 3.2Ah batteries	2 x NP 3.2-12
BH 24:7	Battery holder only for 24V 7.0Ah battery	2 x 12V 7.0Ah batteries	2 x NP 7-12
BH 24:9	Battery holder only for 24V 9.0Ah battery	2 x 12V 9.0Ah batteries	2 x Y 9-12
BH 24:12	Battery holder only for 24V 12.0Ah battery	2 x 12V 12.0Ah batteries	2 x NP 12-12

## STOCK RANGE OF IP65 FRONT PANEL HINGED WINDOWS WITH OR WITHOUT BACK BOXES AND DIN RAIL BRACKETS

A comprehensive range of high quality hinged windows available with or without back boxes.

For front panel mounting of MCBs, fuse modules, and DIN rail components.

Units available in 2 module, 4 module, 6 module, 8 module, or 12 module varieties.

A full range of DIN rail brackets is also available for easy mounting of components.



APEK 90122

An comprehensive range of front panel hinged windows for mounting MCB, fuse, and DIN rail modules. The units within this range are available with or without back boxes. Back box mounting offers a high quality assembly and wiring finish. The windows possess a high impact moulded transparent cover with optional DIN rail brackets (with or without DIN rail) for component mounting if required. They are protected to IP65 and are available in 2 module, 4 module, 6 module, 8 module, or 12 module versions.

Reference	Description	No. of MCB Modules	No. of Locking Screws	Fixings	Cutout Size L x H (mm)	Overall Dimensions (mm)
APEK 90023	2 way hinged window without back box	2	2	4 holes	39 x 64	60 x 98
APEK 90043	4 way hinged window without back box	4	2	4 holes	77 x 64	91 x 98
APEK 90063	6 way hinged window without back box	6	2	6 holes	112 x 64	122 x 98
APEK 90083	8 way hinged window without back box	8	2	6 holes	147 x 64	163 x 98
APEK 90123	12 way hinged window without back box	12	3	6 holes	220 x 64	234 x 98

Reference	Description	No. of MCB Modules	No. of Locking Screws	Fixings	Cutout Size L x H (mm)	Overall Dimensions (mm)
APEK 90042	4 way hinged window with back box	4	2	4 holes	77 x 64	91 x 98
APEK 90062	6 way hinged window with back box	6	2	6 holes	112 x 64	122 x 98
APEK 90082	8 way hinged window with back box	8	2	6 holes	147 x 64	163 x 98
APEK 90122	12 way hinged window with back box	12	3	6 holes	220 x 64	234 x 98

Reference	Description	Compatible With
APEK 90001	2 bracket set of DIN rail mounting (DIN rail not included)	2~12 module units

Reference	Description	No. of MCB Modules	Compatible With
APEK 2DIN	2 module bracket with DIN rail	2	2 module unit
APEK 4DIN	4 module bracket with DIN rail	4	4 module unit
APEK 6DIN	6 module bracket with DIN rail	6	6 module unit
APEK 8DIN	8 module bracket with DIN rail	8	8 module unit
APEK 12DIN	12 module bracket with DIN rail	12	12 module unit

# STOCK RANGE OF 690V SINGLE POLE AND THREE POLE DISTRIBUTION BLOCKS FROM 80A TO 400A

Comprehensive range of single pole and three pole distribution blocks.  
 Single pole series from 80A to 400A with the three pole models available in either 125A or 175A versions.  
 For DIN rail or chassis mounting with screws.  
 IP20 rated with hinged and removable cover.  
 High conductivity with excellent electrical contacts.  
 Compact design.  
 Modular design for other 3ph modules.  
 CE marked and RoHS compliant.  
 Ex stock availability with competitive pricing.



DB 250A

A comprehensive range of single pole and three pole distribution blocks for DIN rail or chassis mounting. The single pole series ranges from 80A to 400A with the three pole units available in either 125A or 175A versions. The DB 80A, DB 125A, and DB 175A units can be parallel connected using jumper cables. The UL flammability class is UL 94 V-0, the rated impulse voltage is 2.5kV, and the pollution grade is Grade 3. The voltage range is up to 690V for all models. The peak short circuit current ratings are: 22kA for the DB 80; 30kA for the DB 125A, DB 175A, and 250A; and 51kA for the DB 400A. The output connection includes stranded cable, copper cable, flexible busbar, and flexible cable with wire ended ferrules to DIN 46228-1. All units have high quality conductivity. Stripping lengths for input connections are 9 mm to 12 mm (M5/M6), 14 mm to 15 mm (M8), 15 mm to 16 mm (M10), and 27 mm to 29 mm (M12/M16). Stripping lengths for output connections are 9 mm to 12 mm (DB 80) and 10 mm to 12 mm (all other units). For full Nm and torque settings and advice on installation please contact our sales department.

Reference	No. of Poles	Current Rating and Maximum Voltage	Cable CSA	Output Connections	Input / Output Hole Size diam.	Dimensions L x W x H (mm)
DB 80A	1 pole input	80A 690V	1 x 2.5~16.0 mm <sup>2</sup>	4 x 2.5~6.0 mm <sup>2</sup> 2 x 2.5~16.0 mm <sup>2</sup>	6.8 mm M6 4.5 mm M5 6.8 mm M6	66.0 x 30.2 x 48.0
DB 125A	1 pole input	125A 690V	1 x 10.0~35.0 mm <sup>2</sup>	1 x 6.0~16.0 mm <sup>2</sup> 8 x 2.5~16.0 mm <sup>2</sup>	10.0 mm M8 6.8 mm M6 6.8 mm M6	75.0 x 40.0 x 50.0
DB 175A	1 pole input	175A 690V	1 x 16.0~70.0 mm <sup>2</sup>	1 x 6.0~16.0 mm <sup>2</sup> 8 x 2.5~16.0 mm <sup>2</sup>	12.0 mm M10 6.8 mm M6 6.8 mm M6	75.0 x 40.0 x 50.0
DB 250A	1 pole input	250A 690V	1 x 35.0~120.0 mm <sup>2</sup>	2 x 2.5~35.0 mm <sup>2</sup> 5 x 2.5~16.0 mm <sup>2</sup> 4 x 2.5~10.0 mm <sup>2</sup>	15.0 mm M12 9.0 mm M10 6.8 mm M6 6.1 mm M5	96.0 x 46.8 x 51.5
DB 400A	1 pole input	400A 690V	1 x 95.0~185.0 mm <sup>2</sup>	2 x 2.5~35.0 mm <sup>2</sup> 5 x 2.5~16.0 mm <sup>2</sup> 4 x 2.5~10.0 mm <sup>2</sup>	19.0 mm M16 9.0 mm M10 6.8 mm M6 6.1 mm M5	96.0 x 46.8 x 51.5
DB 3P 125A	3 pole input	125A 690V	3 x 10.0~35.0 mm <sup>2</sup>	18 x 2.5~16.0 mm <sup>2</sup>	10.0 mm M8 6.1 mm M6	75.5 x 85.0 x 50.0
DB 3P 175A	3 pole input	175A 690V	3 x 16.0~70.0 mm <sup>2</sup>	18 x 2.5~16.0 mm <sup>2</sup>	12.0 mm M10 6.1 mm M6	75.5 x 85.0 x 50.0

## STOCK RANGE OF 500V TWO POLE AND FOUR POLE DISTRIBUTION BLOCKS FROM 100A TO 160A

Comprehensive range of two pole and four pole distribution blocks.  
 For DIN rail or chassis mounting with screws.  
 Designed to EN 60947-1 and CE compliant.  
 Complete with removable cover and phase covers.  
 High conductivity with excellent electrical contacts.  
 Compact design.  
 The UK 207/211/215/407/411/415 are 100A units  
 whereas the UK 412 is 160A unit.  
 Ex stock availability with competitive pricing.



