Eurotherm®

Adaptable power control expertise

EPack-3PH Compact SCR Power Controllers

Benefits

OEMs and system integrators need to be able to react quickly to customer needs while maximizing resources. End users continually need to improve operational efficiency and productivity. Eurotherm EPack™-3PH Compact SCR Power Controllers have been designed to deliver real savings, helping to reduce energy costs. Quick and easy to install, integrate and commission. Compact, with powerful and versatile features that help minimize costs whilst improving productivity and quality.

- Improved energy consumption to help reduce energy bills
- Help maximize yield with accurate and repeatable control
- Customizable options provide better value for money
- Easy to specify with reduced number of hardware variants
- Fast integration and commissioning
- Monitor efficiently with integrated measurements
- Simplified design reduces stock and spares holding

Key features

- Native communication: Modbus® TCP and EtherNet/IP or PROFINET comms for easy connection to PLC
- True power control with current limitation
- Large voltage capability from 100V to 500V adjustable in the same variant
- Measurements: current, voltage, power, impedance, energy usage and more
- SCCR 100kA with fuse

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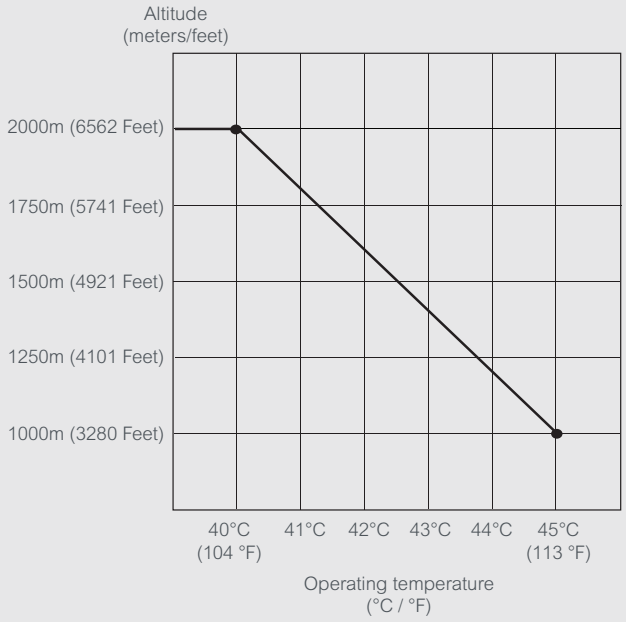
WATLOW®
Powered by Possibility

Specifications

General	
Safety specification	IEC / EN60947-4-3:2014
EMC emissions specification	IEC / EN60947-4-3:2014 - Class A product
EMC immunity specification	IEC / EN60947-4-3:2014
Vibration tests	IEC / EN60947-1 annex Q category E
Shock tests	IEC / EN60947-1 annex Q category E
Approvals	
European community CE	EN60947-4-3:2014: Low-voltage switchgear and controlgear - Part 4-3:Contactors and motor-starters - AC semiconductor controllers and contactors for non-motor loads (identical to IEC60947-4-3:2014)Declaration of Conformity available on request.
US & Canada c UL us LISTED	UL60947-4-1 CAN/CSA C22.2 NO.60947-4-1-14 Low-Voltage Switchgear and Controlgear - Part 4-1: Contactors and Motor-Starters - Electromechanical Contactors and Motor-Starters - U.L. File N° E86160
Australia	Regulatory Compliance Mark (RCM) to Australian Communication and Media Authority Based on compliance to EN60947-4-3:2014
China	Product not listed in catalog of products subject to China Compulsory Certification (CCC)
Communication EtherNet/IP ODVA Achilles	EtherNet/IP: ODVA Declaration of Conformity All protocol: Certified to Achilles® CRT Level 1 Cybersecurity
Protection	CE: IP20 according to EN60529 UL: open type

