



PRODUCT CATALOGUE 2021



Index

1

Current Transformers
Bas Bar, Ring Type, Tape Wound

10

Power Supplies
Bas Bar, Ring Type, Tape Wound

31

Metering and Power Analyzers
Multifunction Meter, Digital Panel Meter

43

Controllers
Automatic Power Factor Controller

45

Protection Relays
Earth Leakage Relay & CBCT

48

Modular Contactor
Manual Operated Contactor, Axillary Contacts for Contactor

Current Transformers

Stefan low voltage current transformers transform primary currents from 20A to 6200A into secondary currents at a rate of 1A or 5A at requested power and accuracy rate. Stefan low voltage current transformers are in compliance with IEC/EN 61869-2.

Importance of Not Leaving Current Transformer Secondary Port Open

As the internal resistances of elements, connected to the secondary of current transformer are very low, current transformers operate in case of short circuit. If the secondary of a current transformer, primary of which was connected to the circuit is left without load or open, magnetic flux, which is in the reverse direction of primary coil flux of secondary coil, disappears. Based on the current passing through primaries, magnetic current in the core of the transformer increases significantly. As a result of increase in magnetic current, transformer core is saturated with magnetizing current and there occurs some thousand volts in secondary ports. Besides, iron loss in the core increases due to high magnetic current and heats the core extremely and transformer is impaired. In order to prevent such dangers, secondary port of current transformer is short circuited even if it is not used.

ST 20R-40A to 300A

Technical Data / Product Selection



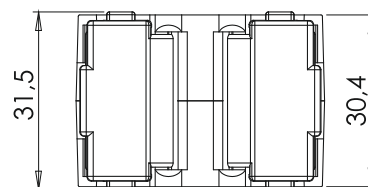
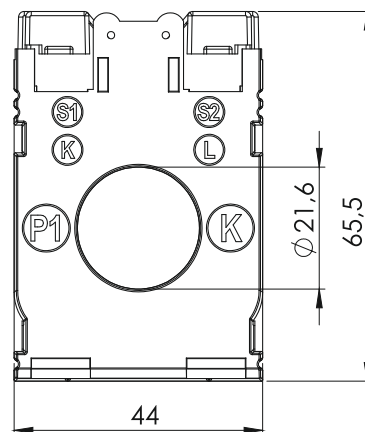
Series	Code	Description			Class		
		Hole (MM)	Primary (A)	Class 0.5	Class 1.0	Class 3.0	
ST20R	ST20R-405	20	40	-	-	1.5VA	
	ST20R-505	20	50	-	-	1.5VA	
	ST20R-605	20	60	-	-	2.5VA	
	ST20R-805	20	80	-	-	2.5VA	
	ST20R-1005	20	100	-	2.5VA	-	
	ST20R-1255	20	125	-	2.5VA	-	
	ST20R-1505	20	150	-	2.5VA	-	
	ST20R-2005	20	200	-	2.5VA	-	
	ST20R-2505	20	250	3.75VA	3.75VA	-	
	ST20R-3005	20	300	3.75VA	3.75VA	-	

Available with 5A or 1A Secondary

Specifications

Rated Primary Current (I_{pr})	40...300A
Frequency Range (f.)	47...63Hz
Rated continuous over current	1.2 x rated current
Rated short time thermal current (I_{th})	<60 I
Rated dynamic current (I_{dyn})	2.5Ith
Instrument security factor (FS)	5
Rated Secondary output (V_s)	5A or 1A
Accuracy class	Class 0.5 and Class 1 IEC/EN61869-2
Insulation type	Dry transformer, air insulation
Highest voltage U_m	0.72kV r.m.s.
Rated insulation level	3kV r.m.s. 50Hz/1 min

Dimensions



Environmental Conditions

Reference temperature	23°C ±1°C
Nominal temperature range	-25°C...50°C
Daily mean temperature	≤ 30°C
Limit temperature range for storage	-40°C...85°C
Relative humidity	≤ 85% non condensing
Housing material	Non - Flammable, Self extinguishing ABS / PC
Protection degree (IEC/EN60529)	IP40 housing, Terminals IP20
Mounting	Foot mounting
Primary winding	Passing cable
Secondary winding	Screw clamp connection - 6mm

ST 30S-80A to 600A

Technical Data / Product Selection

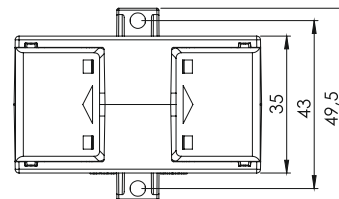
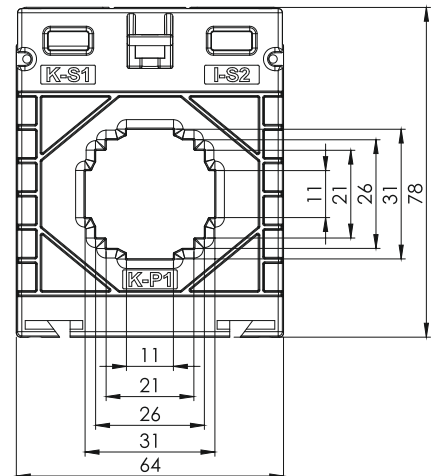


Series	Code	Hole (MM)	Primary (A)	Class		
				Class 0.5	Class 1.0	Class 3.0
ST 30	ST30-805	30	80	-	1.5VA	-
	ST30-1005	30	100	2.5VA	2.5VA	-
	ST30-1255	30	125	-	2.5VA	-
	ST30-1505	30	150	2.5VA	2.5VA	-
	ST30-1605	30	160	2.5VA	2.5VA	-
	ST30-2005	30	200	2.5VA	2.5 VA	-
	ST30-2505	30	250	10 VA	2.5 VA	-
	ST30-3005	30	300	10 VA	5 VA	-
	ST30-4005	30	400	10 VA	5 VA	-
	ST30-5005	30	500	10 VA	10 VA	-
	ST30-6005	30	600	10 VA	10 VA	-

Specifications

Rated Primary Current (I_{pr})	30...600A
Frequency Range (f.)	47...63Hz
Rated continuous over current	1.2 x rated current
Rated short time thermal current (I_{th})	<60 I
Rated dynamic current (I_{dyn})	2.5Ith
Instrument security factor (FS)	5
Rated Secondary output (V_s)	5A or 1A
Accuracy class	Class 0.5 and Class 1 IEC/EN61869-2
Insulation type	Dry transformer, air insulation
Highest voltage Um	0.72kV r.m.s.
Rated insulation level	3kV r.m.s. 50Hz/1 min

Dimensions



Environmental Conditions

Reference temperature	23°C ±1°C
Nominal temperature range	-25°C...50°C
Daily mean temperature	≤ 30°C
Limit temperature range for storage	-40°C...85°C
Relative humidity	≤ 85% non condensing
Housing material	Non - Flammable, Self extinguishing ABS / PC
Protection degree (IEC/EN60529)	IP40 housing, Terminals IP20
Mounting	Foot mounting
Primary winding	Passing cable
Secondary winding	Screw clamp connection - 6mm

ST 30S-30A to 400A

Technical Data / Product Selection



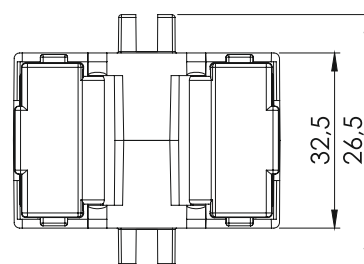
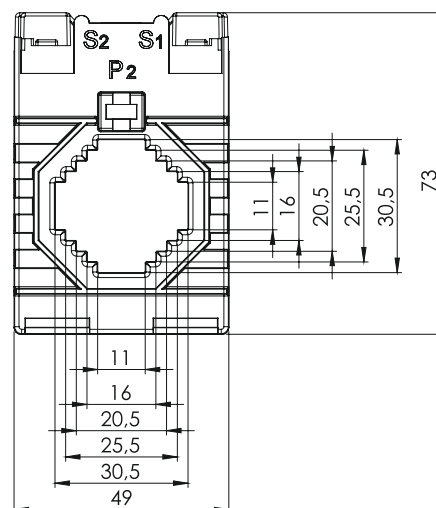
Description				Class		
Series	Code	Hole (MM)	Primary (A)	Class 0.5	Class 1.0	Class 3.0
ST30S	ST30S-30S	30	30	-	1.5VA(3PT)	-
	ST30S-40S	30	40	-	1.5VA(3PT)	-
	ST30S-50S	30	50	-	1.5VA(2PT)	-
	ST20S-60S	30	60	-	2.5VA(2PT)	-
	ST30S-80S	30	80	-	2.5VA(2PT)	-
	ST30S-100S	30	100	-	1.5 VA	-
	ST30S-125S	30	125	2.5 VA	2.5 VA	-
	ST30S-150S	30	150	2.5 VA	2.5 VA	-
	ST30S-160S	30	160	2.5 VA	2.5 VA	-
	ST30S-200S	30	200	3.75 VA	3.75 VA	-
	ST30S-250S	30	250	2.5 VA	2.5 VA	-
	ST30S-300S	30	300	3.75 VA	3.75 VA	-
	ST30S-400S	30	400	3.75VA	5 VA	-

Available with 5A or 1A Secondary

Specifications

Rated Primary Current (I_{pr})	30...400A
Frequency Range (f _r)	47...63Hz
Rated continuous over current	1.2 x rated current
Rated short time thermal current (I_{th})	<60 I
Rated dynamic current (I_{dyn})	2.5I _{th}
Instrument security factor (FS)	5
Rated Secondary output (V_s)	5A or 1A
Accuracy class	Class 0.5 and Class 1 IEC/EN61869-2
Insulation type	Dry transformer, air insulation
Highest voltage Um	0.72kV r.m.s.
Rated insulation level	3kV r.m.s. 50Hz/1 min

Dimensions



Environmental Conditions

Reference temperature	23°C ±1°C
Nominal temperature range	-25°C...50°C
Daily mean temperature	≤ 30°C
Limit temperature range for storage	-40°C...85°C
Relative humidity	≤ 85% non condensing
Housing material	Non - Flammable, Self extinguishing ABS / PC
Protection degree (IEC/EN60529)	IP40 housing, Terminals IP20
Mounting	Foot mounting
Primary winding	Passing cable
Secondary winding	Screw clamp connection - 6mm

ST 40-200A to 800A

Technical Data / Product Selection



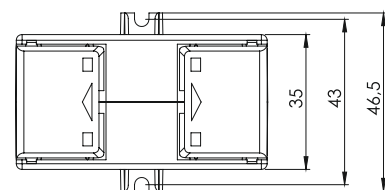
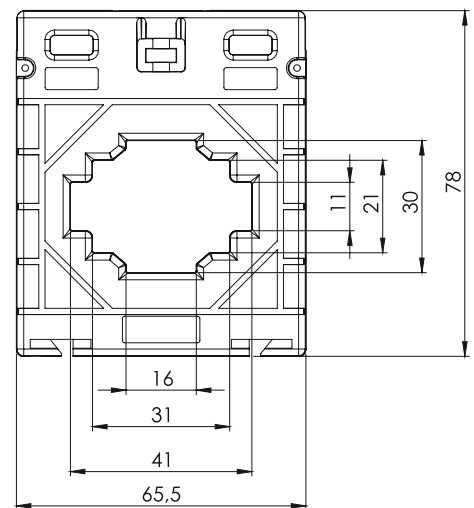
Description				Class	
Series	Code	Hole (MM)	Primary (A)	Class 0.5	Class 1.0
ST 40	ST40-2005	40	200	2.5VA	2.5VA
	ST40-2505	40	250	2.5VA	2.5VA
	ST40-3005	40	300	2.5VA	3.75VA
	ST40-4005	40	400	5VA	5 VA
	ST40-5005	40	500	5VA	5 VA
	ST40-6005	40	600	5VA	5 VA
	ST40-8005	40	800	10 VA	10 VA

Available with 5A or 1A Secondary

Specifications

Rated Primary Current (I_{pr})	200...800A
Frequency Range (f _i)	47...63Hz
Rated continuous over current	1.2 x rated current
Rated short time thermal current (I_{th})	<60 I
Rated dynamic current (I_{dyn})	2.5I _{th}
Instrument security factor (FS)	5
Rated Secondary output (V_s)	5A or 1A
Accuracy class	Class 0.5 and Class 1 IEC/EN61869-2
Insulation type	Dry transformer, air insulation
Highest voltage U _m	0.72kV r.m.s.
Rated insulation level	3kV r.m.s. 50Hz/1 min

Dimensions



Environmental Conditions

Reference temperature	23°C ±1°C
Nominal temperature range	-25°C...50°C
Daily mean temperature	≤ 30°C
Limit temperature range for storage	-40°C...85°C
Relative humidity	≤ 85% non condensing
Housing material	Non - Flammable, Self extinguishing ABS / PC
Protection degree (IEC/EN60529)	IP40 housing, Terminals IP20
Mounting	Foot mounting
Primary winding	Passing cable
Secondary winding	Screw clamp connection - 6mm