UK 412

A comprehensive range of two pole and four pole distribution blocks for DIN rail or chassis mounting. The UK 207/211/215/407/411/415 are 100A units whereas the UK 412 is a 160A unit. All models have a maximum voltage of 500V. The maximum rated short circuit current for all types is 20kA. All of the distribution blocks within this series are fitted with clear protective screens between each of the phases and at their base. A transparent cover is fitted over the terminations which can be removed for access to the terminals for screw tightening, All terminal strips are brass with excellent electrical contacts. The ambient temperature range is  $-20\text{ }^{\circ}\text{C}$  to  $+40\text{ }^{\circ}\text{C}$ . Units are suitable for mounting on 35 mm x 7.5 mm or 35 mm x 15 mm DIN rail. They are competitively priced and available from stock.

Reference	No. of Poles and Cable Entries per Pole	Current Rating and Maximum Voltage	Input Cable Size	Cable Size Input (Solid or Multi-Core Cable)	Output Cable Sizes	Cable Size Output (Solid or Multi-Core Cable)	Dimensions L x D x H (mm)
UK 207	2 pole 7 way	500V 100A	1 x 16.0 mm <sup>2</sup> 1 x 25.0 mm <sup>2</sup>	6~16 mm <sup>2</sup> 10~25 mm <sup>2</sup>	5 x 6.0 mm <sup>2</sup>	1.5~6.0 mm <sup>2</sup>	94.0 x 44.0 x 50.0
UK 211	2 pole 11 way	500V 100A	3 x 16.0 mm <sup>2</sup> 1 x 25.0 mm <sup>2</sup>	6~16 mm <sup>2</sup> 10~25 mm <sup>2</sup>	7 x 6.0 mm <sup>2</sup>	1.5~6.0 mm <sup>2</sup>	100.0 x 45.0 x 51.0
UK 215	2 pole 15 way	500V 100A	3 x 16.0 mm <sup>2</sup> 1 x 25.0 mm <sup>2</sup>	6~16 mm <sup>2</sup> 10~25 mm <sup>2</sup>	11 x 6.0 mm <sup>2</sup>	1.5~6.0 mm <sup>2</sup>	132.0 x 45.0 x 51.0
UK 407	4 pole 7 way	500V 100A	3 x 16.0 mm <sup>2</sup> 1 x 25.0 mm <sup>2</sup>	6~16 mm <sup>2</sup> 10~25 mm <sup>2</sup>	5 x 6.0 mm <sup>2</sup>	1.5~6.0 mm <sup>2</sup>	109.0 x 85.0 x 50.0
UK 411	4 pole 11 way	500V 100A	3 x 16.0 mm <sup>2</sup> 1 x 25.0 mm <sup>2</sup>	6~16 mm <sup>2</sup> 10~25 mm <sup>2</sup>	7 x 6.0 mm <sup>2</sup>	1.5~6.0 mm <sup>2</sup>	147.0 x 85.0 x 50.0
UK 415	4 pole 15 way	500V 100A	3 x 16.0 mm <sup>2</sup> 1 x 25.0 mm <sup>2</sup>	6~16 mm <sup>2</sup> 10~25 mm <sup>2</sup>	11 x 6.0 mm <sup>2</sup>	1.5~6.0 mm <sup>2</sup>	182.0 x 85.0 x 50.0
UK 412	4 pole 12 way	500V 160A	3 x 25.0 mm <sup>2</sup> 1 x 50.0 mm <sup>2</sup>	10~25 mm <sup>2</sup> 10~50 mm <sup>2</sup>	8 x 16.0 mm <sup>2</sup>	2.5~16.0 mm <sup>2</sup>	170.0 x 70.0 x 90.0

# LED PANEL AND ENCLOSURE LIGHTING FROM 1.2 WATTS TO 3 WATTS AND STOCK EXTENSION LEADS

LED panel and enclosure lighting from 1.2 Watts (in black casing) to 3 Watts (in white casing). Length of 132 mm. Highly economical. Compact design. Voltage range of 110~230V AC or 110~230V DC. Extension leads are also available from stock in 2 m lengths for our LED ranges of lighting.



The LK-L10W series of LED lighting for a wide array of panel and enclosure lighting applications. There are two types available which can be distinguished by their different colour covers. The LK-L10W1 is black in colour and is rated at 1.2 Watts, whereas the LK-L10W3 is white in colour and rated at 3 Watts. The models are highly economical LED lamps with a long life span in excess of 100,000 hours. There is no infrared or UV and the light output is radiation free. The LEDs are cold light type and the voltage range for both units is 110~230V AC or 110~230V DC. The models are easy to install and can be mounted either via clamp or screw fixings.

## LK-L10W LED Lighting Series

	LK-L10W1	LK-L10W3
<b>Power Rating</b>	1.2 Watts	3.0 Watts
<b>Voltage Range</b>	110~230V AC / 110~230V DC	110~230V AC / 110~230V DC
<b>Enclosure Material</b>	PC-ABS (halogen-free)	PC-ABS (halogen-free)
<b>Enclosure Colour</b>	Black	White
<b>IP Rating</b>	IP20	IP20
<b>Wire Connection</b>	1 x 4 mm <sup>2</sup> or 2 x 1.5 mm <sup>2</sup>	1 x 4 mm <sup>2</sup> or 2 x 1.5 mm <sup>2</sup>
<b>Insulating Strength</b>	2,500V AC (1 min)	2,500V AC (1 min)
<b>Luminescence Component</b>	LED	LED
<b>Ambient Temperature</b>	-25 °C to +50 °C	-25 °C to +50 °C
<b>Relative Humidity</b>	25% to 95%	25% to 95%
<b>Life Span</b>	> 100,000 hours	> 100,000 hours
<b>Length (mm)</b>	139	139

The LK-LED 02 extension lead for LED lighting is 2 m in length including the plug and is available from stock.

## LK-LED 02 Extension Lead for LED Lighting

Reference	Description
LK-LED 02	2 m connection for LED lamps including plug



LK-LED 02

## STOCK RANGE OF LED PANEL AND ENCLOSURE LIGHTING FROM 4 WATTS TO 10 WATTS AND 5 WATT MAGNETIC LED LIGHTING

LED panel and enclosure lighting from 7 Watts to 14 Watts.  
No strobe effect and infrared or UV.  
Voltage range of 110~240V AC.  
Opal cover as standard.  
Striate cover is also available for volume orders.  
Typical life of > 50,000 hours.