Condition of use	
Atmosphere	Non-corrosive, non-explosive, non-conductive
Degree of pollution	Degree 2 according to IEC60947-1
Storage temperature	-25°C (-13°F) to 70°C (158°F)
Temperature & Altitude	0 to 45°C at 1000m (32°F to 113°F at 3280 Feet) 0 to 40°C at 2000m (32°F to 104°F at 6562 Feet)
Derating curves	

Specifications

Mechanical details				
Unit	Height	Width	Depth	Weight
16 to 32A	229.5mm / 9.035in	140mm / 5.51in	192mm / 7.56in	3.06 kg / 6.75lb
40 to 63A	229.5mm / 9.035in	140mm / 5.51in	227mm / 8.94in	3.51 kg / 7.74lb
80 to 100A	291mm / 11.5in	160mm / 6.30in	242mm / 9.53in	5.83 kg / 12.85lb
125A	291mm / 11.5in	240mm / 9.45in	242mm / 9.53in	7.94 kg / 17.50lb

Fuses		
Current rating	Fuse holder Size	Unit
≤25A without MS	10x38mm / 13/32x1-1/2in	88.5x17.5x64.5mm / 3.48x0.69x2.54in
≤25A with MS	14x51mm / 9/16x2in	110.8x26.5x76.5mm / 4.36x1.04x3.01in
32A with or without MS	14x51mm / 9/16x2in	110.8x26.5x76.5mm / 4.36x1.04x3.01in
40A with or without MS	14x51mm / 9/16x2in	110.8x26.5x76.5mm / 4.36x1.04x3.01in
50A with or without MS	22x58mm / 2-9/32in	127.5x35x76.5mm / 5.02x1.38x3.01in
63A with or without MS	22x58mm / 2-9/32in	127.5x35x76.5mm / 5.02x1.38x3.01in
80A with or without MS	27x60mm / 1-1/16x2-3/8in	149.4x40x93.5mm / 5.88x1.57x3.68in
100A with or without MS	27x60mm / 1-1/16x2-3/8in	149.4x40x93.5mm / 5.88x1.57x3.68in
125A with or without MS	27x60mm / 1-1/16x2-3/8in	149.4x40x93.5mm / 5.88x1.57x3.68in

Power	
Nominal current	4 to 125 amps
Nominal voltage	From 100V to 500V +10%/–15%
Accuracy	±2% of full scale from 100V to 500V +10%/–15%
Frequency	47Hz to 63Hz
Short circuit protection	By external supplemental high speed fuses
Rated conditionnal short-circuit current	100kA (coordination type 2)
Utilization categories	
AC51	Resistive or slightly inductive load (cos phi>0.8)
AC-55b	Switching of incandescent lamps
AC-56a	Transformer Primary
Heater type	Low/high temperature coefficient and non-aging/aging types: MOSI Molybdenum Silicide, Silicon Carbide, Carbon, SWIR.

Control	
Auxillary power supply	100V to 500V +10%/–15% or 24V ac/dc (±20%)
Control setpoint	Analog or Logic input or Digital Comms
Analogue input signal	
Voltage	Range: 0-5V, 1-5 V, 0-10V or 2-10V Impedance: 140 k Ohms typical (0-10V signal)
Current	Range: 0-20mA or 4-20mA Input resistance: 100 ohms to allow for three units wired in series to be driven from a single controller's analogue output
Resolution	11 bits
Linearity ±0.1% of scale	±0.1% of Scale
Firing mode	Phase angle, Intelligent Half cycle (only for 4S & 6D load coupling), Variable Modulation Burst firing (default 16 cycles), Fix modulation period (default 2 seconds), Logic mode
Control mode	V^2 control, I^2 control, True Power control, Open loop with feedforward and Trim modes, Current limitation by threshold or by transfer V^2 to I^2 or P to I^2
Configurable digital inputs	Input 1: enable by default ; Input 2: setpoint in logic mode, alarm acknowledgment, 10V supply, ...
Voltage inputs	PLC compatible inputs type 1 & 2 according to IEC 61131-2 - Active level (high): 11V<Vin<30V with 6mA<Iin<30mA - Non-active level (low): -3V<Vin<5V with 2mA<Iin<30mA or 5V<Vin<11V with Iin<2mA
Contact closure inputs	- Current source: 10mA min; 15mA max - Open contact (non active) resistance: 800 Ohms to ∞ - Closed contact (active) resistance: 0 to 450 Ohms - Absolute Maximum ±30V or ±25mA
One alarm relay	Changeover relay 2A rms - 264V rms normally energised. (250V rms max for UL). This relay will be de-energised in case of serious alarms: short circuit thyristor, open circuit, fuse blown, missing main, chop off