ST 60-600A to 1250A

Technical Data / Product Selection



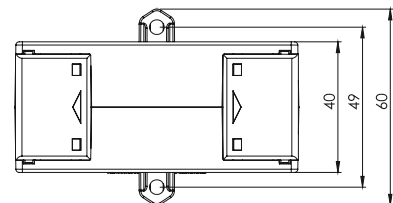
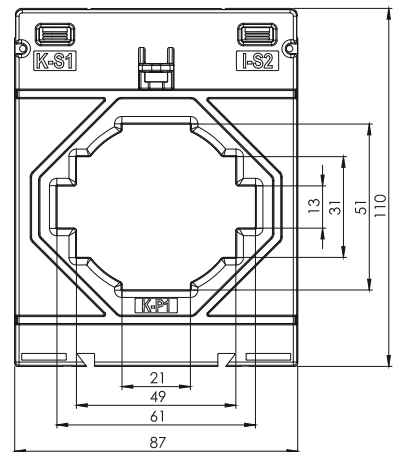
Description				Class	
Series	Code	Hole (MM)	Primary (A)	Class 0.5	Class 1.0
ST 60	ST60-6005	60	600	10 VA	12.5VA
	ST60-8005	60	800	15 VA	15VA
	ST60-10005	60	1000	15 VA	20 VA
	ST60-12005	60	1200	20 VA	25 VA
	ST60-12505	60	1250	20 VA	25 VA

Available with 5A or 1A Secondary

Specifications

Rated Primary Current (I_{pr})	600...1250A
Frequency Range (f.)	47...63Hz
Rated continuous over current	1.2 x rated current
Rated short time thermal current (I_{th})	<60 I
Rated dynamic current (I_{dyn})	2.5Ith
Instrument security factor (FS)	5
Rated Secondary output (V_s)	5A or 1A
Accuracy class	Class 0.5 and Class 1 IEC/EN61869-2
Insulation type	Dry transformer, air insulation
Highest voltage Um	0.72kV r.m.s.
Rated insulation level	3kV r.m.s. 50Hz/1 min

Dimensions



Environmental Conditions

Reference temperature	23°C ±1°C
Nominal temperature range	-25°C...50°C
Daily mean temperature	≤ 30°C
Limit temperature range for storage	-40°C...85°C
Relative humidity	≤ 85% non condensing
Housing material	Non - Flammable, Self extinguishing ABS / PC
Protection degree (IEC/EN60529)	IP40 housing, Terminals IP20
Mounting	Foot mounting
Primary winding	Passing cable
Secondary winding	Screw clamp connection - 6mm

ST 80-800A to 2500A

Technical Data / Product Selection



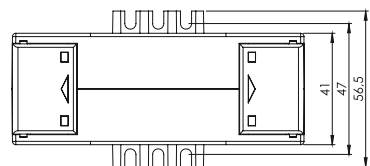
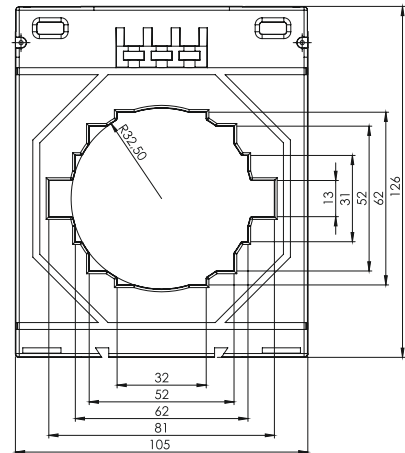
Series	Code	Hole (MM)	Primary (A)	Class	
				Class 0.5	Class 1.0
ST 80	ST80-8005	80	800	15 VA	20 VA
	ST80-10005	80	1000	15 VA	15VA
	ST80-12005	80	1200	15 VA	20 VA
	ST80-12505	80	1250	15 VA	20 VA
	ST80-15005	80	1500	20 VA	25 VA
	ST80-16005	80	1600	20 VA	25 VA
	ST80-20005	80	2000	15 VA	25 VA
	ST80-25005	80	2500	30 VA	30 VA

Available with 5A or 1A Secondary

Specifications

Rated Primary Current (I_{pr})	800...2500A
Frequency Range (f.)	47...63Hz
Rated continuous over current	1.2 x rated current
Rated short time thermal current (I_{th})	<60 I
Rated dynamic current (I_{dyn})	2.5Ith
Instrument security factor (FS)	5
Rated Secondary output (V_s)	5A or 1A
Accuracy class	Class 0.5 and Class 1 IEC/EN61869-2
Insulation type	Dry transformer, air insulation
Highest voltage Um	0.72kV r.m.s.
Rated insulation level	3kV r.m.s. 50Hz/1 min

Dimensions



Environmental Conditions

Reference temperature	23°C ±1°C
Nominal temperature range	-25°C...50°C
Daily mean temperature	≤ 30°C
Limit temperature range for storage	-40°C...85°C
Relative humidity	≤ 85% non condensing
Housing material	Non - Flammable, Self extinguishing ABS / PC
Protection degree (IEC/EN60529)	IP40 housing, Terminals IP20
Mounting	Foot mounting
Primary winding	Passing cable
Secondary winding	Screw clamp connection - 6mm

ST 100-1000A to 4000A

Technical Data / Product Selection

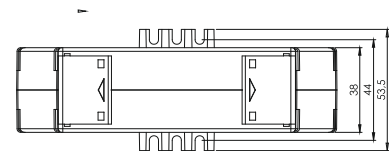
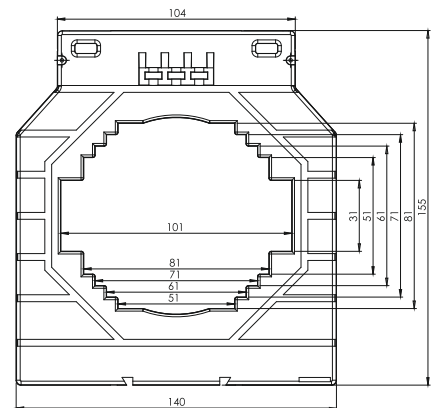


Description				Class	
Series	Code	Hole (MM)	Primary (A)	Class 0.5	Class 1.0
ST 100	ST100-10005	100	1000	15 VA	20 VA
	ST100-12005	100	1200	10 VA	15VA
	ST100-12505	100	1250	15 VA	15 VA
	ST100-15005	100	1500	10 VA	15 VA
	ST100-16005	100	1600	10 VA	15 VA
	ST100-20005	100	2000	30 VA	30 VA
	ST100-25005	100	2500	30 VA	40 VA
	ST100-30005	100	3000	30 VA	30 VA
	ST100-32005	100	3200	30 VA	30 VA
	ST100-40005	100	4000	30 VA	30 VA

Specifications

Rated Primary Current (I_{pr})	1000...40000A
Frequency Range (f.)	47...63Hz
Rated continuous over current	1.2 x rated current
Rated short time thermal current (I_{th})	<60 I
Rated dynamic current (I_{dyn})	2.5Ith
Instrument security factor (FS)	5
Rated Secondary output (V_s)	5A or 1A
Accuracy class	Class 0.5 and Class 1 IEC/EN61869-2
Insulation type	Dry transformer, air insulation
Highest voltage Um	0.72kV r.m.s.
Rated insulation level	3kV r.m.s. 50Hz/1 min

Dimensions



Environmental Conditions

Reference temperature	23°C ±1°C
Nominal temperature range	-25°C...50°C
Daily mean temperature	≤ 30°C
Limit temperature range for storage	-40°C...85°C
Relative humidity	≤ 85% non condensing
Housing material	Non - Flammable, Self extinguishing ABS / PC
Protection degree (IEC/EN60529)	IP40 housing, Terminals IP20
Mounting	Foot mounting
Primary winding	Passing cable
Secondary winding	Screw clamp connection - 6mm

Single Phase Moulded Case Current Transformers

SST Series-100A to 6000A

Technical Data / Product Selection

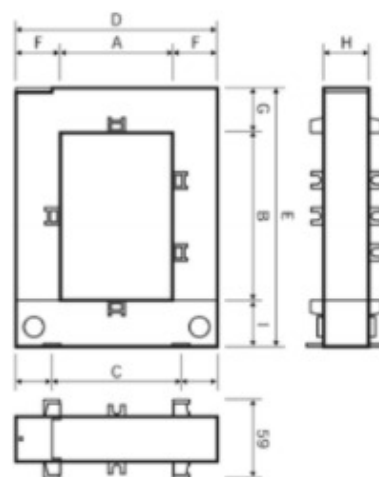


- High quality comprehensive measurements
- Available in a wide range of transformer ratings
- Accuracy up to Class 0.5
- Foot or busbar mounted
- Faster Installation, cost effective and Long product life.

CE RoHS

Specifications

System Voltage	720V (0.72 kV) maximum
Test Voltage	3 kV for 1 minute
System frequency	50 / 60 Hz
Insulation class	E
Overload withstand	1.2 times rated current
Short circuit thermal	100 x rated primary for 1 sec
Operating Temperature	-20° C to +70° C
Relative humidity	0-90% (non - condensing)
Compliant with	IEC/EN60044-1, BS7626
Accuracy	Class 3, 1 & 0.5
Mounting hardware	Plug-in metal feet for wall or basemounting or moulded busbar mounting
Rated dynamic current	= 2.55 x I _{ht}
Enclosure	Flame retardant grade classified UL 94V-0

Dimensions

Power Supplies

Features

- Universal AC input range 90-264 V
- Universal DC input range 124-370 V
- High efficiency up to 87%
- Boost power capability 150%
- Hiccup mode
- Build-in "Power good" relay (In selected model only)
- Isolation class II
- Suitable for indoor use
- DIN rail and Wall mounting



More Flexibility In Input Voltage Wide Range

The power supplies SPS20-1B and SPS20-1C are suitable to wide range input voltage. With a single type it is therefore possible to meet almost all application and consequently improve design and inventory management.

More Power: "Power Boost"

As an example, SPS20-1C is a 24V dc Power supply that features a continuous duty current of 5A at 60°C and a Power Boost of 150%, equivalent to 7.5A for at least 3min. This feature allows the use of a smaller size instrument to power demanding loads such as motors, solenoid valves, lamps and other loads with transient overload behavior which would otherwise require an oversized power supply.

More Power At Changing Rated Temperature

As an example, SPS20-1C can be the right solution for two design cases in different temperature conditions:

- 1) 7.5A, 24V dc in continuous duty at 40°C.
- 2) 5A, 24V dc in continuous duty at 60°C + Power Boost 7.5A for at least 3 min.

Hiccup Mode Automatic Restart

This is the default factory setting of all SPS20 units. In case of short-circuiting or overloading, the output current is interrupted. The device tries again to re-establish output voltage and normal condition about every 2 seconds until the problem is cleared.

Manual Reset Manual Restart By Operator

In case of short-circuit or overload, the output current is interrupted. In order to restart the output it is necessary to switch-off the input circuit for about 1 minute.

This protection mode is particularly suggested in application where safety procedures require that reset be carried out only by an authorized person.

Continuous Output Mode

In case of short-circuit or overload, the output current is kept at high values with near zero voltage. In case of short circuit the current can reach up to 3 times the rated current at 60°C. This protection mode is used to meet the requirements of demanding loads such as motors, solenoid valves, lamps, PLC with highly capacitive input circuits and other loads with marked transient overload behavior.



Single Phase Power Supply - Lite Series

SPE1 - 2415

I/P : 115/230VAC O/P: 24VDC, 0.63A

- Universal AC Input range 85 – 264 V AC
- Universal DC Input range 120 - 370 V DC
- High Efficiency up to 87%
- Isolation Class - II
- Suitable for Indoor use
- DIN Rail Mountable
- Extremely Compact Size
- Cooling by free Air Convection

Input Data

AC Input Voltage Range	85 VAC - 264 VAC (Refer Derating Curve)
DC Input Voltage Range	120 VDC - 370 VDC
Nominal Input Voltage	115 VAC / 230 VAC (165 VDC / 325 VDC)
Frequency	45 Hz ... 65Hz
Input Current (115 – 230 Vac)	0.4A...0.3A
Internal Fuse	T 2 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting $\pm 3\%$	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	$\leq 50.000\mu F$
Turn-On delay after applying mains voltage	1.5 sec. (max)
Rated Current at 24 V 50°C (In)	0.63 A
Rated Current at 24 V 60°C (In)	0.48 A
Rated Current at 24 V 70°C (In)	0.32 A
Power Boost Current at 12 Vdc 60°C (In)	0.63 A ≥ 3 min.
Hold-up Time (min. Vac) 12Vdc 5A	≥ 30 msec (230 VAC), 15 msec (115 VAC)
Residual Ripple	≤ 150 mVpp
Efficiency	$\geq 87\%$
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	Yes
Dissipation power load max (W)	5.3 W
Over Load protection	Yes, Hiccup Mode
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	No
Series connection	Yes
Turn On Delay	1 Seconds
Rise Time	50 msec

Environment Data

Ambient Temperature operation	-30 up to +70 °C ($>60^\circ$ derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Type of housing	Plastic Enclosure
Housing material	PC Lexan 940
Degree of Protection	IP 20 (EN/IEC 60529)
Reliability: MTBF IEC 61709	$> 5,00.000$ Hrs
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	Screw Type 2,5 mm ²
Protection class	II
Dimension (w-h-d)	18 x 90 x 62 mm
Weight	0.2 kg approx.