LK-L5X10 A

A comprehensive range of LED lighting for a wide array of panel and enclosure lighting applications. The models within the LK-L5X series are LED lamps with high quality LED chips as the light source. All have a voltage range of 110~240V AC 50 / 60 Hz. There is no strobe effect, no infrared or UV, and the light output is radiation free. The LED chips are cold light type, impact resistant, and shockproof. The units are easy to install and are interlockable to extend their length. They have an excellent operational lifespan with typical life of 50,000 hours.

### LK-L5X LED Lighting Series

Reference	Power Rating	Voltage Range	LED pcs	IP Rating	Light Output (lm)	Length (mm)
LK-L5X4 A	4 Watts	110~240V AC	38	IP20	330	309
LK-L5X5 A	5 Watts	110~240V AC	52	IP20	450	486
LK-L5X6 A	6 Watts	110~240V AC	60	IP20	560	571
LK-L5X9 A	9 Watts	110~240V AC	80	IP20	700	731
LK-L5X10 A	10 Watts	110~240V AC	102	IP20	890	871

\*Suffix A is for standard opal colour, suffix B is for striate colour (available upon request for volume orders).

Magnetic LED panel and enclosure lighting with power ratings of 5 Watts.  
Multiple lamps can be connected together.  
Voltage range of either 90~265V AC or 20~60V DC.  
Typical life of > 60,000 hours.



LK-025 AC M

The LK-025 series of LED panel or enclosure lamps with non-slip rubberised magnets for moving within a steel enclosure (standard screw fixing types also available). The lighting within this range is available in AC and DC versions at either 90~265V AC 50 / 60 Hz or 20~60V DC. Multiple lamps can be connected together and they have a very long service life of > 60,000 hours at 20 °C. The power rating of all types is 5 Watts and all units have an on/off switch. Casing is made from robust transparent plastic and the ambient temperature range for the series is -30 °C to +60 °C.

### LK-025 LED Lighting Series

Reference	Fixing	Voltage Range	Ambient Temperature	IP Rating and Class	Light Output (in Lm)	Length (mm)	Magnet/Screw Centres (mm)
LK-025 AC M	Magnets	90~265V AC	-30 °C to +60 °C	IP20 Class II	290 lm	351	250
LK-025 DC M	Magnets	20~60V DC	-30 °C to +60 °C	IP20 Class II	290 lm	351	250
LK-025 AC F	Screw	90~265V AC	-30 °C to +60 °C	IP20 Class II	290 lm	351	250
LK-025 DC F	Screw	20~60V DC	-30 °C to +60 °C	IP20 Class II	290 lm	351	250

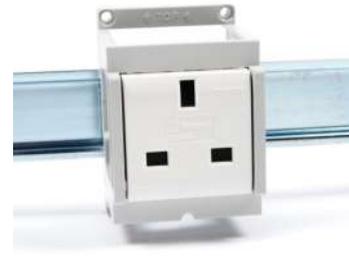
# STOCK RANGE OF DIN RAIL MOUNTABLE SOCKETS AND INDUSTRIAL PLUGS AND SOCKETS TO IP44 AND IP67

A comprehensive range of high quality DIN rail mountable sockets and industrial plugs and sockets.

DIN rail mountable sockets designed to various national standards.

Industrial plugs and sockets designed to BS EN 60309-1 (BS 4343). Available in 110V AC, 230V AC, and 400V AC types from 16A to 32A. Protection to IP44 and IP67.

A comprehensive range of DIN rail mountable sockets for power tools, instruments, and for output supplies from control panels.



MARL 1412.UK

Reference	Voltage and Current	Standard	Connections	Protection	Dimensions L x W x H (mm)	Weight (kg)
MARL 1412.UK	250V AC 16A	UK	3 pole 2.5 mm <sup>2</sup>	IP20 Class I	53 x 82 x 60	0.1
MARL 1412.I	250V AC 16A	Schuko	3 pole 2.5 mm <sup>2</sup>	IP20 Class I	53 x 82 x 60	0.1
MARL 1412.F	250V AC 16A	France	3 pole 2.5 mm <sup>2</sup>	IP20 Class I	53 x 82 x 60	0.1
ALFA SOCKET01	250V AC 16A	Germany	3 pole 2.5 mm <sup>2</sup>	IP20 Class I	92 x 57 x 51	0.1
ALFA SOCKET02	250V AC 16A	Italy	3 pole 2.5 mm <sup>2</sup>	IP20 Class I	92 x 57 x 51	0.1
ALFA SOCKET03	250V AC 16A	France	3 pole 2.5 mm <sup>2</sup>	IP20 Class I	92 x 57 x 51	0.1
ALFA SOCKET04	125V AC 16A	Euro-American	3 pole 2.5 mm <sup>2</sup>	IP20 Class I	92 x 57 x 51	0.1
ALFA SOCKET05	250V AC 16A	Spain	3 pole 2.5 mm <sup>2</sup>	IP20 Class I	92 x 57 x 51	0.1



Industrial plugs and sockets group

A comprehensive range of IP44 and IP67 plugs and sockets to BS EN 60309-1 (BS4343). The plugs and sockets in this series are available in 110V, 230~240V and 400~420V types with current ratings of either 16A or 32A.

Socket Reference	Description	IP Rating and Colour	Size (mm)	Plug Reference	Description	IP Rating and Colour	Size L O/A (mm)
PS44.110.16.2PE	110V 16A 2P + E	IP44	64 x 74	PP44.110.16.2PE	110V 16A 2P + E	IP44	130
PS44.230.16.2PE	230V 16A 2P + E	IP44	64 x 74	PP44.230.16.2PE	230V 16A 2P + E	IP44	130
PS44.400.16.3PE	400V 16A 3P + E	IP44	70 x 85	PP44.400.16.3PE	400V 16A 3P + E	IP44	130
PS44.400.16.3PNE	400V 16A 3P + N + E	IP44	80 x 97	PP44.400.16.3PNE	400V 16A 3P + N + E	IP44	130
PS44.110.32.2PE	110V 32A 2P + E	IP44	92 x 100	PP44.110.32.2PE	110V 32A 2P + E	IP44	160
PS44.230.32.2PE	230V 32A 2P + E	IP44	92 x 100	PP44.230.32.2PE	230V 32A 2P + E	IP44	160
PS44.400.32.3PE	400V 32A 3P + E	IP44	92 x 100	PP44.400.32.3PE	400V 32A 3P + E	IP44	160
PS44.400.32.3PNE	400V 32A 3P + N + E	IP44	92 x 100	PP44.400.32.3PNE	400V 32A 3P + N + E	IP44	160
PS67.110.16.2PE	110V 16A 2P + E	IP67	92 x 100	PP67.110.16.2PE	110V 16A 2P + E	IP67	130
PS67.230.16.2PE	230V 16A 2P + E	IP67	92 x 100	PP67.230.16.2PE	230V 16A 2P + E	IP67	130
PS67.400.16.3PE	400V 16A 3P + E	IP67	92 x 100	PP67.400.16.3PE	400V 16A 3P + E	IP67	130
PS67.400.16.3PNE	400V 16A 3P + N + E	IP67	92 x 100	PP67.400.16.3PNE	400V 16A 3P + N + E	IP67	130
PS67.110.32.2PE	110V 32A 2P + E	IP67	92 x 100	PP67.110.32.2PE	110V 32A 2P + E	IP67	160
PS67.230.32.2PE	230V 32A 2P + E	IP67	92 x 100	PP67.230.32.2PE	230V 32A 2P + E	IP67	160
PS67.400.32.3PE	400V 32A 3P + E	IP67	92 x 100	PP67.400.32.3PE	400V 32A 3P + E	IP67	160
PS67.400.32.3PNE	400V 32A 3P + N + E	IP67	92 x 100	PP67.400.32.3PNE	400V 32A 3P + N + E	IP67	160

## STOCK RANGE OF BUSBAR INSULATORS AND COPPER BUSBAR

Comprehensive range of high quality busbar insulators.

