DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH

1. If the product (EPower) is used in a manner not specified by the manufacturer, the protection provided by the product might be impaired.
2. Any adjustment, maintenance and repair of the opened apparatus under voltage, is forbidden for safety reasons.
3. The product must be installed and maintained by suitably qualified personnel, authorized to work in an industrial low voltage environment.
4. The product is not suitable for isolation applications, within the meaning of EN60947-1.
5. The product is designed to be installed in a cabinet connected to the protective earth ground according to IEC60364-1 and IEC60364-5-54 or applicable national standards.
6. Electrically conductive pollution must be excluded from the cabinet in which the product is mounted. To ensure a suitable atmosphere in conditions of conductive pollution, fit adequate air conditioning/filtering/cooling equipment to the air intake of the cabinet, e.g. fitting fan-cooled cabinets with a fan failure detection device or a thermal safety cut-out.
7. Before carrying out any wiring to the product, it must be ensured that all relevant power and control cables, leads or harnesses are isolated from voltage sources.
8. Before any other connection is made, the protective earth ground terminal shall be connected to a protective conductor. The earth connection must be made by using a lug terminal of size as given in safety earth details.
• CE: Protective earth ground minimum size must be selected according to IEC 60364-5-54 table 54.2 or IEC61439-1 Table 5 or applicable national standards.
• UL: The earth connection must be made using a UL-listed lug terminal. The cables must be rated 75°C stranded copper only. Wire conductor cross sections must comply with NEC requirements.
9. Protective earth ground minimum size must be selected according to IEC 60364-5-54 table 54.2 or IEC61439-1 Table 5 or applicable national standards.
10. Any interruption of the protective earth ground conductor inside or outside the product, or disconnection of the protective earth ground terminal is likely to make the product dangerous under some conditions. Intentional interruption is prohibited. Whenever it is likely that protection has been impaired, the unit shall be made inoperative, and secured against accidental operation. The manufacturers nearest service centre must be contacted for advice.
11. According to the CE and UL certifications, high speed fuses (supplemental fuses) are mandatory for compliant installation and protection of the Epower controller against short circuit. See paragraph 12.3 of user manual HA179769 for details.
12. The EPower's rated short-circuit conditional current is defined for co-ordination type 1. If opening of either the branch circuit protective or the supplemental (high speed) fuses occurs, the product shall be examined by suitably qualified personnel and replaced if damaged.
13. To achieve IP10 rating according to IEC60529, power connections must be made by using lug terminals of size as given in Line Load Termination details.
• UL: Power connections connection must be made using UL-listed lug terminals.
14. The mains supply fuse within the Driver Module is not replaceable. If it is suspected that the fuse is faulty, the manufacturer's local service center should be contacted for advice.
15. The I/O Input and Output, the Communications ports are SELV circuit. They must be connected to SELV or PELV circuit.
16. The relays outputs are compliant to the SELV requirements; they can be connected to SELV, PELV circuit or to voltage up to 230V (maximum value of rated operational voltage to earth:300V).
17. Do not exceed the device's ratings.

Failure to follow these instructions will result in death or serious injury.