Single Phase Power Supply - Lite Series

SPE1 - 2436

I/P : 115/230VAC O/P: 24VDC, 1.5A



- Universal AC Input range 85 – 264 V AC
- Universal DC Input range 120 - 370 V DC
- High Efficiency up to 87%
- Isolation Class - II
- Suitable for Indoor use
- DIN Rail Mountable
- Extremely Compact Size
- Cooling by free Air Convection

Input Data

AC Input Voltage Range	85 VAC - 264 VAC (Refer Derating Curve)
DC Input Voltage Range	120 VDC - 370 VDC
Nominal Input Voltage	115 VAC / 230 VAC (165 VDC / 325 VDC)
Frequency	45 Hz ... 65Hz
Input Current (115 – 230 Vac)	0.88 A (115 VAC) 0.48 A (230 VAC)
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting $\pm 3\%$	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	$\leq 50.000\mu F$
Turn-On delay after applying mains voltage	1.5 sec. (max)
Rated Current at 12 V 50°C (In)	1.5 A
Rated Current at 12 V 60°C (In)	1.125 A
Rated Current at 12 V 70°C (In)	0.75 A
Power Boost Current at 12 Vdc 60°C (In)	1.5 A \leq 3 min.
Hold-up Time (min. Vac) 12Vdc 5A	≥ 30 msec (230 VAC), 15 msec (115 VAC)
Residual Ripple	≤ 150 mVpp
Efficiency	$\geq 87\%$
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	Yes
Dissipation power load max (W)	5.3 W
Over Load protection	Yes, Hiccup Mode
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	No
Series connection	Yes
Turn On Delay	1 Seconds
Rise Time	50 msec

Environment Data

Ambient Temperature operation	-30 up to +70 °C ($>60^\circ$ derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Type of housing	Plastic Enclosure
Housing material	PC Lexan 940
Degree of Protection	IP 20 (EN/IEC 60529)
Reliability: MTBF IEC 61709	$> 5,00.000$ Hrs
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	Screw Type 2,5 mm ²
Protection class	II
Dimension (w-h-d)	54 x 90 x 62 mm
Weight	0.25 kg approx.

Single Phase Power Supply - Lite Series

SPE1 - 2445

I/P : 115/230VAC O/P: 24VDC, 1.8A



- Universal AC Input range 85 – 264 V AC
- Universal DC Input range 120 - 370 V DC
- High Efficiency up to 87%
- Isolation Class - II
- Suitable for Indoor use
- DIN Rail Mountable
- Extremely Compact Size
- Cooling by free Air Convection

Input Data

AC Input Voltage Range	85 VAC - 264 VAC (Refer Derating Curve)
DC Input Voltage Range	120 VDC - 370 VDC
Nominal Input Voltage	115 VAC / 230 VAC (165 VDC / 325 VDC)
Frequency	45 Hz ... 65Hz
Input Current (115 – 230 Vac)	0.95 A (115 VAC) 0.55 A (230 VAC)
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting $\pm 3\%$	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	$\leq 50.000 \mu F$
Turn-On delay after applying mains voltage	1.5 sec. (max)
Rated Current at 12 V 50°C (In)	1.875 A
Rated Current at 12 V 60°C (In)	1.41A
Rated Current at 12 V 70°C (In)	0.94A
Power Boost Current at 12 Vdc 60°C (In)	1.75 A ≤ 3 min.
Hold-up Time (min. Vac) 12Vdc 5A	≥ 30 msec (230 VAC), 15 msec (115 VAC)
Residual Ripple	≤ 150 mVpp
Efficiency	$\geq 87\%$
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	Yes
Dissipation power load max (W)	6.2W
Over Load protection	Yes, Hiccup Mode
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	No
Series connection	Yes
Turn On Delay	1 Seconds
Rise Time	50 msec

Environment Data

Ambient Temperature operation	-30 up to +70 °C ($>60^\circ$ derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Type of housing	Plastic Enclosure
Housing material	PC Lexan 940
Degree of Protection	IP 20 (EN/IEC 60529)
Reliability: MTBF IEC 61709	$> 5,00.000$ Hrs
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	Screw Type 2,5 mm ²
Protection class	II
Dimension (w-h-d)	54 x 90 x 62 mm
Weight	0.25 kg approx.

Single Phase Power Supply - Lite Series

SPE1 - 2460

I/P : 115/230VAC O/P: 24VDC, 2.5A



- Universal AC Input range 85 – 264 V AC
- Universal DC Input range 120 - 370 V DC
- High Efficiency up to 87%
- Isolation Class - II
- Suitable for Indoor use
- DIN Rail Mountable
- Extremely Compact Size
- Cooling by free Air Convection

Input Data

AC Input Voltage Range	85 VAC - 264 VAC (Refer Derating Curve)
DC Input Voltage Range	120 VDC - 370 VDC
Nominal Input Voltage	115 VAC / 230 VAC (165 VDC / 325 VDC)
Frequency	45 Hz ... 65Hz
Input Current (115 – 230 Vac)	1.4 A (115 VAC) 0.8 A (230 VAC)
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting $\pm 3\%$	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	$\leq 50.000 \mu F$
Turn-On delay after applying mains voltage	1.5 sec. (max)
Rated Current at 12 V 50°C (In)	2.5A
Rated Current at 12 V 60°C (In)	1.875A
Rated Current at 12 V 70°C (In)	1.25A
Power Boost Current at 12 Vdc 60°C (In)	2.5 A \leq 3 min.
Hold-up Time (min. Vac) 12Vdc 5A	≥ 30 msec (230 VAC), 15 msec (115 VAC)
Residual Ripple	≤ 150 mVpp
Efficiency	$\geq 87\%$
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	Yes
Dissipation power load max (W)	8.9W
Over Load protection	Yes, Hiccup Mode
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	No
Series connection	Yes
Turn On Delay	1 Seconds
Rise Time	50 msec

Environment Data

Ambient Temperature operation	-30 up to +70 °C ($>60^\circ$ derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Type of housing	Plastic Enclosure
Housing material	PC Lexan 940
Degree of Protection	IP 20 (EN/IEC 60529)
Reliability: MTBF IEC 61709	$> 5,00.000$ Hrs
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	Screw Type 2,5 mm ²
Protection class	II
Dimension (w-h-d)	54 x 90 x 62 mm
Weight	0.25 kg approx.

Single Phase Power Supply - Prime Series

SPP1 - 0535

I/P : 115/230VAC O/P: 5VDC, 5A, 35W



- Input: 115 – 230 Vac
- Output: 5 Vdc 50°C
- Efficiency up to 82%
- Strong overload without switch-off
- Flexible Power continuity : from 36 to 72 W
- DIN Rail Mountable
- Extremely Compact Size

Input Data

Nominal Input Voltage (2 x Vac)	115 – 230 Vac
Input Voltage Range (Vac)	90 - 264
Inrush Current (Vn and In Load) I ² t	≤ 7A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	0.5 - 0.25 A
Internal Fuse	T 4 A
External Fuse (recommended)	6 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	5 Vdc
Adjustment range (Vadj)	4.75 – 5.25 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Continuous Current at 12 V 40°C (In)	5 A
Continuous Current at 12 V 50°C (In)	5 A
Continuous Current at 12 V 60°C (In)	5 A
Power Boost Current at 5 Vdc 50°C(In)	7 A up ≥ 3 min.
Current max. Overload ≅ 2Vdc (permanent)	I _{max} =I _n 50°C x(1.3 -1.4)
Max current Short Circuit (I _{cc})	10 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 82 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	Yes, Continuous Mode
Dissipation power load max (W)	6
Over Load protection	Yes, Continuous Mode
Over Voltage Output protection	Yes (typ. 15 Vdc)
Parallel connection	Yes

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	50x120x50 mm
Weight	0.3 kg approx.



Single Phase Power Supply - Prime Series

SPP1 - 1272

I/P : 115/230VAC O/P: 12VDC, 6A, 72W

- Input: 115 – 230 Vac
- Output: 12 Vdc 50°C
- Efficiency up to 88%
- Strong overload without switch-off
- Flexible Power continuity : from 36 to 72 W
- DIN Rail Mountable
- Extremely Compact Size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 264
Inrush Current (Vn and In Load) I ² t	7A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	1 - 0.7 A
Internal Fuse	T 4 A
External Fuse (recommended)	6 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	12 Vdc
Adjustment range (Vadj)	10 – 15.5 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1.5 sec. (max)
Continuous Current at 12 V 40°C (In)	4 A (115) 6 A (230)
Continuous Current at 12 V 50°C (In)	3 A (115) 5 A (230)
Power Boost Current at 12 V 50°C (In)	7 A up to 3 min.
Power Boost Current at 15 Vdc 50°C(In)	6 A up to 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =I _n 50°C x(1.8 -2.2)
Current max. Overload	I _{max} =I _n 50°C x(1.8 -2.2)
Max current Short Circuit (I _{cc})	10 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 88 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	Yes, Continuous Mode
Dissipation power load max (W)	6
Over Load protection	Yes, Continuous Mode
Over Voltage Output protection	Yes
Parallel connection	Yes

-40 up to +85 °C

95 % to 25 °C

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	50x120x50 mm
Weight	0.3 kg approx.

Single Phase Power Supply - Prime Series

SPP1 - 12180

I/P : 115/230VAC O/P: 24VDC, 3A



- Input: 115 – 230 Vac
- Output: 12 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 120 to 180 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 264
Inrush Current (Vn and In Load) I ² t	≤11A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	2.8 - 1.3A
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	12 Vdc
Adjustment range (Vadj)	10 – 14 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Rated Current at 12 V 40°C (In)	14 A (permanent)
Rated Current at 12 V 50°C (In)	12 A (permanent)
Rated Current at 12 V 60°C (In)	10 A (permanent) ≥ 3 min.
Power Boost Current at 12 Vdc 60°C(In)	In (60°C) x 1.5
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	20 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	17
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	55x110x105 mm
Weight	0.60 kg approx.



Single Phase Power Supply - Prime Series

SPP1 - 12336

I/P : 115/230VAC O/P: 12VDC, 16A, 336W

- Input: 115 – 230 Vac
- Output: 12 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 120 to 180 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 135 (115) 180 – 264 (230)
Inrush Current (Vn and In Load) I ² t	≤16A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	3.3 - 2.2A
Internal Fuse	T 4 A
External Fuse (recommended)	16 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	12 Vdc
Adjustment range (Vadj)	10 – 14 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Rated Current at 12 V 40°C (In)	16 A (permanent)
Rated Current at 12 V 50°C (In)	15 A (permanent)
Rated Current at 12 V 60°C (In)	14 A (permanent) ≥ 3 min.
Power Boost Current at 12 Vdc 60°C(In)	In (60°C) x 1.5
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	30 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	28
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	72x115x135 mm
Weight	0.65 kg approx.



Single Phase Power Supply - Prime Series

SPP1 - 2472

I/P : 115/230VAC O/P: 24VDC, 3A

- Input: 115 – 230 Vac
- Output: 12 Vdc 50°C
- Efficiency up to 88%
- Strong overload without switch-off
- Flexible Power continuity : from 36 to 72 W
- DIN Rail Mountable
- Extremely Compact Size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 264
Inrush Current (Vn and In Load) I ² t	7A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	1 - 0.7 A
Internal Fuse	T 4 A
External Fuse (recommended)	6 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1.5 sec. (max)
Continuous Current at 24 V 40°C (In)	2 A (115) 3 A (230)
Continuous Current at 24 V 50°C (In)	1.5 A (115) 2.5 A (230)
Power Boost Current at 24 Vdc 50°C (In)	3.5 A ≥ 3 min.
Max current Short Circuit (Icc)	7 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤ 80 mVpp
Efficiency	≥ 88 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	Yes, Continuous Mode
Dissipation power load max (W)	6
Over Load protection	Yes, Continuous Mode
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	50x120x50 mm
Weight	0.3 kg approx.



Single Phase Power Supply - Prime Series

SPP1 - 24120

I/P : 115/230VAC O/P: 24VDC, 5A

- Input: 115 – 230 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 95 to 120 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 135 (115) 180 – 264 (230)
Inrush Current (Vn and In Load) I ² t	≤11A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	1.8 - 0.9A
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	12 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Continuous Current at 24 V < 40°C (In)	5 A (permanent)
Continuous Current at 24 V < 50°C (In)	4.5 A (permanent)
Continuous Current at 24 V < 60°C (In)	4 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	12 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	11
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	55x110x105 mm
Weight	0.50 kg approx.



