# Adaptable Power Control

## EPack™-1PH Compact SCR Power Controllers

Designed For Fast Integration And Optimum Efficiency



#### Product at a Glance

OEMs and system integrators need to be able to react quickly to customer needs while maximizing resources. Whether replacing an existing product or designing a new process, the design of the EPack™ power controller has been carefully considered for fast and easy panel installation, commissioning and integration into wider systems, lowering equipment costs, and manufacturing times for you and your customers.

End users continually need to improve operational efficiency and productivity. EPack power controllers have been designed to deliver real savings, helping to reduce your energy costs. Get the best from your operations; quick and easy to install, integrate and commission. Its compact size also offers powerful and versatile features that help to minimize costs, whilst improving productivity and quality.

> See EPack™ compact SCR power controllers brochure HA031554 to discover how full EPack range can add value to your business

EPack-1PH 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. Additionally, EPack is highly configurable and may be adapted for current and future needs using a software key to purchase additional functionality when needed.

#### Key Features:

- Nominal load current from 4 to 125 amps
- Voltage up to 500V
- Compact DIN Rail and bulkhead mounting
- Configurable via Eurotherm iTools (PC software) or front panel
- Plug and play Ethernet communications with Zero configuration networking (zeroconf)
- Fast start up with 'Quick Start'
- V<sup>2</sup>, I<sup>2</sup> or True power control with current limitation
- Wide range of firing modes: Logic, Phase Angle, Adjustable Burst Firing, Fast Cycle
- Controls comprehensive range of loads: Resistive, Infrared, Transformer Primary, Molybdenum Disilicide, Silicon Carbide
- Measurements: Current, voltage, impedance, energy usage and more
- Load fault detection up to 1 element of 6
- Integrated dual port Ethernet switch for "Daisy Chained" communications
- Modbus® TCP, Ethernet IP or Profinet
- Defend OEM knowledge and IP (OEM Security)
- SCCR 100kA

## Specifications

ороспісаціоно	<u> </u>
General	
Directive	EMC directive 2014/30/EU
	Low Voltage Directive 2014/35/EU
Safety Specification	EN60947-4-3:2014
EMC Emissions Specification	EN60947-4-3:2014 - Class A product
EMC Immunity Specification	EN60947-4-3:2014
Vibration Tests	EN60947-1 annex Q category E
Shock Tests	EN60947-1 annex Q category E
Approvals	
CE European Community	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.
C US & Canada	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
En Eurasian Economic Union	GOST IEC60947-4-3: 2014 (identical to IEC 60947-4-3:1999+AMD1:2006+AMD2:2011)  EAC Declaration of conformity for the Customs Union EurAsEC  EAC approval and Pattern Approval
Australia	Regulatory Compliance Mark (RCM) to Australian Communication and Media Authority Based on compliance to EN60947-4-3:2014
China	Product not listed in catalogue of products subject to China Compulsory Certification (CCC)
Protection	CE: 16 to 63A > IP10 according to EN60529 80 to 125A > IP20 according to EN60529 UL: open type

Non-corrosive, non-explosive, non-conductive
Degree 2
-25°C to 70°C (maximum)
0 to 45°C at 1000m
0 to 40°C at 2000m
1000m maximum at 45°C
2000m maximum at 40°C
Altitude (meters)
2000 1750 1500 1000 40 41 42 43 44 45 Operating temperature (°C)

Mechanical Details				
Unit	Height	Width	Depth	Weight
16 to 32A	129.2mm / 5.09in	51mm / 2.01in	136.2mm / 9.04in	0.8kg / 1.76lb
40 to 63A	129.2mm / 5.09in	72mm / 2.83in	173.3mm / 9.04in	0.95kg / 2.09lb
80 to 100A	0 to 100A 197.6mm / 7.78in		202.1mm / 9.04in	1.8kg / 3.97lb
125A	197.6mm / 7.78in	120mm / 4.72in	202.1mm / 9.04in	2.5kg / 5.51lb