HAZARD OF FIRE

1. This product does not contain any branch-circuit protection or internal safety overload protection. The installer must add branch-circuit protection upstream of the unit, and provide external or remote safety overload protection to the end installation. Branch circuit shall be rated according to maximum current in each phase.
• CE: branch-circuit protection must be selected according to IEC 60364-4-43 or applicable local regulations.
• UL: branch-circuit protection must be selected according to NEC article 210.20, it is necessary for compliance with National Electric Code(NEC) requirements.
2. Power connections: The cables must be rated 90°C stranded copper only, the cross section must be selected according to the branch circuit protection rating.
• CE: Wire conductor cross sections must comply with IEC 60364-5-52 or applicable national standards.
• UL: Wire conductor cross sections must comply with NEC Table 310.15(B)(16) (formerly Table 310.16) taking account of table 310.15(B)(2) for the ampacity correction factors or NFPA79 Table 12.5.1 taking account of Table 12.5.5(a) for the ampacity correction factors or applicable national standards.
3. Power terminals must be tightened according to the torque values defined in Table Line/Load Termination Details. Appropriate regular inspections must be performed. Periodicity depends on the local environment, but should not exceed 1 year.
4. The tightening torques for supplemental (high speed) fuses should be checked according to value defined in table 12.3. Ceramic fuse bodies should be checked for visible cracks. Appropriate regular inspections must be performed. Periodicity depends on the local environment, but should not exceed 1 year.
5. Neutral cross-sectional area when neutral is connected to the star point of the load (4S load type):
Without current limit activated, maximum neutral current is not upper than maximum current in each phase. The cross-sectional area of the neutral conductor, shall be sized to carry the maximum phase current.
With current limit activated, maximum neutral current may reach √3 x current limit setting. The cross-sectional area of the neutral conductor shall be sized to carry up to √3 x current limit setting:
• CE: Wire conductor cross sections must comply with IEC 60364-5-52 or applicable national standards.
• UL: Wire conductor cross sections must comply with NEC Table 310.15(B)(16) (formerly Table 310.16) taking account of table 310.15(B)(2) for the ampacity correction factors or NFPA79 Table 12.5.1 taking account of Table 12.5.5(a) for the ampacity correction factors or applicable national standards.
6. The cables used to connect the remote voltage sensing inputs (if fitted) and the cable used to connect the reference input in 4S, 6D and two-leg configurations must be correctly protected by branch-circuit protection. It is the responsibility of the user to add branch-circuit protection. Such branch-circuit must comply with applicable local regulations.
• UL: The above-mentioned branch-circuit protection is necessary for compliance with National Electric Code (NEC) requirements.
7. The cables used to connect the EPower auxiliary/fans supply must be correctly protected by 3A branch-circuit protection. (3A rating selected to protect AWG18 fan supply wiring). It is the responsibility of the installer to add branch-circuit protection. Such branch-circuit protection must comply with applicable local regulations.
• UL: The Auxiliary (Fan) supply is Installation category II. Supply to Auxiliary (Fan) supply shall be provided by isolated transformer secondary grounded protected by a Listed 3A branch circuit fuse. The above-mentioned branch-circuit protection is necessary for compliance with National Electric Code (NEC) requirements.
8. EPower alarms protect thyristors and loads against abnormal operation, and provide the user with valuable information regarding the type of fault. Under no circumstances must 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 EPower supplier for advice.

Failure to follow these instructions will result in death or serious injury.

WARNING

WARNING: This product can expose you to chemicals including lead and lead compounds which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to: https://www.P65Warnings.ca.gov

HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH

1. The product 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 IEC60947-1 and IEC60947-3.
• A separable coupler which can be disconnected without the use of a tool.
2. In 4S, 6D and two-leg configurations do not use the reference terminal to replicate voltage signals (in a 'daisy chain'), as the PCB track between the two poles is not designed to withstand short-circuit.

Failure to follow these instructions can result in death, serious injury or equipment damage.

HAZARD OF FIRE

1. The product is designed to be mounted vertically. There must be no obstructions (above or below) which could reduce or hamper airflow. If more than one instance of the product is located in the same cabinet, they must be mounted in such a way that air from one unit is not drawn into another.
2. To reach the thermal performance the gap between two EPower must be at minimum 10mm.
3. The Driver Module power supply can work from any supply voltage between 85Vac and 265Vac. The fans (if fitted) on the power modules are specified for use at 115Vac or 230Vac, as defined at time of order. It must therefore be ensured that the fan voltage matches the supply voltage, or the fan will either fail within a short period, or it will be ineffective at cooling.

Failure to follow these instructions can result in death, serious injury or equipment damage.

UNINTENDED EQUIPMENT OPERATION

1. External feedback connections must be correctly phased (refer to Figure 2.2.2b in the User Guide) or the unit might switch to full conduction at start-up. With external feedback: The current transformer should be chosen such that its full-scale output is 5 amps.
2. Signal and power voltage wiring must be kept separate from one another. Where this is impractical, all wires must be rated to the power voltage and shielded cables are recommended for signal wiring.
3. 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 installer may be required to take adequate mitigation measures.
4. To ensure that EPower complies with Electromagnetic Compatibility requirements, ensure that the panel to which it is attached is correctly grounded. The ground connection, designed to ensure ground continuity, is not in any way a substitute for the protective earth ground connection.