Single Phase Power Supply - Prime Series

SPP1 - 24180

I/P : 115/230VAC O/P: 24VDC, 7.5A

- Input: 115 – 230 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 120 to 180 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 135 (115) 180 – 264 (230)
Inrush Current (Vn and In Load) I ² t	≤11A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	2.8 - 1.3A
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Rated Current at 24 V 40°C (In)	7.5 A (permanent)
Rated Current at 24 V 50°C (In)	6 A (permanent)
Rated Current at 24 V 60°C (In)	5 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	16A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	17
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	55x110x105 mm
Weight	0.60 kg approx.

Single Phase Power Supply - Prime Series

SPP1 - 24336

I/P : 115/230VAC O/P: 24VDC, 14A



- Input: 115 – 230 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 240 to 336 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 135 (115) 180 – 264 (230)
Inrush Current (Vn and In Load) I ² t	≤11A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	3.3 - 2.2A
Internal Fuse	T 4 A
External Fuse (recommended)	16 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Rated Current at 24 V 40°C (In)	14 A (permanent)
Rated Current at 24 V 50°C (In)	12 A (permanent)
Rated Current at 24 V 60°C (In)	10 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	30 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	28
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	72x115x135 mm
Weight	0.65 kg approx.

Single Phase Power Supply - Prime Series

SPP1 - 24600

I/P : 115/230VAC O/P: 24VDC, 25A



- Input: 115 – 230 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 480 to 600 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 135 (115) 180 – 264 (230)
Inrush Current (Vn and In Load) I ² t	≤11A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	8 - 4.2A
Internal Fuse	T 10 A
External Fuse (recommended)	16 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Continuous Current at 24 V < 40°C (In)	25 A (permanent)
Continuous Current at 24 V < 50°C (In)	22 A (permanent)
Continuous Current at 24 V < 60°C (In)	20 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	60 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 92 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	54
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	85x120x140 mm
Weight	0.75 kg approx.



Single Phase Power Supply - Prime Series

SPP1 - 48180

I/P : 115/230VAC O/P: 48VDC, 3.75A

- Input: 115 – 230 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 480 to 600 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 135 (115) 180 – 264 (230)
Inrush Current (Vn and In Load) I ² t	≤11A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	2.8 - 1.3A
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	48 Vdc
Adjustment range (Vadj)	41 – 55 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Rated Current at 48 V 40°C (In)	25 A (permanent)
Rated Current at 48 V 50°C (In)	22 A (permanent)
Rated Current at 48 V 60°C (In)	20 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	In (60°C) x 3
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	17
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 72 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	55x110x105 mm
Weight	0.60 kg approx.

Single Phase Power Supply - Prime Series

SPP1 - 48345

I/P : 115/230VAC O/P: 48VDC, 7A

- Input: 115 – 230 Vac
- Output: 48 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 240 to 345 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 135 (115) 180 – 264 (230)
Inrush Current (Vn and In Load) I ² t	≤16A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	3.3 - 2.2 A
Internal Fuse	T 6.3 A
External Fuse (recommended)	16 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	48 Vdc
Adjustment range (Vadj)	41 – 55 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Rated Current at 48 V 40°C (In)	7 A (permanent)
Rated Current at 48 V 50°C (In)	6 A (permanent)
Rated Current at 48 V 60°C (In)	5 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	In (60°C) x 3
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	28
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 72 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	72x115x135 mm
Weight	0.77 kg approx.

Single Phase Power Supply - Prime Series

SPP1 - 48600

I/P : 115/230VAC O/P: 48VDC, 12A



- Input: 115 – 230 Vac
- Output: 48 Vdc 60°C
- Efficiency up to 92%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 480 to 600 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	115 – 230 Vac
Input Voltage Range (Vac)	90 - 135 (115) 180 – 264 (230)
Inrush Current (Vn and In Load) I ² t	≤16A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	8 - 4.2A
Internal Fuse	T 10 A
External Fuse (recommended)	16 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	48 Vdc
Adjustment range (Vadj)	41 – 55 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Rated Current at 48 V 40°C (In)	10 A (permanent)
Rated Current at 48 V 50°C (In)	11 A (permanent)
Rated Current at 48 V 60°C (In)	10 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	In (60°C) x 3
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 92 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	54
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 72 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	85x120x140 mm
Weight	0.75 kg approx.

Dual Phase Power Supply - Prime Series

SPP2 - 24120**I/P : 115/230VAC O/P: 24VDC, 4.5A**

- Input: 230 - 400 - 500 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 96 to 120 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	230 – 400 – 500 Vac
Input Voltage Range (Vac)	187 - 264 (230) 330 - 550 (400 - 500)
Inrush Current (Vn and In Load) I ² t	≤17A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	1.0 - 0.5 - 0.4 A
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)	22 – 275 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Continuous Current at 24 V < 40°C (In)	5 A (permanent)
Continuous Current at 24 V < 50°C (In)	4.5 A (permanent)
Continuous Current at 24 V < 60°C (In)	4 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	12 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	11
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	55x110x105 mm
Weight	0.50 kg approx.



Dual Phase Power Supply - Prime Series

SPP2 - 24180

I/P : 230 / 400 / 500 VAC O/P: 24VDC, 7A

- Input: 230 - 400 - 500 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 120 to 180 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	230 – 400 – 500 Vac
Input Voltage Range (Vac)	187 - 264 (230) 330 - 550 (400 - 500)
Inrush Current (Vn and In Load) I ² t	≤17A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	1.5 - 0.8 - 0.7 A
Internal Fuse	T 4 A
External Fuse (recommended)	10 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)	22 – 275 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Continuous Current at 24 V < 40°C (In)	7.5 A (permanent)
Continuous Current at 24 V < 50°C (In)	6 A (permanent)
Continuous Current at 24 V < 60°C (In)	5 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	16 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	17
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	55x110x105 mm
Weight	0.60 kg approx.



Dual Phase Power Supply - Prime Series

SPP2 - 24336

I/P : 230 / 400 / 500 VAC O/P: 24VDC, 14A

- Input: 230 - 400 - 500 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 240 to 336 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (2 x Vac) Manual select Input from 115 to 230	230 – 400 – 500 Vac
Input Voltage Range (Vac)	187 - 264 (230) 330 - 550 (400 - 500)
Inrush Current (Vn and In Load) I ² t	≤17A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	2.2 - 1.4 - 1.0 A
Internal Fuse	T 4 A
External Fuse (recommended)	16 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)	22 – 275 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Continuous Current at 24 V < 40°C (In)	14 A (permanent)
Continuous Current at 24 V < 50°C (In)	12 A (permanent)
Continuous Current at 24 V < 60°C (In)	10 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	30 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	17
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	72x115x135 mm
Weight	0.65 kg approx.

Three Phase Power Supply - Prime Series

SPP3 - 24600**I/P : 3 Phase 400- 500VAC O/P: 24VDC, 25A**

- Input: 3 Phase 400 - 500 Vac
- Output: 24 Vdc 60°C
- Efficiency up to 91%
- Strong overload without switch-off, up to 50%
- Flexible Power continuity : from 480 to 600 W
- Three type of modality protections:
 - 1) Hiccup mode
 - 2) Continuous Out Mode
 - 3) Manual Reset
- DIN Rail Mountable
- Extremely small size

Input Data

Nominal Input Voltage (3 x Vac)	400 - 500 VAC
Input Voltage Range (Vac)	330 - 500
Inrush Current (Vn and In Load) I ² t	≤17A ≤ 5msec.
Frequency	47 – 63 Hz ±6%
Input Current (115 – 230 Vac)	0.95 - 0.85 A
Internal Fuse	T 6.3 A
External Fuse (recommended)	16 A (MCBcurve B)

Output Data

Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)	22 – 275 Vdc
Start up with Strong Load (capacitive load)	≤50.000μF
Turn-On delay after applying mains voltage	1 sec. (max)
Continuous Current at 24 V < 40°C (In)	25 A (permanent)
Continuous Current at 24 V < 50°C (In)	22 A (permanent)
Continuous Current at 24 V < 60°C (In)	20 A (permanent)
Power Boost Current at 24 Vdc 60°C(In)	In (60°C) x 1.5 ≥ 3 min.
Current max. Overload ≅ 4Vdc (permanent)	I _{max} =In60°Cx(1.8 - 2.2)
Current Short Circuit I _{cc} Max 2 sec.: Hiccup mode Permanent : Continuous Mode	60 A
Hold-up Time (min. Vac) 12Vdc 5A	Typ. 20 msec
Residual Ripple	≤80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection	1° Hiccup Mode 2° Continuous mode 3° Manual Reset
Dissipation power load max (W)	54
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Power Good Contact rating (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	Resistive load Min permissive load

Environment Data

Ambient Temperature operation	-25 up to +70 °C (>50°derating 2.5% °C)
Ambient Temperature Storage	-40 up to +85 °C
Humidity at 25 °C, no condensation	95 % to 25 °C

General Data

Isolation Voltage (In / Out)	3000 Vac
Isolation Voltage (In / PE)	1605 Vac
Isolation Voltage (Out / PE)	500 Vac
Protection Class (EN/IEC 60529)	IP 20
Reliability: MTBF IEC 61709	> 500.000 h
Pollution Degree Environment	2
Connection Terminal Blocks Screw Type	2,5 mm
Protection class	I with PE connected
Dimension (w-h-d)	85 x 120 x 140 mm
Weight	0.75 kg approx.

Metering and Power Analyzers

Single and Three Phase Multifunction Energy Meter

- DIN 96 panel mounted
- Single phase or three phase network compatible
- Programmable voltage and current transformer ratio
- True RMS measurement
- High definition white backlit LCD display
- Pulse output, Modbus and Mbus communication options
- Simple programming & operation (auto or manual page scroll)
- Auto or manual page scrolling
- Daisy chaining up to 32 meters from one supply

Displayed Parameters

- Voltage – L-L, L-N and average
- Current – Phase, total and Max. demand
- Power Factor – per phase and average
- Total Harmonic Distortion – Current and Voltage
- Neutral current (calculated)
- Frequency
- Hours Run – Hours & minutes
- Power – Active, Reactive and Apparent (per phase and total)
- Power Min./Max. demand – Active, reactive and apparent.
- Energy – Active, reactive and apparent (per phase and total)
- Import and export energy – Active, Reactive and Apparent(per phase and total)

SMF - 200

Three Phase Multifunction Meter



- 3Ø True RMS (Voltage, Current)
- 3Ø Power (Active, Reactive, Apparent)
- Energy (Active, Reactive, Apparent)
- Programmable CT / PT Primary / Secondary
- Single Pulse Output
- Phase Angle Detection
- Max / Min Demand Power
- Run Hour
- Auxiliary Interrupts

Display Specifications

Display	3 rows, 7 segments LED Display
Digits	4

Input Specifications

Electrical Connection	3Ø - 3 wire, 3Ø - 4 wire, 2Ø - 3 wire, 1Ø - 2 wire
Input Voltage Range	11 to 300V AC (L - N) 19 to 519V AC (L - L)
Input Current Range	Nominal 5A AC (Min - 14mA, Max - 6A)
Frequency	45 to 65Hz
Display Scrolling	Automatic / Manual / Default
Power Consumption	8VA max
Display Reset	Programmable (For energy, Auxiliary interrupt, Run hour)
Resolution	For energy : 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (depending upon CT ratio X PT ratio) For Power, Voltage, Current : Auto Resolution For Power Factor : 0.001
Accuracy	Voltage (L - N / L - L) : ±0.5% of F.S. Current : ±0.5% of F.S. Power Factor : ±0.01 Frequency : ±0.1% For L - N voltage > 20V For L - L voltage > 35V Power (Active, Reactive, Apparent) : 1% Energy (Active, Reactive, Apparent) : Class 1
Memory Retention	10 years (For energy)
Measuring Parameters	Voltage (L - L / L - N) (Individual / Average), Current (Individual / Average), Frequency, Power Factor (Individual / Average), Active, Reactive & Apparent Power (Individual / Total), Active, Reactive & Apparent Energy (Total), Phase Angle, CT Polarity Error, Run Hour, Auxiliary Interrupt, Max Power Demand (Active, Reactive & Apparent), Min Power Demand (Active & Reactive)

Output Specifications

Pulse Output	Voltage Range External 6V DC max Current Capacity 100mA max Pulse Width 100ms±5ms
--------------	---

Auxiliary Supply Specifications

Supply Voltage	240V AC (±20%), 50 / 60Hz
----------------	---------------------------

Settable Parameters

CT Primary	1 / 5A to 10kA (Programmable for any value)
CT Secondary	1 / 5A(Programmable)
PT Primary	100V to 500kV (Programmable for any value)
PT Secondary	100V to 500V (Programmable for any value)

