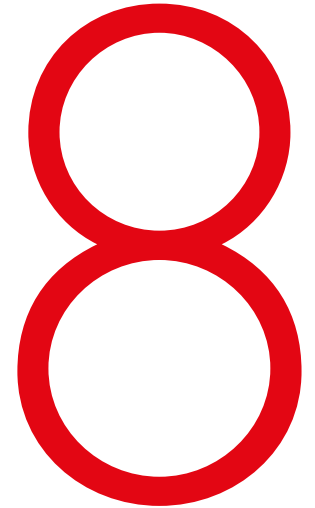


- Control Transformers p8-1
- Modular Power Supplies p8-2
- Switching Power Supplies p8-3
- Automatic Battery Chargers p8-10



P series control transformers



- Control, isolation and safety transformer
- Double isolation between primary and secondary
- Class I and class II (selectable)
- Voltage selection with metal links
- Two primary and two secondary voltages
- DIN rail mounting up to 250VA
- Power ON LED

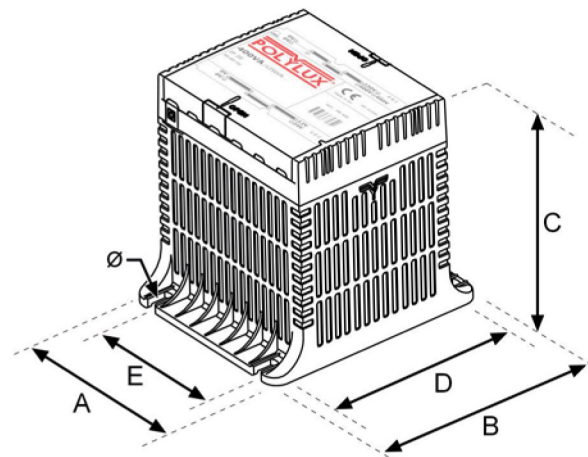
Specifications

Frequency:	50-60Hz
Duty:	continuous
Insulation voltage:	4.6KV (primary to secondary) 3.2KV (primary to earth) 2.5KV (secondary to earth)
Voltage drop at full load:	<5%
Insulation:	class B (130°C)
Windings:	copper, class HC-200°C
Safety class:	class I or class II (selectable)
Enclosure:	polymer, non flammable
Protection:	IP20
Operating Temp:	-20 to +50°C
Standard:	IEC/EN61558

Rating VA	Primary voltage	Secondary voltage			
		6/12V	12/24V	24/48V	115/230V
		Order Code			
25	240/415	18PA25	18PB25	18PC25	18PD25
40	240/415	18PA40	18PB40	18PC40	18PD40
63	240/415	18PA63	18PB63	18PC63	18PD63
100	240/415	18PA100	18PB100	18PC100	18PD100
160	240/415/460	18PA160	18PB160	18PC160	18PD160
200	240/415/460	-	18PB200	18PC200	18PD200
250	240/415/460	-	18PB250	18PC250	18PD250
315	240/415/460	-	18PB315	18PC315	18PD315
400	240/415/460	-	18PB400	18PC400	18PD400
500	240/415/460	-	18PB500	18PC500	18PD500
630	240/415/460	-	-	18PC630	18PD630
800	240/415/460	-	-	18PC800	18PD800

Dimensions

Reference	Dimensions (mm)						Weight (Kg)
	A	B	C	D	E	Ø	
P-25	69	92	80	79	45	5	0.65
P-40	69	92	80	79	45	5	0.87
P-63	84	101	98	88	55	5	1.1
P-100	84	101	98	88	55	5	1.6
P-160	106	123	118	110	74	5	2.3
P-200	106	123	118	110	74	5	2.8
P-250	106	123	118	110	74	5	3.6
P-315	118	138	131	121	88	6	4.1
P-400	118	138	131	121	88	6	4.9
P-500	136	162	156	145	104	6	7.6
P-630	136	162	156	145	104	6	7.8
P-800	136	162	156	145	104	6	8.7





PSL1M 010...



PSL1M 033 12
PSL1M 036 24

Order code	Rated output voltage	Rated output current	Output power	Qty per pkg	Wt
	[V]	[A]	[W]	n°	[kg]
Single phase.					
PSL1M 010 12	12VDC	0.83	10	1	0.114
PSL1M 024 12		2	24	1	0.177
PSL1M 033 12		2.75	33	1	0.248
PSL1M 054 12		4.5	54	1	0.311
PSL1M 072 12		6	72	1	0.443
PSL1M 010 24	24VDC	0.42	10	1	0.114
PSL1M 024 24		1	24	1	0.177
PSL1M 036 24		1.5	36	1	0.248
PSL1M 060 24		2.5	60	1	0.311
PSL1M 100 24		4.2	100	1	0.443

General characteristics

Switching power supplies transform an AC input voltage into a DC output one. This type of equipment is used in industrial and domestic automation fields. The power supplies are equipped with switching technology offering very high efficiency in an extremely compact size. Dimensions are compatible with modular consumer panels and its plastic housing is suitable for building automation installations as well as industrial automation applications. The wide range of power supply voltages and the choice of DC current outputs provide for the best adaptability to supply voltage needs of the most common electronic and electromechanical devices.

Protections:

- Short circuit
- Overload
- Input voltage peaks.

Indications:

- LED indicator for low voltage conditions
- LED indicator for power on.

Operational characteristics

- Rated supply voltage: 100-240VAC
- Rated output voltage: 12VDC for PSL1M...12 types; 24VDC for PSL1M...24 types
- Mains frequency: 50/60Hz
- Output voltage adjustment by front potentiometer
- High efficiency up to 89%
- 35mm DIN rail (IEC/EN 60715) mounting
- Screw connection terminals
- Modular DIN 43880 housing; number of modules:
 - 1 for PSL1M 010...
 - 2 for PSL1M 024...
 - 3 for PSL1M 033 12 and PSL1M 036 24
 - 4 for PSL1M 054 12 and PSL1M 060 24
 - 5 for PSL1M 072 12 and PSL1M 100 24
- IEC degree of protection: IP20 on terminals.

Certifications and compliance

Certifications obtained: GOST, UL Listed for USA and Canada (File E318016).
Compliant with standards: IEC/EN 60950-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22.2 n° 14.

For dimensions see page 8-4.

Din Rail mount version



PSL1 005 24
PSL1 010 24
PSL1 018 24

PSL1 030...
PSL1 060...



PSL1 100...
PSL1 120...

PSL1 240...
PSL1 300...



PSL1 480 24
PSL1 480 48



PSL3 960...

Redundancy modules



PSLR M1024



PSLR 2024

Order code	Rated output voltage	Rated output current	Output power	Qty per pkg	Wt
	[V]	[A]	[W]	n°	[kg]

Single phase.