Specifications

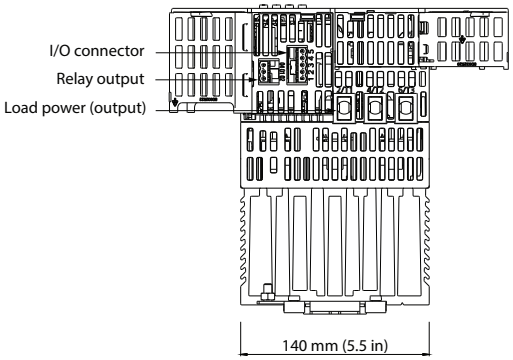
Communications	
Connection	Dual port Ethernet - RJ45 integrated switch
Protocols	Modbus TCP, EtherNet/IP, PROFINET
Speed rate	10/100 Mbps full or half duplex

Display	
Technology	TFT
Size	1.4” diagonal (35.56mm)
Messages	Configuration, Monitoring and Diagnostics

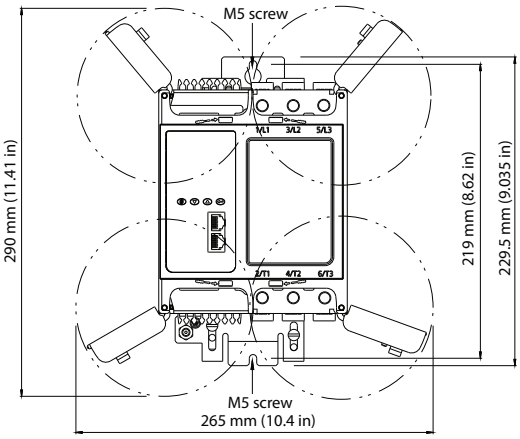
Additional Functions	
Standard	Counter, Logic & Math blocks, Linearization 16 points, Timer, Totalizer
Options	Energy counter, OEM security, Graphical wiring