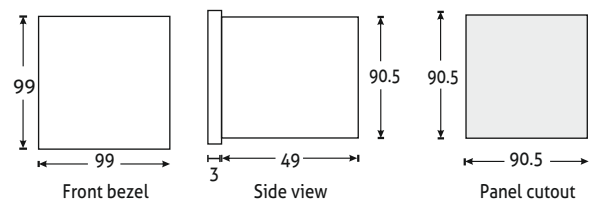
Environmental Specifications

Temperature	Operating : -10° to 55°C Storage : -20° to 75°C
Humidity (non - condensing)	Upto 85% RH

Mechanical Specifications

Mounting	Panel
Weight	260gms

Dimensions



Certification



SMF - 300

Three Phase Multifunction Meter



- 3Ø True RMS (Voltage, Current)
- 3Ø Power (Active, Reactive, Apparent)
- Import / Export Energy (Active, Reactive)
- Energy (Active, Reactive, Apparent)
- Max / Min Demand Power, Max Demand Current
- Programmable CT / PT Primary / Secondary
- Single Pulse Output
- Phase Angle Detection
- Run Hour
- Auxiliary Interrupts
- %THD Upto 31st level

Display Specifications

Display	3 rows, 7 segments LED Display
Digits	4

Input Specifications

Electrical Connection	3Ø - 3 wire, 3Ø - 4 wire, 2Ø - 3 wire, 1Ø - 2 wire
Input Voltage Range	11 to 300V AC (L - N) 19 to 519V AC (L - L)
Input Current Range	Nominal 5A AC (Min - 14mA, Max - 6A)
Frequency	45 to 65Hz
Display Scrolling	Automatic / Manual / Default
Power Consumption	8VA max
Display Reset	Programmable (For energy, Auxiliary interrupt, Run hour)
Resolution	For energy : 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (depending upon CT ratio X PT ratio) For Power, Voltage, Current : Auto Resolution For Power Factor : 0.001
Accuracy	Voltage (L - N / L - L) : ±0.5% of F.S. Current : ±0.5% of F.S. Power Factor : ±0.01 Frequency : ±0.1% For L - N voltage > 20V For L - L voltage > 35V Power (Active, Reactive, Apparent) : 1% Energy (Active, Reactive, Apparent) : Class 1
Memory Retention	10 years (For energy)
Measuring Parameters	Voltage (L - L / L - N) (Individual / Average), Current (Individual / Average), Frequency, Power Factor (Individual / Average), Active, Reactive & Apparent Power (Individual / Total), Active, Reactive & Apparent Energy (Total), Phase Angle, CT Polarity Error, Run Hour, Auxiliary Interrupt, Max Power Demand (Active, Reactive & Apparent), Min Power Demand (Active & Reactive)

Output Specifications

Pulse Output	Voltage Range: External 24V DC max Current Capacity 100mA max Pulse Width 100ms±5ms
Communication Interface and Protocol	RS485 and MODBUS RTU
Communication Address	1 to 255
Transmission Mode	Half duplex
Transmission Distance	500 meter maximum
Transmission Speed	300, 600, 1200, 2400, 4800, 9600, 19200 (in bps)
Parity	None, Odd, Even
Stop Bits	1 or 2
Response Time	100ms (max and independent of baud rate)

Auxiliary Supply Specifications

Supply Voltage	240V AC (±20%), 50 / 60Hz
----------------	---------------------------

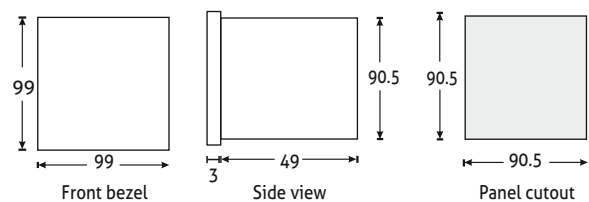
Settable Parameters

CT Primary	1 / 5A to 10kA (Programmable for any value)
CT Secondary	1 / 5A (Programmable)
PT Primary	100V to 500kV (Programmable for any value)
PT Secondary	100V to 500V (Programmable for any value)

Mechanical Specifications

Mounting	Panel
Weight	260gms

Dimensions



Certification



SMF - 400

Three Phase Multifunction Meter



- 3Ø True RMS (Voltage, Current)
- 3Ø Power (Active, Reactive, Apparent)
- Import / Export Energy (Active, Reactive)
- Energy (Active, Reactive, Apparent)
- CT Polarity Error Detection
- Programmable CT / PT Primary / Secondary
- Single Phase Network with Phase Selection
- Phase Sequence Detection
- Variable Pulse Width Selection
- Single Pulse Output / Demand
- %THD Upto 31st level
- Modbus RTU Communication (RS485)
- Baragraph Representation for Current

Display Specifications

Display	4 rows, LCD Backlight
Digits	4 (Lowest 8 digits for energy display)
Bargraph	For Current Representation

Input Specifications

Electrical Connection	3Ø - 3 wire, 3Ø - 4 wire, 2Ø - 3 wire, 1Ø - 2 wire
Input Voltage Range	11 to 300V AC (L - N) 19 to 519V AC (L - L)
Input Current Range	Nominal 5A AC (Min - 14mA, Max - 6A)
Frequency	45 to 65Hz
Display Scrolling	Automatic / Manual / Default
Power Consumption	8VA max
Display Reset	Programmable (For energy, Auxiliary interrupt, Run hour)
Resolution	For energy : 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (depending upon CT ratio X PT ratio) For Voltage, Current : Auto Resolution For Power Factor : 0.001
Accuracy	Voltage (L - N / L - L) : ±0.5% of F.S. Current : ±0.5% of F.S. Power Factor : ±0.01 Frequency : ±0.1% For L - N voltage > 20V For L - L voltage > 35V Power (Active, Reactive, Apparent) : 1% Energy (Active, Reactive, Apparent) : Class 1
Memory Retention	10 years (For energy)
Measuring Parameters	Voltage (L - L / L - N) (Individual / Average), Current (Individual / Average), Frequency, Power Factor (Individual / Average), Active, Reactive & Apparent Power (Individual / Total), Active, Reactive & Apparent Energy (Total), Phase Angle, CT Polarity Error, Run Hour, Auxiliary Interrupt, Max Power Demand (Active, Reactive & Apparent), Min Power Demand (Active & Reactive)

Output Specifications

Pulse Output	Voltage Range: External 24V DC max Current Capacity 100mA max Pulse Width: 100ms±5ms
Communication Interface and Protocol	RS485 and MODBUS RTU
Communication Address	1 to 255
Transmission Mode	Half duplex
Transmission Distance	500 meter maximum
Transmission Speed	300, 600, 1200, 2400, 4800, 9600, 19200 (in bps)
Parity	None, Odd, Even
Stop Bits	1 or 2
Response Time	100ms (max and independent of baud rate)

Auxiliary Supply Specifications

Supply Voltage	100 to 240V AC (±20%), 50 / 60Hz
----------------	----------------------------------

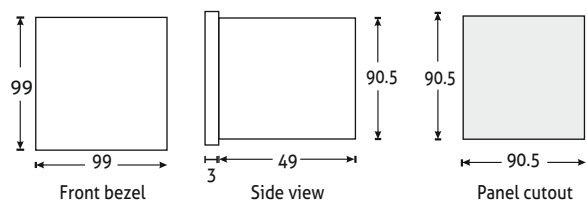
Settable Parameters

CT Primary	1 / 5A to 10kA (Programmable for any value)
CT Secondary	1 / 5A (Programmable)
PT Primary	100V to 500kV (Programmable for any value)
PT Secondary	100V to 500V (Programmable for any value)

Mechanical Specifications

Mounting	Panel
Weight	318 gms

Dimensions



Certification



SDV - 91

Single Phase Digital Volt Meter

- True RMS Measurement
- For 1 Phase 2 Wire Electrical Network



Display Specifications

Display	Single row, 7 segments LED Display
Digits	3
Digit Height	0.56" (14.2mm)
Display Range	0 - 516V

Input Specifications

Electrical Connection	1 Ø-2 wire
Input Type	AC
Input Voltage Range	50-480V
Continuous Max. Input Rating	516V
Overrange Indication	"Or" for input > 516V
Frequency	50 / 60Hz
Resolution	1V
Accuracy	±0.5% of F.S
Input Impedance	1MΩ (± 5%)
Sampling Rate	3 samples / second
Dielectric withstand Voltage	2kV AC between auxiliary supply & measuring input
Rated Impulse withstand Voltage	3.5kV (1.2/50µS)

Auxiliary Supply Specifications

Auxiliary Supply	240V AC (±20%), 50 / 60Hz 110V AC (±20%), 60Hz
Power Consumption	5VA max

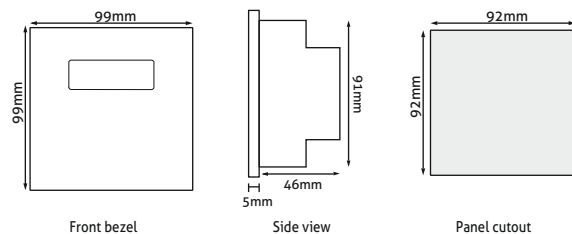
Environmental Specifications

Temperature	Operating : -10° to 55°C Storage : -20° to 75°C
Humidity (non - condensing)	Upto 95% RH

Mechanical Specifications

Mounting	Panel
Weight	180 gms

Dimensions



Certification

CE RoHS

SDA - 91

Single Phase Digital Ampere Meter

- True RMS Measurement
- CT Primary Programmable upto 4000A



Display Specifications

Display	Single row, 7 segments LED Display
Digits	4
Digit Height	0.56" (14.2mm)
Display Range	0-4960A

Input Specifications

Electrical Connection	1 Ø-2 wire
Input Type	AC
Input Current Range	50mA - 5A
Continuous Max. Input Rating	6.2A
Overrange Indication	"Or" for input > 6.2A
Frequency	50 / 60Hz
Resolution	0.001, 0.01, 0.1, 1A (Depending upon CT Primary)
Accuracy	±0.5% of CT primary / shunt setting
Input Burden	0.5 VA at 5A
Sampling Rate	3 samples / second
Dielectric withstand Voltage	2kV AC between auxiliary supply & measuring input
Rated Impulse withstand Voltage	3.5kV (1.2/50µS)

Auxiliary Supply Specifications

Auxiliary Supply	240V AC (±20%), 50 / 60Hz 110V AC (±20%), 60Hz
Power Consumption	5VA max

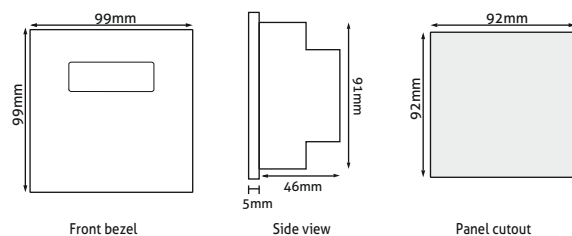
Settable Parameters

CT Primary / Shunt Setting	5, 10, 20, 30, 40, 50, 60, 75, 80, 100, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 1600, 2000, 2500, 3000, 4000
CT Secondary	5A (Fixed)

Mechanical Specifications

Mounting	Panel
Weight	180 gms

Dimensions



Certification

CE RoHS

SDV - 93

Three Phase Digital Volt Meter



- 4 Digit, 7 Segment LED Display
- True RMS Measurement
- For 3Ø - 4W, 3Ø - 3W, 1Ø - 2W Electrical Network
- K LED for kilo indication

Display Specifications

Display	Single row, 7 segments LED Display
Digits	4
Digit Height	0.56" (14.2mm)

Input Specifications

Electrical Connection	1 Ø-2 wire, 3Ø-3 wire, 3 Ø-4 wire
Input Type	AC
Input Current Range	11-300V (L-N), 19-516V (L-L)
Continuous Max. Input Rating	120% of rated I/P voltage
Overrange Indication	"Or" for input > 516V (L-L) "Or" for input > 300V (L-N)
Frequency	50 / 60Hz
Resolution	Auto Resolution
Accuracy	±0.5% of F. S
Update Rate	1 Sec
Impedance	1MW (±5%)

Settable Parameters

PT Primary	100V - 999kV (Programmable to any Value)
PT Secondary	100V - 500V

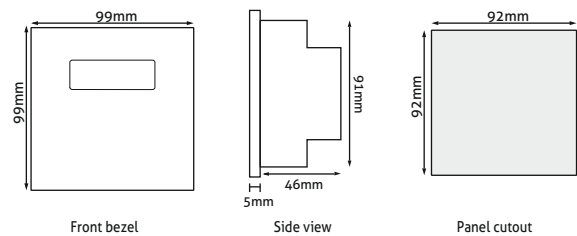
Auxiliary Supply Specifications

Auxiliary Supply	230V AC (±20%), 50 / 60Hz
Power Consumption	5VA max

Mechanical Specifications

Mounting	Panel
Weight	180 gms

Dimensions



Certification

CE RoHS

SDA - 93

Three Phase Digital Ampere Meter



- 4 Digit, 7 Segment LED Display
- True RMS Measurement
- For 3Ø - 4W, 3Ø - 3W, 1Ø - 2W Electrical Network
- K LED for kilo indication