PSL1 005 24	24VDC	0.21	5	1	0.190
PSL1 010 24		0.42	10	1	0.196
PSL1 018 24		0.75	18	1	0.226
PSL1 030 24		1.25	30	1	0.336
PSL1 060 24		2.5	60	1	0.400
PSL1 100 24		4.2	100	1	0.508
PSL1 120 24		5	120	1	1.018
PSL1 240 24		10	240	1	1.486
PSL1 300 24		12.5	300	1	1.496
PSL1 480 24		20	480	1	2.348
PSL1 030 48	48VDC	0.625	30	1	0.336
PSL1 060 48		1.25	60	1	0.400
PSL1 100 48		2.1	100	1	0.508
PSL1 120 48		2.5	120	1	1.018
PSL1 240 48		5	240	1	1.486
PSL1 300 48		6.25	300	1	1.496
PSL1 480 48		10	480	1	2.348

Two phase.

PSL2 100 24	24VDC	4.2	100	1	0.570
PSL2 100 48	48VDC	2.1	100	1	0.570

Three phase^①.

PSL3 120 24	24VDC	5	120	1	0.910
PSL3 240 24		10	240	1	1.190
PSL3 480 24		20	480	1	1.995
PSL3 960 24		40	960	1	3.672
PSL3 240 48	48VDC	5	240	1	1.190
PSL3 480 48		10	480	1	1.995
PSL3 960 48		20	960	1	3.672

^① Two-phase connection is admissible with a 25% output power derating.

Order code	Rated output voltage	Rated output current	Qty per pkg	Wt
	[V]	[A]	n°	[kg]
PSLRM 10 24	12...24VDC	10	1	0.075
PSLR 20 24	24VDC	20	1	0.210

Indications (PSLR 20 24)

Input voltage A	Input voltage B	LED A	LED B	Relay A	Relay B
Within limits	Within limits	ON	ON	Energ.	Energ.
Within limits	<MIN or >MAX	ON	OFF	Energ.	De-energ.
<MIN or >MAX	Within limits	OFF	ON	De-energ.	Energ.
<MIN or >MAX	<MIN or >MAX	OFF	OFF	De-energ.	De-energ.

For dimensions see page 8-4.

General characteristics

This type of equipment is used to power supply electromechanical and electronic devices with DC control, such as contactors, time relays, sensors, PLCs, DC motors, displays, SSRs and other equipment normally found in automation systems and networks.

Protections:

- Short circuit
- Overload
- Input voltage peaks.

Indications:

- LED indicator for low voltage conditions
- LED indicator for power on.

Operational characteristics

- Rated supply voltage: 100...240VAC (PSL1 005...PSL1 100) 115...230VAC self-configurable (PSL1 120...PSL1 480) 400...500VAC (PSL2... and PSL3...^①)
- Rated output voltage: 24VDC (PSL...24) / 48VDC (PSL...48)
- Mains frequency: 50/60Hz
- Output voltage adjustment by front potentiometer
- PFC function for types: PSL1 120 24...PSL3 960 24 PSL1 120 48...PSL3 960 48
- Parallel connection for types: PSL1 120 24, PSL1 240 24, PSL1 300 24, PSL1 480 24, PSL2 100 24, PSL3 240 24, PSL3 480 24, PSL3 960 24, PSL1 120 48, PSL1 240 48, PSL1 300 48, PSL1 480 48, PSL2 100 48, PSL3 240 48, PSL3 480 48, PSL3 960 48
- High efficiency up to 92%
- 35mm DIN rail (IEC/EN 60715) mounting
- Screw connection terminals
- Plastic or metal housing depending on type
- IEC degree of protection: IP20 on terminals.

Certifications and compliance

Certifications obtained: EAC; UL Listed for USA and Canada (cULus-File E318016) as Power Supplies in power circuit and motor-mounted apparatus category. Compliant with standards: IEC/EN 60950-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22.2 n° 107.1.

General characteristics

They are used for the redundancy connection of two or more power supplies to enhance the reliability of the DC supply. The redundancy modules ensure a perfect insulation between the power supplies connected.

Indications (only for PSLR 20 24):

- LED indicator for DC voltage within limit
- Alarm relay.

Operational characteristics

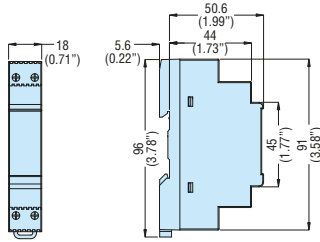
- Rated input voltage: 12...24VDC (PSLRM 10 24) 24VDC (PSLR 20 24)
- Rated input current: 10A (PSLRM 10 24) 20A (PSLR 20 24)
- Maximum input current (for channel): 8A per 300s (PSLRM 10 24) 16A per 300s (PSLR 20 24)
- Rated output current: 10A (PSLRM 10 24) 20A (PSLR 20 24)
- Maximum output current: 16A per 300s (PSLRM 10 24) 30A per 300s (PSLR 20 24)
- Modular housing DIN 43880 2 modules (PSLRM 10 24)
- 35mm DIN rail (IEC/EN 60715) mounting (PSLR 20 24)
- Screw connection terminals
- Plastic or metal housing depending on type
- IEC degree of protection: IP20 on terminals.

Certifications and compliance

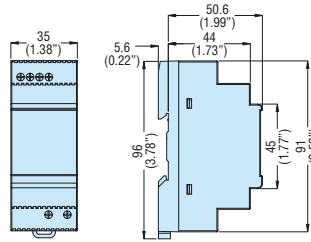
Certifications obtained: cULus (only for PSLR 20 24), EAC. Compliant with standards: IEC/EN 60950-1, IEC/EN 61000-4-2, IEC/EN 61000-4-3, IEC/EN 61000-4-4, IEC/EN 61000-4-6, IEC/EN 61000-4-8, UL 508 (only for PSLR 20 24).

Modular Switching Power Supplies

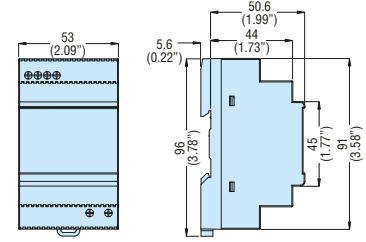
PSL1M 010...



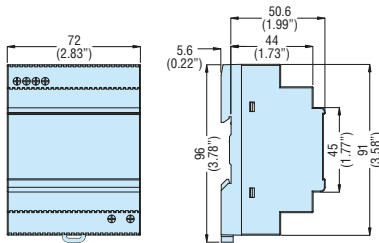
PSL1M 024...



