

EPack

Compact SCR Power Controller

Delivering real savings – significantly reducing your energy costs

EPack power controller is a compact fully featured power controller from Eurotherm, combining a high level of functionality and configurability with simplicity of setup and operation. The combination of advanced configurable firing modes allows close matching to load characteristics for maximum process efficiency. EPack is highly configurable and may be adapted for current and future needs using a software key to purchase additional functionality when needed.

Ratings and Physical Format

EPack power controllers are designed to carry currents from 1 to 125 amps, with operating voltage between 100 and 500 Volts. It has a compact DIN rail and bulkhead mounting format in four mechanics depending on the current rating (16A to 32A, 40A to 63A, 80A to 100A or 125A). The units are specified for normal operation up to 45°C. There are two options for auxiliary power supply, 24V ac/dc or 100-500V ac.

The Display

Clear visualisation of all operating and configuration information is available on the clear, high definition 1.5" TFT display. This includes alarm indication as well as process and operating data such as nominal current, load voltage and energy usage. Should a control system fault occur, clear messages allow the precise origin of the problem to be determined, reducing down-time.



- Nominal load current from 1 amp to 125 amps
- Voltage up to 500V
- Compact DIN Rail and bulkhead Mounting Format
- Configurable via Eurotherm iTools (PC software) or front panel
- Plug and play Ethernet communications with Zero configuration networking (zeroconf)
- V2, I2 or True power control
- Controls comprehensive range of loads: resistive, infrared, transformer primary, molybdenum disilicide, silicon carbide
- Energy usage measurement
- Advanced load diagnostics
- Integrated dual port Ethernet switch for “daisy chained” communications
- Modbus® TCP and Ethernet IP protocols

Applications

- Plastic
 - Extrusion, Injection moulding
- Food and Beverage
 - Drying, sterilization, baking
- Glass
 - Float manufacturing
- Infra-red heating

Connect Control Improve

Eurotherm®
by **Schneider Electric**

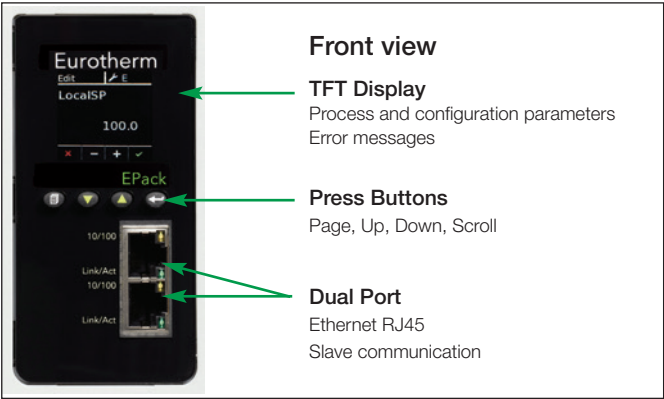
Communications

EPack power controller has Ethernet communications as standard, and includes an integrated dual port switch so that units may be "daisy chained". This allows integration with other plant equipment using standard Ethernet protocols such as Modbus/TCP or Ethernet IP, allowing connection to process and temperature controllers, Programmable Logic Controllers and SCADA/ Supervisory systems. Full diagnostic and operational data is available for use by higher level systems and to allow process improvements. Plug and play Ethernet connection is provided via "zero configuration" protocol.

Analogue communication for power setpoints is fully supported, using standard current and voltage inputs to the EPack unit.

Configuration

EPack is fully software configurable, with all options and advanced functions available when needed. Software modules may be purchased when required by use of a software key so that existing units may be adapted to changing needs over time. The instrument order code allows pre-configured units to be delivered ready for use, or alternatively a "Quick Start Code" using integrated HMI may be used to quickly configure for use. When a deeper level of configuration is required, Eurotherm iTools provides comprehensive access to all functions with context sensitive help.



