

SAFETY NOTES

- BRANCH-CIRCUIT PROTECTION AND SAFETY OVERLOAD PROTECTION**
This product does not contain any branch-circuit protection or internal safety overload protection. It is the responsibility of the user to add branch-circuit protection upstream of the unit. It is also the responsibility of the user to provide external or remote safety overload protection to the end installation. Such branch-circuit and safety overload protection must comply with applicable local regulations.
UL: The abovementioned branch-circuit protection is necessary for compliance with National Electric Code (NEC) requirements.
- Any interruption of the protective conductor inside or outside the apparatus, or disconnection of the protective earth terminal is likely to make the apparatus dangerous under some fault conditions. Intentional interruption is prohibited.
- Before carrying out any wiring to the unit it must be ensured that all relevant power and control cables, leads or harnesses are isolated from voltage sources. Wire conductor cross sections must comply with table 1 of EN60947-1.

Note: The instrument shall have one of the following as a disconnecting device, fitted within easy reach of the operator, and labelled as the disconnecting device.

- A switch or circuit breaker which complies with the requirements of IEC947-1 and IEC947-3
 - A separable coupler which can be disconnected without the use of a tool.
- Before any other connection is made, the protective earth terminal shall be connected to a protective conductor.
 - Whenever it is likely that protection has been impaired, the unit shall be made inoperative, and secured against accidental operation. The manufacturer's nearest service centre should be contacted for advice.
 - Any adjustment, maintenance and repair of the opened apparatus under voltage, is forbidden for safety reasons.
 - Units are designed to be installed in a cabinet connected to the protective earth according to IEC364 or applicable national standards. The cabinet must be closed under normal operating conditions. Adequate air conditioning/ filtering/ cooling equipment must be fitted to the cabinet in order to prevent the ingress of conductive pollution, the formation of condensation etc.
 - Units are designed to be mounted vertically. There must be no obstructions (above or below) which could reduce or hamper airflow. If more than one set of units is located in the same cabinet, they must be mounted in such a way that air from one unit is not drawn into another.
 - Signal and power voltage wiring must be kept separate from one another. Where this is impractical, shielded cables should be used for the signal wiring.
 - If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment might be impaired.

SELV

Safety Extra Low Voltage. This is defined (in EN60947-1) as an electrical circuit in which the voltage cannot exceed 'ELV' under normal conditions or under single fault conditions, including earth faults in other circuits. The definition of ELV is complex as it depends on environment, signal frequency etc. See IEC 61140 for further details.

WARNINGS

- This equipment is not suitable for isolation applications, within the meaning of EN60947-1.
- Under some circumstances, the power module heatsink temperature may rise above 50 degrees Celsius. If operators are likely to come into contact with such heatsinks, adequate warnings and barriers must be put in place in order to prevent injury.
- E-Pack alarms protect thyristors and loads against abnormal operation, and provide the user with valuable information regarding the type of fault. Under no circumstances should these alarms be regarded as a replacement for proper personnel protection. It is strongly recommended that the installing authority include independent, system-safety mechanisms to protect both personnel and equipment against injury or damage, and that such safety mechanisms be regularly inspected and maintained. Consult the E-Pack supplier for advice.

RoHS

Restriction of Hazardous Substances (RoHS)

Product group: E-pack

Table listing restricted substances

Product	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
E-pack	X	X	O	O	O	O
功率模块 16-32A	X	X	O	O	O	O
功率模块 40-63A	X	X	O	O	O	O
O	表示该有毒物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。					
X	表示该有毒物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。					

English

Restricted Materials Table

Product	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
E-pack	X	X	O	O	O	O
Power Module 16-32A	X	X	O	O	O	O
Power Module 40-63A	X	X	O	O	O	O
O	Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.					
X	Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.					