Display Specifications

Display	Single row, 7 segments LED Display
Digits	4
Digit Height	0.56" (14.2mm)

Input Specifications

Electrical Connection	1 Ø-2 wire, 3Ø-3 wire, 3 Ø-4 wire
Input Type	AC
Input Current Range	11-300V (L-N), 19-516V (L-L)
Continuous Max. Input Rating	120% of rated I/P voltage
Overrange Indication	"Or" for input > 516V (L-L) "Or" for input > 300V (L-N)
Frequency	50 / 60Hz
Resolution	Auto Resolution
Accuracy	±0.5% of F. S
Update Rate	1 Sec
Impedance	1MW (±5%)

Settable Parameters

PT Primary	100V - 999kV (Programmable to any Value)
PT Secondary	100V - 500V

Auxiliary Supply Specifications

Auxiliary Supply	230V AC (±20%), 50 / 60Hz
Power Consumption	5VA max

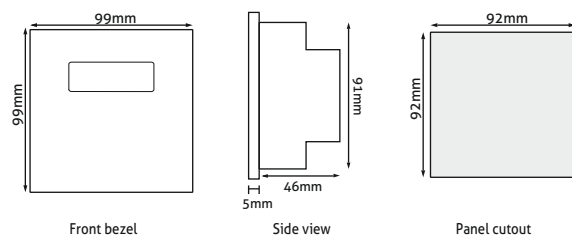
Settable Parameters

CT Primary / Shunt Setting	5, 10, 20, 30, 40, 50, 60, 75, 80, 100, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 1600, 2000, 2500, 3000, 4000
CT Secondary	5A (Fixed)

Mechanical Specifications

Mounting	Panel
Weight	180 gms

Dimensions



Certification

CE RoHS

SDF - 96

Digital Frequency Meter

- 4 Digit, 7 Segment LED Display
- 0.01 Resolution



Display Specifications

Display	Single row, 7 segments LED Display
Digits	4
Digit Height	0.56" (14.2mm)

Input Specifications

Electrical Connection	1 Ø - 2 Wire
Input Voltage Range	Self Powered
Measurement Range	45.00 - 65.00 Hz
Resolution	0.01
Resolution	Auto Resolution (Depend upon CT Ratio)
Accuracy	±0.5% of F. S
Over Range Indication	"Ovfr" (Over 65.00 Hz)
Under Range Indication	"Ufr" (Under 45.00 Hz)

Auxiliary Supply Specifications

Auxiliary Supply	240V AC (±20%), 45 - 65Hz
	110V AC (±20%), 45 - 65Hz

Environmental Specifications

Temperature	Operating : -10° to 55°C Storage : -20° to 75°C
Humidity (non - condensing)	Upto 95% RH

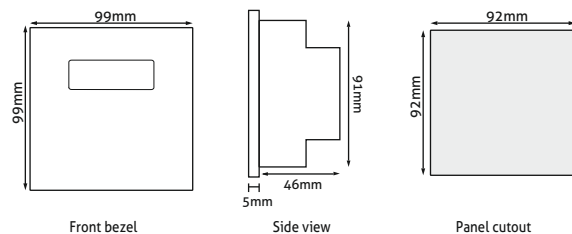
Mechanical Specifications

Mounting	Panel
Weight	200 gms

Mechanical Specifications

Mounting	Panel
Weight	180 gms

Dimensions



Certification

CE RoHS

Volt and Ampere Analog Meter



Specification

Accuracy:

- Class 1.5 ($\pm 1.5\%$ max. error)

Input Current, In:

- 0-0.5A to 0-100A direct connected
- 0-1A or 0-5A CT operated

Input Voltage, Un:

- 0-100V to 0-800V direct connected

Scales:

- 0-0.5, 1, 1.5, 2, 2.5, 3, , 5, 6, 8, 10, 15, 20, 25, 30, 0, 50, 60, 75, 80, 100, 120, 150, 200, 250, 300, 500, 600, 800, 1000, 1200, 1500, 1600, 2000, 2500, 3000, 4000, 5000A
- 300, 500, 600V

Overload:

- 1.2 x In or Un for 2 hours
- 10 x In or Un for 5 seconds

Frequency:

- 50/60Hz (00Hz upon request)

Burden:

- Ammeter < 1VA, Voltmeter < 3VA

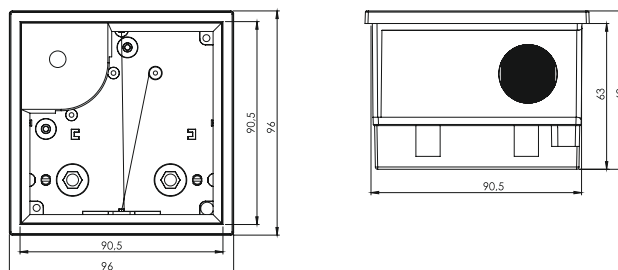
Weight:

- 72x72 : 190 grams
- 96x96 : 290 grams

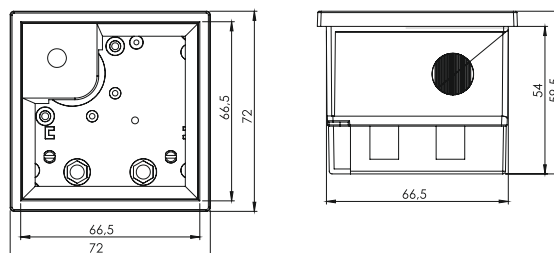
Connection Diagram

Code	DIN Square Size & Movement Type	Meter Type	Input & Scaling
SVM 72	72 x 72mm Shortscale (90°)	-	-
SVM 96	96 x 96mm Shortscale (90°)	-	-
SAM 72	72 x 72mm Shortscale (90°)	-	-
SAM 96	96 x 96mm Shortscale (90°)	-	-
AM	-	Moving Iron Ammeter	-
VM	-	Moving Iron Voltmeter	-
Specify	-	-	0.5 to 100A direct
Specify	-	-	1A or 5A from a CT
Specify	-	-	scaled 5A to 3000A
Specify	-	-	100, 150, 250, 300,
Specify	-	-	0, 500, 600V

Dimensions



(a) 96 x 96 Voltage, Ampere, Frequency and Power Factor Meters



(b) 72 x 72 Voltage, Ampere, Frequency and Power Factor Meters

Certification



Frequency Analog Meter



Specification

- Accuracy:**
- Class 0.5 ($\pm 1.5\%$ max. error)
- Input Voltage, Un:**
- 110, 230 or 415V
- Scales:**
- 45-65Hz
- Overload:**
- 1.2 x In or Un for 2 hours
 - 10 x In or Un for 5 seconds
- Frequency:**
- 50/60Hz (00Hz upon request)

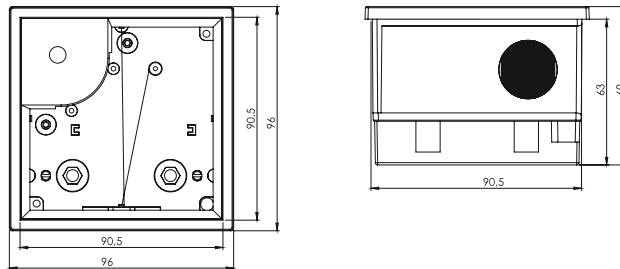
- Burden:**
- 2VA at 230V

- Weight:**
- 72x72 : 190 grams
 - 96x96 : 290 grams

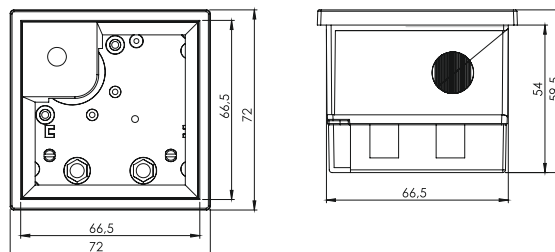
Connection Diagram

Code	DIN Square Size & Movement Type	Meter Type	Input & Scaling
SFM 72	72 x 72mm Shortscale (90°)	-	-
SFM 96	96 x 96mm Shortscale (90°)	-	-

Dimensions



(a) 96 x 96 Voltage, Ampere, Frequency and Power Factor Meters



(b) 72 x 72 Voltage, Ampere, Frequency and Power Factor Meters

Certification



Power Factor Analog Meter



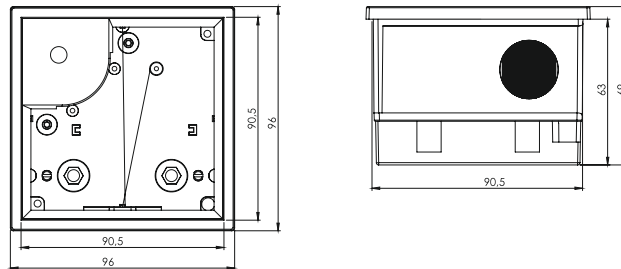
Specification

- Accuracy:**
- Class 0.5 ($\pm 1.5\%$ max. error)
- Input Current, In:**
- 0-0.2A to 0-10A direct connected
 - 1A or 5A CT operated
- Input Voltage, Un:**
- 110, 230 or 415V (-30% to +10%)
 - (50 to 600V upon request)
- Frequency:**
- 50/60Hz
- Scale:**
- 0.5 lead to 0.5 lag
- Overload:**
- 1.2 x In or Un for 2 hours
 - 6 x In for 5 seconds
- Burden:**
- Voltage circuit < 2VA per phase
 - Current circuit < 1VA per phase
- Response Time:**
- < 1 second
- Weight:**
- FE48 140g, FE72 180g, FE96 350g
 - Converter unit 150g
- Converter Unit Enclosure:**
- 55mm wide grey ABS
 - Case IP40, terminals IP20
 - Fixes to 35mm DIN rail (DIN-EN 50022)

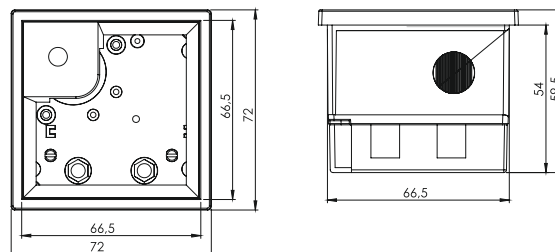
Connection Diagram

Code	DIN Square Size & Movement Type	Meter Type	Input & Scaling
SPF 72	72 x 72mm Shortscale (90°)	-	-
SPF 96	96 x 96mm Shortscale (90°)	-	-

Dimensions



(a) 96 x 96 Voltage, Ampere, Frequency and Power Factor Meters



(b) 72 x 72 Voltage, Ampere, Frequency and Power Factor Meters

Certification





Wave Smart

Automatic Power Factor Regulator

Wave Smart is a leading edge power factor regulator, providing in a single device the functions of power factor correction, power analyzer and leakage current protection.

Supply circuit

Power supply voltage	480, 400, 230, 110 V a.c. depending on model
Tolerance	+15 % -10 %
Consumptions	8,2 VA (0 relays connected) 9,3 VA (6 relays connected) 11 VA (12 relay connected)
Frequency	45 ... 65 Hz

Measurement circuit

Voltage measurement range	480, 400, 230, 110 V a.c. depending on model
Current measurement (I_n)	By means of a current transformer $I_n / 5$

Leakage current

Leakage current range	I_{Aprim} : 10 mA ... 1 A a.c.
Transformers type	WGC (*)
Full scale at secondary side	$I_{\Delta sec}$ = 20 mA

Output

Contact type	Change over contact
Poder de corte	V_{max} 250 V a.c., 4 A a.c., AC1

Alarms

No. Alarm	14, totally configurables
-----------	---------------------------

Communications

Hardware	RS-485
Protocol	Modbus
Baud rate	9600, 19200, 38400 Bd, configurable

Operating conditions

Temperature	-20 ... +60 °C
Relative humidity	Max. 95%
Maximum altitude	2000 m

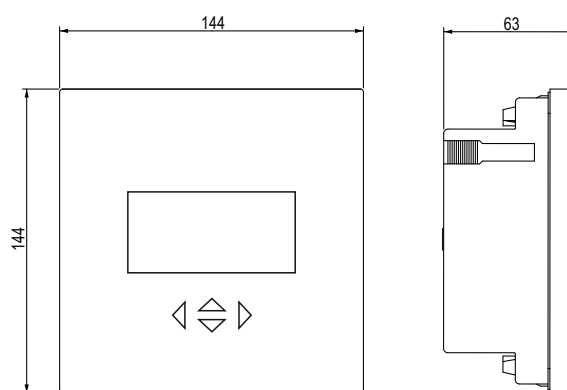
Safety

Insulation	Category III Class II EN 61010-1
Degree of protection	IP 40 / IP 30 EN-60529

Standards	IEC 62053-23 (2003-01) Ed. 1.0, IEC 61326-1 , EN61010-1 , UL 508
-----------	--

(* optional)

Dimensions



Certification

CE RoHS



Aplication

Wave Smart offers a complete system for facilities that requires PF correction, security, measure, communications and monitoring.