Failure to follow these instructions can result in death, serious injury or equipment damage.

CAUTION

1. In burst mode and primary of transformer load, the star-star configuration is not recommended as it may become unstable, high speed fuse may blow.
2. Do not allow flammable or heat-sensitive parts in the immediate vicinity of hot surfaces.

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

1. In order to maintain protection against damage due to electrostatic discharge, any ribbon cable which is chafed, scratched or otherwise damaged must be replaced.

Failure to follow these instructions can result in equipment damage.

SYMBOLS USED ON 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
c UL US LISTED	Underwriters Laboratories listed mark for Canada and the US		Refer to the manual for instructions
	Do not touch Heatsink Hot Surface	CE	Declaration of conformity to European standard
EAC	EAC Certificate for the Customs Union EAC		Regulatory Compliance Mark (RCM) to Australian Communication & Media Authority

GENERAL STANDARDS

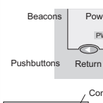
CE	EN60947-4-3:2014 (identical to IEC60947-4-3:2014) Low-voltage switchgear and controlgear — Part 4-3:Contactors and motor-starters — AC semiconductor controllers and contactors for non-motor loads Declaration of conformity available on request.
c UL US LISTED	UL60947-4-1 ; CAN/CSA C22.2 NO.60947-4-1-14 Low-Voltage Switchgear and Controlgear - Part 4-1: Contactors and Motor-Starters - Electromechanical Contactors and Motor-Starters U.L. File N° E86160
EAC	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 Other Russian approval: Pattern approval
	Regulatory Compliance Mark (RCM) to Australian Communication and Media Authority Based on compliance to EN60947-4-3:2014

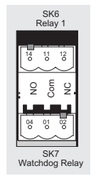
ELECTRICAL INSTALLATION

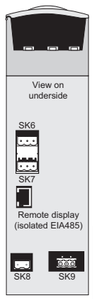
Drive Module Connectors

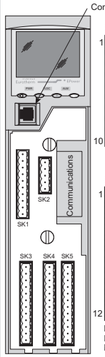
Mating Connector Polarising Pin Locations

Relay 1	Watchdog Relay









SK1 Standard I/O

1	1	+10 Volts out
	2	Analogue i/p 1 +
	3	Analogue i/p 1 –
	4	Analogue i/p 2 +
	5	Analogue i/p 2 –
	6	Analogue o/p 1 +
	7	Analogue o/p 1 0V
	8	**Digital i/o 1+***
	9	Digital i/o 2+
10	10	Digital i/o 0V

SK2 Predictive Load Management Option

1	1	Terminator A
	2	Low
	3	Shield
	4	High
5	5	Terminator B

■ = Polarising pin

SK3 Optional I/O 1

1	1	+10 Volts out
	2	Analogue i/p 3 +
	3	Analogue i/p 3 –
	4	Analogue o/p 2 +
	5	Analogue o/p 2 0V
	6	Digital i/p 3 +
	7	Digital i/p 4 +
	8	Digital 0V
	9	Not used
	10	Relay 2 NO (24)
	11	Relay 2 Com (21)
12	12	Relay 2 NC (22)

Polarising pins: Fixed connector: pins 1 and 2; Mating connector: pin 3

SK4 Optional I/O 2

1	1	+10 Volts out
	2	Analogue i/p 4 +
	3	Analogue i/p 4 –
	4	Analogue o/p 3 +
	5	Analogue o/p 3 0V
	6	Digital i/p 5 +
	7	Digital i/p 6 +
	8	Digital 0V
	9	Not used
	10	Relay 3 NO (34)
	11	Relay 3 Com (31)
12	12	Relay 3 NC (32)

