HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH

- OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH roduct (FDworp) is used in a manner not specified by the manufacturer, the protection provided by the product might be impaired. ustment, maintenance and repair of the opened apparatus under voltage, is forbidden for safety reasons. duct must be installed and maintained by suitably qualified personnel, authorized to work in an industrial low voltage environment. duct is not suitable for isolation applications, within the meaning of EN60947-1. duct is of suitable to be installed in a cabinet connected to the protective earth ground according to IEC60364-1 and IEC60364-5-54

- The product inside a final state and installed and installations, within the meaning of EN00947-1.

 The product is not suitable for isolation applications, within the meaning of EN00947-1.

 The product is not suitable for isolation applications, within the meaning of EN00947-1.

 The product is not suitable or isolation and isolation must be excluded from the calabinet 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 fancooled cabinets with a fair failure detection device or a thermal safety cut-out.

 To Before carrying out any wiring to the product, it must be ensured that all relevant power and control cables, leads or harnesses are isolate row voltage sources.
- 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 16t 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.

 oncluctor cross sections must comply with NEC requirements.

 10 EC 60364-5-54 table 54.2 or IEC61439-1 Table 5 or applicable national standards.

- The second of the protective and pro

Do not exceed the device's ratings. Failure to follow these instructions will result in death or serious injury.

- de(NEC) requirements.

 Power connections: The cables must be rated 90°C stranded copper only, the cross section must be selected according to the branch
- Power confluences. The Cambridge and Section 1997 of the Confluence and Section 1997 o
- the ampacity correction factors or NFPA/9 lable 12.5.1 taking account of lable 12.5.5(a) for the ampacity correction factors or applicable intensis shardard. When the state of the state o

- or the ampacity correction factors or NEPA/S lable 12.5. I taking account of lable 12.5.(a) for the ampacity correction factors or NEPA/S lable 12.5. I taking account of lable 12.5.(a) for the ampacity correction inducts or applicable lable and lable 12.5. It also is used to connect the reference input in 4S, 6D.

 12. The cables used to connect the remote voltage sensing inputs (if fitted) and the cable used to connect the reference input in 4S, 6D.

 12. The above-mentioned branch-circuit protected by branch-circuit protection. Such branch-circuit protection is necessary for compliance with National Electric Code (NEC) requirements.

 13. The cables used to connect the EPower auxiliary flans supply must be correctly protected by 3A branch-circuit protection. Such branch-circuit protection. Such branch-circuit protection. Such branch-circuit protection is used to connect the EPower auxiliary flans supply in the installation of the ins njury or damage, and that such safety mechanisms be regularly inspected a ailure to follow these instructions will result in death or serious injury.

- 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 dishe product shall have use of all all commissions of the product shall have been all the product shall have been shall been shall be all the product shall be all the produc

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

- a another.

 To reach the thermal performance the gap between two EPower must be at minimum 10mm.

 The Driver Module power supply can work from any supply voltage between 85V ac and 265V ac. The fans (if fitted) on the power modules specified for use at 110 Vac or 230V ac, as defined at time of order. It must therefore be ensured that the fan voltage matches the supply ladae, or the fan will either fall within a short period, or it will be infeffective at cooling.

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

UNINTENDED EQUIPMENT OPERATION

- THE DECUIPMENT OPERATION 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
 7. 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 & shielded cables are recommended for signal wiring.

 8. This product has been designed for environment A (Industrial). Use of this product in environment B (domestic, commercial and light industrail) may cause unwanted electromagnetic distributances in which cases the installer may be required to take adequate miligation measures.

 Final may cause unwanted electromagnetic distributances in which cases the installer may be required to take adequate miligation measures.

 Final may cause unwanted electromagnetic distributances or which cases the installer may be required to take adequate miligation measures.

 Final may cause a many part of the production of the production

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

CAUTION

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

Eurotherm®

by Schneider Electric

EPower™

Controller





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. 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.