Specification

General	
Directive:	EMC directive 2004/108/EC Low Voltage Directive 2006/95/EC
Safety specification:	EN 60947-4-3:2000 (2000-01-12)
EMC emissions specification:	EN 60947-4-3:2000 (2000-01-12) + EN 60947-4-3:2000/A1:2006 (2006-12-08) + EN 60947-4-3:2000/A2:2011 (2011-09-02) Class A product
EMC immunity specification:	EN 60947-4-3:2000 (2000-01-12)
Vibration tests:	EN60947-1 annex Q category E
Shock tests:	EN60947-1 annex Q category E
Approvals:	cUL: UL609747-4-1A and UL60947-1 CE: EN60947-4-3 and EN 60947-1 GOST-R: Certificate of exemption
Protection (According to EN60529):	IP10 (16A to 63A units) IP20 (80A to 125A units)
Condition of use	
Directive:	EMC directive 2004/108/EC
Atmosphere:	Non-corrosive, non-explosive, non-conductive
Usage temperature:	0 to 45°C
Stocking temperature:	-25°C to 70°C (maximum)
Altitude:	1000m maximum at 45 degrees
Degree of pollution:	Degree 2

Mechanical Details

Unit	Height	Width	Depth	Weight
16 to 32A	129.2mm	51mm	136.2mm	0.8kg
40 to 63A	129.2mm	72mm	158.2mm	0.95kg
80 to 100A	197.6mm	80mm	202.1mm	1.8kg
125A	197.6mm	120mm	202.1mm	2.5kg

Mounting: DIN rail or bulkhead mounting

EPack Current rating	Fuse without microswitch		Fuse with microswitch	
	Fuse holder Size	Dimensions (H x W x D)	Fuse holder Size	Dimensions (H x W x D)
≤ 25A	10 x 38	81 x 17.5 x 68	14 x 51	110 x 26.5 x 94
32A	14 x 51	97 x 26.5 x 86	14 x 51	110 x 26.5 x 94
40A	14 x 51	97 x 26.5 x 86	14 x 51	110 x 26.5 x 94
50A	22 x 58	128 x 35 x 90	22 x 58	128 x 35 x 96,5
63A	27 x 60	240 x 38 x 107	27 x 60	240 x 53 x 107
80A	27 x 60	240 x 38 x 107	27 x 60	240 x 53 x 107
100A	27 x 60	240 x 38 x 107	27 x 60	240 x 53 x 107
125A	27 x 60	240 x 38 x 107	27 x 60	240 x 53 x 107

Power

Nominal current:	1 to 125 amps
Nominal voltage:	100V to 500V +10%/-15%
Frequency:	47Hz to 63Hz
Protection:	High speed fuse
Type of loads:	AC51: Pure resistive AC-55b: Infra Red (With Derating) AC-56a: Transformer Primary or MOSI (e.g. Molybdenum disilicide) Time temperature dependant loads (e.g.Silicon Carbide)

Control

Auxiliary power supply:	100V to 500V +10%/-15% or 24 ac/dc (±20%)
Control setpoint:	Analogue 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
Firing mode:	Phase angle Intelligent Half cycle 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 feed forward and Trim modes, Threshold limit or by transfer V ² <-> I ² or P <-> I ²
Two digital inputs	Both configurable (input 1 enable by default)
Voltage inputs	Active level (high) 4.4V<Vin<30V Non-active level (low) -30V<Vin<+2.3V Input impedance: 27kW (typ.) for voltage input mode
Contact closure inputs	Source current: 10mA min; 15mA max Open contact (non active) resistance: >500W Closed contact (active) resistance: <150W Absolute Maxima ±30V or ±25mA
One Alarm Relay:	Changeover relay -2A rms – 264V rms – normally energised This relay will be de-energised in case of serious alarms: short circuit thyristor, open circuit, fuse blown, missing main, chop off