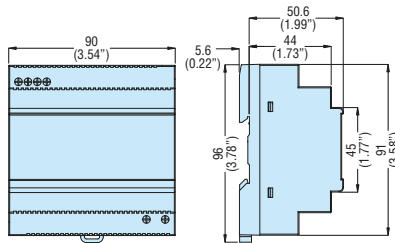
PSL1M 033 12 - PSL1M 036 24



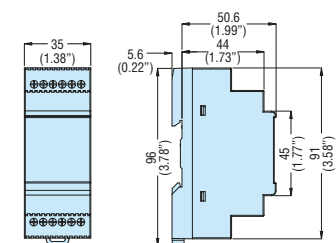
PSL1M 054 12 - PSL1M 060 24



PSL1M 72 12 - PSL1M 100 24

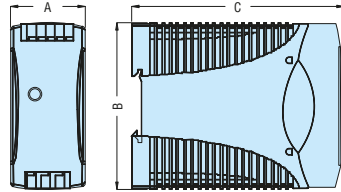


PSL3M 10 24



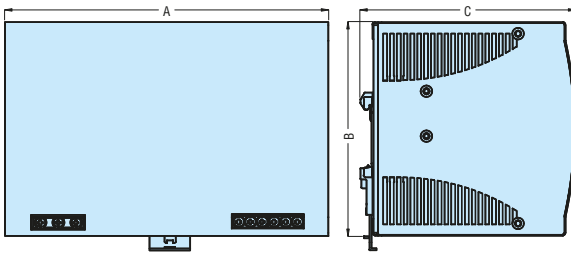
Switching Power Supplies

PSL1 005 24 - PSL1 100 24
PSL2 100 24



TYPE	A	B	C
PSL1 005 24	22.5 (0.88")	90 (3.54")	115 (4.53")
PSL1 010 24	22.5 (0.88")	90 (3.54")	115 (4.53")
PSL1 018 24	22.5 (0.88")	90 (3.54")	115 (4.53")
PSL1 030...	40.5 (1.59")	90 (3.54")	115 (4.53")
PSL1 060...	40.5 (1.59")	90 (3.54")	115 (4.53")
PSL1 100...	54 (2.12")	90 (3.54")	115 (4.53")
PSL2 100...	54 (2.12")	90 (3.54")	115 (4.53")
PSLR 20 24	54 (2.12")	90 (3.54")	115 (4.53")

PSL1 120 24 - PSL1 480 24
PSL3...



TYPE	A	B	C
PSL1 120...	64 (2.52")	124.5 (4.90")	123.6 (4.87")
PSL1 240...	83.5 (3.29")	124.5 (4.90")	123.6 (4.87")
PSL1 300...	83.5 (3.29")	124.5 (4.90")	123.6 (4.87")
PSL1 480...	175.5 (6.91")	124.5 (4.90")	123.6 (4.87")
PSL3 120 24	74.3 (2.92")	124 (4.88")	118.8 (4.68")
PSL3 240...	89 (3.50")	124 (4.88")	118.8 (4.68")
PSL3 480...	150 (5.90")	124 (4.88")	118.8 (4.68")
PSL3 960...	275.8 (10.86")	126.2 (4.97")	118.8 (4.68")

MODULAR SWITCHING POWER SUPPLIES PSL1M...

TYPE	Single phase	PSL1M 010 12 - PSL1M 010 24	PSL1M 024 12 - PSL1M 024 24	PSL1M 033 12 - PSL1M 036 24	PSL1M 054 12 - PSL1M 060 24	PSL1M 072 12 - PSL1M 100 24	
	Two phase	—	—	—	—	—	
	Three phase	—	—	—	—	—	
		—	—	—	—	—	
INPUT CHARACTERISTICS							
Rated supply voltage	Multivoltage 100...240VAC						
Operating range	90...264VAC / 120...375VDC						
Consumption	—						
Frequency range	47...63Hz						
PFC	—						
Insulation voltage Input/output	3000VAC (4242VDC)						
Internal fuse (250VAC) ①	T1A			T2A		T3A	
OUTPUT CHARACTERISTICS							
Voltage	12VDC (PSL1M...12); 24VDC (PSL1M...24)						
Voltage trimming (potentiometer)	—	12...14VDC (PSL1M...12) 24...28VDC (PSL1M...24)					
Current	0.83A (PSL1M...12) 0.42A (PSL1M...24)	2A (PSL1M...12) 1A (PSL1M...24)	2.75A (PSL1M...12) 1.5A (PSL1M...24)	4.5A (PSL1M...12) 2.5A (PSL1M...24)	6A (PSL1M...12) 4.2A (PSL1M...24)		
Temperature coefficient	±0.03%/°C						
Line adjustment	±1%						
Load adjustment	±1%						
Efficiency	78% (PSL1M...12) 80% (PSL1M...24)	84% (PSL1M...12) 85% (PSL1M...24)	83% (PSL1M...12) 84% (PSL1M...24)	84% (PSL1M...12) 86% (PSL1M...24)	86% (PSL1M...12) 89% (PSL1M...24)		
Overload protection	125...185%	120...160%	110...150%	110...150%	110...150%		
Short-circuit protection	Hiccup	Hiccup	Fold forward				
Ripple noise	50mV						
Parallel connection (n° of units)②	—						
INDICATIONS							
LED indicator for power on	Yes						
LED indicator for low voltage	Yes						
Power Rdy (Ready) (minimum limit)	—						
AMBIENT CONDITIONS							
Operating temperature ④	-25...+71°C						
Storage temperature	-25...+85°C						
Derating (>60°C)	2.5%/°C						
HOUSING							
Material	Plastic						

RADUNDANCY MODULES PSLR...

TYPE	PSLRM 10 24	PSLR 20 24
INPUTS CHARACTERISTICS		
Rated input voltage	12-24VDC	24VDC
Operating range	9...35VDC	21...28VDC
Number of input	2	2
Rated input current	10A	20A
Maximum input current (for channel)	8A for 300s	15A for 300s
OUTPUT CHARACTERISTICS		
Caduta di tensione di uscita	0.5V	0.5V
Rated output current	10A	20A
Maximum reverse voltage	35V	30V
Maximum output current	16A for 300s	30A for 300s
INDICATIONS		
DC ON indicator for input A	-	Yes
DC ON indicator for input B	-	Yes
Power Rdy	-	Ok if input >20V (±5%) or <30V(±5%), Fail if input <20V (±5%) or >30V(±5%), 1A at 30VDC
CONDIZIONI AMBIENTALI		
Temperatura di impiego	-40...+71°C	
Temperatura di stoccaggio	-40...+85°C	
HOUSING		
Material	Plastic	Plastic

SWITCHING POWER SUPPLIES PSL...