Approval

Name:	Position:	Signature:	Date:
Martin Greenhalgh	Quality Manager	<i>Martin Greenhalgh</i>	19 FEB 2013

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Eurotherm: International sales and support www.eurotherm.com

Contact Information
Eurotherm Head Office
Faraday Close, Durrington,
Worthing, West Sussex,
BN13 3PL

Worldwide Offices
www.eurotherm.com/global

General Enquiries
T +44 (0)1903 695888
F 0845 130 9936

Represented by:

Operations Management

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E-Pack™ Controller



DVD CONTENTS AND INSTALLATION

Product documentation. The documentation on this DVD is in pdf format which requires the use of Adobe® Acrobat® 4.0 or later to view it. The English language version of Adobe Acrobat 4.0 for Microsoft® Windows® may be installed from this DVD.

DOCUMENTATION
E-Pack Controller User Guide HA031414

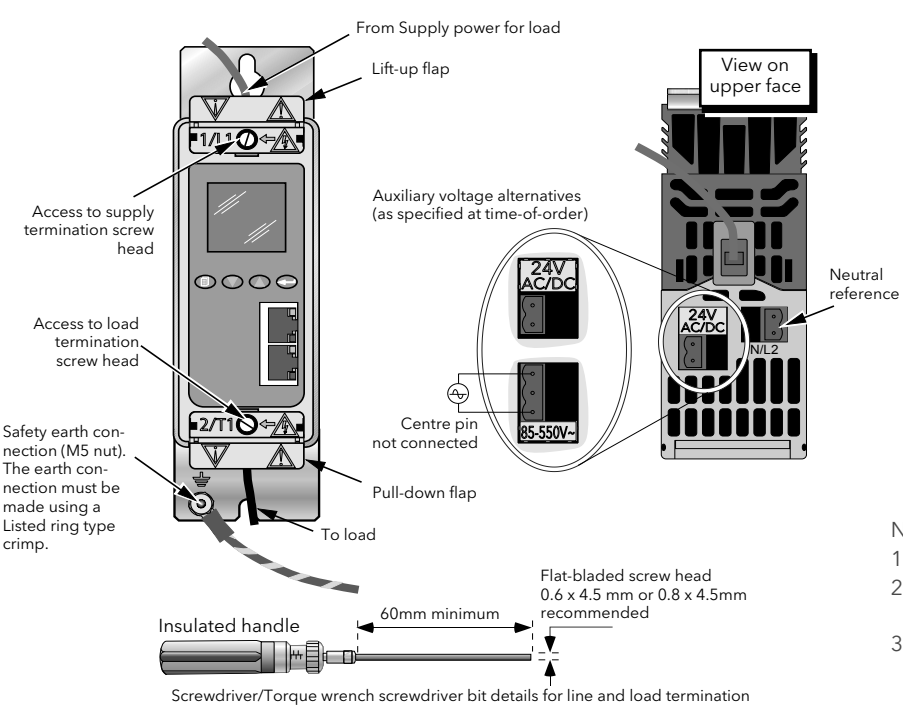
SOFTWARE

iTools with Wizards. The software licence On-Screen Licence Agreement Issue A (February 2001) is defined in licence.doc (and **licence.txt**).

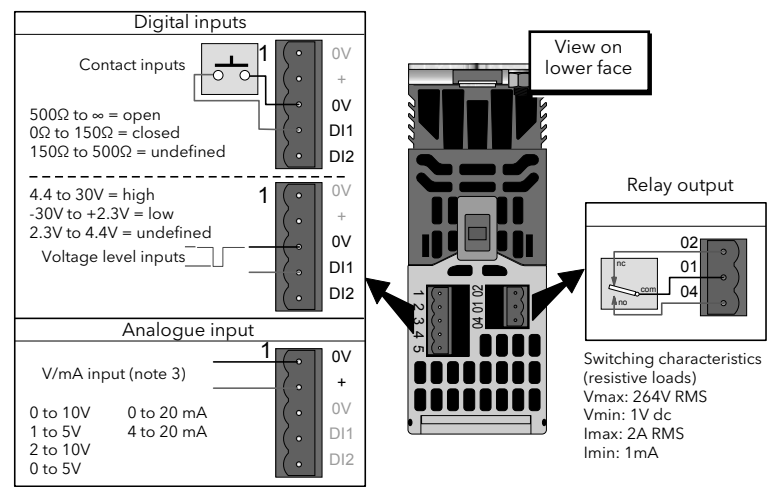
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ELECTRICAL INSTALLATION

