

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 protocol

Applications

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

connect control improve

Eurotherm®
by **Schneider Electric**

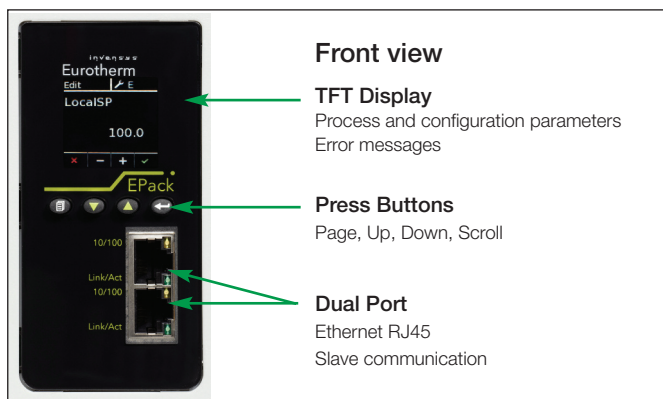
Communications

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, 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 8 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

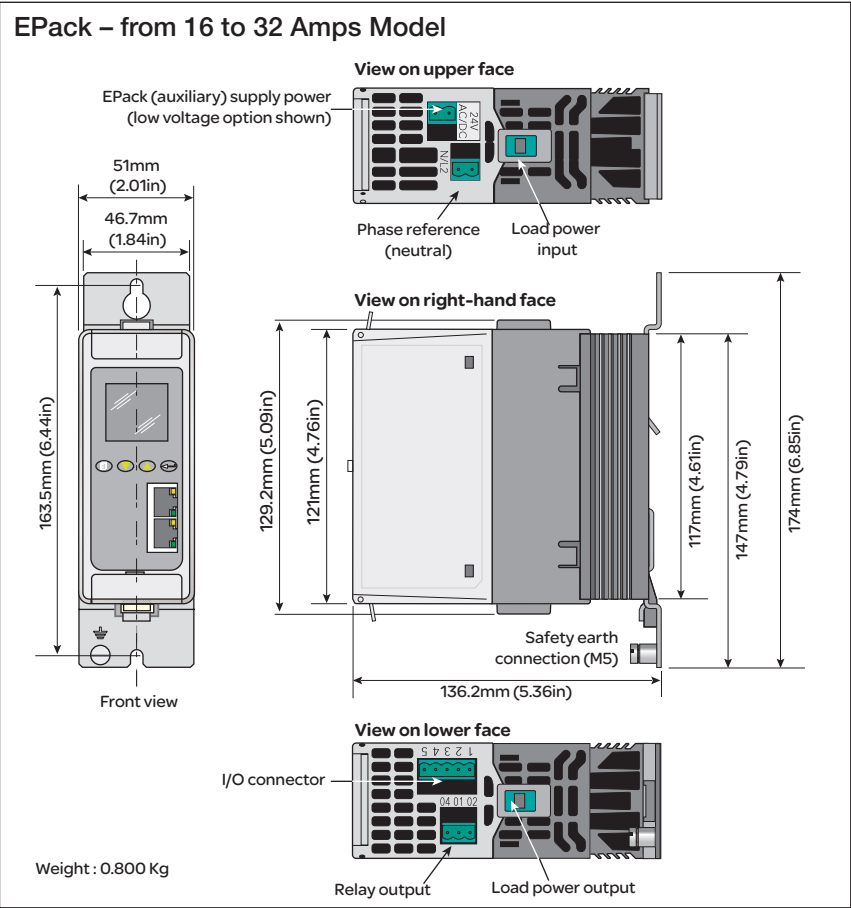
Communications

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

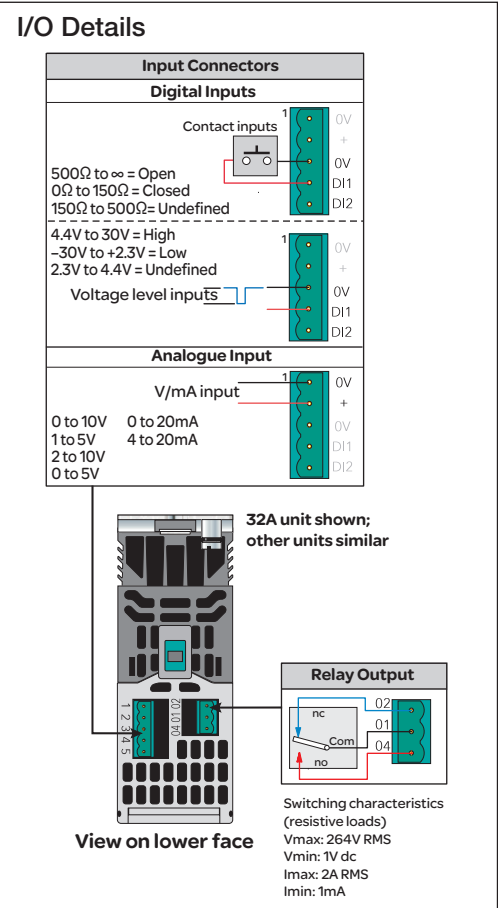
Display

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

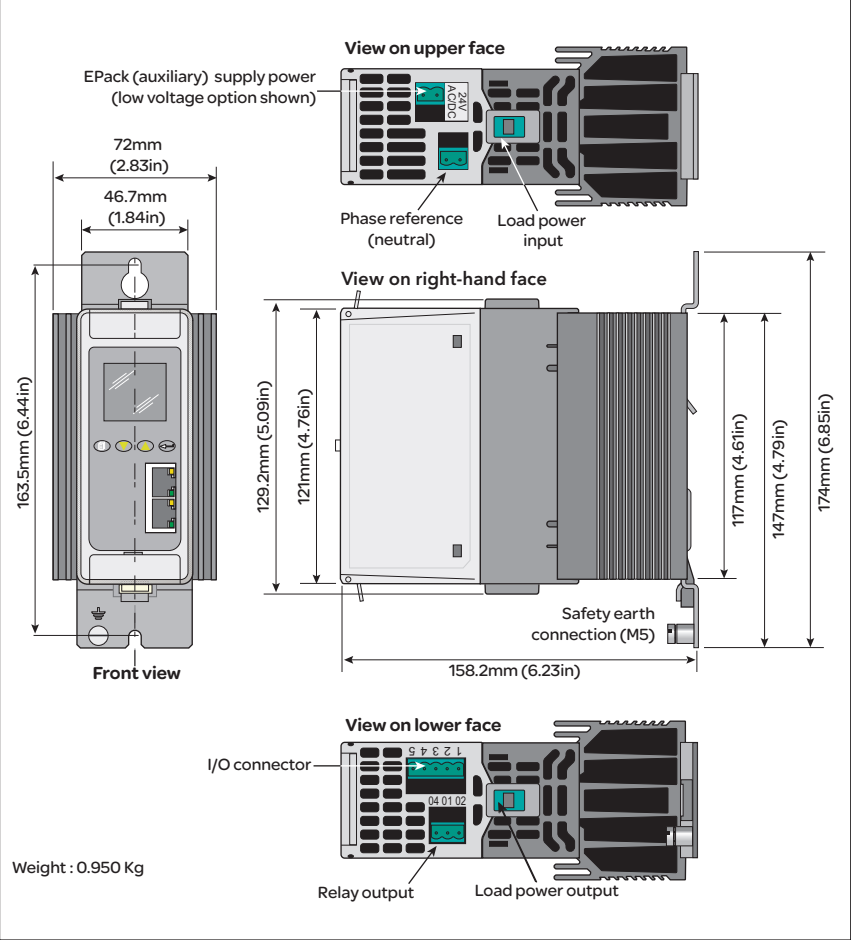
Mechanical details



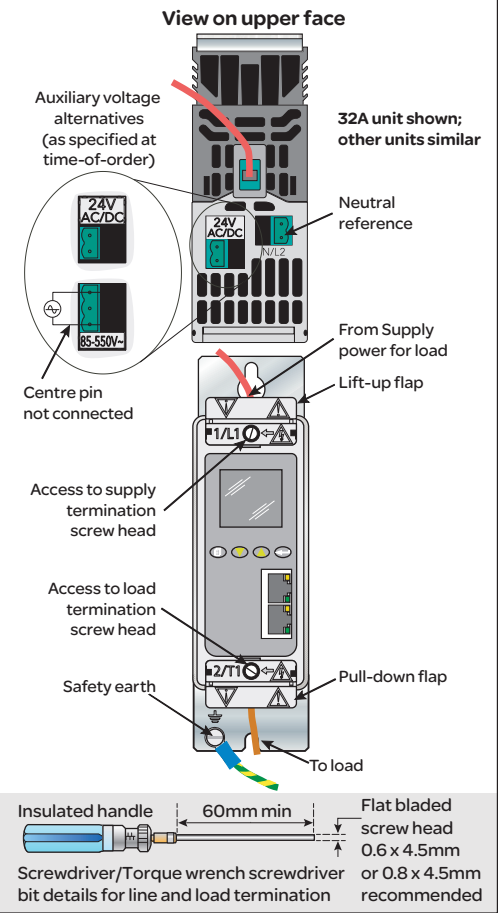
Connectors Details (pinout)