PSL1 005 24	PSL1 010 24	PSL1 018 24	PSL1 030 24 PSL1 030 48	PSL1 060 24 PSL1 060 48	PSL1 100 24 PSL1 100 48	PSL1 120 24 PSL1 120 48	PSL1 240 24 PSL1 240 48	PSL1 300 24 PSL1 300 48	PSL1 480 24 PSL1 480 48	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	PSL2 100 24	—	—	—	—
—	—	—	—	—	—	—	—	—	—	PSL2 100 48	PSL3 120 24	PSL3 240 24	PSL3 480 24	PSL3 960 24
—	—	—	—	—	—	—	—	—	—	—	—	PSL3 240 48	PSL3 480 48	PSL3 960 48

Multivoltage 100...240VAC					Self-configurable 115...230VAC					Multivoltage 400...500VAC ②					
90...264VAC / 120...375VDC			85...264VAC / 90...375VDC		90...264VAC 120...375VDC	90...132VAC / 180...264VAC 210...375VDC			90...264VAC 120...375VDC	340...575VAC 480...820VDC					
200mA	300mA	500mA	800mA	1.5A	2.4A	2.8A	5.4A/2.2A	6A	7A/3.5A	750mA	500mA	850mA	1.4A	2.4A	
47...63Hz															
—					0.7			0.97		0.55			0.65		0.8
3000VAC (4242VDC)															
T2A					T3.15A		T6.3A	T8A	T10A	T2A			T3.15A	T5A	

24VDC (PSL...24); 48VDC (PSL...48)														
21.6...28.8VDC			24...28VDC 48...55VDC		22.5...28.5VDC 47...56VDC					22.5...28.5 VDC		22.5...28.5VDC 47...56VDC		
0.21A	0.42A	0.75A	1.25A 0.625A	2.5A 1.25A	4.2A 2.1A	5A 2.5A	10A 5A	12.5A 6.25A	20A 10A	4.2A	5A	10A 5A	20A 10A	40A 20A
0.03%/°C										0.03%/°C				
±1%			0.5%		±1%	±0.5%				±1%				
±2%			0.5%		±1%									
72%	76%	77%	86%	89%	88%	86%	89%	89%	89%	87%	89%	90%	90%	92%
110...135%	110...145%	110...140%	110...150%	110...140%	110...145%	120...145%	110...140%	115...135%	120...140%	110...135%	125...145%			
Hiccup			Fold forward					Hiccup			Fold forward		Hiccup	
50mV					50mV	100mV			50mV	100mV			80mV	
—					3			2	—		2	2	2	

Yes														
Yes			—		Yes									
—			Yes (transistor output) (18.8VDC)		Yes (relay output) (17.6VDC)					Yes (trans. output) (60VDC)		Yes (relay output) (17.6VDC)		

-20...+71°C					-25...+71°C									
-25...+85°C														
2.5%/°C													3.5%/°C	

Plastic					Metal					Plastic		Metal		
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- ① No replacement by user.
- ② Two-phase connection is possible with 25% power derating, except types PSL2 100 24 and PSL3 120 24.
- ③ Minimum load of 150mA.
- ④ Maximum surrounding temperature of 50°C for use according to UL508.

CliQ DIN Rail Power Supplies



- 60W to 480W 1ph and 3ph, 960W 3ph
- Wide input voltage range
- 12Vdc and 24Vdc versions
- 3 phase models will operate on 2 phase input
- Overload protection
- Overvoltage protection
- Thermal protection
- 150% power boost for 3 seconds
- Aluminium case
- Redundancy modules
- UPS module

Specifications

Input Voltage:	1phase 85-264Vac (120-375Vdc) 3phase 320-600Vac (450-800Vdc)
Input Frequency:	47-63Hz
Output Voltage:	12Vdc nominal – range 11-14Vdc 24Vdc nominal range- 22-28Vdc
Residual Ripple:	<50mV/<240mVpp (peak switching @ 20 MHz)
Line Regulation:	<0.5% (@ 85-264Vac input, 100% load) <0.5% (@ 320-575Vac input, 100% load)
Load Regulation:	<1% (@ 0-100% load)
Efficiency:	≥ 84% to 87% depending on model
Leakage Current:	Single phase input - < 1mA (< 1.25mA 480W) Three phase input - < 3.5mA
Galvanic Isolation:	Input to Output: 4kVac, Input to Ground: 1.5kVac, Output to Ground: 1.5kVac
Operating Temp:	-20°C to + 80°C (de-rate power by 1% per °C below 0°C, and 2.5% per °C above 50°C) (+65°C max for 960W CliQ II series)

CliQ 24Vdc

Order Code Single Phase input 85-264Vac	Output Voltage	Rated Output Power	Output Current	Nominal Input Current	Dimensions (L x W x H)mm	Weight
DEVDRP012V060W1	12Vdc	60W	5A	1.35A @ 115Vac, 0.8A @ 230Vac	121 x 32 x 120	0.330kg
DEVDRP012V100W1	12Vdc	100W	8.33A	2.5A @ 115Vac, 1.5A @ 230Vac	121 x 50 x 118.7	0.640kg
DEVDRP024V060W1Z	24Vdc	60W	2.5A	1.1A @ 115Vac, 0.7A @ 230Vac	120.6 x 32 x 113*	0.330kg
DEVDRP024V060W1	24Vdc	60W	2.5A	1.1A @ 115Vac, 0.7A @ 230Vac	121 x 32 x 120	0.370kg
DEVDRP024V120W1	24Vdc	120W	5A	1.4A @ 115Vac, 0.8A @ 230Vac	121 x 50 x 118.7	0.540kg
DEVDRP024V240W1	24Vdc	240W	10A	2.9A @ 115Vac, 1.5A @ 230Vac	121 x 85 x 118.5	1.04kg
DEVDRP024V480W1	24Vdc	480W	20A	5.7A @ 115Vac, 2.8A @ 230Vac	121 x 160 x 115	1.8kg

* Plastic case



CliQ II

Order Code Three phase input 320-600Vac	Output Voltage	Rated Output Power	Output Current	Nominal Input Current/phase	Dimensions (L x W x H)mm	Weight
DEVDRP024V060W3	24Vdc	60W	2.5A	0.3A @ 400Vac	121 x 50 x 117.3	0.660g
DEVDRP024V120W3	24Vdc	120W	5A	0.5A @ 400Vac	121 x 50 x 117.3	0.660kg
DEVDRP024V240W3	24Vdc	240W	10A	0.75A @ 400Vac	121 x 70 x 117.3	0.890kg
DEVDRP024V480W3	24Vdc	480W	20A	1.0A @ 400Vac	121 x 140 x 117.3	1.350kg
DEVDRP024V960W3BN	24Vdc	960W	40A	1.7A @ 400Vac	121 x 255 x 117.3	2.60kg

CliQ DIN Rail Add On Modules

- Redundancy modules 20A and 40A
- Buffer modules 20A and 40A
- UPS charger module 24V 40A



DEVDRR...