Polarising pins: Fixed connector: pins 2 and 3; Mating connector: pin 1

SK5 Optional I/O 3

1	1	+10 Volts out
	2	Analogue i/p 5 +
	3	Analogue i/p 5 –
	4	Analogue o/p 4 +
	5	Analogue o/p 4 0V
	6	Digital i/p 7 +
	7	Digital i/p 8 +
	8	Digital 0V
	9	Not used
	10	Relay 4 NO (44)
	11	Relay 4 Com (41)
12	12	Relay 4 NC (42)

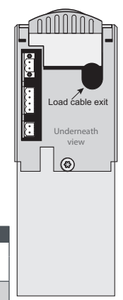
Polarising pins: Fixed connector: pins 1 and 3; Mating connector: pin 2

* ENABLE INPUT: For the power module thyristors to operate, the Enable input to the driver module must be valid. In the default configuration, this is done by shorting pins 8 and 10 of SK1 (Digital input 1). This default strategy can be adjusted with iTools.

Power Module Connectors

External Feedback Connector Pinout and Polarising Details

	Module 1	Module 2	Module 3	Module 4
Current feedback connector	I2 / I1	I1 / I2	I1 + I2 / None	None / I1 + I2
Voltage feedback connector	V1 / V2	V2 / V1	V1 + V2 / None	None / V1 + V2
Neutral/ phase reference connector				



Line/Load Termination Details (Maximum)

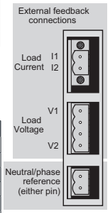
EPower Current Rating	Internal Lug Terminal Size: Stud Diameter (mm (in))	Maximum Length (mm (in))	Maximum Capacity	Tightening Torque (Nm (ft. lb.))
50A, 100A and 160A	M8 (3/8)	45 (1.75)	70 mm² (AWG 2/0)	9 (6.6)
250A	M10 (1/2)	60 (2.35)	120 mm² (250 Kcmil)	15 (11.1)
400A	M12 (1/2)	80 (3.15)	240 mm² (500 Kcmil)	28.8 (21.2)
500A, 630A	2 x M12 (2 x 1/2)	65 (2.55)	185 mm² (350Kcmil)	30 (22.1)

To connect larger wire section, see the User Manual

Safety Earth Details

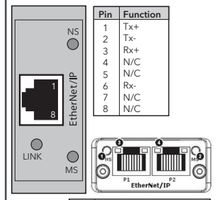
	Earth Terminal	
Max. Load Current	Size	Tightening Torque (Nm (lb. ft.)
50A	M6	5 (3.7)
100A	M6	5 (3.7)
160A	M6	5 (3.7)
250A	M8	12.5 (9.2)
400A	M10	15 (11.1)
500A	M12	25 (18.4)
630A	M12	25 (18.4)

External feedback connections



COMMUNICATIONS

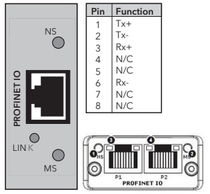
EtherNet/IP Connector Pinout



Pin	Function
1	Tx+
2	Tx-
3	Rx+
4	N/C
5	N/C
6	Rx-
7	N/C
8	N/C

1	Network status LED
2	Modbus status LED
3	Link/Activity LED (port 1)
4	Link/Activity LED (port 2)

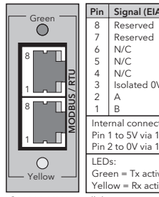
Profinet IO Connector Pinout



Pin	Function
1	Tx+
2	Tx-
3	Rx+
4	N/C
5	N/C
6	Rx-
7	N/C
8	N/C

1	Network status LED
2	Modbus status LED
3	Link/Activity LED (port 1)
4	Link/Activity LED (port 2)

Modbus RTU Pinout



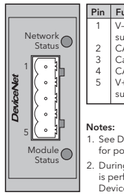
Pin	Signal (EIA485)
8	Reserved
7	Reserved
6	N/C
5	N/C
4	N/C
3	Isolated 0V
2	A
1	B

Internal connections:
Pin 1 to 5V via 100kΩ
Pin 2 to 0V via 100kΩ

LEDs:
Green = Tx activity
Yellow = Rx activity

Connectors in parallel

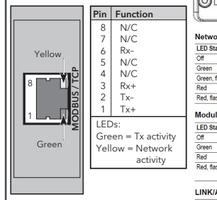
DeviceNet Connector Pinout



Pin	Function
1	V- (negative bus supply voltage)
2	CAN_L
3	Cable shield
4	CAN_H
5	V+ (positive bus supply voltage)

Notes:
1. See DeviceNet specification for power supply specification
2. During startup, an LED test is performed, satisfying the DeviceNet standard.

