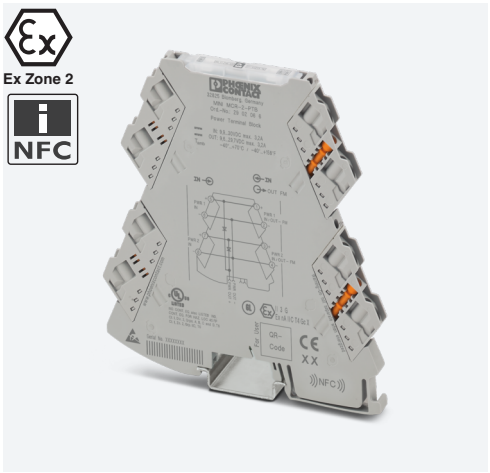
MINI MCR-2-PTB(-PT)



Feed-in module

Data sheet
106007_en_07

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1 Description

The power terminal with pluggable connection technology is used to deliver the supply voltage to the DIN rail connector.

Two separate voltage inputs enable redundant and diode-decoupled power supply up to a maximum current of 3.2 A.

The power terminal provides the following functions:

- Monitoring in combination with the MINI MCR-2-FM-RC fault monitoring module (Item No. 2904504) or MINI MCR-2-FM-RC-PT fault monitoring module (Item No. 2904508)
- Flexible redundant supply from one or both module sides
- Extended supply voltage range from 9.6 V DC ... 30 V DC

You must refer to the “MACX and MINI Analog power manual“ for the design of the power supply; it is available to download at www.phoenixcontact.com/products under the item listing.

Features

- Power terminal block with plug-in connection technology
- Approval for Ex zone 2 (ec)
- Screw or push-in connection available
- Supply voltage range of 9.6 V DC ... 30 V DC
- Redundancy monitoring in combination with the MINI MCR-2-FM-RC fault monitoring module (Item No. 2904504) or MINI MCR-2-FM-RC-PT fault monitoring module (Item No. 2904508)

NFC

This device offers the option of NFC communication.

You can use the Signal Conditioner app to call-up comprehensive module information via the NFC interface of your mobile end device.

The Signal Conditioner smartphone app is available free of charge.

Alternatively, you can use the CLIPX ENGINEER DEVICE PARAMETRIZATION - software (item no.: 1371665) and the TWN4 MIFARE NFC USB ADAPTER - programming adapter (item no.: 2909681).

Make sure you always use the latest documentation.
It can be downloaded from the product at phoenixcontact.com/products.

This document is valid for the products listed in the “Ordering data” chapter.

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3 Ordering data

Description	Type	Item no.	Pcs./Pkt.
Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Screw connection technology	MINI MCR-2-PTB	2902066	1
Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Push-in connection technology	MINI MCR-2-PTB-PT	2902067	1

Accessories	Type	Item no.	Pcs./Pkt.
DIN rail connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rail in accordance with EN 60715	ME 6,2 TBUS-2 1,5/5-ST-3,81 GY	2695439	10
DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.	ME 6,2 TBUS-2 1,5/5-ST-3,81 GN	2869728	10
Universal Termination Carrier for connecting 16 MINI Analog Pro signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection), with HART multiplexer connection	TC-D37SUB-AIO16-MP-PS-UNI	2906640	1
Universal Termination Carrier for connecting 16 MINI Analog Pro signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection)	TC-D37SUB-ADIO16-MP-P-UNI	2906639	1
Marker for end clamp, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: latching, Number of individual labels: 24, text field height: 5 mm, text field width: 30 mm	UCT-EM (30X5)	0801505	10
Marker for end clamp, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: snapped into marker carrier, Number of individual labels: 24, text field height: 5 mm, text field width: 30 mm	UCT-EM (30X5) CUS	0801589	1
Marker strip, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 90000 mm	SK 5,0 WH:REEL	0805221	1
Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 15 mm	UC-EMLP (15X5)	0819301	10