Redundancy Modules

Order Code	Output Voltage	Input Voltage	Output Current	Nominal Input Current	Dimensions (L x W x H)mm	Weight
DEVDRR20N	Input V- 0.65V	24-48Vdc	20A	20A max	121 x 50 x 122.1	0.380kg
DEVDRR40N	Input V- 0.65V	24-48Vdc	40A	40A max	121 x 50 x 122.1	0.520kg

Buffer Modules

Order Code	Output Voltage	Input Voltage	Output Current	Nominal Input Current	Dimensions (L x W x H)mm	Weight
DEVDRB24V020ABN	24Vdc	22.8-28.8Vdc	20A	<0.6A*	121 x 70 x 120.1	0.760kg
DEVDRB24V040ABN	24Vdc	22.8-28.8Vdc	40A	<0.6A*	121 x 70 x 120.1	0.900kg

* Charging mode

UPS Charger Module

Order Code	Output Voltage	Input Voltage	Output Current	Nominal Input Current	Dimensions (L x W x H)mm	Weight
DEVDRU24V40ABN	24Vdc	22.8-28.8Vdc	40A	2A*	121 x 50 x 117.3	0.600kg

* Charging mode



DEVDRU24V40ABN

Specifications

Redundancy Module

Input Current: DRR-20N (1+1 Redundancy) = Nom. 2 x 12.5Amps
(N+1 Redundancy) = Nom. 2 x 10Amps
(Single use) = Nom. 20Amps
DRR-40N (1+1 Redundancy) = Nom. 2 x 25Amps
(N+1 Redundancy) = Nom. 2 x 20Amps
(Single use) = Nom. 40Amps

Buffer Module

Minimum buffering time: DRB-24V020ABN 250ms @ 24V/20A
DRB-24V040ABN 200ms @ 24V/40A

UPS Module

Charging time < 3 hours ± 1hour (for 24V 15Ah battery)
Built-in diagnostic monitoring for DC OK, discharge and battery fail with relay output
LED indicator for DC OK, Battery Fail, DC Input, Battery Reverse Polarity and Battery Discharge

PMC Panel Mount Power Supplies

- 35W to 150W 1ph
- Wide input voltage range
- 12Vdc and 24Vdc versions



PMC

Order Code Single Phase input 85-264Vac	Output Voltage	Rated Output Power	Output Current	Nominal Input Current	Dimensions (L x W x H)mm	Weight
DEVPMC12V035W1AA	12Vdc	35W	3A	0.75A @ 115Vac, 0.5A @ 230Vac	98 x 97 x 38	0.21kg
DEVPMC12V050W1AA	12Vdc	50W	4.17A	1.1A @ 115Vac, 0.7A @ 230Vac	128 x 97 x 38	0.26kg
DEVPMC12V100W1AA	12Vdc	100W	8.33A	2.0A @ 115Vac, 1.1A @ 230Vac	158 x 97 x 38	0.45kg
DEVPMC12V150W1BA	12Vdc	150W	12.5A	3.1A @ 115Vac, 2.0A @ 230Vac	178 x 97 x 38	0.54kg
DEVPMC24V035W1AA	24Vdc	35W	1.46A	0.75A @ 115Vac, 0.5A @ 230Vac	128 x 97 x 38	0.24kg
DEVPMC24V050W1AA	24Vdc	50W	2.1A	1.1A @ 115Vac, 0.7A @ 230Vac	128 x 97 x 38	0.26kg
DEVPMC24V100W1AA	24Vdc	100W	4.17A	2.0A @ 115Vac, 1.1A @ 230Vac	158 x 97 x 38	0.41kg
DEVPMC24V150W1AA	24Vdc	150W	6.25A	3.1A @ 115Vac, 2.0A @ 230Vac	178 x 97 x 38	0.48kg

Specifications

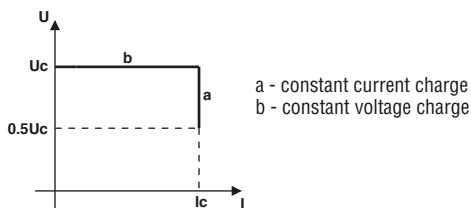
Input Voltage:	1phase 85-264Vac (125-375Vdc)
Input Frequency:	47-63Hz
Output Voltage:	12Vdc nominal – range 11-14Vdc 24Vdc nominal range- 22-28Vdc
Residual Ripple:	<50mV/<240mVpp (peak switching @ 20 MHz)
Line Regulation:	<0.5% (@ 85-264Vac input, 100% load)
Load Regulation:	<1% (@ 0-100% load)
Efficiency:	≥ 84% to 88% depending on model
Leakage Current:	< 1mA @ 240Vac
Galvanic Isolation:	Input to Output: 4kVac, Input to Ground: 1.5kVac, Output to Ground: 1.5kVac
Operating Temp:	-10°C to + 70°C (de-rate power by 2.5% per °C above 50°C)

Switching



BCF...

Order code	Rated output current [A]	Rated output voltage DC [V]	Qty per pkg n°	Wt [kg]
1 charging level.				
BCF 0250 12	2.5	12	1	0.332
BCF 0450 12	4.5		1	0.332
BCF 0125 24	1.25	24	1	0.332
BCF 0250 24	2.5		1	0.332



General characteristics

Protections:

- Mains input fuse
- Battery output fuse
- Electronic lock in case of short circuit on battery terminals, battery polarity inversion, low voltage across battery poles (<0.5 Ue) and disconnected battery
- Relay alarm output.

LED indications:

- Correct output voltage
- Battery polarity inverted.

Operational characteristics

- Auxiliary supply voltage: 100...240VAC ($\pm 10\%$) 50/60Hz ($\pm 5\%$)
- Charging cycle: in accordance with DIN 41773 standards
- Current limitation
- IEC degree of protection: IP20
- Fixed clamping screw terminal block with captive screws.

Type	Maximum power consumption dissipation		Mains fuse
	[VA]	[W]	[A]
BCF 0250 12	96	40	2
BCF 0450 12	181	76	2
BCF 0125 24	96	39	2
BCF 0250 24	181	72	2

Alarms

	GREEN LED	RED LED	RELAY
Correct output voltage	ON	OFF	ON
Polarity inverted	ON	ON	ON
Short circuit	OFF	OFF	OFF

Alarm output circuit

- Type of output:
 - 3A 250VAC relay (AC1).

Certifications and compliance

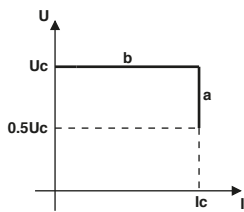
Certifications obtained: GOST.
Compliant with standards: IEC/EN 60950-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3.

For dimensions see page 8-14.

For non-sealed and sealed lead-acid batteries



BCG...



a - constant current charge
b - constant voltage charge

Order code	Rated output current	Rated output voltage in DC	Qty per pkg	Wt
	[A]	[V]	n°	[kg]
1 charging level.				
BCG 06 12	6	12	1	0.532
BCG 12 12	12		1	0.710
BCG 05 24	5	24	1	0.532
BCG 10 24	10		1	0.710
Accessories.				
BCG X00	Adapter for 35mm DIN rail vertical mount of BCG 06 12 and BCG05 24		1	0.022

Alarms	ON GRN LED	REV RED LED	ALA RED LED	CHG YEL RED	RELAY
Correct output voltage	ON	OFF	OFF	OFF	Energ.
Charging	ON	OFF	OFF	ON [⊗]	Energ.
Low battery voltage	ON	OFF	ON	ON [⊗]	Energ.
Reverse polarity	OFF	ON	OFF	OFF	De-energ.
Short circuit / Overload	ON	OFF	ON	OFF	De-energ.

- ⊗ Steady light if the charging current is more than approx. 30% of programmed current value.
- ⊗ Flashing during Hiccup operating conditions.