Mechanical details

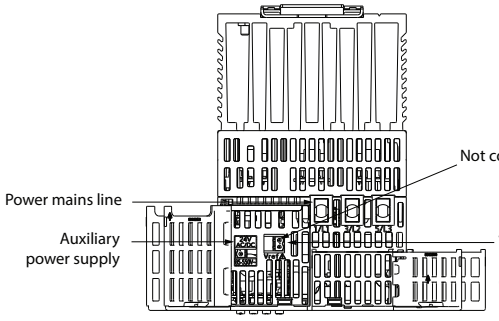
16A to 32A & 40A to 63A



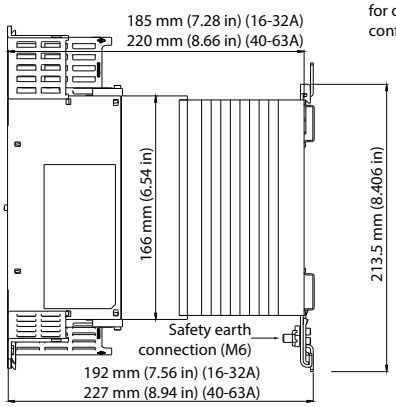
Bottom view



Front View



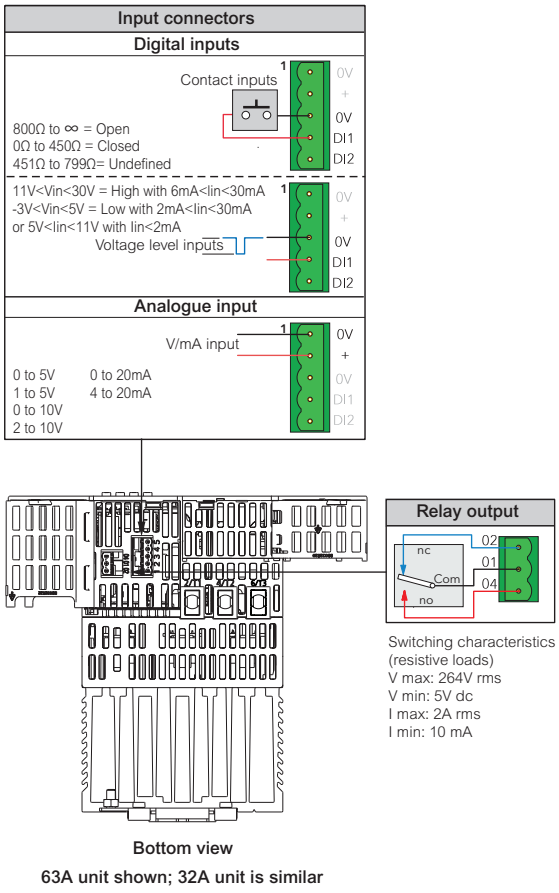
Top view



Right-hand face view

Connector details (pinout)

I/O details

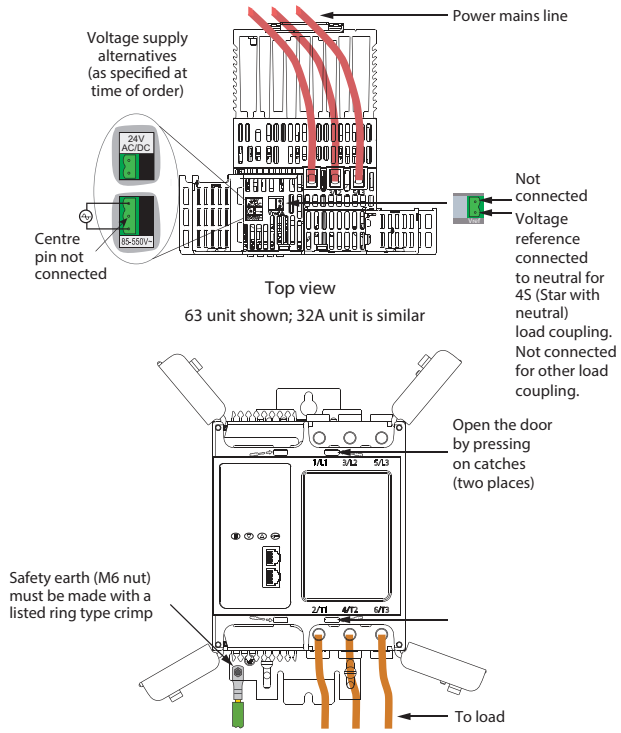


Switching characteristics
(resistive loads)
V max: 264V rms
V min: 5V dc
I max: 2A rms
I min: 10 mA