Accessories	Type	Item no.	Pcs./Pkt.
Plastic label, Sheet, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 15 mm	UC-EMLP (15X5) YE	0822615	10
Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, text field height: 5 mm, text field width: 15 mm	UC-EMLP (15X5) CUS	0824550	1
Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, text field height: 5 mm, text field width: 15 mm	UC-EMLP (15X5) YE CUS	0824551	1
Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 15 mm	UC-EMLP (15X5) SR	0828095	10
Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 15 mm	UC-EMLP (15X5) SR CUS	0828099	1
Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm	US-EMLP (15X5)	0828790	10
Plastic label, Card, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm	US-EMLP (15X5) YE	0828873	10
Plastic label, Card, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm	US-EMLP (15X5) SR	0828874	10
Plastic label, Card, can be ordered: by card, white, labeled according to customer specifications, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm	US-EMLP (15X5) CUS	0830076	1
Plastic label, Card, can be ordered: by card, yellow, labeled according to customer specifications, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm	US-EMLP (15X5) YE CUS	0830077	1
Plastic label, Card, can be ordered: by card, silver, labeled according to customer specifications, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm	US-EMLP (15X5) SR CUS	0830078	1

Accessories	Type	Item no.	Pcs./Pkt.
Marker for end clamp, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: latching, Number of individual labels: 24, text field height: 5 mm, text field width: 30 mm	UCT-EM (30X5) YE	0830340	10
Marker for end clamp, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: snapped into marker carrier, Number of individual labels: 24, text field height: 5 mm, text field width: 30 mm	UCT-EM (30X5) YE CUS	0830348	1
Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Screw connection technology, standard configuration	MINI MCR-2-FM-RC	2904504	1
Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Push-in connection technology, standard configuration	MINI MCR-2-FM-RC-PT	2904508	1

4 Technical data

Hardware/firmware version	
Hardware/firmware version (2902066)	11 / -
Hardware/firmware version (2902067)	11 / -

The technical data and safety characteristics are valid as of the specified HW/FW version.

Input	
Input voltage	9.9 V DC ... 30 V DC
Max. input current	3.2 A

Output	
Output voltage	9.6 V DC ... 29.7 V DC
Output current	≤ 3.2 A

General data	
Maximum temperature coefficient	< 0.01 %/K
Degree of protection	IP20 (not assessed by UL)
Mounting position	any
Type of housing	PBT

Connection data	Screw connection	Push-in connection
Conductor cross section, rigid	0.14 mm² ... 2.5 mm²	0.14 mm² ... 2.5 mm²
Conductor cross section, flexible	0.14 mm² ... 2.5 mm²	0.14 mm² ... 2.5 mm²
Conductor cross section AWG	24 ... 12	24 ... 12
Stripping length	10 mm	10 mm
Tightening torque	0.5 Nm ... 0.6 Nm	

Ambient conditions	
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Maximum altitude for use above sea level	≤ 2000 m

Conformance with EMC directive	
Immunity in accordance with EN 61000-6-2 When being exposed to interference, there may be minimal deviations.	
Noise emission in accordance with EN 61000-6-4	

Conformance/approvals	
CE CE-compliant	
ATEX BVS 20 ATEX E 014X	II 3 G Ex ec IIC T4 Gc
IECEx IECEx BVS 20.0010X	Ex ec IIC T4 Gc
CCC / China-Ex	Ex ec IIC T4 Gc
UL, USA/Canada	UL 508 Listed Class I, Div. 2, Groups A, B, C, D T6 Class I, Zone 2, Group IIC T6
Shipbuilding approval DNV GL TAA00002UA Temperature Humidity Vibration EMC Enclosure	 B B A A Required protection according to the Rules shall be provided upon installation on board
EAC Ex BY/112 02.01 TP012 103.01 00079	2Ex ec IIC T4 Gc