Type	Maximum power consumption			Internal fuse
	[VA]	[W]	[W]	Mains side (type T)
BCG 06 12	230	97	14	4 [Ⓢ]
BCG 12 12	284	290	29	6.3
BCG 05 24	364	158	20	6.3 [Ⓢ]
BCG 10 24	630	311	41	8

Ⓢ Not replaceable.

General characteristics

- Switching technology
- Wide auxiliary supply range
- High efficiency
- Two charging voltages selectable by DIP-switch
- Boost external control for full battery charging
- Hiccup function for battery recharging when its voltage is lower than 50% rated value
- Charging current limiting trimmer resistor
- Screw fixing or 35mm DIN rail mount (IEC/EN 60715).

Protection:

- Input fuse on AC side
- Electronic lock in case of short circuit on battery terminals, reverse battery polarity and output overload
- Automatic reset at end of alarm conditions.

LED indications:

- Power on
- Charging operation (>30% I_c)
- Overload or short circuit conditions
- Reverse battery polarity.

Operational characteristics

- Auxiliary supply voltage: 110...240VAC ±10% 50/60Hz ±10%
- Charging voltage selectable by DIP-switch
 - Non-sealed lead-acid batteries
 - Sealed lead-acid batteries
- Maximum charging current can be set with a trimmer on the front: 20...100% of the rated current value
- Current limitation
- Charging cycle according to DIN 41773 standards
- IEC degree of protection: IP20.

Alarm output circuit

- Type of output: 5A 30VDC duty relay, normally energised.

Certifications and compliance

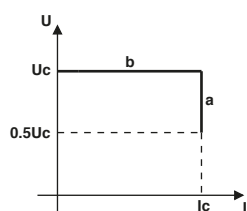
Certifications obtained: EAC; UL Recognized for USA and Canada (cURus - File E360865), as Power Supplies - Component.
Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
Compliant with standards: IEC/EN 60950-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4, UL 60950-1, CSA C22.2 n°60950-1.

For dimensions see page 8-14.

For non-sealed and sealed lead-acid batteries



BCG...RS



a - constant current charge
b - constant voltage charge

new

Order code	Rated output current	Rated output voltage in DC	Qty per pkg	Wt
	[A]	[V]	n°	[kg]
1 charging level.				
BCG 06 12RS	6	12	1	0.582
BCG 12 12RS	12		1	0.760
BCG 05 24RS	5	24	1	0.582
BCG 10 24RS	10		1	0.760
Accessories.				
BCG X00	Adapter for 35mm DIN rail vertical mount of BCG 06 12RS and BCG05 24RS		1	0.022

Alarms	ON GRN LED	REV RED LED	ALA RED LED	CHG YEL RED	RELAY
Correct output voltage	ON	OFF	OFF	OFF	Energ.
Charging	ON	OFF	OFF	ON①	Energ.
Low battery voltage	ON	OFF	ON	ON②	Energ.
Reverse polarity	OFF	ON	OFF	OFF	De-energ.
Short circuit / Overload	ON	OFF	ON	OFF	De-energ.

- ① Steady light if the charging current is more than approx. 30% of programmed current value.
- ② Flashing during Hiccup operating conditions.

Type	Maximum power consumption dissipation			Internal fuse Mains side (type T)
	[VA]	[W]	[W]	[A]
BCG 06 12RS	230	97	14	4Ⓢ
BCG 12 12RS	284	290	29	6.3
BCG 05 24RS	364	158	20	6.3Ⓢ
BCG 10 24RS	630	311	41	8

Ⓢ Not replaceable.



- Setup configuration with:
 - NFC connection and the app LOVATO Electric **NFC**;
 - **Synergy** supervision and energy management software
 - **Xpress** configuration and remote control software
- Supervision of measures, states and alarms with **Synergy** or **Xpress**
- Automatic and programmable BOOST function
- Compatibility with automatic transfer switches ATL800, ATL900 and gen-set controllers RGK800 and RGK 900, were is possible display the battery charger status on dedicated pages.

General characteristics

The BCG battery chargers with the built-in communication have integrated functions necessary where is needed the permanent control of the battery state of charge (SOC):

- Supervision and remote control
- Communication with the compatible devices (ATL 800, ATL 900, RGK 800, RGK 900) and display the battery charger status on dedicated pages
- Battery disconnected alarm
- Double supply for the built-in RS485 communication that allows a permanent supervision in case of emergency
- Switching technology
- Wide auxiliary supply range
- High efficiency
- Isolated RS485 communication
- RTU and ASCII Modbus protocols
- Charging voltage selectable in function of the battery type (Pb – Sealed Pb – Ni-Cd):
 - 12V models: 12...15 VDC
 - 24V models: 24...30 VDC
- BOOST external command or via Modbus to deep charge of the battery
- Hiccup function for battery recharging when its voltage is lower than 50% rated value
- Charging current limiting trimmer resistor
- Screw fixing or 35mm DIN rail mount (IEC/EN 60715).

Protection:

- Input fuse on AC side
- Electronic lock in case of short circuit on battery terminals, reverse battery polarity and output overload, battery not connected
- Signalling absence of auxiliary power supply AC
- Automatic reset at end of alarm conditions.

LED indications:

- Power on
- Charging operation ($I > 30\% I_c$)
- Overload or short circuit conditions
- Reverse battery polarity.

Operational characteristics

- Auxiliary supply voltage: 110...240VAC $\pm 10\%$ 50/60Hz $\pm 10\%$
- Parameters can be set with RS485 or NFC connection:
 - Current limit: 20...100% of the rated current value
 - Charging voltage
 - Boost voltage
 - Boost interval
 - Boost duration
- Current limitation
- Charging cycle according to DIN 41773 standards
- IEC degree of protection: IP20.

Alarm output circuit

- Type of output: 5A 30VDC duty relay, normally energised.

App for smartphones and tablets

The app LOVATO Electric **NFC**, installed on Android devices with NFC connectivity, allows the user to set the parameters of BCG ... RS.
For more information see section 17.

Synergy supervision and energy management software
See section 17.

Xpress configuration and remote control software
See section 17.

Certifications and compliance

Certifications obtained: EAC; UL Recognized for USA and Canada (cURus - File E360865), as Power Supplies - Component.

Products having this type of marking are intended for use as components of complete workshop-assembled equipment.

Compliant with standards: IEC/EN 60950-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4, UL 60950-1, CSA C22.2 n°60950-1.

For dimensions see page 8-14.