SUPPLY WIRING



IO WIRING



- Notes:
- DI1 shown; DI2 similar
 - DI1 and DI2 can both be contact inputs or both be voltage inputs or be one of each.
 - Analogue input type (Volts or mA) is selected in I/O Analogue IP configuration. When a mA range is selected, a suitable shunt resistor is automatically connected into circuit. It is thus unnecessary for the user to fit external components.
 - Use 0.6 x 3.5 mm screwdriver for pluggable connectors

Supply cable sizes and torques

Connector	Cable cross section and tightening torque
Supply voltage (1/L1) and Load supply (2/T1)	16 to 32 A units: 2.5 to 6 mm ² (12 to 10 AWG). Torque: 1.7 Nm
Safety earth	40 to 63 A units: 10 to 16 mm ² (8 to 6 AWG). Torque: 1.7 Nm
Phase reference (N/L2) (2-way)	Cross section same as above. Torque 2.5 Nm
E-Pack supply (24V ac/dc) (2-way)	0.25 to 2.5 mm ² (24 to 12 AWG). Torque 0.6 Nm.
E-Pack supply (88 to 550V ac) (3-way)	0.25 to 2.5 mm ² (24 to 12 AWG). Torque 0.6 Nm.
I/O connector (5-way)	0.25 to 2.5 mm ² (24 to 12 AWG). Torque 0.6 Nm.
Relay connector (3-way)	0.25 to 2.5 mm ² (24 to 12 AWG). Torque 0.6 Nm.

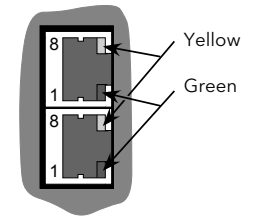
2.5Nm = 22.13 pound inches; 1.7Nm = 15.05 pound inches; 0.6Nm = 5.31 pound inches.

*Note: Temperature rating of field-installed power conductors: 90°C; temperature rating for other wires = 75°C

COMMUNICATIONS WIRING

Pin	Signal
8	Not used
7	Not used
6	Rx-
5	Not used
4	Not used
3	Rx+
2	Tx-
1	Tx+

LEDs:
Green = Tx activity
Yellow = Connected



SPECIFICATION

STANDARDS

The product is designed and produced to comply with EN60947-4-3 (Low voltage switch gear and control gear) and with UL60947-4-1A and CAN/CSA C22.2. Other applicable standards are cited where appropriate.

INSTALLATION CATEGORIES

General installation category details are summarized in the table below.

	Installation category	Rated impulse withstand voltage (Uimp)	Rated insulation voltage
Communication	II	0.5kV	50V
Standard IO	II	0.5kV	50V
Relays	II	2.5kV	230V
Module Power	III	6kV	500V

PHYSICAL

Dimensions and fixing centres See figures below for details
 Weight 16 to 32A units 800g + user connectors
 40 to 63A units 950g + user connectors

EMC

Standard EN60947-4-3:2000 (2000-01-12), EN60947-4-3:2000/A1:2006 (2006-12-08), EN60947-4-3:2000/A2:2011 (2011-09-02)
 This product has been designed for environment A (Industrial). Use of this product in environment B (domestic, commercial and light industrial) may cause unwanted electromagnetic disturbances in which cases the user may be required to take adequate mitigation measures.