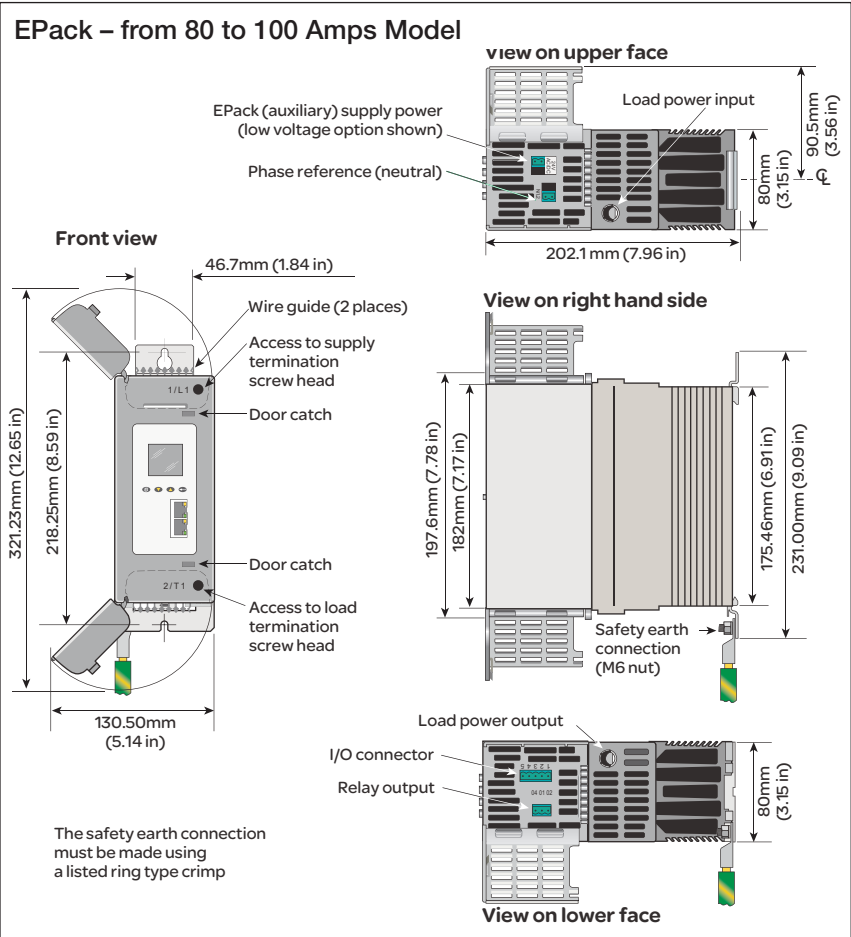
EPack – from 40 to 63 Amps Model



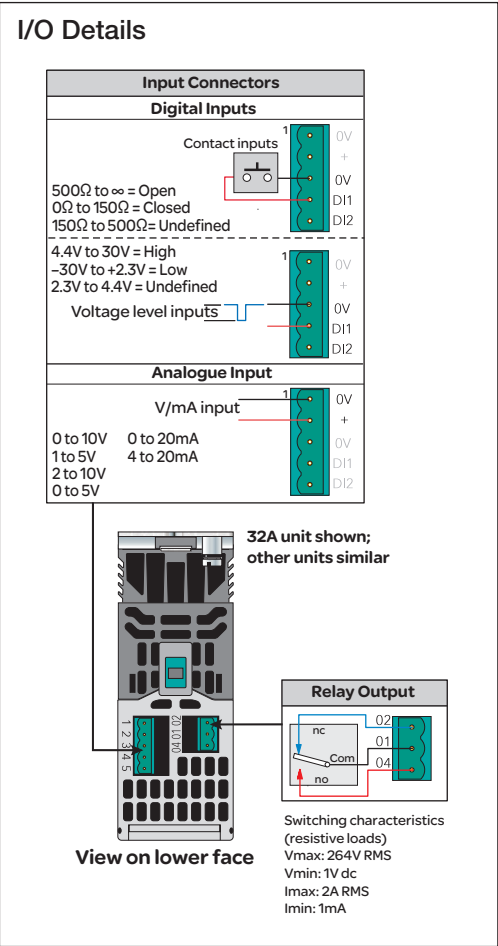
Power Supply Connection Details
32A and 63A Units