Modbus TCP (Ethernet 10baseT) Pinout



Pin	Function
8	N/C
7	N/C
6	Rx-
5	N/C
4	N/C
3	Rx+
2	Tx-
1	Tx+

LEDs:
Green = Tx activity
Yellow = Network activity

Network Status LED

LED State	Description
Off	No power or no IP address
Green	Module is in Process Active or Idle state
Green, flashing	Waiting for connections
Red	Duplicate IP address, or FATAL event
Red, flashing	Process Active Timeout.

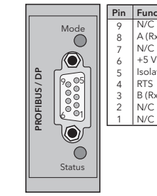
Module Status LED

LED State	Description
Off	No power
Green	Normal operation
Red	Major fault; module is in state EXCEPTION (or FATAL event)
Red, flashing	Minor fault in diagnostic object IP conflict

LINK/Activity LEDs

LED State	Description
Off	No link, no activity
Green	Link established
Green, flickering	Activity

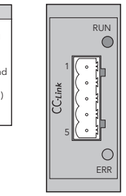
Profibus Connector Pinout



Pin	Function
9	N/C
8	N
7	+5 V (1)
6	Isolated ground
5	RTS
4	B (RxD+/TxD+)
3	N/C
2	N/C
1	N/C

Notes:
1. Isolated 5 Volts for termination purposes. Any current drawn from this terminal
2. affects the total power consumption. The cable screen should be terminated to the connector housing.

CC-Link Connector Pinout



Notes:
1. A 110 Ohm (±5% 1/2 watt) terminating resistor should be connected across pins 1 and 2 of the connectors at each end of the transmision line.
2. The cable shield should be connected to pin 4 of each CC-Link connector. The shield and Protective earth terminals (pins 4 and 5) are internally connected.

Pin	Function	
1	DA (Rx+/Tx+)	110R, 1/2W, 5% across pins 1 and 2 of first and last connectors
2	DB (Rx-/Tx-)	
3	DG (Signal ground)	
4	SLD (Cable Shield)	SLD and FG connected internally
5	FG (Protective Ground)	

部件名称 Part Name	有害物质 · Hazardous Substances: 铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 Metal parts	X	O	O	O	O	O
塑料部件 Plastic parts	O	O	O	O	O	O
电子件 Electronic	X	O	O	O	O	O
制品 Contacts	O	O	O	O	O	O
线缆和线缆附件 Cables & cabling accessories	O	O	O	O	O	O

本表格依据SJ/T11364的规定编制。
O: 表示该有害物质在该部件所有均质材料中的含量均在**GB/T 26572**规定的限量要求以下。
X: 表示该有害物质至少在该部件的某一均质材料中的含量超出**GB/T 26572**规定的限量要求。

This table is made according to SJ/T 11364.
O: Indicates that the concentration of hazardous substance in all of the homogeneous materials for this part is below the limit as stipulated in **GB/T 26572.**
X: Indicates that concentration of hazardous substance in at least one of the homogeneous materials used for this part is above the limit as stipulated in **GB/T 26572**

Signed (Kevin Shaw, R&D Director): Date: 21st June 2016

EPower™

Controller

Eurotherm®

by Schneider Electric

PLM Predictive Load Management

Eurotherm Limited
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Durrington
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Issue 11 March 2020 CN: 38304

Eurotherm Part Number:

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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® NT may be installed from this DVD by following the instructions below. Adobe Acrobat for other platforms and languages may be downloaded from www.adobe.com.

DOCUMENTATION

EPower Controller Communications Manual (HA179770) and EPower Controller User Guide (HA179769).