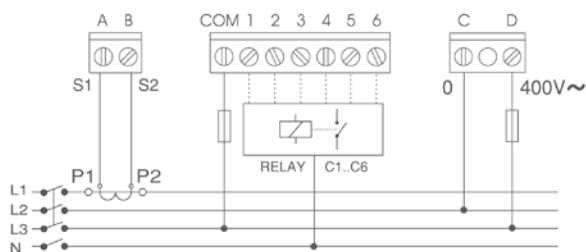
Its simple and intuitive programming system enable de user the installation and maintenance.

References

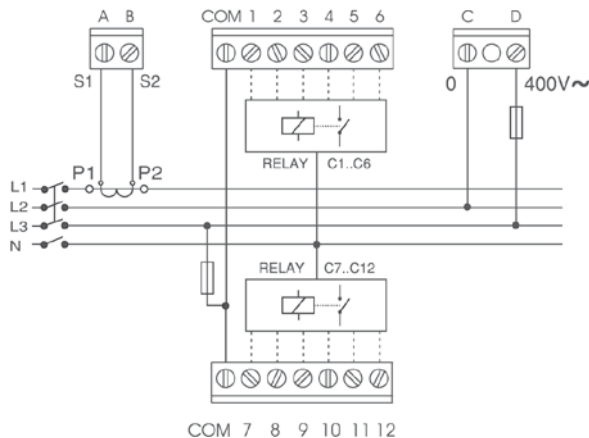
Power supply voltage	No. of steps	Alarm	Size	Type	Code
110 V a.c.	6	Yes	144 x 144	Wave Smart 6	SPFC-6-11
110 V a.c.	12	Yes	144 x 144	Wave Smart 12	SPFC-12-11
230 V a.c.	6	Yes	144 x 144	Wave Smart 6	SPFC-6-23
230 V a.c.	12	Yes	144 x 144	Wave Smart 12	SPFC-12-23
400 V a.c.	6	Yes	144 x 144	Wave Smart 6	SPFC-6-40
400 V a.c.	12	Yes	144 x 144 <td>Wave Smart 12</td> <td>SPFC-12-40</td>	Wave Smart 12	SPFC-12-40
480 V a.c.	6	Yes	144 x 144	Wave Smart 6	SPFC-6-48
480 V a.c.	12	Yes	144 x 144	Wave Smart 12	SPFC-12-48

Connections

Wave Smart 6



Wave Smart 12



ELR - SM 30

Earth Leakage Relay - Rail Mount

Variable Earth Leakage Relays in compact 35mm din rail mounting cases for use on 3 phase electrical systems.



Specifications

Supply Voltage (Un):	24, 115/230, 400VAC (85-115%) 12-125V DC (85-110%) 10-60V DC(90-110%)
Power Consumption:	6VA
Ambient Temperature	-20 to +55°C
Relative Humidity	+95%
Housing	UL94VO Flame Retardant
Weight	200g
Mounting	35mm Din Rail
Terminal Conductor	≤ 2.5mm ² stranded ≤ 4mm ² solid
Output:	1 x SPNO relay 1 x SPDT relay
Terminal Protection:	IP 20
Approvals:	IEC 60755, 60947, 62020, 61543

N.B.

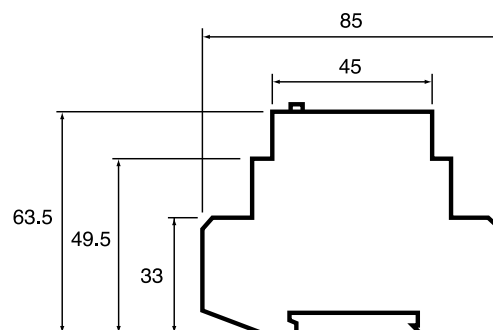
210mm toroids should not be used for sensitivity settings of less than 300mA.

Technical Data / Product Selection

Part No.	Sensitivity	Time Delay	Frequency	Voltage
ELR - SM30	30mA-30A	0-10 secs	50/60Hz	115/230VAC

Other voltages and frequencies are available by request

Dimensions (mm)



width = 44

Certification

CE RoHS

ELR - SP 30

Earth Leakage Relay - Panel Mount



- Pluggable connectors located at the rear of the unit and supplied with mating, re-wireable sockets
- Designed to monitor and detect true RMS earth fault currents (up to 30A) in conjunction with a separate C. T.
- LED bargraph provides constant indication of any leakage current
- Microprocessor controlled with internal monitoring (self checking)
- Adjustable Sensitivity (I_n) - 30mA to 30A
- Adjustable Time Delay (t) - 0(instantaneous)* to 10 seconds
- Separate "Test" and "Reset" push buttons
- Connection facility for remote "Test" and "Reset" push buttons
- Toroid open circuit detection forces unit to trip (Red LED flashes during this condition)
- 2 Relay outputs - Standard Output (S.O.) and Positive Safety Output (P.S.O)
- LED indication of Supply status and fault condition after unit has tripped

Specifications

Supply Voltage (Un):	24, 115/230, 400VAC (85-115%) 12-125V DC (85-110%) 10-60V DC(90-110%)
Power Consumption:	6VA
Ambient Temperature	-20 to +55°C
Relative Humidity	+95%
Housing	UL94VO Flame Retardant
Weight	
Mounting	
Terminal Conductor	≤ 2.5mm ² stranded ≤ 4mm ² solid
Output:	1 x SPNO relay 1 x SPDT relay
Terminal Protection:	IP 20
Approvals:	IEC 60755, 60947, 62020, 61543

N.B.

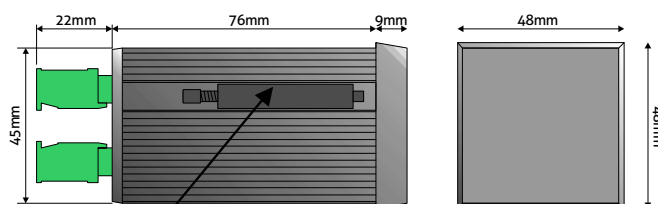
210mm toroids should not be used for sensitivity settings of less than 300mA.

Technical Data / Product Selection

Part No.	Sensitivity	Time Delay	Frequency	Voltage
ELR - SP30	30mA-30A	0-10 secs	50/60Hz	400VAC

Other voltages and frequencies are available by request

Dimensions (mm)



Fitting the retaining clip and screw (after the unit has been placed in the panel).

1. Insert the screw in to the clip.
2. Push the clip in to the side of the housing and slide towards the back until secured in place.

Panel cut-out size: 45 x 45mm

Certification

CE RoHS

CBCT Series



- For use in conjunction with Stefan Earth Leakage Relays
- Designed to detect leakage current and transmit a proportional signal to an Earth Leakage Relay
- Surface mounting with 4 fixing slots (CBT SC160 and 210 supplied with separate mounting feet)
- Slim design

Specification

Size availability* and part number: * internal diameter	35mm Ø (CBT-SC35)	210mm Ø (CBT-SC210)
	50mm Ø (CBT-SC50)	1030mm Ø (CBT-SR1030)
	70mm Ø (CBT-SC70)	1535mm Ø (CBT-SR1535)
	120mm Ø (CBT-SC120)	
	150mm Ø (CBT-SC150)	
Rated system voltage:	720V AC	
Insulation level:	3kV AC	
Current ratio:	1/1000	
Rated operational current (i.e.):	CBT-SC35 – 65A (25mm)	CBT-SC120 – 250A (240mm)
	CBT-SC50 – 85A (50mm)	CBT-SC150 – 320A (400mm)
	CBT-SC70 – 160A (95mm)	CBT-SC210 – 400A (500mm)

Max. cross-section/phase cable size shown in brackets and assumes 3P + N copper cables

Max. permissible current:	1kA cont., 5kA for 1.5s, 100kA for 0.05s
Minimum I Δ n setting on ELR for each size of toroid:	0.03A – 35, 50 and 70mm Δ E 0.1A – 120mm Δ E 0.3A – 160 and 210mm Δ E
Max. Distance	50m (max.) Between toroid and ELR
Ambient temperature:	-20 to +60°C
Relative humidity:	+95%
Housing:	Grey ABS
Mounting option:	Surface mount only using fixing slots provided (CBT-SC160 and 210 require separate mounting feet which are included)
Terminal conductor size:	2.5mm ² solid 1.5mm ² stranded
Approvals:	CE Compliant. Conforms to: IEC44-1, IEC185 & BS7676

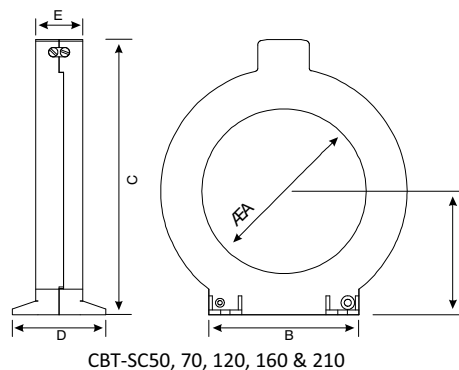
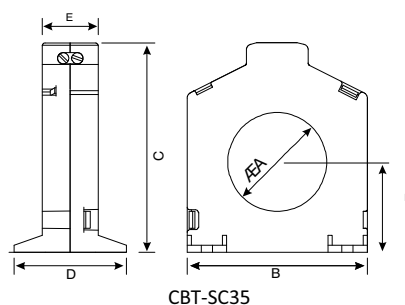
Technical Data / Product Selection

Toroid Type:	B	C	D	E	F	Weight
CBT - SC35	35	64	74	40	20	77g
CBT - SC50	50	63	98	40	20	88g
CBT - SC70	70	105	117	40	20	135g
CBT - SC120	120	155	170	40	20	265g
CBT - SC150	160	150	253	60 [^]	33	1075g
CBT - SC210	210	149	304	60 [^]	33	1300g

Dimensions in mm

[^] exc. mounting feet

Dimensions (mm)



Certification

CE RoHS

SB, SBM & SBX Series



Stefan Modular Contactors SB, SBM & SBX used for commutation of single-phase and three-phase low power electrical consumers. They can be combined with auxiliary control, protection and indication functions; can be used to remote control applications in alternative networks: Lighting, heating ventilation roller blinds, sanitary hot water; mechanical ventilation systems; load-shedding of non-priority circuits, etc.

There are available in two versions:

- Contactors without manually-operated
- Contactors with manually-operated
- automatic operating mode
- temporary "ON" override
- permanent "ON" override: used to lock the contactor in the ON position during installation maintenance
- shutdown

FUNCTIONS:

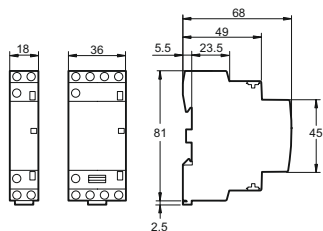
- switching on of consumers
- making of control systems
- remarkable with high reliability of current characteristics
- reliable switching on or separation of power contacts

Technical Data

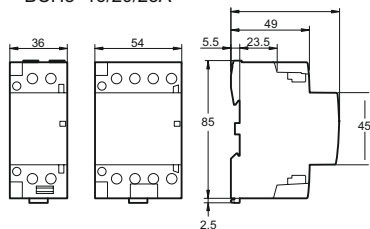
- comply with standards IEC/EN 61095
- operation class: AC-7a, AC-7b, AC-1, AC-3
- rated operating voltage of the controlling coil: 12Vac; 24Vac; 48Vac; 110Vac; 127Vac; 230Vac; 220-240Vac 50/60Hz, etc
- insulation voltage: 500V AC
- pollution degree: 2
- rated impulse withstand voltage (U_{imp}): 2.5kV (4kV for 12/24/48V AC)
- electrical endurance (number of cycles): =100,000

MOUNTING:

- mounting to 35mm DIN-rail
- mounting: vertical gradient – maximum $\pm 5^\circ$
- plastic: nonflammable (self-extinguishing material)
- ambient temperature: -10°C to $+65^\circ\text{C}$
- degree of protection (IEC 60529): IP20
- tropicalization (IEC 60068-1): treatment 2 (relative humidity 95% at 55°C)



BCH8 16/20/25A



BCH8 40/63A

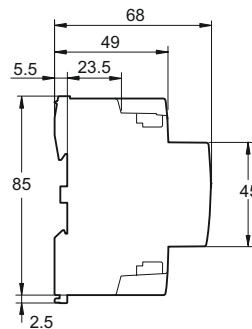
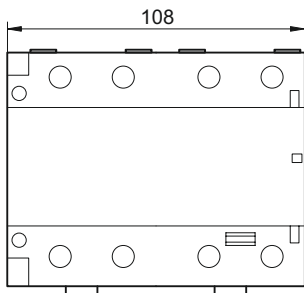
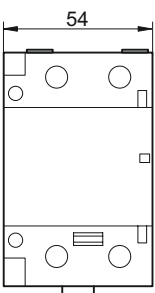
Consumption