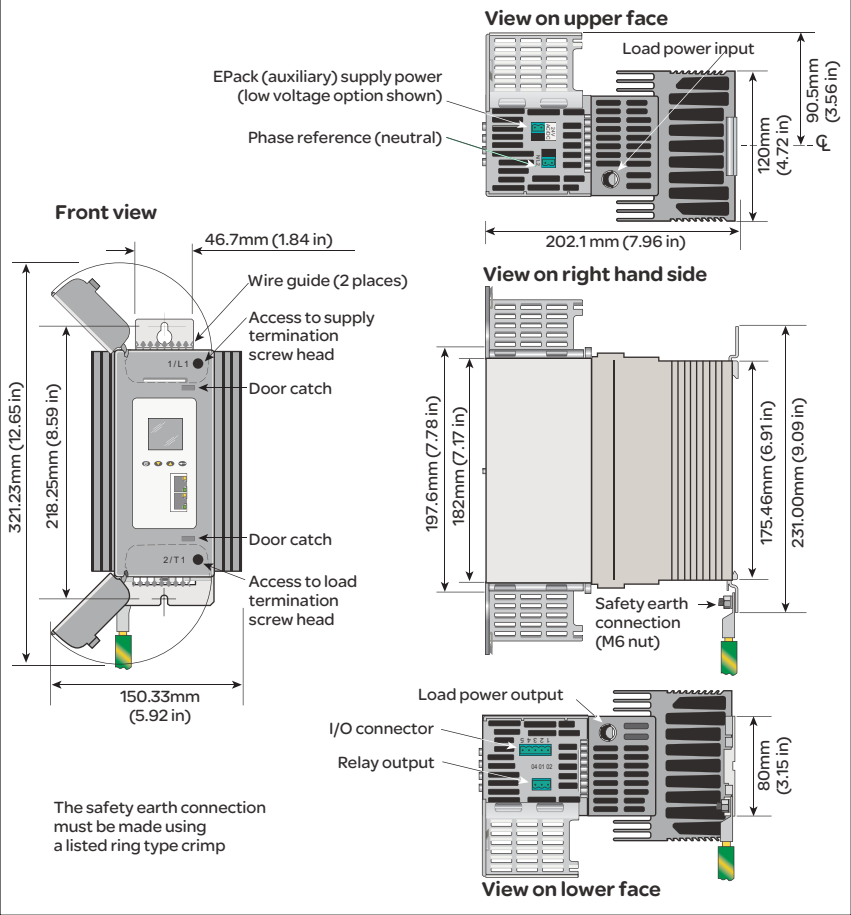
Mechanical details



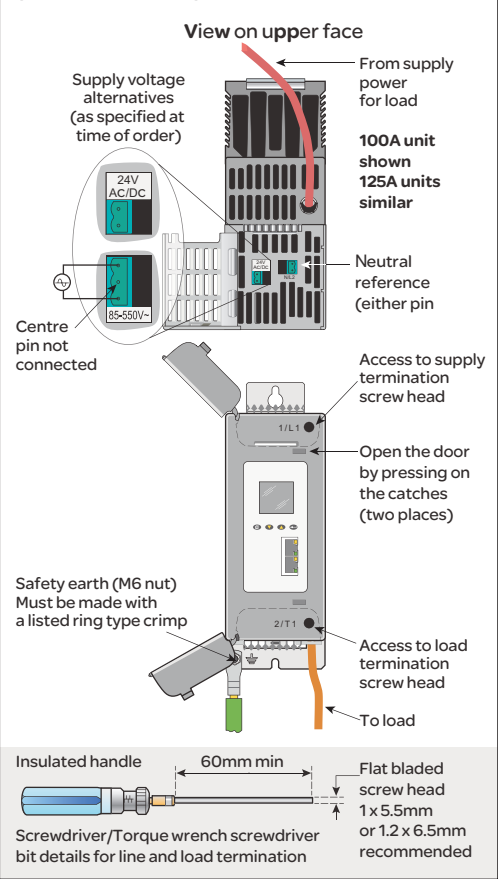
Connectors Details (pinout)



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	
EPACK-1PH	Compact SCR Power Controller

1	Max current of the unit
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	Auxiliary Power Supply
500V	500V max
24V	24V ac/dc

3	Reserved
XXX	Reserved

4	Control Option
V2	V ² control (standard)
I2	I ² control
V2CL	V ² with current limitation by threshold
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)

8	Reserved
XXX	Reserved

9	Warranty
XXXX	Standard Warranty
WL005	5 Year Warranty
USWL3	US Extended Warranty

10	Custom Labelling
XXXX	Standard Label (Eurotherm)
FXXXX	Special Label (XXXX: reference number)

11	Graphical Edition
XXX	Standard configuration (no graphical edition)
GWE	Graphical Wiring Edition

12	Fuse
XXX	Without Fuse
HSP	High Speed fuse without microswitch
HSM	High Speed fuse with microswitch

13	Configuration
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	XX	None
110V	110 Volts	SP	Setpoint