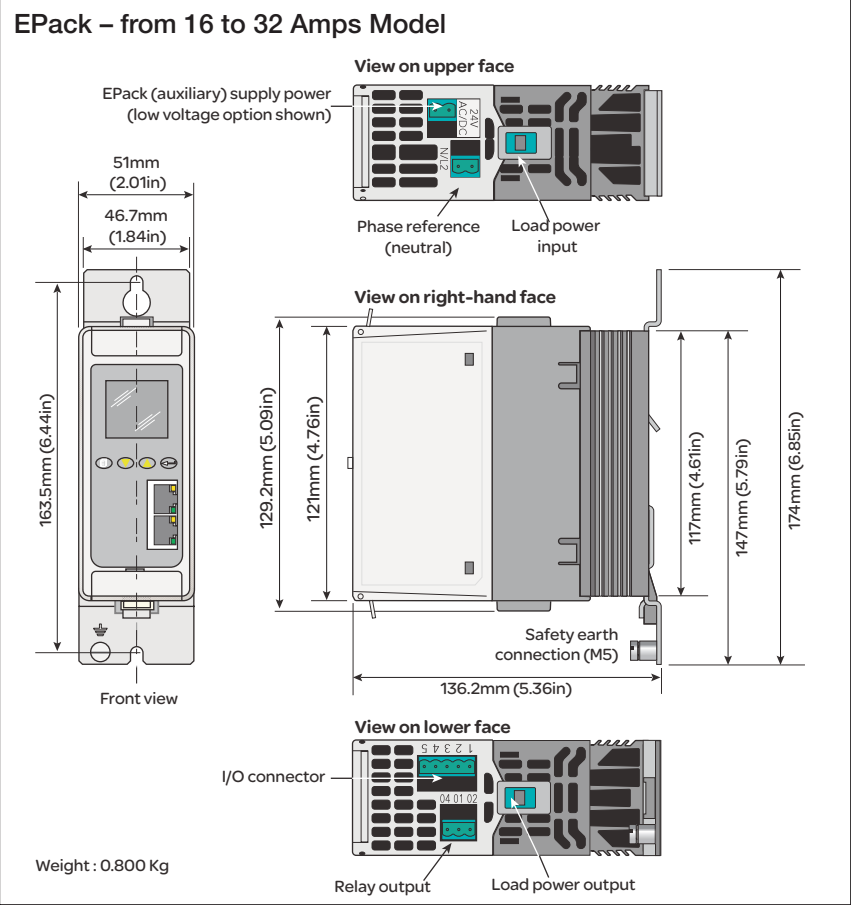
Communications

Connection:	Dual port Ethernet – RJ45 Integral switch
Protocol:	Modbus TCP – Ethernet IP
Baud rate:	10/100 full or half duplex

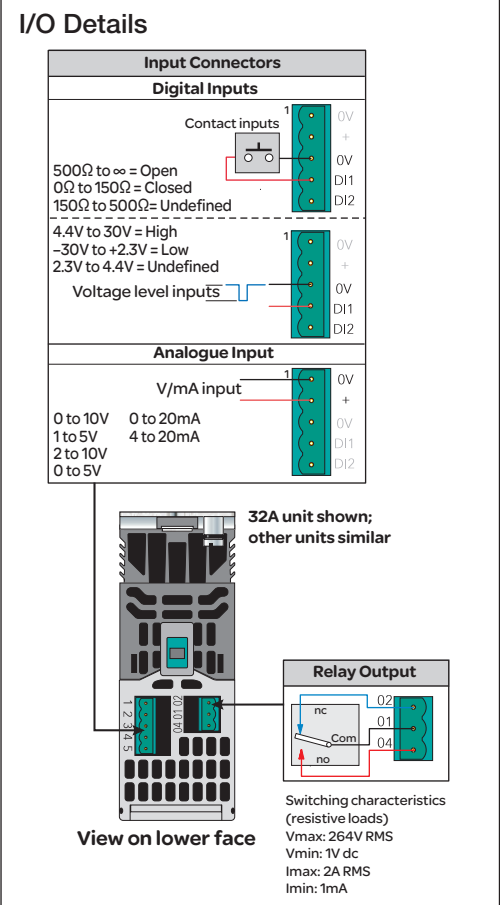
Display

Technology:	TFT
Size:	1.5"
Messages:	Messages for configuration, monitoring and fault