Fuses			
Current Rating	Fuse Holder Size	Dimensions H x W x D	
≤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	27x60mm / 1-1/16x2-3/8in	149.4x40x93.5mm / 5.88x1.57x3.68in	
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	100 to 500Vac +10%/-15%
Accuracy	+2% of full scale - from 100 to 500V +10%/-15%
Frequency	47Hz to 63Hz
Short Circuit Protection	By external supplemental high speed fuses
Rated Conditional Short-circuit Current	100kA (Coordination Type 1)
Type Of Loads	
AC51	Resistive or slightly inductive load (cos phi>0.8)
AC-56a	Transformer Primary or MOSI (e.g.
	Molybdenum disilicide); Time temperature
	dependant loads (e.g.Silicon Carbide)

Control	
Auxillary Power Supply	100V to 500V +10%/-15% or 24 ac/dc (±20%)
Control Setpoint	Analog or Logic input or Digital Comms
Analogue Input Signal	3 4 4 4
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	$V^{\circ}$ control, $l^{\circ}$ control, True Power control, Open loop with feed forward and Trim modes, Threshold limit or by transfer $V^{\circ}$ <-> $l^{\circ}$ or P<-> $l^{\circ}$
Configurable Digital Inputs	Input 1: enable by default; Input 2: setpoint, alarm acknowledgment, 10V supply,
Voltage Inputs	Active level (high): 11V <vin<30v &="" (low):="" -="" -3v<vin<5v="" 1="" 2="" 2ma<lin<30ma="" 5v<vin<11v="" 61131-2<="" 6ma<lin<30ma;="" according="" compatible="" iec="" inputs,="" level="" lin<2ma="" non-active="" or="" plc="" td="" to="" types="" with=""></vin<30v>
Contact Closure Inputs	Source current: 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

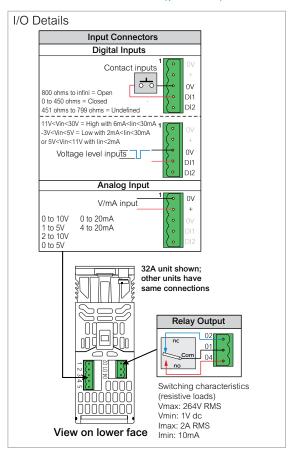
Communications	
Connection	Dual port Ethernet - RJ45 Integral switch
Protocols	Modbus TCP, Ethernet IP or Profinet
Baud Rate	10/100 full or half duplex

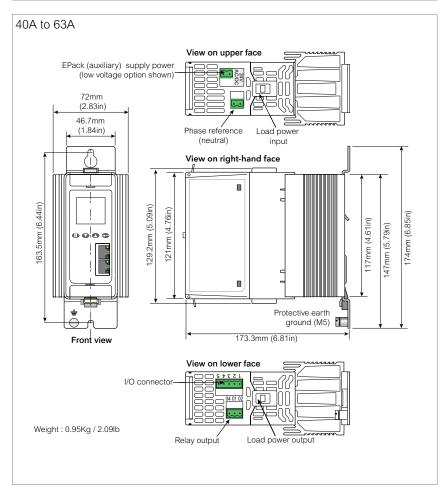
Display	
Technology	TFT
Size	1.5"
Messages	Configuration, Monitoring and Diagnostics

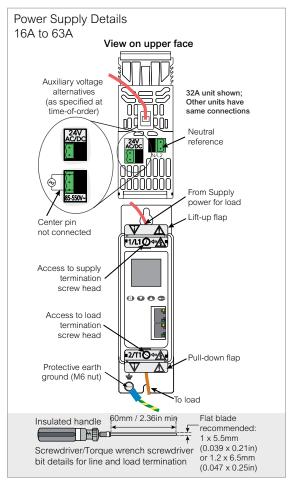
#### Mechanical Details

## 16A to 32A View on upper face EPack (auxiliary) supply power (low voltage option shown) 51mm (2.01in) 46.7mm Phase reference Load power (1.84in) (neutral) View on right-hand face 29.2mm (5.09in) 163.5mm (6.44in) mm (4.76in) 12 Protective earth ground (M5) 136.2mm (5.36in) Front view View on lower face I/O connector Weight: 0.8Kg / 1.76lb Relay output Load power output