POWER (at 45°C)

Voltage range Load: 100 to 500V (+10% -15%)
 Auxiliary: 24V ac/dc (+20% -20%) or 100 to 500V (+10% -15%)
 Frequency range 47 to 63 Hz for load and ac auxiliary supplies
 Power requirement 24V dc supply: 12W
 24V ac supply: 18VA
 500V ac supply: 20VA
 Installation category See table above.
 Nominal load current 16 to 63 Amps
 Rated short-circuit conditional current 100kA
 Pollution degree Pollution degree 2
 Utilization categories (Load types) AC51: Non-inductive or slightly inductive loads, resistance furnaces
 AC56a: Transformer Primary or MOSI (Molybdenum Silicide)
 Time temperature dependant loads (Silicon Carbide, Carbon)
 Duty cycle Uninterrupted duty / continuous operation
 Short circuit protection None within the unit
 Load Types Single phase control of resistive loads (low/high temperature coefficient and non-aging/aging types) and transformer primaries.

ENVIRONMENT

Temperature limits Operating: 0°C to 45°C
 Storage: -25°C to +70°C
 Humidity limits 5% to 95% RH (non-condensing)
 Altitude 1000 metres maximum at 45 degrees.
 Protection IP10 (EN60529)
 Atmosphere Non-explosive, non-corrosive, non-conductive
 External wiring General: Must comply with IEC 364
 UL: Wiring must comply with NEC and all applicable local regulations
 Shock To (EN60068-2-27) and IEC60947-1 Annex Q
 Vibration (EN60068-2-6)* To (EN60068-2-6) and IEC60947-1 Annex Q

OPERATOR INTERFACE

Display 1.5" square TFT colour display allowing viewing of selected parameter values in real time, plus configuration of instrument parameters for users with adequate access permission.
 Pushbuttons Four push buttons provide page and item entry and scroll facilities.

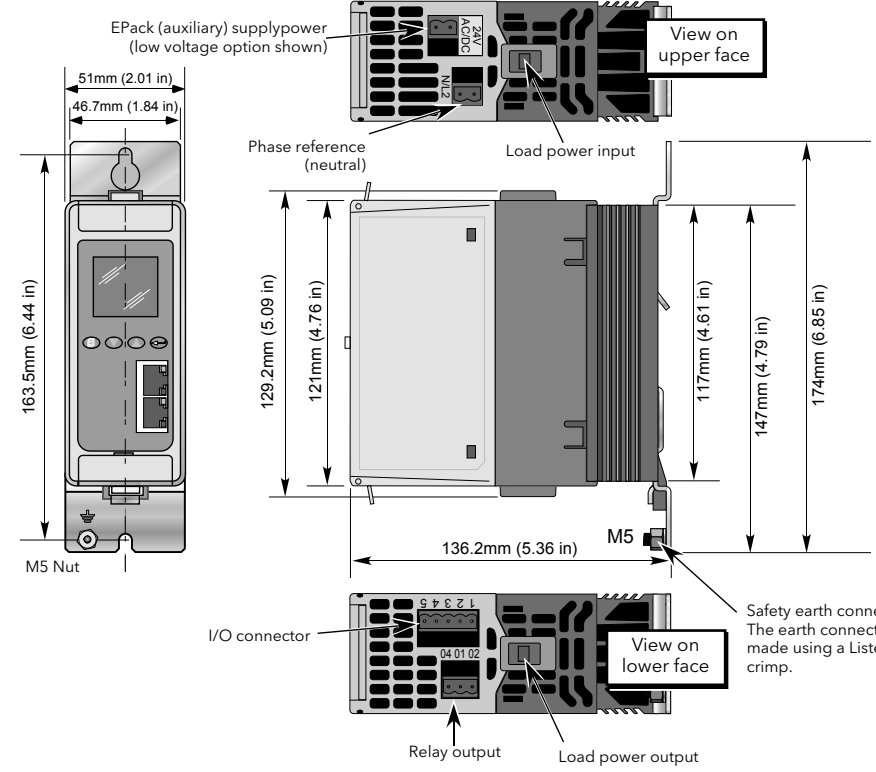
SYMBOLS USED IN THE INSTRUMENT LABELLING

One or more of the symbols below may appear as a part of the instrument labelling.