Screw fixings from 6 mm to 10 mm.

Voltage withstand from 6kV to 25kV.

Heights from 25 mm to 76 mm.

High tensile and torque strength.



*Busbar insulators group*

A comprehensive range of high quality busbar insulators available from stock. Screw sizes are from M6 to M10 with voltage withstand from 6kV to 25kV. Units are supplied in boxes of 10 and are available from stock.

Reference	Screw Size diam x L	Voltage Withstand	Tensile Strength	Torque Strength	Dimensions OD x ID x H (mm)	Weight (kg)
SM 25	M6 x 9.0 mm	6kV	500 lbs	6 lbs	27.0 x 23.0 x 25.0	0.03
SM 30	M8 x 10.0 mm	8kV	550 lbs	8 lbs	32.0 x 26.0 x 30.0	0.05
SM 35	M8 x 10.0 mm	10kV	800 lbs	10 lbs	32.0 x 28.0 x 35.0	0.05
SM 40	M8 x 12.0 mm	12kV	650 lbs	10 lbs	40.0 x 34.0 x 40.0	0.09
SM 45	M10 x 13.0 mm	15kV	1,000 lbs	20 lbs	37.0 x 29.0 x 45.0	0.07
SM 51	M8 x 12.0 mm	15kV	1,000 lbs	20 lbs	36.0 x 29.0 x 51.0	0.09
SM 60	M10 x 22.0 mm	25kV	1,500 lbs	40 lbs	44.0 x 32.5 x 60.0	0.17
SM 76	M10 x 12.0 mm	25kV	1,500 lbs	40 lbs	50.0 x 36.0 x 76.0	0.24

High conductivity copper busbar to BS EN 13601.

Variety of standard sizes in stock in 1 m lengths.

Can be cut to size and punched and fabricated to customer requirements.

Other non-standard sizes available upon request.



*Copper busbar group*

High conductivity copper busbar with 12 sizes available from stock in 1 m lengths. All types have a radius edge and are burr free. Special busbars can be cut to length and fabricated from the standard sizes or from non-stock special sizes. These can be punched with holes and slots and folded to drawing. Prices for non-standard sizes available on request.

Reference	CSA (mm <sup>2</sup> )	Size (Metric mm)	Size (Imperial inches)	Current Rating at 3,000A/sq. inch or 4.65A/sq. mm
CBB 50	50.4	15.88 x 3.18	0.63 x 0.13	200A
CBB 60	60.5	19.05 x 3.18	0.75 x 0.13	275A
CBB 80	80.6	25.4 x 3.18	1.00 x 0.13	350A
CBB 100	100.8	31.75 x 3.18	1.25 x 0.13	450A
CBB 120	120.0	20.00 x 6.00	N/A	550A
CBB 150	150.0	25.00 x 6.00	N/A	650A
CBB 180	180.0	30.00 x 6.00	N/A	800A
CBB 240	240.0	40.00 x 6.00	N/A	1,000A
CBB 300	300.0	50.00 x 6.00	N/A	1,300A
CBB 360	360.0	60.00 x 6.00	N/A	1,500A
CBB 450	450.0	75.00 x 6.00	N/A	2,000A
CBB 600	600.0	100.00 x 6.00	N/A	2,750A

# TRANSFORMER AND POWER SUPPLY ACCESSORIES

A comprehensive range of accessories for transformers and power supplies.

Accessories include: a DIN rail fixing bracket, fuse terminals, fuse holders, mounting brackets, and fix plates.

The GA 35 DIN is a DIN rail adaptor is for mounting standard stock and custom-built transformers from 25VA to 150VA to DIN rail.



GA 35 DIN

Reference	Description	Application
GA 35 DIN	DIN rail fixing bracket	For 25VA to 150VA 1ph transformers

The TK4/SI is a specialist transformer fuse terminal for fuse ratings of 250V and current ratings from 250mA to 10A.

Reference	Description	Fuse Rating and Current Rating
TK4/SI	5 mm x 20 mm transformer fuse holder and fuse	250V 250mA to 10A



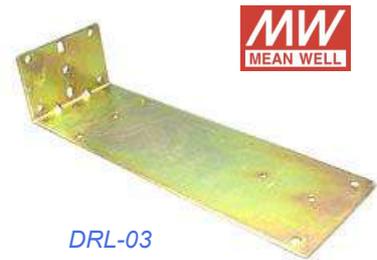
Transformer fuse options

The TKS4/SI and TKS4/SI-32 are specialist transformer fuse terminals for fuse ratings from 250V to 500V and current ratings from 250mA to 10A.

Reference	Description	Fuse Rating and Current Rating
TKS4/SI	5.0 mm x 20.0 mm transformer fuse holder and fuse	250V 250mA to 10A
TKS4/SI-32	6.3 mm x 32.0 mm transformer fuse holder and fuse	500V 1A to 10A

The FM1038 DIN rail mountable fuse holders for fuse ratings of up to 500V and current ratings from 10A to 32A.

Reference	Description	Fuse Rating and Current Rating
FM1038	10 mm x 38 mm fuse with a cable size of 10 mm <sup>2</sup>	500V 10A to 32A



DRL-03

The DRL series of L mounting brackets for Mean Well power supplies.

Reference	Description	Application
DRL-01	L bracket	For cases 903 and 905
DRL-02	L bracket	For cases 901, 902, and 906
DRL-03	L bracket	For cases 911 and 912

The DRP series of accessories for Mean Well power supplies.

Reference	Description	Application
DRP-01	Fix plate	For cases 901, 902, 903, 906, 911, and 912
DRP-01A	Fix plate	For cases 203, 205, 978, and 999
DRP-02	Plate style DIN rail mounting bracket	For case 905
DRP-03	Plate style DIN rail mounting bracket	For case DRL
DRP-04	Plate style DIN rail mounting bracket	For cases 203, 205, 978, and 999



DRP-02

## ENCLOSURE AND CONTROL PANEL ACCESSORIES

A comprehensive range of accessories for enclosures and control panels.

Accessories include: document holders, a panel pressure equaliser, a control panel door switch, and filter fan or exhaust filter hoods.