Bottom view

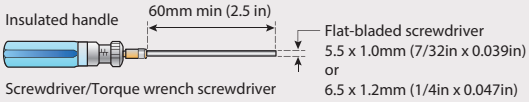
63A unit shown; 32A unit is similar

Power supply details
16A to 63A



Top view

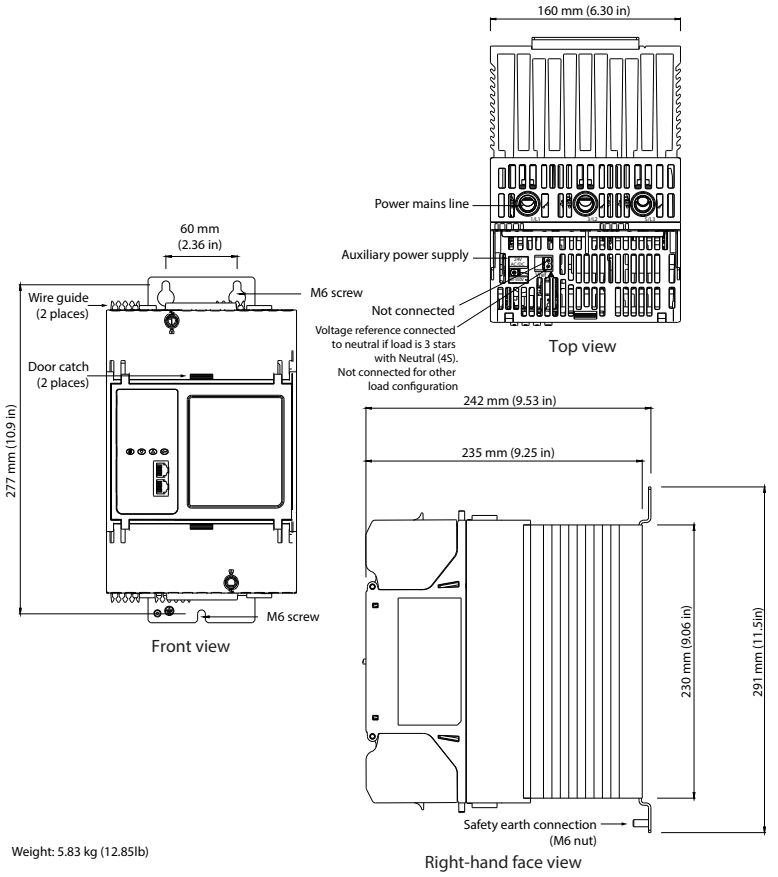
63 unit shown; 32A unit is similar



Screwdriver/Torque wrench screwdriver bit details for line and load termination

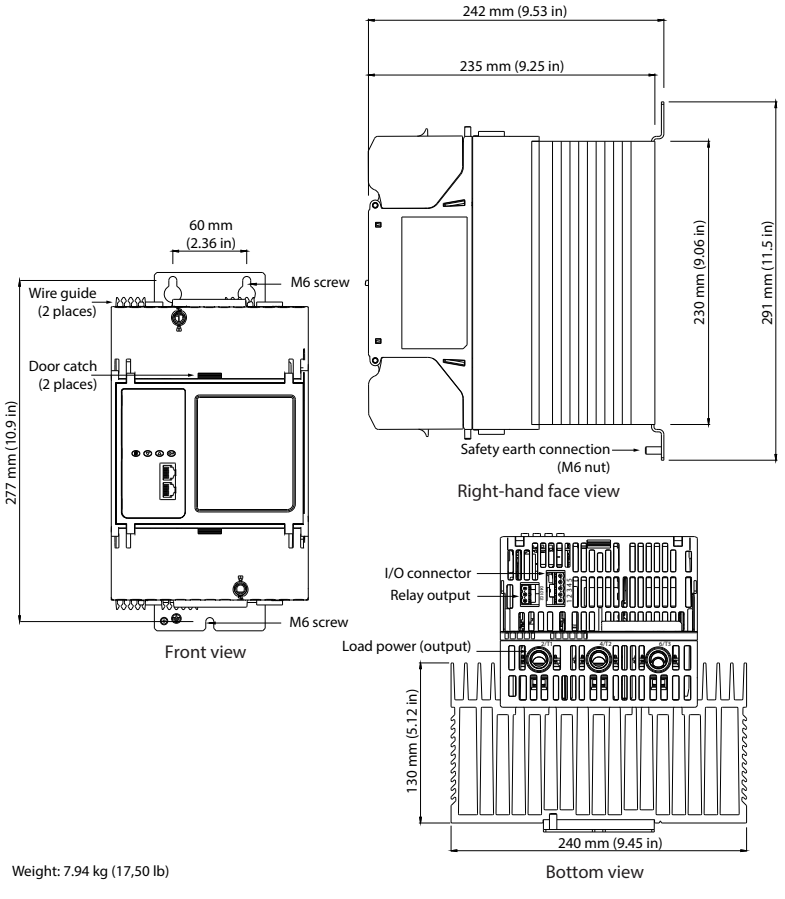
Mechanical details

80A to 100A



Weight: 5.83 kg (12.85lb)