Eurotherm Limited Faraday Close, Durrington, Worthing, West Sussex, BN13 3PL

T +44 (0)1903 268500 F +44 (0)1903 265982

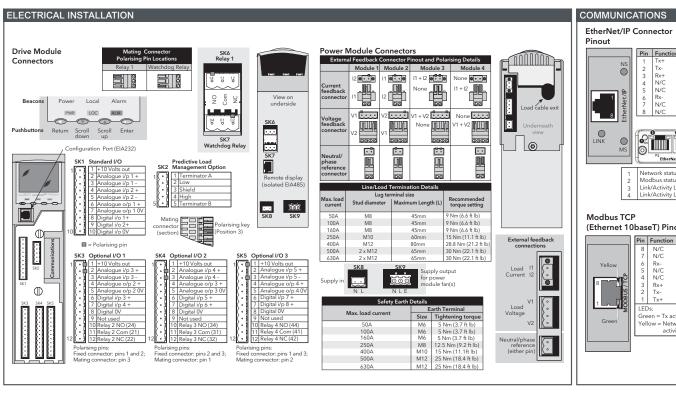
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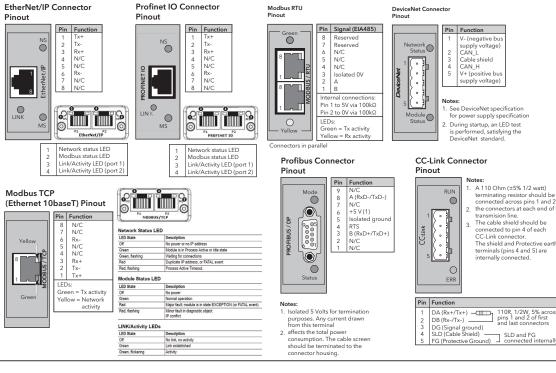
Eurotherm Part No. HA029490ENG005 Issue 10 December 2019 EPower Controller DVD Installation Instruction

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 English language version of Adobe Acrobat 4.0 for Microsoft® Windows® NT may be installed from this DVD by following the instruct Adobe Acrobat for other platforms and languages may be downloaded from www.adobe.com.

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SPECIFICATION

| General standards | |
|-------------------|--|
| C€ | EN69947-4-3:2014 Low-voltage switchgear and controlgear — Part 4-3:Contactors and motor-starters — AC semi- conductor controllers and contactors for non-motor loads (identical to IEC60947-4-3:2014) Declaration of conformity available on request. |
| C UL US LISTED | United States Standard UL508 17th Edition, Part VIII for versions rated up to 600V. Canadian National Standard C22.2 No. 14-10 for versions rated up to 600V. U.L. File N° E86160 |
| ERC | GOST IEC60947-43: 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 |
| <u>&</u> | Regulatory Compliance Mark (RCM) to Australian Communication and Media Authority Based on compliance to EN60947-4-3:2014 |

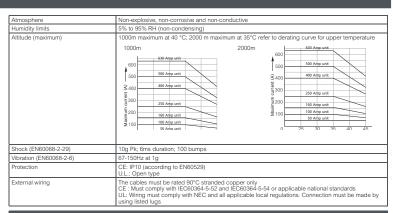
| Installation categories | | | | | | | |
|---|-----------------------|------------------------------|--------------------------|---|--|--|--|
| | Installation category | Rated impulse voltage (Uimp) | Rated insulation voltage | Maximum value of rated operational voltage to ground | | | |
| Communications | II | 0.5kV | 50V | 50V | | | |
| Standard/Optional I/O | II | 0.5kV | 50V | 50V | | | |
| Driver module powersupply & 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 module | |
|---|--|
| | 1400 1 040 1 - (1400 1450 1 |
| Voltage range | 100 to 240V ac (+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 |
| Voltage range | 100 to 600 V ac (+10% - 15%) (CE and UL units) or 100 to 690 V ac (+10% - 15%) (CE units only), as specified at time of order. |
| Frequency range | 47 to 63Hz |
| Nominal current | 16 to 630A depending on power module |
| Power dissipation | 1.3W per Amp per phase |
| Rated short-circuit conditional current | CE: 92kA all modules except:98kA for 500A modules;105kA for 630A modules; 690 Volts Maximum; coordination type 1 UL: UL SCCR Rated: 100kA RMS symmetrical amperes, 600 Volts ac Maximum; coordination type 1 |

| Up to and including 100A | Natural convection | | | | | |
|---|---|--|--|---|--|--|
| Above 100A | Fan cooling. Fans are connected in parallel to driver module | | | | | |
| an supply voltage | 115 or 230V ac, as specified at time of order (+10% -15%) | | | | | |
| an power requirement | 10W for 160/250A modules; 15W for 400, 500 and 630A modules | | | | | |
| Thyristor drive | RC circuits and high-speed fuses | | | | | |
| Protection Fuse details (refer to danger notes) | Power unit rating | Part number | Terminal size | Torque Nm (ft lb) | | |
| | 50A 100A 160A 250A 400A 500A 630A | CS179139U315 CS179139U315 CS179139U315 CS179139U350 CS179439U550 CS029859U900 CS029960U900 | M8 M8 M8 M8 M8 M10 M12 | 12 (8.9) 12 (8.9) 12 (8.9) 12 (8.9) 15 (11.1) 15 (11.1) 15 (11.1) | | |
| Pollution degree | Pollution degree 2 (EN60947-1) | | | | | |
| Installation category | | | | | | |
| Power network | Installation category III up to 600V; Installation category II up to 690V | | | | | |
| Auxiliary (fan) supply | Installation category II assuming nominal phase voltage with respect to earth is ≤300V rms | | | | | |
| Utilisation categories | AC51: non inductive or slightly inductive loads, resistance furnaces AC56a: switching of transformers | | | | | |
| Overload conditions | AC51: 1 x le continuous | | | | | |
| Rated Duties | Uninterrupted duty/continuous operation | | | | | |
| Form designation | Form 4 (Semiconductor controler) | | | | | |
| oad 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). | | | | | |
| | | | | | | |