The PPCA4 enclosure or control panel document holder with either screw or adhesive tape fixing. The unit is designed for holding A4 documents is made from high quality Samsung and LG plastic.



PPCA4

Reference	Description	Dimensions D x W x H (mm)
PPCA4	A4 diagram / document holder	22 x 222 x 222

The WJ series of enclosure or control panel document holders with either screw or adhesive tape fixing.



WJ-1

Reference	Description	Dimensions D x W x H (mm)
WJ-1	A4 diagram / document holder	30 x 263 x 263
WJ-2	A4 diagram / document holder	41 x 278 x 232
WJ-3	A4 diagram / document holder	24 x 232 x 252
WJ-4	A3 diagram / document holder	52 x 440 x 284

The PA 65 control panel pressure equaliser permits a controlled change in pressure and avoids the entry of dust and water.



PA 65

Reference	Description	Dimensions D x diam. (mm)
PA 65	Panel pressure equaliser to IP45	30.5 x 65.5

The LK 4315.500.1 door switch for controlling lighting with 500 mm white cable.



LK4315.500.1

Reference	Description	Cable Length (mm)
LK4315.500.1	Control panel door switch	500

The PH series of filter fan or exhaust filter hoods to increase IP protection from IP54 to IP55. The units are made of steel and finished in RAL 7037 powder coating. All are designed to EN 60529/10:91 standards.



PH20.IP55

Reference	Description	Dimensions D x W x H (mm)
PH10.IP55	Filter fan / exhaust filter hood to increase filter fan or exhaust filter ratings to IP55	55 x 195 x 255
PH20.IP55	Filter fan / exhaust filter hood to increase filter fan or exhaust filter ratings to IP55	60 x 325 x 425
PH30.IP55	Filter fan / exhaust filter hood to increase filter fan or exhaust filter ratings to IP55	110 x 410 x 540

## STOCK RANGE OF ENCLOSURES IN RAL 7035 GREY WITH OPAQUE DOORS TO IP65

IP65 enclosures with opaque doors.

Rated voltage up to 690V and maximum current of 800A

Made from HB ABS halogen-free material.

IP65 protection rating against solid objects and liquids.

IK08 degree of protection against mechanical impacts.

CE and RoHs marked.



PP3001

The PP range of IP65 enclosures with opaque doors in various sizes. The enclosures in this series have a rated voltage up to 690V and are resistant to chemical agents, alkalis, oils, and salts. The maximum current of the units is 800A and they possess an operating temperature or between  $-35\text{ }^{\circ}\text{C}$  and  $+65\text{ }^{\circ}\text{C}$ . They are made from HB ABS halogen-free material and are mounted on a 1 mm galvanised steel mounting plate. All models are IP65 protected against solid objects and liquids and IK08 protected against mechanical impacts. The standard colour of the units is RAL 7035 (grey) with other colours available upon request. All types are CE and RoHs marked and available from stock.

Reference	Colour	Dimensions L x W x H (mm)	Weight (kg)
PP3001	RAL 7035 (grey)	200 x 300 x 130	1.80
PP3002	RAL 7035 (grey)	250 x 350 x 150	2.40
PP3004	RAL 7035 (grey)	300 x 400 x 170	3.00
PP3005	RAL 7035 (grey)	300 x 400 x 220	3.40
PP3006	RAL 7035 (grey)	350 x 500 x 190	4.35
PP3003	RAL 7035 (grey)	400 x 500 x 175	4.50
PP3007	RAL 7035 (grey)	400 x 500 x 240	5.40
PP3008	RAL 7035 (grey)	400 x 600 x 200	5.85
PP3010	RAL 7035 (grey)	500 x 700 x 250	9.70
PP3021	RAL 7035 (grey)	600 x 800 x 260	10.80

## ENCLOSURES IN RAL 7035 GREY WITH TRANSPARENT DOORS TO IP65

IP65 enclosures with transparent doors.

Rated voltage up to 690V and maximum current of 800A.

Made from HB ABS halogen-free material.

IP65 protection rating against solid objects and liquids.

IK08 degree of protection against mechanical impacts.

CE and RoHs marked.



PP3006

The PP range of IP65 enclosures with clear doors in various sizes. The enclosures in this series have a rated voltage up to 690V and are resistant to chemical agents, alkalis, oils, and salts. The maximum current of the units is 800A and they possess an operating temperature or between  $-35\text{ }^{\circ}\text{C}$  and  $+65\text{ }^{\circ}\text{C}$ . They are made from HB ABS halogen-free material and are mounted on a 1 mm galvanised steel mounting plate. All models are IP65 protected against solid objects and liquids and IK08 protected against mechanical impacts. The standard colour of the units is RAL 7035 (grey) with other colours available upon request. All types are CE and RoHs marked.

Reference	Colour	Dimensions L x W x H (mm)	Weight (kg)
PP3011	RAL 7035 (grey)	200 x 300 x 130	1.80
PP3012	RAL 7035 (grey)	250 x 350 x 150	2.40
PP3014	RAL 7035 (grey)	300 x 400 x 170	3.00
PP3015	RAL 7035 (grey)	300 x 400 x 220	3.40
PP3016	RAL 7035 (grey)	350 x 500 x 190	4.35
PP3013	RAL 7035 (grey)	400 x 500 x 175	4.50
PP3017	RAL 7035 (grey)	400 x 500 x 240	5.40
PP3018	RAL 7035 (grey)	400 x 600 x 200	5.85
PP3020	RAL 7035 (grey)	500 x 700 x 250	9.70
PP3022	RAL 7035 (grey)	600 x 800 x 260	10.80

## MODULAR ENCLOSURES IN RAL 7035 GREY WITH OPAQUE OR TRANSPARENT DOORS TO IP65

IP65 modular enclosures with opaque doors.

Rated voltage up to 690V and maximum current of 800A

Made from HB ABS halogen-free material.

IP65 protection rating against solid objects and liquids.

IK08 degree of protection against mechanical impacts.

CE and RoHs marked.



PP3004

The PP range of IP65 modular enclosures with opaque doors in various sizes. The enclosures in this series have a rated voltage up to 690V and are resistant to chemical agents, alkalis, oils, and salts. The maximum current of the units is 800A and they possess an operating temperature range between  $-35\text{ }^{\circ}\text{C}$  and  $+65\text{ }^{\circ}\text{C}$ . They are made from HB ABS halogen-free material and are IP65 protected against solid objects and liquids. Additionally, models are IK08 protected against mechanical impacts. The standard colour of the units is RAL 7035 (grey) with other colours available upon request. All types are CE and RoHs marked.

Reference	Colour	Dimensions L x W x H (mm)	Weight (kg)
PP3102	RAL 7035 (grey)	250 x 350 x 150	2.5
PP3104	RAL 7035 (grey)	300 x 400 x 170	3.4
PP3106	RAL 7035 (grey)	350 x 500 x 190	4.5
PP3108	RAL 7035 (grey)	400 x 600 x 200	6.0

IP65 moulded enclosures with transparent doors.