SOFTWARE

iTools with Wizards. The software licence On-Screen Licence Agreement Issue A (February 2001) is defined in license.doc (and license.txt)
Read the terms and conditions set out in LICENCE.TXT carefully before using the software as by installing software supplied ON disks, or by using pre-installed software, you, the end user, are agreeing to become bound to us, Eurotherm Limited, by those terms.

SPECIFICATION

INSTALLATION CATEGORIES

	Installation category	Rated impulse voltage (Uimp)	Rated insulation voltage (Ui)	Maximum value of rated operational voltage to ground
Communications	II	0.5kV	50V	50V
Standard/Optional I/O	II	0.5kV	50V	50V
Driver module power supply and auxiliary (Fan) supply	II	2.5kV	230V	300V
Relays	III	4kV	230V	300V
Power modules (up to 600V)	III	6kV	600V	600V
Power modules (690V)	II	6kV	690V	690V

DRIVER

Driver module power supply and auxiliary (fan) supply	
Rated control supply voltage (Us)	100 to 240Vac (+10% - 15%)
Frequency range	47 to 63Hz
Power requirement	60W + Power Module fans (15W each for 400A/500A/630A power modules. 10W each for 160/250A modules)
Installation Category	Installation category II (category III for relays)

POWER MODULE

Number of modules	Up to four identical units per driver unit
Rated operational voltages (Ue)	100 to 600Vac (+10% - 15%) (CE and UL units) or 100 to 690Vac (+10% - 15%) (CE units only), as specified at time of order
Frequency range	47 to 63Hz
Rated operational currents (Ie)	16 to 630A depending on power module
Power dissipation	1.3W per Amp per phase
Cooling	
Up to and including 100A	Natural convection
Above 100A	Fan cooling. Fans are connected in parallel to driver module
Fan supply voltage	115 or 230Vac, as specified at time of order (+10% - 15%)
Fan power requirement	10W for 160/250A modules. 15W for 400, 500 and 630A modules
Short circuit protection: High speed fuses (supplemental fuses)	

EPower Module Rating	Eurotherm Spare Part Reference	Fuse Rating	Manufacturer Catalog Number	Manufacturer	Fixing	Tightening Torque (Nm (lb.ft.))
50A , 100A and 160A	SUBEPWR/FUSE160A	315A	DN000UB69V315L	Mersen	M8	12 (8.9)
			170M1322	Eaton Cooper Bussmann	M8	12 (8.9)
250A	SUBEPWR/FUSE250A	350A	170M1373		M8	12 (8.9)
400A	SUBEPWR/FUSE400A	550A	170M3422		M8	12 (8.9)
500A	SUBEPWR/FUSE500A	630A	170M5412		M10	15 (11.1)
630A	SUBEPWR/FUSE630A	900A	170M6413		M12	25 (18.5)

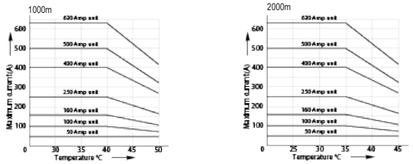
Rated conditional short-circuit current	CE: 92kA all modules except 98kA for 500A modules;105kA for 630A modules; 690V maximum; coordination type 1 UL: UL SCCR Rated: 100kA RMS symmetrical amperes, 600Vac maximum; coordination type 1

POWER MODULE

Utilisation categories	AC51: non inductive or slightly inductive loads, resistance furnaces AC56a: switching of transformers
Overload conditions	AC51: 1 x Ie continuous AC56a: 1 x Ie continuous
Rated Duties	Uninterrupted duty/continuous operation
Form designation	Form 4 (Semiconductor controler)
Load types	Single or multiphase control of resistive loads (low/high temperature coefficient and non-aging/aging types) and transformer primaries. Load voltage/current feedback either internal (standard) or external (option for use with transformer secondaries for example)