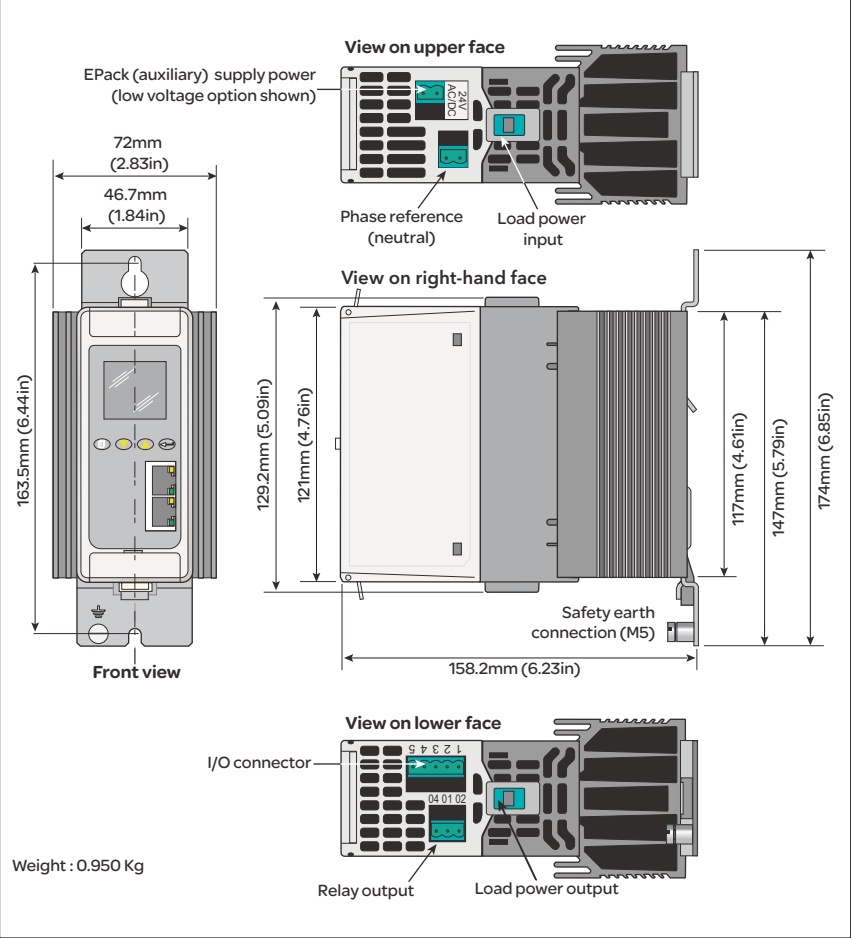
Mechanical details



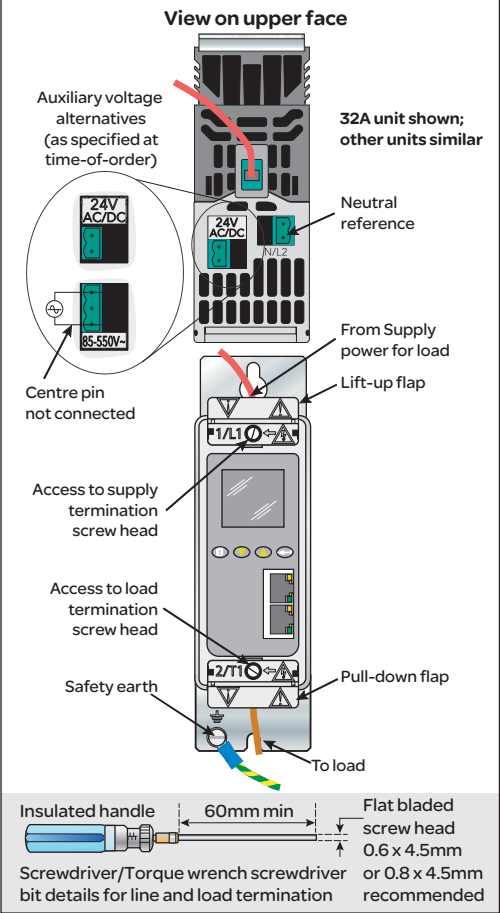
Connectors Details (pinout)