Linear



31 BCE 0312
31 BCE 2V524



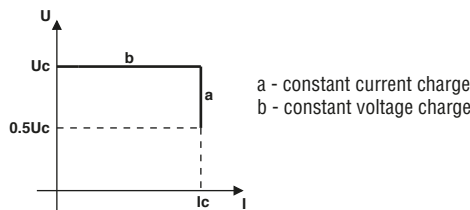
31 BCE 0612
31 BCE 0524



31 BCE 1212
31 BCE 1024

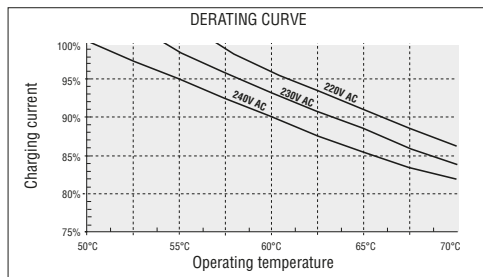
Order code	Rated output current [A]	Rated output voltage DC [V]	Qty per pkg n°	Wt [kg]
1 charging level.				
31 BCE 0312	3	12	1	1.984
31 BCE 0612	6		1	4.832
31 BCE 1212	12		1	8.690

31 BCE 2V524	2,5	24	1	1.992
31 BCE 0524	5		1	4.960
31 BCE 1024	10		1	9.560

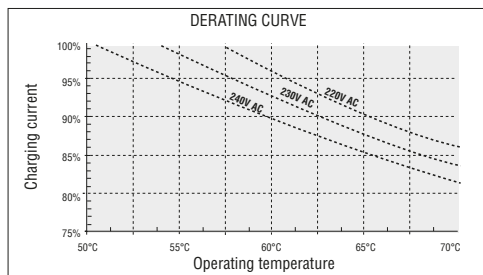


DERATING CURVES

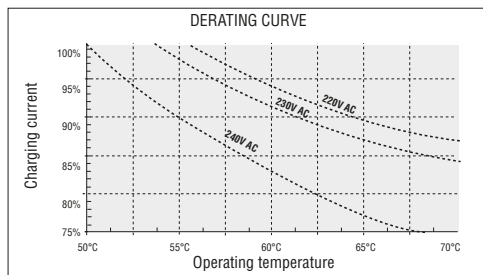
BCE 2V5 - BCE 03



BCE 05 - BCE 06



BCE 10 - BCE 12



General characteristics

Protections:

- Mains input fuse (except for BCE 2V5 and BCE 03)
- Battery output fuse
- Electronic lock in case of short circuit on battery terminals, battery polarity inversion, low voltage across battery poles (<0.5 U_e) and disconnected battery
- Alarm output:
 - Negative static, NPN transistor for BCE 2V5 and BCE 03
 - Relay for BCE 05, BCE 06, BCE 10 and BCE 12.

Indications:

- Power on
- Charge (I > 0.2 I_c)
- Alarm for protection tripping.

Operational characteristics

- Auxiliary supply voltage: 220...240VAC (±10%), 50/60Hz (±5%)
- Charging current: 30-100% I_e adjustable
- Charging cycle: in accordance with DIN 41773 standards
- Current limitation
- IEC degree of protection: IP00
- Clamping screw terminal block with captive screws:
 - Removable for BCE 03 and BCE 2V5
 - Fixed for BCE 05, BCE 06, BCE 10 and BCE 12.

Type	Maximum power consumption	dissipation	Mains fuse	Output fuse
	[VA]	[W]	[A]	[A]
BCE 0312	117	24	—	6.3
BCE 0612	222	46	4	12.5
BCE 1212	400	73	6.3	25
BCE 2V524	166	26	—	6.3
BCE 0524	317	40	4	12.5
BCE 1024	610	66	6.3	25

Alarms

BCE 2V524 - BCE 0312

These types have a static alarm output for the control of a relay or indicator, maximum 300mA duty.

If it is connected to a relay, this must be normally energised in absence of alarm. In alarm conditions with ALARM LED switched on, or in absence of supply, the relay de-energises.

BCE 0524 - BCE 0612 - BCE 1024 - BCE 1212

These types have a normally energised relay alarm output.

In alarm conditions with ALARM LED switched on, or in absence of supply, the relay de-energises.

Possible causes of alarm include:

- Low battery voltage
- Battery fuse blown
- Battery not connected
- Battery polarity inverted.

Alarm output circuit

BCE 2V524 - BCE 0312

- Type of output:
 - Negative static; NPN transistor ^①
 - Maximum voltage applicable to load: +V battery terminal
 - Maximum output current: 300mA
 - Maximum overload current for 1 second: 2A
 - Dynamic over-voltage protection with inductive load.

BCE 0524 - BCE 0612 - BCE 1024 - BCE 1212

- Type of output
 - Relay: 1 changeover contact (SPDT)
 - Rated voltage: 250VAC
 - Maximum admissible voltage: 440VAC
 - IEC rated capacity in AC1 duty: 5A 250VAC Ith
 - IEC rated capacity in DC13 or DC14 duty: 5A 30VDC
 - Electrical life: >10⁶ cycles
 - Mechanical life: >30x10⁶ cycles.

^① The output is not overload or short-circuit protected. It is however capable of switching on a 3W filament bulb.

Certifications and compliance

Certifications obtained: GOST.

Compliant with standards: IEC/EN 60335-2-29.

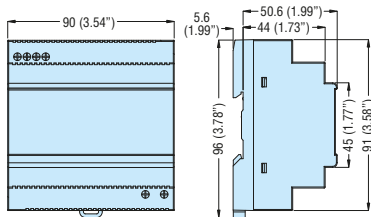
For dimensions see page 8-14.

POWER SUPPLIES

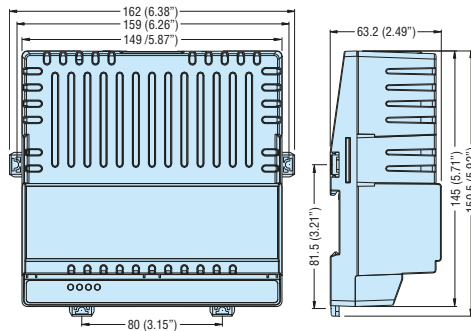
Automatic battery chargers
Dimensions [mm (in)]



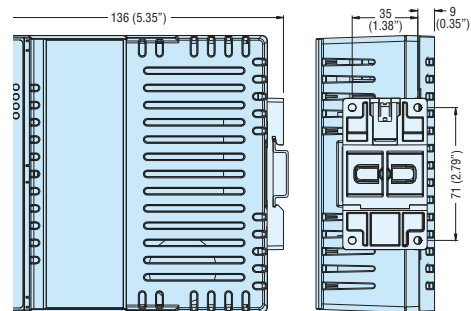
BCF...