| Physical | | | | | |
|--|---|---|---|---|---|
| Dimensions and fixing centres | See Fixing Details | | | | |
| Weight (including 2kg for driver module) | Current | 1 phase | 2 phases | 3 phase | 4 phases |
| kg (lbs) Weights ± 50gm (2oz) | 50A 100A 160A 250A 400A 500A 630A | 6.5 (14.3) 6.5 (14.3) 6.9 (15.2) 7.8 (17.2) 11.8 (26.0) 14.0 (30.9) 14.5 (32.0) | 11.0 (24.3) 11.0 (24.3) 11.8 (26.0) 13.6 (30.0) 21.6 (47.6) 26.0 (57.3) 39.5 (87.1) | 15.5 (34.2) 15.5 (34.2) 16.7 (36.8) 19.4 (42.8) 31.4 (69.2) 38.0 (83.8) 39.5 (87.1) | 20.0 (44.1) 20.0 (44.1) 21.6 (47.6) 25.2 (55.6) 41.2 (90.8) 50.0 (110.2) 52.0 (114.6) |

| Environment | |
|--------------------|--|
| Temperature limits | |
| Operating | 0°C to 40 °C maximum at 1000m 0°C to 35°C maximum at 2000m refer to derating curve for upper temperature |
| Storage | -25°C to 70°C |



gned for environment A (Industrial), use of this product in environment B (domestic, commercial and light industronagnetic disturbances in which cases the user may be required to take adequate mitigation measures

EN60947-4-3:2014

SYMBOLS USED ON THE INSTRUMENT LABELLING

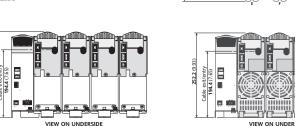
One or more of the symbols below may appear as a part of the instrument labelling.

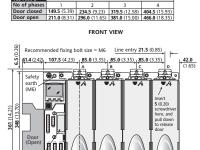
| (| Protective conductor terminal | A | Risk of electric shock |
|---------------|---|------------|---|
| \sim | AC supply only | | Precautions against static electrical discharge must be taken when handling this unit |
| CUL US LISTED | Underwriters Laboratories listed mark for Canada and the US | \bigcirc | Refer to the manual for instructions |
| | Do not touch Heatsink Hot Surface | ϵ | Declaration of conformity to European standard |
| EAC | EAC Certificate for the Customs Union EAC | | Regulatory Compliance Mark (RCM) to Australian Communication & Media Authority |

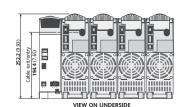


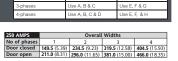
50Amps/100Amps/160Amps/250Amps/400Amps/500Amps/630Amps

| | 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) |
| Safety ea Recomme tightenin | ended g | FR | ONT VIEW | | |
| torque = | 5 Nm | | | | |
| (9Z:0) Rec | ommended fixin | g bolt size = N | 16 Cable e | ntry 21.5 (0.85) | |
| 9 | | - | | | * ← |
| S 61.4 | (2.42) 107.5 (4.2 | (32) 85.0 (3. | 346) 85.0 (3.34 | 16) 85.0 (3.346 | 42.0 |
| * 1 | | A | LB. | 45 - | ID (1.65) |
| 11 | ⊕0 0 | J | | | |
| 330 (12.99) 317 (12.48) | oor pen) | | | scre her pul | /4 in) ewdriver e, and I down elease |









| Door open | 21110 (0.51) 230 | · U.11.05/ [301.01 | (13.00) 400.0 | (10.33) | |
|----------------------|--------------------|--------------------|-----------------|-----------------------------------|-------------------|
| | | RONT VIEW | | | |
| Recomn 61.4 (2.42 | nended fixing bolt | size = M6 Line | e entry 21.5 (0 | .85) | |
| (<u>61.4 (2.42</u> | 107.5 (4.23) | 85.0 (3.35) 85.0 | (3.35) 85.0 (3 | 1.35) | 42.0 (1.65 |
| Til | 000 | | | | |
| Safety | | A VA | ▼ A | J.A. | |
| (M8) | ', | | | / | |
| 388 (15.79) | | | | Insert 5 (0.20) screwdriver | |
| 388 | | | | here, and pull down | |
| | | | | to release door | |
| Door (Open) | | | | | |
| | ИШП/1 | | | | |
| | 4 | | ê | 000 | |
| | 6 | | | | |
| Commun | ications | لبهالو | البها | لي | |
| | | , | 9 | - | |