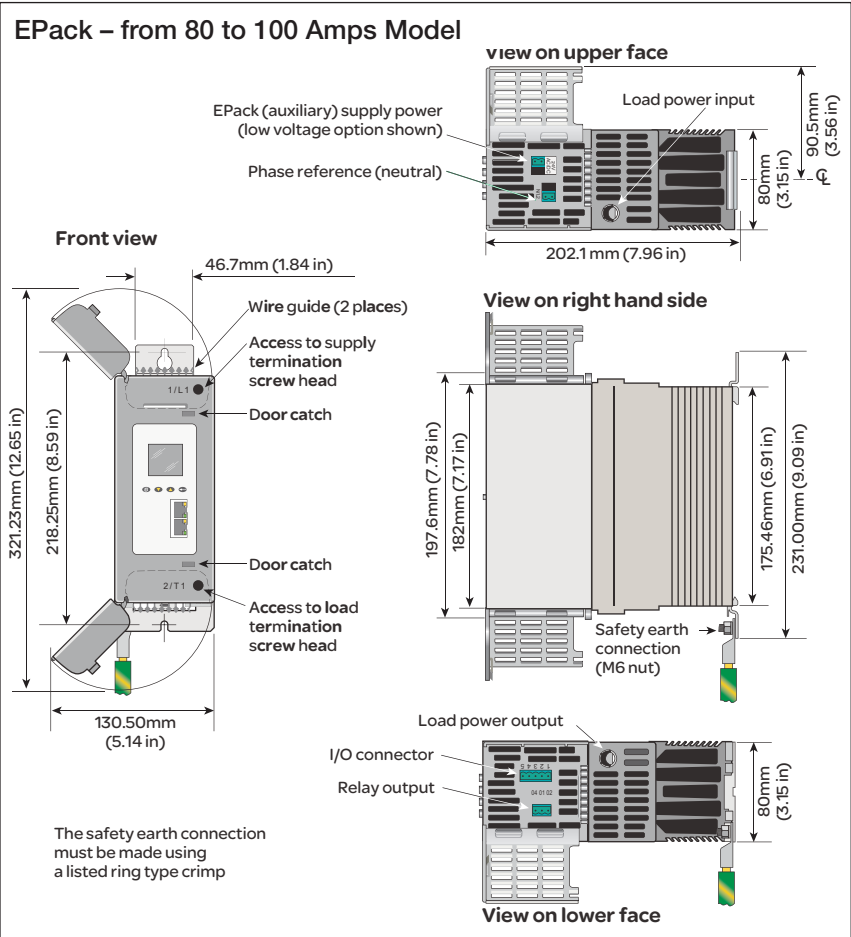
EPack – from 40 to 63 Amps Model



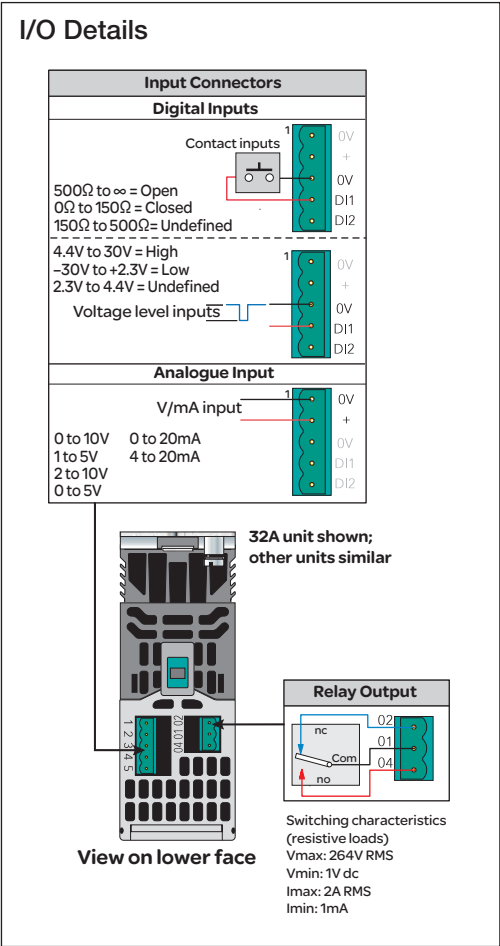
Power Supply Connection Details
32A and 63A Units



