

# Specifications



## Eaton 170124

Eaton EU5C Gateway, SWD, 99 SWD cards on PROFINET

### General specifications

|                             |                                    |
|-----------------------------|------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton EU5C<br>Communication module |
| <b>CATALOG NUMBER</b>       | 170124                             |
| <b>MODEL CODE</b>           | EU5C-SWD-PROFINET                  |
| <b>EAN</b>                  | 4015081666218                      |
| <b>PRODUCT LENGTH/DEPTH</b> | 127 mm                             |
| <b>PRODUCT HEIGHT</b>       | 90 mm                              |
| <b>PRODUCT WIDTH</b>        | 35 mm                              |
| <b>PRODUCT WEIGHT</b>       | 0.16 kg                            |

|                       |                                                                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>CERTIFICATIONS</b> | CSA<br>UL Category Control No.:<br>NRQA<br>UL File No.: E221530<br>UL<br>IEC/EN 61131-2<br>UL report applies to both<br>US and Canada |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------|



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## Ambient conditions, mechanical

|                                                 |                                                                                          |
|-------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>CONSTANT ACCELERATION</b>                    | 1 g, 9 - 150 Hz, according to IEC/EN 61131-2, Vibrations                                 |
| <b>CONSTANT AMPLITUDE</b>                       | 3,5 mm, 5 - 9 Hz, according to IEC/EN 61131-2, Vibrations                                |
| <b>DROP AND TOPPLE</b>                          | 50 mm Drop height, Drop to IEC/EN 60068-2-31                                             |
| <b>HEIGHT OF FALL (IEC/EN 60068-2-32) - MAX</b> | 1 m                                                                                      |
| <b>MOUNTING POSITION</b>                        | As required                                                                              |
| <b>SHOCK RESISTANCE</b>                         | 15 g, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 11 ms, 9 Impacts |

## Climatic environmental conditions

|                                            |                                              |
|--------------------------------------------|----------------------------------------------|
| <b>AIR PRESSURE</b>                        | 795 - 1080 hPa (operation)                   |
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b> | 55 °C                                        |
| <b>AMBIENT STORAGE TEMPERATURE - MAX</b>   | 70 °C                                        |
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b> | -25 °C                                       |
| <b>AMBIENT STORAGE TEMPERATURE - MIN</b>   | -40 °C                                       |
| <b>CLIMATIC PROOFING</b>                   | In accordance with IEC 60068-2               |
| <b>OPERATING TEMPERATURE - MAX</b>         | 55 °C                                        |
| <b>OPERATING TEMPERATURE - MIN</b>         | -25 °C                                       |
| <b>RELATIVE HUMIDITY</b>                   | 5 - 95 % (non-condensing, IEC/EN 60068-2-30) |

## Communication

### CONNECTION

SmartWire-DT gateway for connecting up to 99 SmartWire-DT modules to an Industrial Ethernet network and for powering the SmartWire-DT modules and switchgear. Used to connect the SmartWire-DT communication system to industrial field bus systems. Powers SmartWire-DT modules and switchgear. SmartWire-DT blade terminal SWD4-8MF2. A connection to PROFINET as a PROFINET I/O device can be established using the integrated 100 Mbit/s Ethernet switch and a slave configuration.

### CONNECTION TYPE

SWD: Plug, 8-pole  
Push in terminals, Supply voltage  
2 x RJ45 (2-channel switch),  
Field bus interface

### DATA TRANSFER RATE

542 Byte, Fieldbus interface, Output data, max.  
125 kBit/s, SmartWire-DT  
250 kBit/s, SmartWire-DT  
800 Byte, Fieldbus interface, Input data, max.  
100 MBit/s, Fieldbus interface

### INTERFACES

Module type: PROFINET IO Device  
Status display fieldbus interface for APL, SF, BF, LINK, RX/TX with Multi colour LED

### LED INDICATOR

Status indication of SmartWire-DT master: Green and red LEDs  
Status indication of Supply voltage: LED  
Status indication of SmartWire-DT network: Configurable green or red LED

### NUMBER OF MODULES

99 (SmartWire-DT)

### PROTOCOL

PROFINET IO  
PROFINET

### STATION

IP, Station address,

## Design verification

### 10.10 TEMPERATURE RISE

The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.

### 10.11 SHORT-CIRCUIT RATING

Is the panel builder's responsibility.

### 10.12 ELECTROMAGNETIC COMPATIBILITY

Is the panel builder's responsibility.

### 10.13 MECHANICAL FUNCTION

The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

### 10.2.2 CORROSION RESISTANCE

Meets the product standard's requirements.

### 10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES

Meets the product standard's requirements.

### 10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT

Meets the product standard's requirements.

### 10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS

Meets the product standard's requirements.