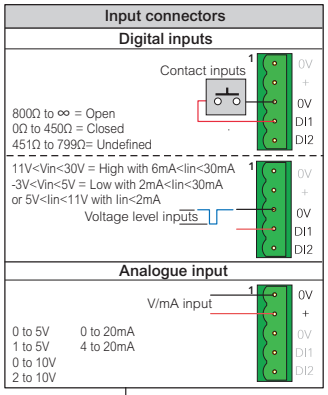
125A



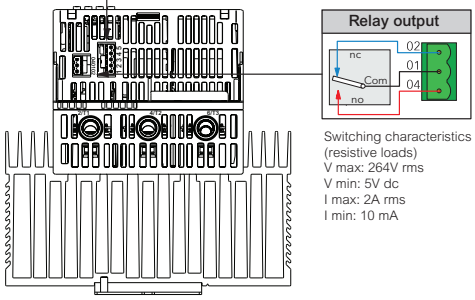
Weight: 7.94 kg (17,50 lb)

Connector details (pinout)

I/O details



125A unit shown; other units are similar

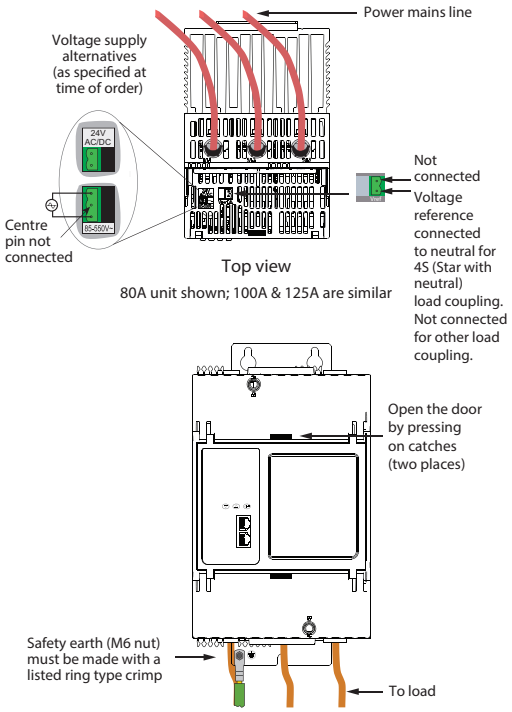


Switching characteristics (resistive loads)
V max: 264V rms
V min: 5V dc
I max: 2A rms
I min: 10 mA

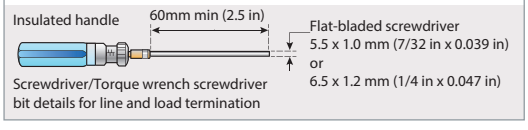
Bottom view

125A unit shown; 80A to 100A unit is similar

Power supply connection details 80A to 125A



80A unit shown; 100A & 125A are similar



Screwdriver/Torque wrench screwdriver bit details for line and load termination

Specifications

EPack-3PH controller order codes

The EPack power controller is ordered using a short code for hardware and chargeable software options and an optional extended code section configuration of commissioning options.

If the extended code is not used, the software configuration is completed using a quick start procedure or using Eurotherm iTools software.

EPack controllers may be upgraded with additional chargeable options at any time using a software key order code.