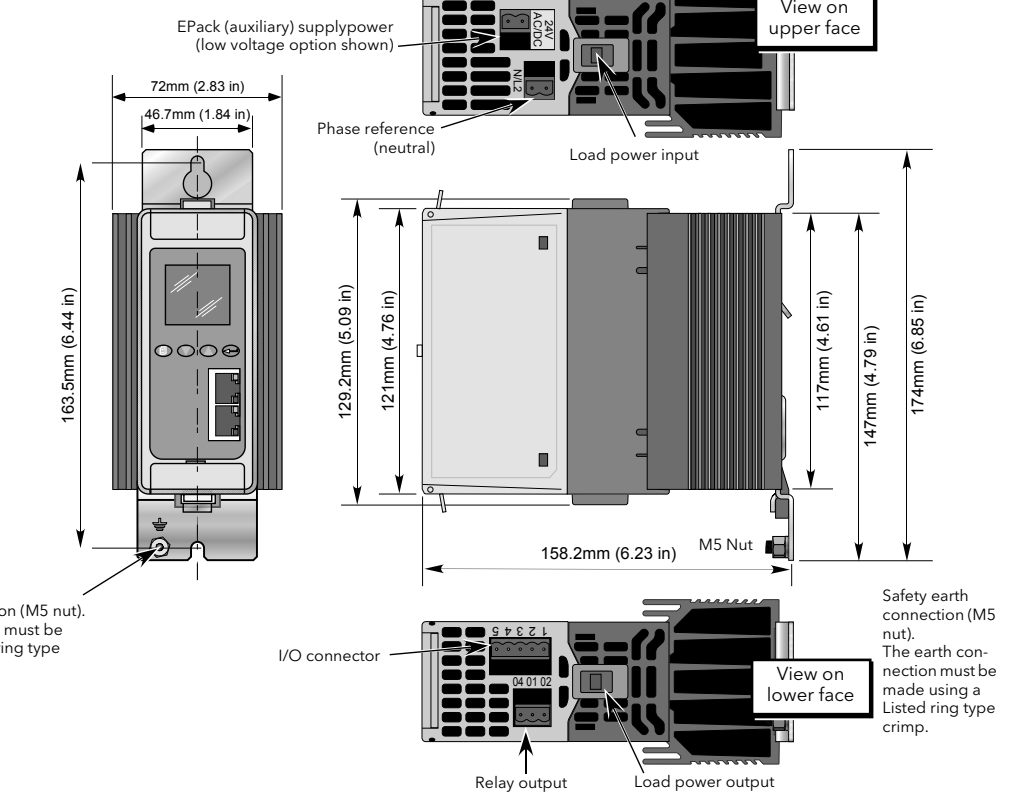
	Protective conductor terminal		Risk of electric shock
	AC supply only		Precautions against static electrical discharge must be taken when handling this unit
	Underwriters Laboratories listed mark for Canada and the US		Refer to the manual for instructions
	Do not touch Heatsink Hot Surface		

MECHANICAL INSTALLATION

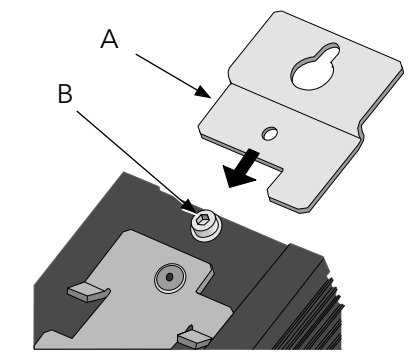
16A to 32A units



40A to 63A units



BULKHEAD MOUNTING BRACKET



For Bulkhead mounting, fit the upper bracket 'A' to the rear of the unit by removing screw 'B' and associated shakeproof washer, offering the bracket up to the unit, and then securing it using screw 'B' ensuring that the bracket is correctly oriented (as shown) and that the shakeproof washer is fitted between the screw head and the bracket.
 The relevant screwdriver should have a 3mm AF hexagonal bit. The recommended tightening torque is 1.5Nm (1.1 lb-ft).