Type	Rating (In)		Control Voltage (VAC)(50/60Hz)	Consumption		Max. power
	AC-7a AC-1	AC-7b AC-3		Holding	Inrush	
2P	16A	6A	12	3.8 VA	15 VA	1.3 W
			24	3.8 VA	15 VA	1.3 W
			48	3.8 VA	15 VA	1.3 W
			220...240	2.7 VA	9.2 VA	1.2 W
	20A	7A	220...240	2.7 VA	9.2 VA	1.2 W
			24	3.8 VA	15 VA	1.3 W
	25A	9A	48	3.8 VA	15 VA	1.3 W
			220...240	2.7 VA	9.2 VA	1.2 W
	40A	18A	220...240	4.6 VA	34 VA	1.6 W
			24	4.6 VA	34 VA	1.6 W
63A	25A	220...240	4.6 VA	34 VA	1.6 W	
		220...240	6.5 VA	53 VA	2.1 W	
3P	16A	6A	220...240	4.6 VA	34 VA	1.6 W
			220...240	4.6 VA	34 VA	1.6 W
	25A	9A	220...240	6.5 VA	53 VA	2.1 W
			220...240	6.5 VA	53 VA	2.1 W
4P	16A	6A	24	4.6 VA	34 VA	1.6 W
			220...240	4.6 VA	34 VA	1.6 W
	20A	7A	220...240	4.6 VA	34 VA	1.6 W
			24	4.6 VA	34 VA	1.6 W
	25A	9A	220...240	4.6 VA	34 VA	1.6 W
			220...240	6.5 VA	53 VA	2.1 W
63A	25A	24	6.5 VA	53 VA	2.1 W	
		220...240	6.5 VA	53 VA	2.1 W	
100A	-	220...240	13 VA	106 VA	4.2 W	

MODULAR CONTACTORS

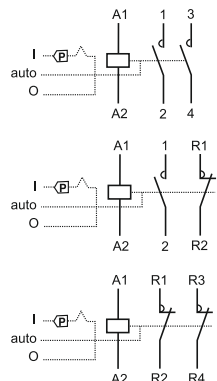
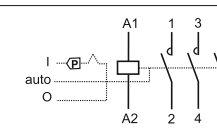
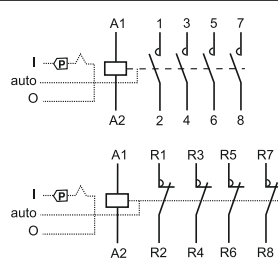
Basic Information for Standard Contactors

Type	Rating(In)	AC-7a	AC-7b	Control voltage (VAC)(50/60Hz)	Contact	In 18 mm modules	Order Code
1P 	16A	6A	230	1NO	1	SB-1610	
				1NC	1	SB-1601	
	20A	7A	230	1NO	1	SB-2010	
				1NC	1	SB-2001	
				1NO	1	SB-2510	
25A	9A	230	1NC	1	SB-2501		
2P 	16A	6A	230	2NO	1	SB-1620	
				2NC	1	SB-1602	
				1NO+1NC	1	SB-1611	
	20A	7A	230	2NO	1	SB-2020	
				2NC	1	SB-2002	
				1NO+1NC	1	SB-2011	
	25A	9A	230	2NO	1	SB-2520	
				2NC	1	SB-2502	
	40A	18A	230	2NO	2	SB-4020	
				2NC	2	SB-4002	
	63A	25A	230	1NO+1NC	2	SB-4011	
				2NO	2	SB-6320	
				2NC	2	SB-6302	
	100A	-	230	1NO+1NC	2	SB-6311	
				2NO	3	SB-10020	
2NC				3	SB-10002		
230	1NO+1NC	3	SB-10011				
3P 	16A	6A	230	3NO	2	SB-1630	
	25A	9A	230	3NO	2	SB-2530	
	40A	18A	230	3NO	3	SB-4030	
	63A	25A	230	3NO	3	SB-6330	
	100A	-	230	3NO	6	SB-10030	
4P 	20A	6A	230	4NO	2	SB-2040	
				2NO+2NC	2	SB-2022	
				3NO+1NC	2	SB-2031	
	25A	9A	230	4NC	2	SB-2004	
				4NO	2	SB-2540	
				2NO+2NC	2	SB-2522	
	40A	18A	230	3NO+1NC	2	SB-2531	
				4NC	2	SB-2504	
				4NO	3	SB-4040	
	63A	25A	230	2NO+2NC	3	SB-4022	
				3NO+1NC	3	SB-4031	
				4NC	3	SB-4004	
	100A	-	230	4NO	3	SB-6340	
				2NO+2NC	3	SB-6322	
				3NO+1NC	3	SB-6331	
230	4NC	3	SB-6304				
230	-	230	4NO	6	SB-10040		
			2NO+2NC	6	SB-10022		
			3NO+1NC	6	SB-10031		
230	4NC	6	SB-10004				



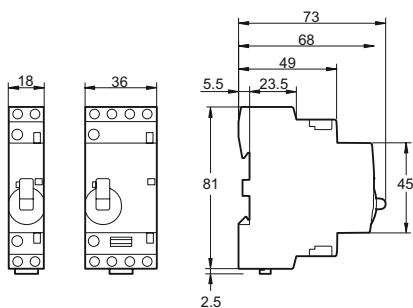
MODULAR CONTACTORS

Basic Information for Manual Control Contactors

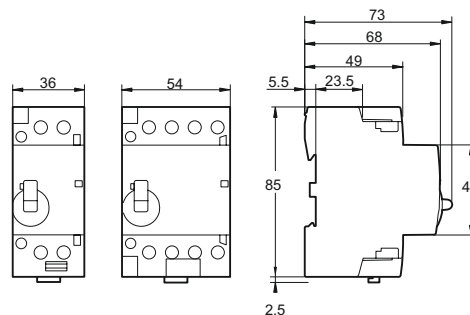
Type	Rating(In) AC-7a	AC-7b	Control voltage (V AC)(50/60Hz)	Contact	In 18 mm modules	Order Code
2P 	16A	6A	230	2NO	1	SBM-1620
			230	2NC	1	SBM-1602
			230	1NO+1NC	1	SBM-1611
	25A	9A	230	2NO	1	SBM-2520
			230	2NC	1	SBM-2502
			230	1NO+1NC	1	SBM-2511
	40A	8A	230	2NO	2	SBM-4020
			230	2NC	2	SBM-4002
			230	1NO+1NC	2	SBM-4011
	63A	25A	230	2NO	2	SBM-6320
			230	2NC	2	SBM-6302
			230	1NO+1NC	2	SBM-6311
3P 	25A	9A	230	3NO	2	SBM-2530
	40A	18A	230	3NO	3	SBM-4030
	63A	25A	230	3NO	3	SBM-6330
4P 	25A	9A	230	4NO	2	SBM-2540
			230	4NC	2	SBM-2504
			230	2NO+2NC	2	SBM-2522
	40A	18A	230	4NO	3	SBM-4040
			230	4NC	3	SBM-4004
			230	2NO+2NC	3	SBM-4022
	63A	25A	230	4NO	3	SBM-6340
			230	4NC	3	SBM-6304
			230	2NO+2NC	3	SBM-6322

Warm tips: customized coils voltage can be 12VAC, 24VAC, 110VAC, 127VAC, 220-240VAC, etc 50/60Hz

If you need customized DC coil like 12VDC, 24VDC, etc please contact email: support@stefanelectric.com



BCH8 manual control contactor 16/25A

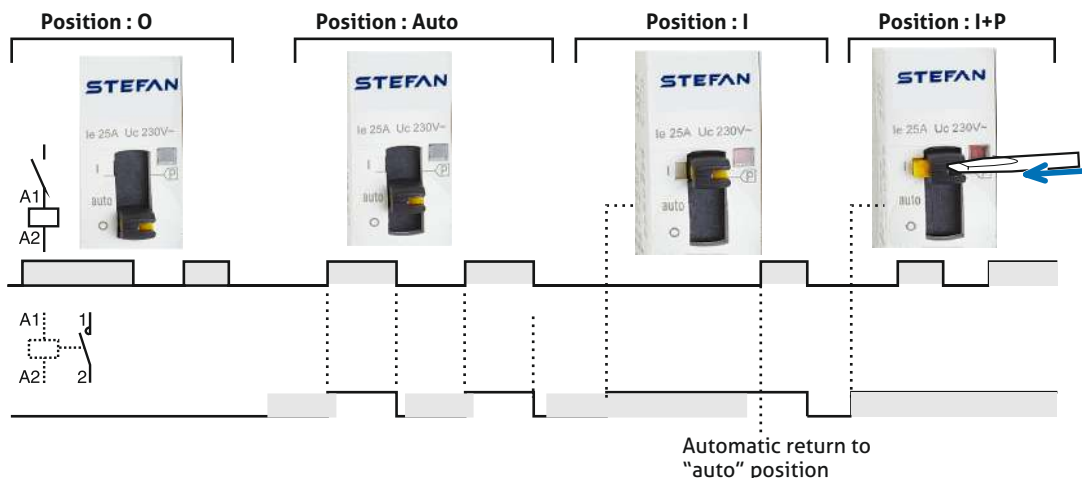
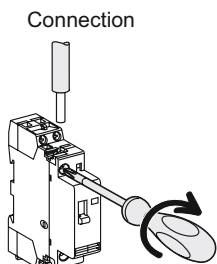


Manual control contactor 40/63A

Operation(Manual Control Contactors)

Manually-operated contactors have a 4-position selector switch on their front face:

- shutdown
- automatic operating mode
- temporary "ON" override
- permanent "ON" override: used to lock the contactor in the ON position during installation maintenance

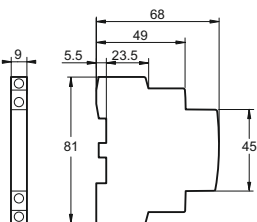


MODULAR CONTACTORS

Connection



Type	Rating	Length tripping	Circuit	Tightening torque	Copper cables	
					Rigid	Flexible or ferrule
PZ1:4 mm	16-100A	9mm	Control	0.8N.m		
	16 and 25A				1.5 to 2.5mm ² : 2 × 1.5mm ²	1.5 to 2.5mm ² : 2 × 2.5mm ²
PZ2:6 mm	40A-63A	14mm	Power	3.5N.m	1.5 to 6mm ²	1 to 4mm ²
	100A				6 to 25 mm ²	6 to 16 mm ²
					6 to 35mm ²	6 to 35mm ²



AUXILIARY FOR MODULAR CONTACTORS

Stefan auxiliary allows indication or control of the "open" or "closed" position of the contactor power contacts

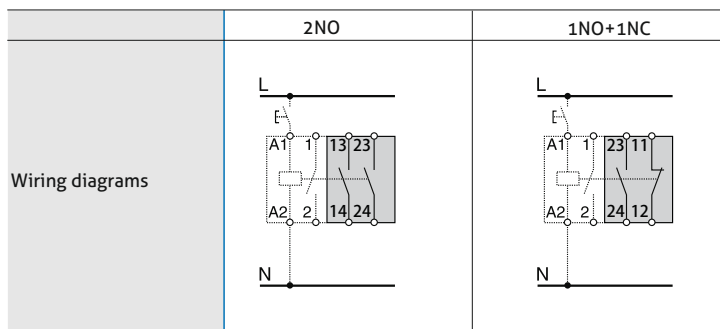
MOUNTING:

- mounted to the right of modular contactors
- 9mm width

Technical Specifications

Control voltage	VAC	24...240	Order Code
	VDC	24...130	
Operating frequency	Hz	50/60	
Width in 9 mm modules			
Auxiliary contact (breaking capacity)	<ul style="list-style-type: none"> • Minimum: 10mA at 24V DC/AC-COSφ=1 • Maximum: <ul style="list-style-type: none"> ○ 5A at 240V AC-COSφ=1 ○ 1 A at 130V DC 		
Number of contacts	2NO		SBX-20
	1NO+1NC		SBX-11
Operating temperature	°C	-10°C to +65°C	
Storage temperature	°C	-40°C to +70°C	





Basic Information for DC coil Contactors

Type 1P	Rating(In) AC-7a	AC-7b	Control voltage (VDC)	Contact	In 18 mm modules	Order Code
	16A	6A	12	2NO	1	SB-1620-12V
			12	2NC	1	SB-1602-12V
	20A	7A	12	2NO	1	SB-2020-12V
			12	2NC	1	SB-2002-12V
	25A	9A	12	2NO	1	SB-2520-12V
			12	2NC	1	SB-2502-12V

If you need customized 40A, 63A or 3P, 4P, or DC coil 12VDC, 24VDC, etc please contact email: support@stefanelectric.com



contact

Corporate Office:
Europaallee 33, 67657 Kaiserslautern,
Germany.