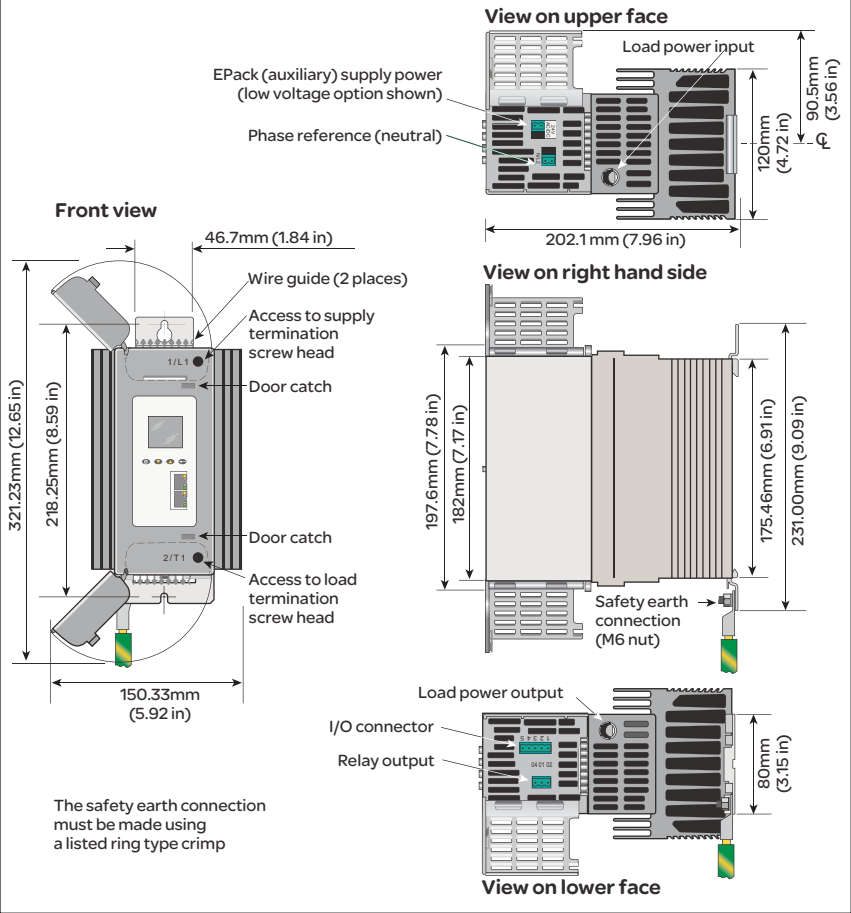
Mechanical details



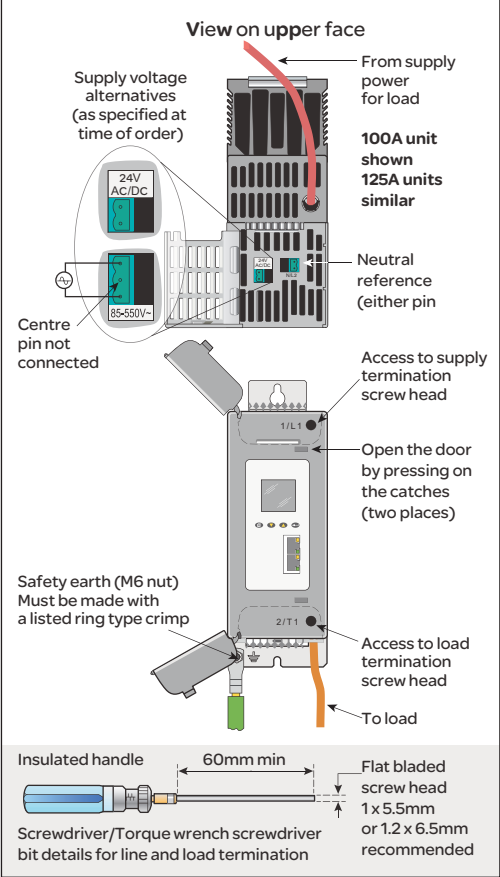
Connectors Details (pinout)