EPACK-3PH	1	2	3	4	5	6	7	8	9	10	11	12	13
			XXX										

14	15	16	17	18	19	20	21	22	23
									XXX

Basic product

EPACK-3PH	Compact SCR Power Controller

1 Maximum current

16A	16 amps
25A	25 amps
32A	32 amps
40A	40 amps
50A	50 amps
63A	63 amps
80A	80 amps
100A	100 amps
125A	125 amps

2 Auxillary power supply

500V	500V max
24V	24V ac/dc

3 Reserved

XXX	Reserved

4 Control option

V2CL	V^2 with current limitation by threshold (standard)
I2	I^2 control
V2	V^2 control
PWRCL	Power control with current limit

5 Transfer option

XXX	No transfer
TFR	I^2 transfer

6 Energy option

XXX	None
EMS	Energy measurement

7 Comms option

TCP	Modbus TCP (standard)
IP	EtherNet/IP
PN	PROFINET

8 OEM security

XXX	None
OEM	OEM security

9 Warranty

XXXXX	Standard warranty
WL005	5 Year warranty
USWL3	US extended warranty

10 Custom labelling

XXXXX	Standard (Eurotherm)
Fnnnn	Special label

11 Graphical wiring

XXX	None
GWE	Graphical wiring editor (standard)

12 Fuse

XXX	Without fuse
HSP	High speed fuse without microswitch
HSM	High speed fuse with microswitch

13 Configuration

XXXXXX	Default
LC	Long code
EEnnn	Customer clone number

Optional configuration

14 Nominal load current

nnnA	1 - Value field 1

15 Nominal line voltage

100V	100 volts
110V	110 volts
115V	115 volts
120V	120 volts
127V	127 volts
200V	200 volts
208V	208 volts
220V	220 volts
230V	230 volts
240V	240 volts
277V	277 volts
380V	380 volts
400V	400 volts
415V	415 volts
440V	440 volts
460V	460 volts
480V	480 volts
500V	500 volts

16 Load configuration

3S	Star without neutral
3D	Delta
4S	Star with neutral
6D	Open delta

17 Load type

XX	Resistive
TR	Transformer primary

18 Heater type

XX	Resistive
MOSI	Molybdenum disilicide
CSI	Silicon carbide
SWIR	Short wave infra-red

19 Firing mode

PA	Phase angle
IHC	Intelligent half cylcle
BF	Variable modulation burst firing (default 16 cycles)
FX	Fix modulation period (default 2 seconds)
LGC	Logic mode

20 Analog input function

XX	None - Setpoint via comms
SP	Setpoint
HR	Setpoint limit
IL	Current limit
TS	Current transfer span

21 Analog input type

0V	0-10 volts
1V	1-5 volts
2V	2-10 volts
5V	0-5 volts
0A	0-20 mA
4A	4-20mA

22 Digital input 2 function

XX	None
LG	Setpoint for logic mode
AK	Alarm acknowledgement
RS	Remote setpoint selection
FB	Fuse blown
SU	10V supply

23 Reserved

XXX	Reserved

Specifications

Software upgrade options

EPACKUPG-3PH	1	2	3	4	5	6	7	8

1	Serial number instrument
nnnn	Serial number

2	Current ratings
XXX	No change
16A-25A	Upgrade 16A to 25A
16A-32A	Upgrade 16A to 32A
25A-32A	Upgrade 25A to 32A
40A-50A	Upgrade 40A to 50A
40A-63A	Upgrade 40A to 63A
50A-63A	Upgrade 50A to 63A
80A-100A	Upgrade 80A to 100A

3	Control option
XXX	no change
V2-V2CL	Upgrade V^2 to V^2CL
V2-I2	Upgrade V^2 to I^2
V2-PWRCL	Upgrade V^2 to PWRCL
I2-V2CL	Upgrade I^2 to V^2CL
V2CL-PWRCL	Upgrade V^2CL to PWRCL
I2-PWRCL	Upgrade I^2 to PWRCL

4	Transfer option
XXX	No change
TFR	I^2 transfer

5	Energy option
XXX	No change
TFR	Energy measurement

6	Comms option
XXX	No change
IP	EtherNet/IP
PN	PROFINET

7	Graphical wiring
XXX	No change
GWE	Graphical wiring editor

8	OEM security
XXX	No change
OEM	OEM security

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