5 Safety regulations and installation notes

5.1 Installation notes

- The EPL Gc (ATEX category 3) device is suitable for installation in zone 2 potentially explosive areas. It satisfies the requirements of the following standards:
  IEC/EN 60079-0, IEC/EN 60079-7
  GB/T 3836.1, GB/T 3836.3
  For detailed information, please refer to the declarations of conformity.
- Installation, operation, and maintenance may only be carried out by qualified electricians. Follow the installation instructions as described.
- When installing and operating the device, observe the applicable regulations and safety directives (including national safety directives), as well as the generally recognized technical regulations.
- Observe the safety information, conditions, and limits of use specified in the product documentation. Comply with them.
- While the devices are in operation, contact-dangerous voltages may be present on the control elements. For this reason parameterization, conductor connection, and opening of the module lid are allowed only when devices are in a de-energized state unless the connected circuits are exclusively SELV or PELV circuits.
- The device must not be opened or modified. Do not repair the device yourself, replace it with an equivalent device. Repairs may only be carried out by the manufacturer. The manufacturer is not liable for damage resulting from violation.
- The IP20 degree of protection (IEC/EN 60529) specifies that the device is intended for use in a clean and dry environment. Do not subject the device to mechanical and/or thermal stress that exceeds the specified limits.
- The device is not designed for use in atmospheres with a danger of dust explosions.
- The device complies with the EMC regulations for industrial areas (EMC class A). When using the device in residential areas, it may cause radio interference.
- If the device is not used as described in the documentation, the intended protection can be negatively affected.
- To protect the device against mechanical or electrical damage, install it in suitable housing with an appropriate degree of protection according to IEC/EN 60529.
- Provide a switch/circuit breaker close to the device, which is labeled as the disconnecting device for this device.
- Provide for a overcurrent protection device (I ≤ 4 A) in the installation.
- The device must be stopped if it is damaged, has been subjected to an impermissible load, stored incorrectly, or if it malfunctions.
- UL requirement: Use copper cables approved for at least 75 °C.

5.2 Installation in Zone 2

- Observe the specified conditions for use in potentially explosive areas. Install the device in a suitable approved housing with at least IP54 protection in accordance with IEC/EN 60529 or another recognized degree of protection in accordance with IEC/EN 60079-0, Section 1 or GB/T 3836.1. Ensure sufficient UV protection.
- Only devices which are designed for operation in Ex zone 2 and are suitable for the conditions at the installation location may be connected to the circuits in the Ex zone.
- In potentially explosive areas, connecting and disconnecting cables and plugs in non-intrinsically safe circuits and the latching of devices onto and unlatching devices from the DIN rail connector is only permitted in a de-energized state or when the atmosphere is not potentially explosive.
- The device must be stopped and immediately removed from the Ex area if it is damaged, was subject to an impermissible load, stored incorrectly or if it malfunctions.
- In Ex zone 2, the device may only be operated when all connectors are fully plugged in.
- The specified ambient temperature range of $-40°C \leq T_{amb} \leq +70°C$ refers to the temperature inside the IP54 housing.

5.3 UL notes

INDUSTRIAL CONTROL EQUIPMENT FOR HAZARDOUS LOCATIONS 45FP

1 Suitable for use in class 1, division 2, groups A, B, C and D hazardous locations, or nonhazardous locations only.

2 WARNING - EXPLOSION HAZARD: Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.

3 NFC communication and Bluetooth communication must not be used unless the area is known to be non-hazardous.

4 This device is open-type and is required to be installed in an enclosure suitable for the environment and can only be accessed with the use of a tool or key.

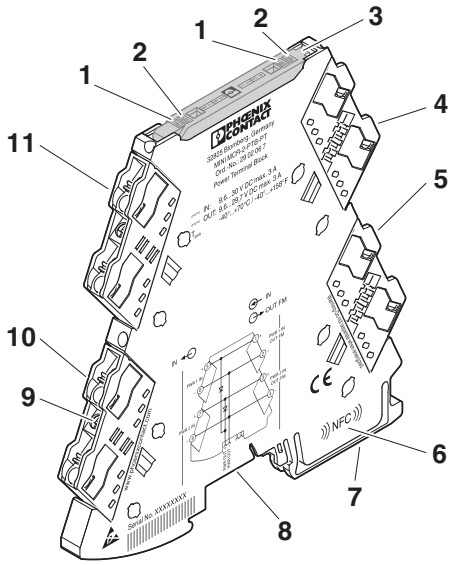
6 Installation

6.1 Connection notes

The device contains components that can be damaged or destroyed by electrostatic discharge. When handling the device, observe the necessary safety precautions against electrostatic discharge (ESD) according to EN 61340-5-1 and EN 61340-5-2.