### 10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION

Meets the product standard's requirements.

### 10.2.5 LIFTING

Does not apply, since the entire switchgear needs to be evaluated.

### 10.2.6 MECHANICAL IMPACT

Does not apply, since the entire switchgear needs to be evaluated.

### 10.2.7 INSCRIPTIONS

Meets the product standard's requirements.

### 10.3 DEGREE OF PROTECTION OF ASSEMBLIES

Meets the product standard's requirements.

### 10.4 CLEARANCES AND CREEPAGE DISTANCES

Meets the product standard's requirements.

### 10.5 PROTECTION AGAINST ELECTRIC SHOCK

Does not apply, since the entire switchgear needs to be evaluated.

### 10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS

Does not apply, since the entire switchgear needs to be evaluated.

|                                                                    |
|--------------------------------------------------------------------|
| Fieldbus interface<br>SmartWire-DT master,<br>SmartWire-DT network |
|--------------------------------------------------------------------|

|                                                          |                                        |
|----------------------------------------------------------|----------------------------------------|
| <b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b> | Is the panel builder's responsibility. |
|----------------------------------------------------------|----------------------------------------|

|                                                 |                                        |
|-------------------------------------------------|----------------------------------------|
| <b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b> | Is the panel builder's responsibility. |
|-------------------------------------------------|----------------------------------------|

|                                                 |                                        |
|-------------------------------------------------|----------------------------------------|
| <b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b> | Is the panel builder's responsibility. |
|-------------------------------------------------|----------------------------------------|

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| <b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b> | Is the panel builder's responsibility. |
|-----------------------------------------|----------------------------------------|

|                                                                 |                                        |
|-----------------------------------------------------------------|----------------------------------------|
| <b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b> | Is the panel builder's responsibility. |
|-----------------------------------------------------------------|----------------------------------------|

|                                                           |       |
|-----------------------------------------------------------|-------|
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b> | 4.4 W |
|-----------------------------------------------------------|-------|

|                                        |     |
|----------------------------------------|-----|
| <b>HEAT DISSIPATION CAPACITY PDISS</b> | 0 W |
|----------------------------------------|-----|

|                                                          |     |
|----------------------------------------------------------|-----|
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b> | 0 W |
|----------------------------------------------------------|-----|

|                                                                      |     |
|----------------------------------------------------------------------|-----|
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 0 A |
|----------------------------------------------------------------------|-----|

|                                                           |     |
|-----------------------------------------------------------|-----|
| <b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b> | 1 W |
|-----------------------------------------------------------|-----|

## Electrical rating

|                                       |                                                                                                         |
|---------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>INRUSH CURRENT</b>                 | 44 A (for 2 ms)                                                                                         |
| <b>POWER LOSS</b>                     | Normally 1 W                                                                                            |
| <b>RATED CONTROL SUPPLY VOLTAGE</b>   | 24 V DC (UPOW, -15 %/+20 %)<br>24 V DC (UAUX, -15 %/+20 %)                                              |
| <b>RATED OPERATIONAL CURRENT (IE)</b> | 0.7 A                                                                                                   |
| <b>RATED OPERATIONAL VOLTAGE</b>      | 14.5 V ( $\pm 3\%$ - SmartWire-DT)<br>Typically UAUX -0.2 V (for 24 V DC slaves)                        |
| <b>SHORT-CIRCUIT PROTECTION</b>       | Yes, Short-circuit rating, SmartWire-DT supply voltage<br>No, external fuse FAZ Z3, Supply voltage UAux |
| <b>SUPPLY CURRENT - MAX</b>           | 0.7 mA                                                                                                  |
| <b>SUPPLY VOLTAGE AT DC - MAX</b>     | 28.8 V                                                                                                  |
| <b>SUPPLY VOLTAGE AT DC - MIN</b>     | 20.4 V                                                                                                  |

## Features & functions

|                       |                                                            |
|-----------------------|------------------------------------------------------------|
| <b>FEATURES</b>       | Potential isolation (Fieldbus Interface)<br>Overload proof |
| <b>FUNCTIONS</b>      | For connection to field bus PROFINET as PROFINET IO-Device |
| <b>OPERATING MODE</b> | Address allocation via PROFINET                            |