ENVIRONMENT

Temperature limits	
Operating	0 to 40°C maximum at 1000m 0 to 35°C maximum at 2000m refer to derating curve for upper temperature
Storage	-25 to 70°C
Pollution degree	Pollution degree 2 (EN60947-1)
Atmosphere	Non-explosive, non-corrosive and non-conductive
Humidity limits	5 to 95% RH (non-condensing)
Altitude (maximum)	1000m maximum at 40°C. 2000m maximum at 35°C refer to derating curve for upper temperature
Shock (EN60068-2-29)	10g Pk. 6ms duration. 100 bumps
Vibration (EN60068-2-6)	67 - 150Hz at 1g
Protection	CE (according to EN60529) : IP10 With internal lug terminals of size as given in Line Load Termination details. IP00 with power connector adapter (see user manual for detail) UL: Open type
External wiring	The cables must be rated 90°C stranded copper only CE: Must comply with IEC60364-5-52 and IEC60364-5-54 or applicable national standards UL: Wiring must comply with NEC and all applicable local regulations. Connection must be made by using listed lugs



PHYSICAL

Dimensions and fixing centres	See Fixing Details
Weight (including 2kg for driver module) kg (lbs) Weights ± 50gm (2oz)	

Current	1 phase	2 phases	3 phase	4 phases
50A	6.5 (14.3)	11.0 (24.3)	15.5 (34.2)	20.0 (44.1)
100A	6.5 (14.3)	11.0 (24.3)	15.5 (34.2)	20.0 (44.1)
160A	6.9 (15.2)	11.8 (26.0)	16.7 (36.8)	21.6 (47.6)
250A	7.8 (17.2)	13.6 (30.0)	19.4 (42.8)	25.2 (55.6)
400A	11.8 (26.0)	21.6 (47.6)	31.4 (69.2)	41.2 (90.8)
500A	14.0 (30.9)	26.0 (57.3)	38.0 (83.8)	50.0 (110.2)
630A	14.5 (32.0)	39.5 (87.1)	39.5 (87.1)	52.0 (114.6)

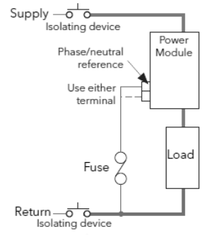
EMC

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

Standard	EN60947-4-3:2014

LOAD COUPLING

SINGLE PHASE INTERNAL FEEDBACK



FIXING DETAILS

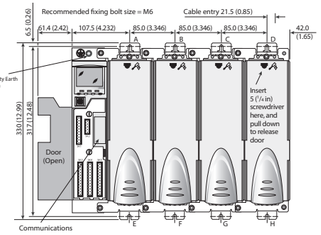
(dimensions mm (inches))

50Amps/100Amps/160Amps/250Amps/400Amps/500Amps/630Amps

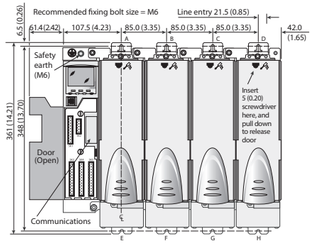
Note: Units are shown with individual mounting brackets. Multi-phase units come supplied with 2, 3 or 4 brackets as appropriate. See table below for details.

Bracket	Upper	Lower
2-phases	Use A & B	Use E & F
3-phases	Use A, B & C	Use E, F & G
4-phases	Use A, B, C & D	Use E, F, & H

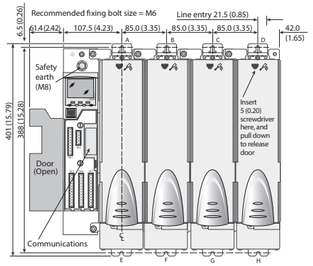
50/100 AMPS	Overall Widths			
No of phases	1	2	3	4
Door closed	149.5 (5.89)	234.5 (9.23)	319.5 (12.58)	404.5 (15.93)
Door open	211.0 (8.31)	296.0 (11.65)	381.0 (15.00)	466.0 (18.35)