6.2 Structure

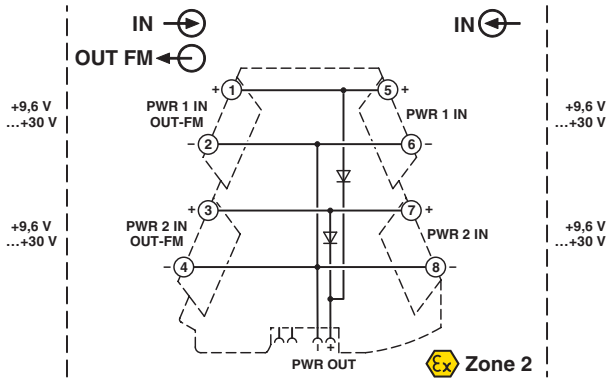
Figure 1 Structure



1 Red LEDs "ERR1" and "ERR2": Supply voltage connected with reverse polarity
2 Green LEDs "PWR1" and "PWR2": Supply voltage present
3 Cover with labeling option
4 Input: Supply voltage 1 or fault monitoring output
5 Input: Supply voltage 2 or fault monitoring output
6 NFC coil
7 Universal snap-on foot for EN DIN rails
8 Connection for DIN rail connector
9 Spindle screw
10 Input: Supply voltage 2
11 Input: Supply voltage 1

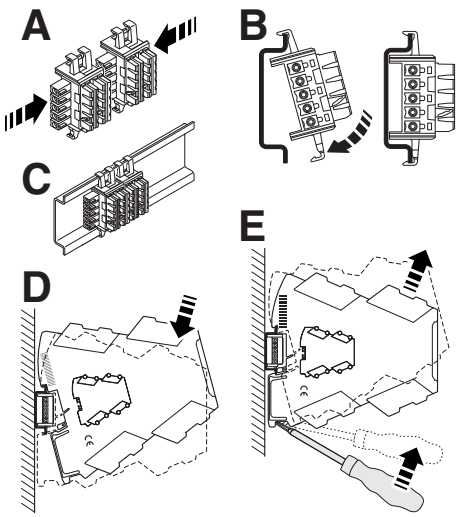
6.3 Block diagram

Figure 2 Block diagram



6.4 Mounting

Figure 3 Mounting and removing



– Mount the module on a 35 mm DIN rail in accordance with EN 60715.
– When using the DIN rail connector, first place it into the DIN rail (see A – C). It is used to bridge the power supply. It is also absolutely vital that you snap the module and the DIN rail connector into position in the correct direction: the snap-on foot should be at the bottom and the connector on the left.

NOTE

Insert a 4 A fuse.

Never connect the supply voltage directly to the DIN rail connector. Drawing power from individual devices is not permitted!.

Fuse recommendation for power terminal:
Fuse as per IEC 60127-2/V
Nominal current: 4 A
Characteristic: slow-blow
(e.g., Wickmann 5 x 20 mm/no. 195 - glass fuse)

6.5 FASTCON Pro plugs

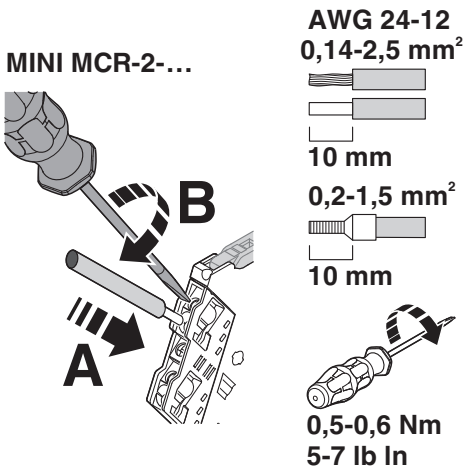
The device has pluggable connection terminals with an integrated test disconnect terminal block, with either push-in or screw-in connection technology.

You can plug or screw the FASTCON Pro plugs onto the device directly without tools. You can use the integrated spindle screw to easily remove the plugs from the module or set the isolating position, even when the plugs are connected. For this purpose, use a screwdriver of sufficient width, e.g., SZF 1-0.6x3.5 (Item No.: 1204517).

4-way coding prevents incorrect insertion into the module.