Rated voltage up to 690V and maximum current of 800A

Made from HB ABS halogen-free material.

IP65 protection rating against solid objects and liquids.

IK08 degree of protection against mechanical impacts.

CE and RoHs marked.



PP3001

The PP range of IP65 modular enclosures with clear doors in various sizes. The enclosures in this series have a rated voltage up to 690V and are resistant to chemical agents, alkalis, oils, and salts. The maximum current of the units is 800A and they possess an operating temperature range between  $-35\text{ }^{\circ}\text{C}$  and  $+65\text{ }^{\circ}\text{C}$ . They are made from HB ABS halogen-free material and are IP65 protected against solid objects and liquids. Additionally, models are IK08 protected against mechanical impacts. The standard colour of the units is RAL 7035 (grey) with other colours available upon request. All types are CE and RoHs marked.

Reference	Colour	Dimensions L x W x H (mm)	Weight (kg)
PP3112	RAL 7035 (grey)	250 x 350 x 150	2.5
PP3114	RAL 7035 (grey)	300 x 400 x 170	3.4
PP3116	RAL 7035 (grey)	350 x 500 x 190	4.5
PP3118	RAL 7035 (grey)	400 x 600 x 200	6.0

## SHEET STEEL ENCLOSURES IN VARIOUS SIZES FROM IP22 TO IP65

Three ranges of sheet steel enclosures for housing of transformers and power equipment:

EPH range of small, low cost enclosures to IP22.

EPN range of floor or wall mountable enclosures to IP23.

ERY range of IP65 enclosures with three mounting options, either: wall mounting, floor mounting, or portable with lifting handles.



EPH 3

EPH range of small, low cost, ventilated sheet steel enclosures to IP22. Standard finish is hammer grey and fixing is via four internal fixing points.

Reference	L (mm)	W (mm)	H (mm)	Fixing	Wiring Method
EPH 1	120	95	115	Base mounting	20 mm cable entries
EPH 2	145	120	135	Base mounting	20 mm cable entries
EPH 3	165	140	150	Base mounting	20 mm cable entries

EPN range of universal and ventilated sheet steel enclosures to IP23. Standard finish is hammer grey and fixing is for either floor or wall mounting. Enclosures up to IP54 in this style also available on request.

Reference	L ID (mm)	L OD (mm)	W (mm)	H (mm)	Fixing	Wiring Method
EPN 1	127	197	114	194	Floor or wall mounting	20 mm cable entries
EPN 2	152	220	152	223	Floor or wall mounting	20 mm cable entries
EPN 3	189	270	177	244	Floor or wall mounting	20 mm cable entries
EPN 4	254	338	215	270	Floor or wall mounting	20 mm cable entries
EPN 5	280	350	242	353	Floor or wall mounting	20 mm cable entries
EPN 6	305	384	305	454	Floor or wall mounting	20 mm cable entries
EPN 7	362	438	334	480	Floor or wall mounting	20 mm cable entries



EPN 1

ERY range of fully welded, gasket sealed, sheet enclosures to IP65. Standard finish is hammer grey and there are three options for mounting, either: wall mounting, floor mounting, or portable with lifting handles.

Reference	L OD (mm)	W OD (mm)	H (mm)	Fixing	Wiring Method
ERY 3/W	293	395	353	Wall mounting	20 mm cable entries
ERY 4/W	344	446	480	Wall mounting	20 mm cable entries
ERY 5/W	427	529	520	Wall mounting	20 mm cable entries
ERY 6/W	554	656	640	Wall mounting	20 mm cable entries
ERY 3/F	293	395	353	Floor mounting	20 mm cable entries
ERY 4/F	344	446	480	Floor mounting	20 mm cable entries
ERY 5/F	427	529	520	Floor mounting	20 mm cable entries
ERY 6/F	554	656	640	Floor mounting	20 mm cable entries
ERY 3/P	293	293	353	Portable	20 mm cable entries
ERY 4/P	344	344	480	Portable	20 mm cable entries
ERY 5/P	427	427	520	Portable	20 mm cable entries
ERY 6/P	554	554	640	Portable	20 mm cable entries



ERY 4/W

## SHEET STEEL ENCLOSURES IN VARIOUS SIZES FROM IP20 TO IP55

Three ranges of sheet steel enclosures for housing transformers and power equipment:

ETS range of floor mounting enclosures from IP23 to IP55.

ETT range of floor mounting enclosures from IP23 to IP55.

HDE range of floor mounted enclosures from IP20 to IP55.

ETS range of ventilated sheet enclosures to IP23. Standard finish is hammer grey and fixing is for floor mounting. Enclosures to IP44, IP54, and IP55 are also available in this style on request. Cable gland plates are fitted to the sides of the enclosure.

Reference	L ID (mm)	L OD (mm)	W ID (mm)	W OD (mm)	H ID (mm)	H OD (mm)	Fixing	Cooling Method
ETS 1	350	400	350	400	550	600	Adjustable skids	Raised lid / open base
ETS 2	400	450	450	500	650	700	Adjustable skids	Raised lid / open base
ETS 3	550	600	450	500	750	800	Adjustable skids	Raised lid / open base



ETS 3

ETT range of ventilated sheet enclosures to IP23. Standard finish is hammer grey and fixing is for floor mounting. Enclosures to IP44, IP54, and IP55 are also available in this style on request. Cable gland plates are fitted to the sides of the enclosure.

Reference	L ID (mm)	L OD (mm)	W ID (mm)	W OD (mm)	H ID (mm)	H OD (mm)	Fixing	Cooling Method
ETT 2	400	420	200	230	400	450	Adjustable skids	Raised lid / open base
ETT 3	500	525	350	400	500	550	Adjustable skids	Raised lid / open base
ETT 4	600	625	400	454	600	650	Adjustable skids	Raised lid / open base
ETT 5	740	770	485	535	760	810	Adjustable skids	Raised lid / open base
ETT 6	800	850	600	650	700	775	Adjustable skids	Raised lid / open base
ETT 7	1,000	1,150	700	750	800	875	Adjustable skids	Raised lid / open base
ETT 8	1,000	1,050	800	850	900	975	Adjustable skids	Raised lid / open base
ETT 9	1,250	1,300	800	850	1,250	1,325	Adjustable skids	Raised lid / open base



ETT 5

HDE range of high quality heavy duty ventilated sheet enclosures to IP23. Standard finish is RAL 7035 and fixing is for floor mounting. The steel thickness gives the enclosures a high degree of stability. Venting is via an open base and unique raised lid. Enclosures to IP44, IP54, and IP55 are also available in this style on request. Two cable gland plates are fitted to the enclosure; ideal for if the enclosure is to be used in an outdoor environment.

Reference	L ID (mm)	L OD (mm)	W ID (mm)	W OD (mm)	H ID (mm)	H OD (mm)	Adjustable Fixing Centres (mm)	4 x Fixing Slots (mm)	Steel Thickness (mm)
HDE 10	900	950	800	900	900	1000	330~710 x 850	16	2.5
HDE 20	1100	1150	850	950	950	1050	330~710 x 900	16	3.0
HDE 30	1300	1350	900	1000	1000	1100	330~710 x 950	16	3.0



HDE 10

## TRANSFORMER ENCLOSURES FOR OUTDOOR USE TO IP55

A comprehensive range of outdoor transformer enclosures.