## Electro magnetic compatibility

|                                 |                                                                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AIR DISCHARGE</b>            | 8 kV, according to IEC 61131-2, level 3, ESD                                                                                                                                       |
| <b>BURST IMPULSE</b>            | 2 kV, Supply cable, according to IEC/EN 61131-2, Level 3<br>1 kV<br>1 kV, SmartWire-DT cable, according to IEC/EN 61131-2, Level 3                                                 |
| <b>CONTACT DISCHARGE</b>        | 4 kV, according to IEC/EN 61131-2, Level 2, ESD                                                                                                                                    |
| <b>ELECTROMAGNETIC FIELDS</b>   | 3 V/m at 1.4 - 2 GHz (according to IEC/EN 61131-2:2008)<br>1 V/m at 2.0 - 2.7 GHz (according to IEC/EN 61131-2:2008)<br>10 V/m at 80 - 1000 MHz (according to IEC/EN 61131-2:2008) |
| <b>RADIATED RFI</b>             | 10 V (IEC/EN 61131-2:2008, Level 3)                                                                                                                                                |
| <b>RADIO INTERFERENCE CLASS</b> | Class A (EN 55011)                                                                                                                                                                 |
| <b>SURGE RATING</b>             | 0.5 kV, Supply cable, Surge (IEC/EN 61131-2:2008, Level 1), EMC                                                                                                                    |
| <b>VOLTAGE DIPS</b>             | $\leq 10$ ms, Bridging voltage dips                                                                                                                                                |

## General information

|                             |                                                                                                                                                                                   |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DEGREE OF PROTECTION</b> | IP20                                                                                                                                                                              |
| <b>MOUNTING METHOD</b>      | Top-hat rail fixing (according to IEC/EN 60715, 35 mm)<br>Rail mounting possible<br>Screw fixing using fixing brackets ZB4-101-GF1 (accessories)<br>Wall mounting/direct mounting |
| <b>OVERVOLTAGE CATEGORY</b> | II                                                                                                                                                                                |
| <b>POLLUTION DEGREE</b>     | 2                                                                                                                                                                                 |
| <b>PRODUCT CATEGORY</b>     | SmartWire-DT coordinators                                                                                                                                                         |
| <b>REPETITION RATE</b>      | 1 s                                                                                                                                                                               |
| <b>RESIDUAL RIPPLE</b>      | $\leq 5\%$ (input voltage)                                                                                                                                                        |
| <b>SUITABLE FOR</b>         | Safety functions                                                                                                                                                                  |

## Safety

### EXPLOSION SAFETY CATEGORY FOR DUST

None

### EXPLOSION SAFETY CATEGORY FOR GAS

None

### POTENTIAL ISOLATION

Supply voltage UAUX: no  
Between UPow and 15 V  
SmartWire-DT supply  
voltage: no

### PROTECTION AGAINST POLARITY REVERSAL

Yes  
Yes, for supply voltage  
(Siemens MPI optional)

### TERMINAL CAPACITY

0.2 - 1.5 mm<sup>2</sup>, solid  
0.25 - 1.5 mm<sup>2</sup>, flexible  
with ferrule  
24 - 16 AWG, solid or  
stranded

### VOLTAGE TYPE

DC

## Resources

### BROCHURES

[eaton-smartwire-dt-intelligent-wiring-brochure-br120001en-en-us.pdf](#)

### CATALOGUES

[eaton-drives-soft-starter-catalog-ca04020001zen-us.pdf](#)

[eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf](#)

### DECLARATIONS OF CONFORMITY

[eaton-communication-module-declaration-of-conformity-eu251577en.pdf](#)

### DRAWINGS

[eaton-modular-plc-samrtwire-eu5c-communication-module-dimensions.eps](#)

[eaton-modular-plc-eu5c-communication-module-dimensions.eps](#)

[eaton-modular-plc-eu5c-communication-module-3d-drawing-002.eps](#)

### ECAD MODEL

[ETN.EU5C-SWD-PROFINET](#)

### INSTALLATION VIDEOS

[SmartWire-DT in Application](#)

### MANUALS AND USER GUIDES

[MN05006002Z\\_EN](#)

### MCAD MODEL

[eaton-com-modules-mcad-drawings-eu5c-swd-profinet.dwg](#)

[eaton-eu5c\\_swd\\_profinet-3d-model.stp](#)

### MULTIMEDIA

[How to process SmartWire-DT modules using the EASY-COM-SWD-C1 module connected to an easyE4?](#)

|                                      |                                                                                                                                                                              |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                      | <a href="#">easyE4 SmartWire-DT module with Remote Touch Display and RMQ multi color indicator</a><br><br><a href="#">SmartWire-DT Overview and how to use in easySoft Z</a> |
| SALES NOTES                          | <a href="#">eaton-rmq-chemical-resistance-flyer-fl047011en-en-us.pdf</a><br><br><a href="#">eaton-electro-hydraulic-module-eu1h-flyer-fl120003en-en-us.pdf</a>               |
| SOFTWARE, FIRMWARE, AND APPLICATIONS | <a href="#">EU5C-SWD-PROFINET_FW_V0146</a><br><br><a href="#">EU5C-SWD-PROFINET_XML-V0110</a>                                                                                |

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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