Screw connection:

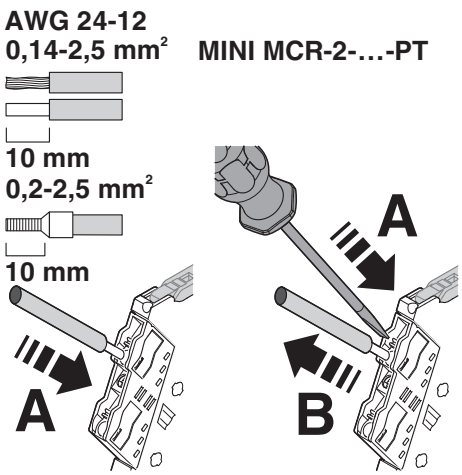
Figure 4 Screw connection



- Insert the wire into the corresponding connection terminal block.
- Use a screwdriver to tighten the screw in the opening above the connection terminal block.

Push-in connection:

Figure 5 Push-in connection



If you want to use conductors with ferrule:

- Strip the wire by approximately 10 mm and crimp ferrules to the end of the wire.
- Insert the wire into the corresponding connection terminal block.
- Push in the pushbutton with a screwdriver to release.

If you want to use conductors without ferrule:

- Push the pushbutton in with a screwdriver.
- Insert the wire into the corresponding connection terminal block.
- Push in the pushbutton with a screwdriver to release.

6.6 Use in the MINI Analog system

For the maximum number of MINI Analog Pro modules, see the MACX and MINI Analog power manual.

NOTE

The total current in both supply paths must not exceed 3.2 A.

Connect at least one supply to the power terminal in order to supply the DIN rail connector.

- Wire the second input to provide redundancy.

For additional mechanical redundancy, two power terminals and two fault monitoring modules can be used. Only one supply may be connected to each power terminal. In the second fault monitoring module, fault monitoring of external measuring transducers must be deactivated because evaluation can only take place via a module in a group.

For direct connection to an intrinsically safe device from the MINI Analog Pro product family, plug the provided dummy plugs into connector positions 4 and 5 of the MINI MCR-2-PTB(-PT) (terminal points 1/2 and 3/4).

6.7 Marking

Standard UCT-EM... or UC-EMLP... tags are available for marking the devices and can be printed as per customer requirements. In addition, the covers provide enough space for the use of freely chosen sticky labels such as SK 5.0 WH:REEL without concealing the LED diagnostic indicators.

7 Fault monitoring FM

Fault monitoring simplifies fault evaluation in multi-channel signal conditioner applications using a group fault message.

7.1 Fault monitoring for group error detection

- Use Phoenix Contact signal conditioners to support fault monitoring (including all Mini Analog Pro signal conditioners).
- Connect these signal conditioners to the MINI MCR-2-FM-RC(-PT) fault monitoring module via the DIN rail connector.

Detected errors on the signal input of a signal conditioner or in the signal conditioner itself are reported to the fault monitoring module via the DIN rail connector. The module reports the error centrally via a N/C contact.

A fault monitoring module is only required once in a group. There is no need for individual evaluation of up to 115 connected Mini Analog Pro signal conditioners.

When using a larger number of signal conditioners, a new separated group must be created.

7.2 Fault monitoring for redundancy monitoring

With "supply via power terminal", the fault monitoring module can be used to monitor the supply voltage in the group. Failure of the supply voltage generates a central message via an N/C contact.

- Install a power terminal and a fault monitoring module of the same shape side-by-side without spacing.
- Bridge terminals 1 to 4 of the power terminal with terminals 1 to 4 of the fault monitoring module. Use the provided plug-in bridges FBSR 2-6 (Item No. 3033715) or normal cables.

8 Diagnostic indicator

– The green LEDs on the front indicate that the relevant supply voltages are present on the DIN rail connector.
– Red LEDs light up when supply voltages are connected to the wrong poles. In the case of a correctly connected supply voltage, the red LED goes out.

9 Digital nameplate

The digital nameplate provides the option of obtaining product-specific data related to a specific serial number.

If you scan the QR code (digital nameplate) on the device, you can, for example, retrieve documents on the production status as well as clearly identify the hardware and firmware status of the device at hand.

10 Revision history

Document revision	Hardware revision	Firmware revision	Date	Description
07	11 (2902066)	-	2025-01-09	UKCA approval removed
	11 (2902067)			Digital nameplate and Revision history sections added
				Adaptation within the scope of an update of the CCC Ex approval
				Adaptation within the scope of an update of the EAC Ex approval