Materials include GRP with high U values / thermal performance.

Various fire ratings from 0.5 hours to 1 hour.

Various core materials to reduce noise levels and attenuation.

IP ratings up to IP55.



*Bespoke enclosure*

Completely bespoke ranges of outdoor use transformer / utility enclosures. Any size configuration and shape can be produced with lifting eyes fitted for ease of installation. Various finishes and colours are available on request. Ventilation for cooling is integral to the design and doors are fully lockable. Full site preparation and installation can be offered throughout the whole of the UK (including Northern Ireland). Installers hold a minimum CSCS and electrical engineers are NIC / EIC registered.

Enclosure types include:

- Single door utility cabinets
- Single skin double door utility cabinets
- Large single skin double door utility cabinets
- Large double door utility cabinets with 12 mm ply core
- Double sided, double door utility cabinets

Reference	Description	Dimensions D x W x H (mm)	Door Opening W x H (mm)
ET 0 to ET 6A	Single door utility cabinets	200 x 340 x 860 to 600 x 925 x 1,160	225 x 705 to 705 x 895
ET 6 to ET 12	Single skin double door utility cabinets	480 x 1,065 x 1,270 to 800 x 2,020 x 1,585	865 x 870 to 1,735 x 1,310
ET 13 to ET 16	Large single skin double door utility cabinets	500 x 2,000 x 2,000 to 2,000 x 2,000 x 2,000	1,760 x 1,760
ET 17 to ET 20	Large double door utility cabinets with 12 mm ply core	500 x 2,000 x 2,000 to 2,000 x 2,000 x 2,000	1,760 x 1,760
DET 2 to DET 8	Double sided double door utility enclosures	800 x 550 x 650 to 800 x 1,300 x 1,250	225 x 705 to 955 x 1,090

## GENERAL

### **Ambient temperature range**

The specified temperature range within which the device is designed to operate.

### **Efficiency**

The ratio of output power to input power expressed as a percentage.

### **Power de-rating**

The required reduction in output power of a device where the specified ambient temperature range is exceeded.

### **Power factor (cos-Phi)**

The ratio of real power to apparent power due to the non-sinusoidal shape of the input current.

## TRANSFORMERS

### **Power ratings**

The combination of output voltage and output current is the power rating; where multiple outputs occur the overall power rating is the total power rating of all the output windings.

### **VA**

Volt-ampere

### **kVA**

Kilo volt-ampere

### **MVA**

Mega volt-ampere

### **Double wound transformer or isolation transformer**

A transformer with at least two windings, providing isolation between the input and output circuits.

### **Autotransformer**

A single winding transformer with no isolation between input and output circuits. These transformers can be used where input and output voltages are very close and space is at a premium.

### **Input voltage(s)**

The supply voltage to the transformer (or primary winding).

### **Output voltage(s)**

The output or load voltage(s) from the transformer (or secondary winding).

### **Off load**

Off load is the where the input to the transformer is powered but no load is being taken.

### **Full load**

Full load is where the full rated power of the transformer is being taken.

## TRANSFORMERS (CONTINUED)

### Insulation Class (from Classification of Insulating Materials)

Class Y:	90 °C rating
Class A:	105 °C rating
Class E:	120 °C rating
Class B:	130 °C rating
Class F:	155 °C rating
Class H:	180 °C rating
Class C:	above 180 °C rating

### Class I transformer

A transformer in which protection against electric shock does not rely on insulation only, but where provision for earthing is provided and required.

### Class II transformer

A transformer in which protection against electric shock does not rely on basic insulation only, but where double or reinforced insulation is provided. There is no provision for earthing.

## POWER SUPPLIES

### Transformer rectifier

A combination of conventional transformer and rectifier to convert AC to DC.

### Switched-mode power supply

A power supply that switches the power to a high frequency to reduce size and weight.

### AC-DC

AC-DC takes AC power and converts it to DC power.

### DC-DC

DC-DC takes DC power of one voltage and converts it to DC power of another voltage.

## RFI FILTERS

### EMC

Electromagnetic compatibility.

### RFI

Radio frequency interference.

### Residential standard

Residential standard is to EN 50081-1.

### Industrial standard

Industrial standard is to EN 50081-2.

# GUIDE TO IP RATINGS: PROTECTION OF PERSONS AND THE PROTECTION OF EQUIPMENT

An IP rating is used when specifying the protection of enclosures, and covers for electrical or electronic equipment, from dust, solid objects, and fluids.

The first number refers to the protection against dust and solid objects and the second number refers to the protection against fluids and moisture.

First Digit	Definition	Second Digit	Definition
X	Protection unspecified (not stated)	X	Protection unspecified (not stated)
0	Non-protected	0	Non-protected
1	Protection of the back of the hand against accidental access to hazardous parts and protection of equipment against objects larger than 50 mm	1	Protection against drops of water falling vertically
2	Protection of fingers against access to hazardous parts and protection of equipment against objects larger than 12.5 mm	2	Protection against drops of water falling vertically when the object is tilted up to 15° from the vertical
3	Protection of persons holding tools or wires (larger than 2.5 mm in diameter) and protection of equipment against objects larger than 2.5 mm	3	Protection against spraying water up to 60° from the vertical
4	Protection of persons holding small tools or wires (larger than 1 mm in diameter) and protection of equipment against objects larger than 1 mm	4	Protection against splashing and spraying water from all practical directions with limited ingress permitted
5	Protection against entry of dust in sufficient quantity to interfere with the satisfactory operation of the equipment	5	Protection against low pressure jets of water from all practical directions with limited ingress permitted
6	Complete protection against the entry of dust	6	Protection against heavy seas or a strong jet of water from all practical directions (e.g. for use on ships decks)
		7	Protection against the effects of immersion between 15 cm and 1 m in depth
		8	Protection against long periods of immersion under pressure (tests subject to agreement)

# GUIDE TO HAZARDOUS AREAS: FOR THE USE OF ELECTRICAL EQUIPMENT IN EXPLOSIVE ATMOSPHERES

There is a potential risk of explosion where dangerous mixtures of flammable materials, gas and air, dust and air, or vapours and air exist.

The necessity to remove the sources of ignition for these mixtures or combinations is essential. Electrical equipment has to be designed, tested, and certified before it can be used in these hazardous areas.

## Classification of the Area

All process plants are divided into either Zones (European or IEC classification) or Divisions (North American classification), this is dependent upon the type of potentially explosive atmosphere present.