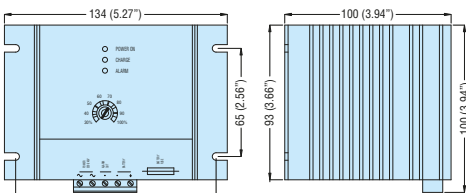
BCG 0612 - BCG 0524 - BCG 0612RS - BCG 0524RS



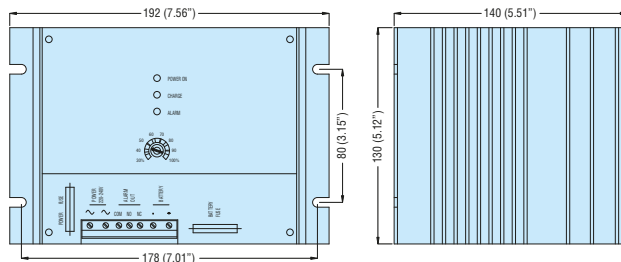
Mounting adapter BCG X00



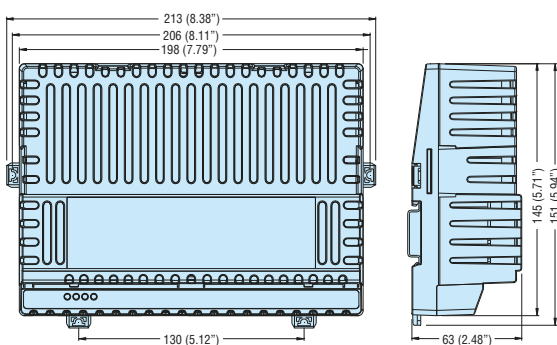
BCE 0312 - BCE 2V524



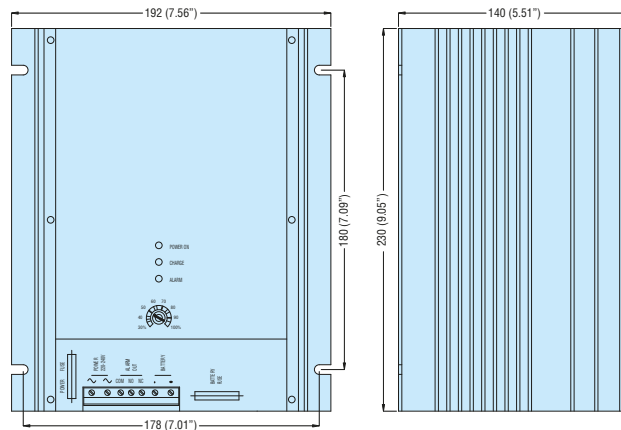
BCE 0612 - BCE 0524



BCG 1212 - BCG 1024 - BCG 1212RS - BCG 1024RS

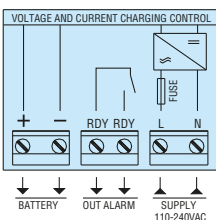


BCE 1212 - BCE 1024

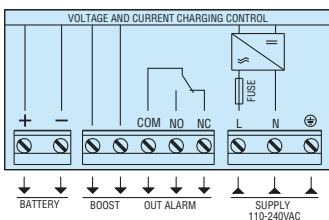


Wiring diagrams

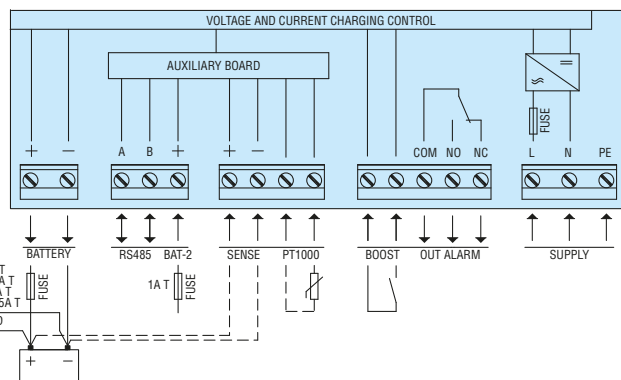
BCF...



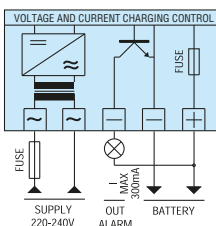
BCG...



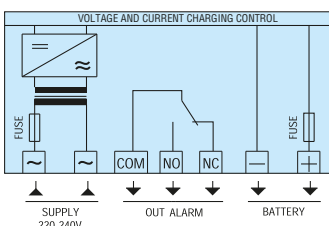
BCG...RS



BCE 2V5... - BCE 03...



BCE 05... - BCE 06... - BCE 10... - BCE 12...



TYPE	BCG... - BCG...RS	BCF...	BCE...
Description	Single phase automatic battery charger 1 charging level for sealed and non-sealed lead-acid batteries	Single phase automatic battery charger 1 charging level for lead-acid batteries	
Supply voltage	110-240VAC ±10% 50/60Hz ±10%	100-240VAC ±10% 50/60Hz ±5%	220-240VAC ±10% 50/60Hz ±5%
Rated output voltage (Uoc)	12-24VDC		
Rated charging current (Ic)	6-12A (12VDC) 5-10A (24VDC)	2.5-4.5A (12VDC) 1.25-2.5A (24VDC)	3-6-12A (12VDC) 2.5-5-10A (24VDC)
CHARGING CYCLE			
Reference standards	DIN 41773		
Diagram	<p>a - constant current charge b - constant voltage charge</p>		
End charging voltage Uc	For BCG... 12V battery with DIP2: – in pos. V1: 13.8V – in pos. V2: 13.5V (default). 24V battery with DIP2: – in pos. V1: 27.6V – in pos. V2: 27.0V (default) For BCG...RS 12V battery: adjustable 13.5...13.8V with NFC or RS485 For BCG...RS 24V battery: adjustable 27.0...27.6V with NFC or RS485	12V battery: 13.6VDC (2.27V/cell) 24V battery: 27.2VDC (2.27V/cell)	12V battery: 13.8VDC (2.3V/cell) 24V battery: 27.6VDC (2.3V/cell)
Charging current	For BCG... adjustable 20% to 100% Ic (using potentiometer/trimpot) For BCG...RS adjustable 20% to 100% Ic with NFC or RS485	Fixed	Adjustable 30% to 100% Ic (using potentiometer)
Current limit	Yes		
Boost	+4.4% Uc	—	—
PROTECTION			
Type	– Mains supply fuse – Charging inhibition due to: • Short circuit at battery terminals • Reverse battery polarity • Low voltage at battery poles (<0.5 Uoc) • Output overload • Disconnected battery only for communicating version	– Mains supply fuse – Charging inhibition due to: • Short circuit at battery terminals • Reverse battery polarity • Low voltage at battery poles (<0.5 Uoc) • Output overload	– Mains supply fuse (5, 6, 10, 12A types only) – Battery output fuse – Charging inhibition due to: • Short circuit at battery terminals • Reverse battery polarity • Low voltage at battery poles (<0.5 Uoc) • Disconnected battery
ALARM OUTPUT CIRCUIT			
Type of output	1 relay 5A 30VDC	1 relay 3A 250VAC AC1	Static (NPN transistor) ①; relay with 1 c/o contact (SPDT), 5A 250VAC ②
AMBIENT CONDITIONS			
Operating temperature	-30...+55°C (+55...+70°C with 1-5%Ic/°C derating by trimpot)	-40...+51°C	-10...+50°C
Storage temperature	-30...+80°C	-40...+85°C	-30...+80°C
HOUSING			
Version	Internal panel mount	Modular	Internal panel mount
IEC degree of protection	IP20	IP20	IP00
Cooling	Natural		
Connections	Fixed terminals	Fixed terminals	Removable/plug-in terminals① Fixed terminals②

① For 2.5A and 3A types only.

② For 5, 6, 10 and 12A types only.