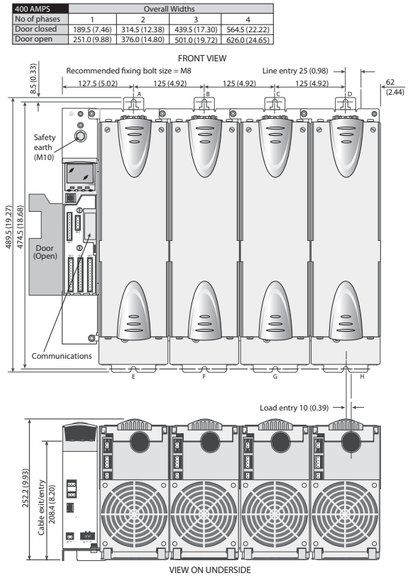
160 AMPS	Overall Widths			
No of phases	1	2	3	4
Door closed	149.5 (5.39)	234.5 (9.23)	319.5 (12.58)	404.5 (15.93)
Door open	211.0 (8.31)	296.0 (11.65)	381.0 (15.00)	466.0 (18.35)



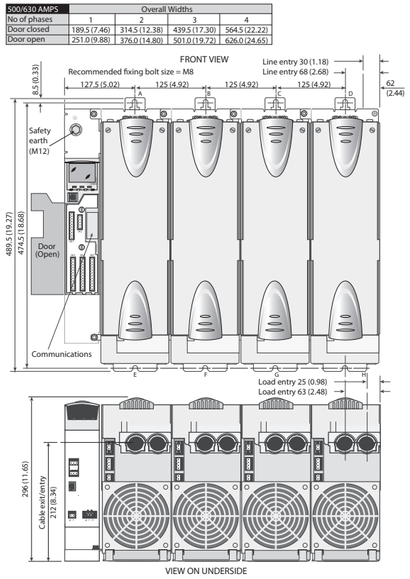
250 AMPS	Overall Widths			
No of phases	1	2	3	4
Door closed	149.5 (5.39)	234.5 (9.23)	319.5 (12.58)	404.5 (15.93)
Door open	211.0 (8.31)	296.0 (11.65)	381.0 (15.00)	466.0 (18.35)



400 AMPS	Overall Widths			
No of phases	1	2	3	4
Door closed	189.5 (7.46)	314.5 (12.38)	439.5 (17.30)	564.5 (22.22)
Door open	251.0 (9.88)	376.0 (14.80)	501.0 (19.72)	626.0 (24.65)



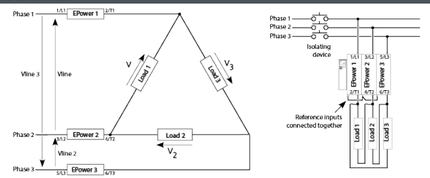
500/630 AMPS	Overall Widths			
No of phases	1	2	3	4
Door closed	189.5 (7.46)	314.5 (12.38)	439.5 (17.30)	564.5 (22.22)
Door open	251.0 (9.88)	376.0 (14.80)	501.0 (19.72)	626.0 (24.65)



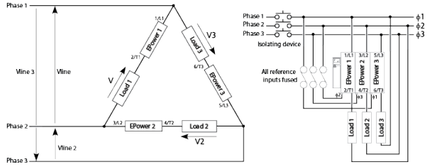
LOAD COUPLING

THREE-PHASE DELTA CONFIGURATION

Closed Delta (3D)

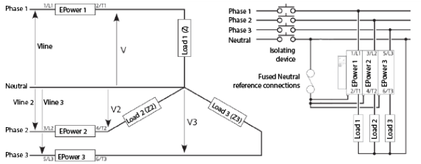


Open Delta (6D)

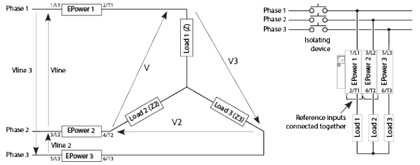


THREE-PHASE STAR CONFIGURATION

Star with neutral (4S)

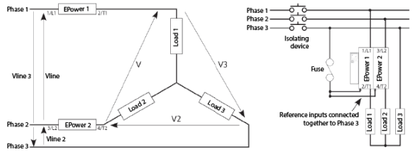


Star without neutral (3S)



TWO-LEG CONFIGURATION

Star (3S)



Delta (3D)