European or IEC Classification	Definition of the Area	North American Classification
Zone 0 (gases)	An area where a potentially explosive mixture is present, either continuously or for long periods	Class I, Division 1 (gases)
Zone 20 (dusts)		Class II, Division 1 (dusts)
Zone 1 (gases)	An area where a potentially explosive mixture can occur in normal operations	Class I, Division 1 (gases)
Zone 21 (dusts)		Class II, Division 1 (dusts)
Zone 2 (gases)	An area where a potentially explosive mixture is not likely to occur during normal operations, but if it does occur it exists only for short periods	Class I, Division 2 (gases)
Zone 22 (dusts)		Class II, Division 2 (dusts) Class III, Division 1 (fibres)
		Class III, Division 2 (fibres)

## Groups of Potentially Explosive Gases and Dusts and Fibres

There are two main gas groups: Group I for underground mining, where methane and coal dust are present, and Group II where gases occur in surface industries, allowing equipment to be designed to less onerous tolerances.

Type of Gas (or Material)	European or IEC Gas Group	North American Gas Group
Methane	I	-
Acetylene	IIC	A
Hydrogen	IIC	B
Ethylene	IIB	C
Propane	IIA	D
Metal dust	-	E
Coal dust	-	F
Grain dust	-	G

## Temperature related Surfaces that can Ignite potentially Explosive Gases, Dusts, and Fibres

Electrical equipment that can reach high operational temperatures must be classified according to the maximum surface temperature. This is based on an ambient temperature of 40 °C.

Temperature	European or IEC	North American	Temperature	European or IEC	North American	Temperature	European or IEC	North American
450 °C	T1	T1	215 °C	-	T2D	135 °C	T4	T4
300 °C	T2	T2	200 °C	T3	T3	120 °C	-	T4A
280 °C	-	T2A	180 °C	-	T3A	100 °C	-	T5
260 °C	-	T2B	165 °C	-	T3B	85 °C	-	T6
230 °C	-	T2C	160 °C	-	T3C	-	-	-

# HEAT LOSS DATA FOR SINGLE-PHASE TRANSFORMERS IN CLASSES F, E, AND A

## Definitions and Data

Insulation Class	Coding	Temperature Rating	Maximum Temperature Rise	Maximum Ambient Temperature
Class F	SF	155 °C	115 °C	35 °C
Class E	SE	120 °C	85 °C	35 °C
Class A	SA	105 °C	70 °C	35 °C

For specific applications contact our sales department.

**Core losses are at nominal input voltage      Winding losses (approximate) are at full load**

Rating (Class F)	Core Losses	Winding Losses	Frame Size	Rating (Class E)	Core Losses	Winding Losses	Frame Size	Rating (Class A)	Core Losses	Winding Losses	Frame Size
30VA	5.0W	8.0W	SE 25	25VA	5.0W	6.0W	SE 25	20VA	4.0W	4.0W	SE 25
60VA	6.0W	12.0W	SE 50	50VA	6.0W	8.0W	SE 50	40VA	5.0W	5.0W	SE 50
120VA	7.0W	23.0W	SE 100	100VA	7.0W	15.0W	SE 100	80VA	6.0W	8.0W	SE 100
180VA	10.0W	30.0W	SE 150	150VA	10.0W	20.0W	SE 150	125VA	8.0W	12.0W	SE 150
225VA	13.0W	35.0W	SE 200	200VA	13.0W	25.0W	SE 200	150VA	10.0W	13.0W	SE 200
280VA	18.0W	40.0W	SE 250	250VA	18.0W	30.0W	SE 250	200VA	13.0W	18.0W	SE 250
300VA	24.0W	56.0W	SE 250	300VA	24.0W	40.0W	SE 300	250VA	18.0W	21.0W	SE 300
400VA	26.0W	60.0W	SE 300	400VA	26.0W	45.0W	SE 400	300VA	21.0W	30.0W	SE 400
500VA	28.0W	67.0W	SE 400	500VA	28.0W	52.0W	SE 500	400VA	23.0W	38.0W	SE 500
600VA	32.0W	85.0W	SE 500	600VA	32.0W	68.0W	SE 600	500VA	25.0W	45.0W	SE 600
700VA	35.0W	95.0W	SE 600	750VA	35.0W	74.0W	SE 750	600VA	28.0W	56.0W	SE 750
1.00kVA	38.0W	110.0W	SE 750	1.00kVA	38.0W	90.0W	SE 1000	750VA	31.0W	65.0W	SE 1000
1.50kVA	53.0W	155.0W	SE 1000	1.50kVA	53.0W	120.0W	SE 1500	1.25kVA	45.0W	90.0W	SE 1500
2.00kVA	62.0W	180.0W	SE 1500	2.00kVA	62.0W	150.0W	SE 2000	1.50kVA	55.0W	100.0W	SE 2000
2.50kVA	77.0W	205.0W	SE 2000	2.50kVA	77.0W	170.0W	SE 2500	2.00kVA	63.0W	110.0W	SE 2500
3.00kVA	103.0W	250.0W	SE 2500	3.00kVA	103.0W	190.0W	SE 3000	2.50kVA	85.0W	140.0W	SE 3000
4.00kVA	116.0W	280.0W	SE 3000	4.00kVA	116.0W	220.0W	SE 4000	3.00kVA	95.0W	165.0W	SE 4000
5.00kVA	160.0W	360.0W	SE 4000	5.00kVA	160.0W	305.0W	SE 5000	4.00kVA	125.0W	190.0W	SE 5000
6.25kVA	200.0W	430.0W	SE 5000	6.25kVA	200.0W	320.0W	SE 6250	5.00kVA	160.0W	230.0W	SE 6250
7.50kVA	248.0W	490.0W	SE 6250	7.50kVA	248.0W	360.0W	SE 7500	6.25kVA	200.0W	280.0W	SE 7500



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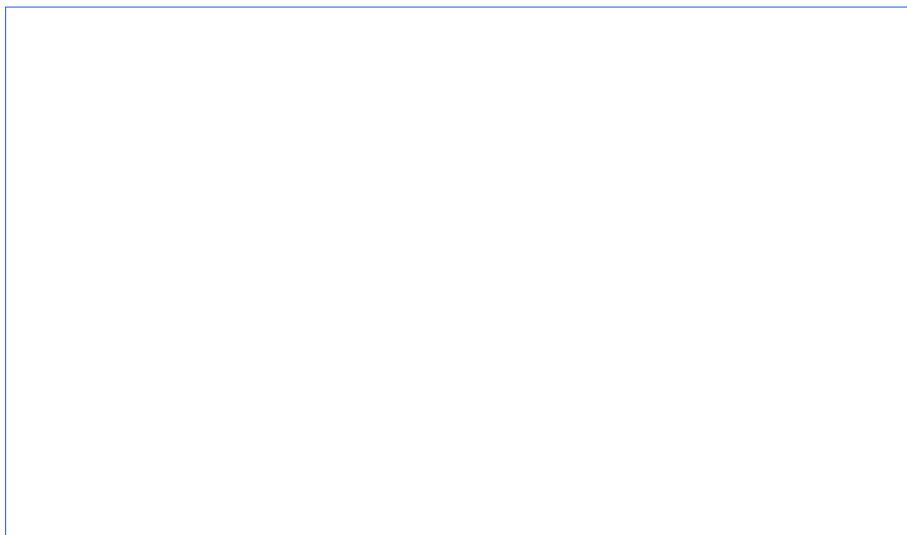
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