EPack – 125 Amps Model



Power Supply Connection Details (80/100A Units)



Order code

E-Pack 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, software configuration is completed using a quick start procedure or using Eurotherm iTools software.

E-Pack may be upgraded with additional chargeable options at any time using a software key order code.

Basic product coding

EPACK-1PH	1	2	3	4	5	6	7	8	9	10	11	12	13
			XXX					XXX					
14	15	16	17	18	19	20	21	22					

Basic Product		7 Comms Option
EPACK-1PH	Compact SCR Power Controller	TCP Modbus TCP (standard) IP Ethernet IP
1 Max current of the unit		8 Reserved
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		XXX Reserved
2 Auxillary Power Supply		9 Warranty
500V 500V max 24V 24V ac/dc		XXXX Standard Warranty WL005 5 Year Warranty USWL3 US Extended Warranty
3 Reserved		10 Custom Labelling
XXX Reserved		XXXX Standard Label (Eurotherm) FXXXX Special Label (XXXX: reference number)
4 Control Option		11 Graphical Edition
V2 V ² control (standard) I2 I ² control V2CL V ² with current limitation by threshold PWRCL Power control with current limit		XXX Standard configuration (no graphical edition) GWE Graphical Wiring Edition
5 Transfer Option		12 Fuse
XXX No transfer TFR I ² Transfer		XXX Without Fuse HSP High Speed fuse without microswitch HSM High Speed fuse with microswitch
6 Energy Option		13 Configuration
XXX None EMS Energy measurement		XXXXXX Default LC Long code

Optional configuration coding

14 Load Current (Nominal)	18 Firing Mode
nnnA 1 - Value field 1	PA Phase angle IHC Intelligent Half cycle BF Variable Modulation Burst firing (default 16 cycles) FX Fix modulation period (default 2 seconds) LGC Logic mode
15 Line Voltage (Nominal)	19 Analog Input Function
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	XX None SP Setpoint HR Setpoint limit IL Current limit TS Current Transfer Span
16 Load Type	20 Analog Input Type
XX Resistive TR Transformer	0V 0-10 Volt 1V 1-5 Volt 2V 2-10 Volt 5V 0-5 Volt 0A 0-20 mA 4A 4-20mA
17 Heater Type	21 Digital Input 2 Function
XX Resistive MOSI Molybdenum disilicide CSI Silicon Carbide SWIR Short Wave Infra-Red	XX None AK Alarm acknowledgement RS Remote Setpoint selection SP Digital Setpoint FB Fuse Blown
	22 Digital Input 1 Function
	XX None EN Enable

Software upgrade options order coding

Shown on page 6

Software upgrade options

1	2	3	4	5	6	7
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1 Serial number instrument

nnnn	Serial Number
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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 ² CL
V2-PWRCL	Upgrade V ² to PWRCL
V2CL-PWRCL	Upgrade V ² CL to PWRCL

4 Transfer

XXX	(no change)
TFR	I ² Transfer

5 Energy option

XXX	(no change)
EMS	Energy measurement

6 Comms option

XX	(no change)
IP	Ethernet IP

7 Graphical wiring

XXX	(no change)
GWE	Graphical Wiring Editor



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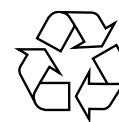
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