115V	115 Volts	HR	Setpoint limit
120V	120 Volts	IL	Current limit
127V	127 Volts	TS	Current Transfer Span
200V	200 Volts		
208V	208 Volts	20	Analog Input Type
220V	220 Volts	0V	0-10 Volt
230V	230 Volts	1V	1-5 Volt
240V	240 Volts	2V	2-10 Volt
277V	277 Volts	5V	0-5 Volt
380V	380 Volts	0A	0-20 mA
400V	400 Volts	4A	4-20mA
415V	415 Volts		
440V	440 Volts	21	Digital Input 2 Function
460V	460 Volts	XX	None
480V	480 Volts	AK	Alarm acknowledgement
500V	500 Volts	RS	Remote Setpoint selection
		SP	Digital Setpoint
		FB	Fuse Blown
16	Load Type	22	Digital Input 1 Function
XX	Resistive	XX	None
TR	Transformer	EN	Enable
17	Heater Type		
XX	Resistive		
MOSI	Molybdenum disilicide		
CSI	Silicon Carbide		
SWIR	Short Wave Infra-Red		

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

XXX	(no change)
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7 Graphical wiring

XXX	(no change)
GWE	Graphical Wiring Editor



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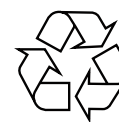
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