## Connector Details (pinout)



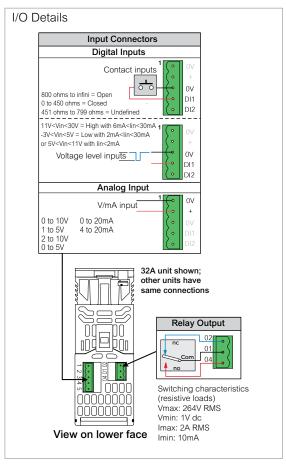


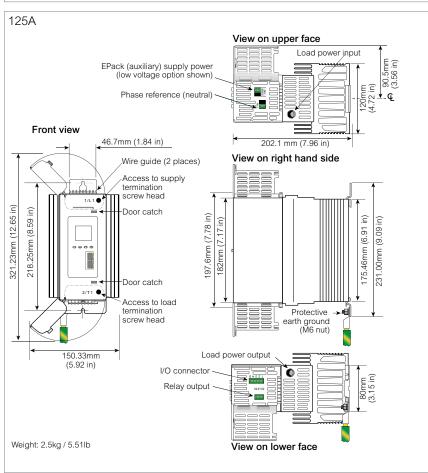


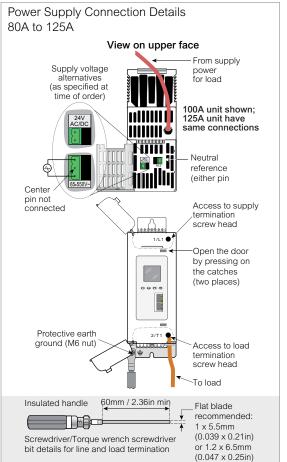
## Mechanical Details

#### 80A to 100A View on upper face Load power input EPack (auxiliary) supply power (low voltage option shown) Phase reference (neutral) Front view 202.1 mm (7.96 in) 46.7mm (1.84 in) View on right hand side Wire guide (2 places) Access to supply termination screw head 1/L1 **(** 321.23mm (12.65 in) .25mm (8.59 in) Door catch .6mm (7.78 in) 182mm (7.17 in) (9.09) 175.46mm (6.91 218. 197 231. Door catch 2/T1 Access to load termination Protective →■ screw head earth ground (M6 nut) Load power output 130.50mm (5.14 in) I/O connector Relay output Weight: 1.8kg / 3.97lb View on lower face

## Connector Details (pinout)







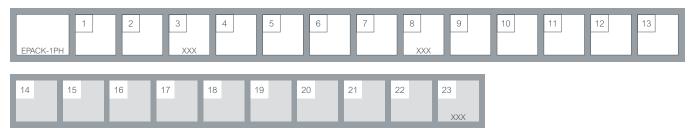
## **Order Codes**

The EPack power controller is ordered using a short code for the chargeable options and an extended option configuration code for commissioning.

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

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

## **Product Coding**







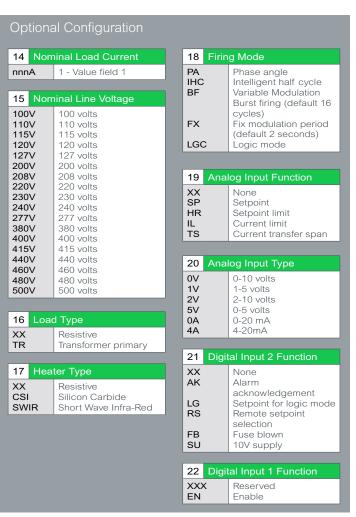


V2CL	I <sup>2</sup> control V <sup>2</sup> with current
PWRCL	limitation by threshold Power control with current limit

TFF	₹	I <sup>2</sup> Transfer	
6	Ene	nergy Option	
XXX EM:	-	- Energy measurement	

XXX





## Software Upgrade Options



#### 1 Serial Number Instrument

nnnn Serial number

#### 2 Current Ratings

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

5	Energy Option	
XXX	-	No change Energy measurement
IFF	`	Lifergy measurement

#### 6 Comms Option

XXX No change Ethernet IP

7	Graphical Wiring	
XXX GW	-	No change Graphical wiring

editor

#### 3 Control Option

XXX V2-V2CL

no change Upgrade V² to V²CL

V2-PWRCL V2CL-PWRCL Upgrade V² to PWRCL Upgrade I² to PWR

4	Transfer	Option

XXX TFR No change I<sup>2</sup> Transfer

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