

Translation

EU-Type Examination Certificate

Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014

EU-Type Examination Certificate Number: **BVS 23 ATEX E 038 X** Issue: **00**

Equipment: **Media converter types FOCEN11Ex-2G and FOCEN11-3G**

Manufacturer: **Hans Turck GmbH & Co. KG**

Address: **Witzlebenstr. 7, 45472 Mülheim/Ruhr, Germany**

This product and any acceptable variations thereto are specified in the appendix to this certificate and the documents referred to therein.

DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 24.2043 EU.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018	General requirements
IEC 60079-11:2023, Edition 7	Intrinsic Safety "i"
EN IEC 60079-7:2015 + A1:2018	Increased Safety "e"
EN 60079-18:2015+A1:2017	Encapsulation "m"
EN 60079-28:2015	Optical radiation "op is/pr/sh"

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance with the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following

FOCEN11Ex-2G

II 2 (1) G Ex eb mb ib [ia Ga] [op is Ga] IIC T4 Gb
Ex II (1) D [Ex ia Da] [Ex op is Da] IIIC

FOCEN11-3G

II 3 (1) G Ex ec mc [op is Ga] IIC T4 Gc
Ex II (1) D [Ex op is Da] IIIC

DEKRA Testing and Certification GmbH
Bochum, 2024-06-21

Signed: Oliver Brumm

Managing Director

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15 Product description

15.1 Subject and type

Media converter types FOCEN11Ex-2G and FOCEN11-3G

15.2 Description

FOCEN11Ex-2G media converter:

The media converter type FOCEN11Ex-2G has an intrinsically safe (ia) Ethernet interface (IS-100BASE-TX) and an intrinsically safe optical interface (transmitter and receiver).

The media converter type FOCEN11Ex-2G converts signals from an intrinsically safe Ethernet interface (IS-100BASE-TX) into intrinsically safe optical signals or signals from the intrinsically safe optical interface (op is) into signals for the intrinsically safe Ethernet interface. The Ethernet circuits may be laid up to Zone 0 for gas applications and up to Zone 20 for dust applications. Light may be emitted up to Zone 0 for gas applications and up to Zone 20 for dust applications.

If the fiber optic cable is connected to a FOCEN11-3G, these two devices are also used to convert non-intrinsically safe Ethernet signals to intrinsically safe Ethernet signals.

FOCEN11-3G media converter

The media converter type FOCEN11-3G has an Ethernet interface and an optical interface (transmitter and receiver).

The media converter type FOCEN11-3G converts signals from an Ethernet interface into intrinsically safe optical signals or signals from the intrinsically safe optical interface into signals for the Ethernet interface. Light may be emitted up to Zone 0 for gas applications and up to Zone 20 for dust applications.

If the fiber optic cable is connected to a FOCEN11Ex-2G, these two devices are also used to convert non-intrinsically safe Ethernet signals to intrinsically safe Ethernet signals.

For both types

For Group III applications, the FOCEN11Ex-2G and FOCEN11-3G media converters are associated equipment for use outside potentially explosive atmospheres without additional measures.

The Ethernet circuits are electrically isolated from the supply lines.

15.3 Parameters

Electrical data

DC supply circuit

Supply terminal Pwr + and +
Power supply

Input current consumption
Power consumption
maximum power consumption

Type of protection Increased safety Ex eb IIC

$U_{\text{nominal}} = 24 \text{ VDC}$ (18...32 VDC)

$U_m = 40 \text{ VDC}$

$I_{\text{nominal}} = 116 \text{ mA}$

$P_{\text{nominal}} = 2.8 \text{ W}$

$P_{\text{max}} \leq 3.8 \text{ W}$

The DC-supply circuit is safely electrically isolated from earth and from all other circuits.

IS-100BASE-TX Ethernet Interface (Intrinsically safe)

(Only for media converter FOCEN11Ex-2G)

RJ45 socket X300

Type of protection Intrinsic safety

Ex ia IIC resp. Ex ia IIIC

$U_o = 4.1 \text{ V}$

$I_o = 277 \text{ mA}$

$P_o = 283 \text{ mW}$

Maximum output voltage
Maximum output current
Maximum output power
Linear output characteristics
Effective internal capacitance
Effective internal inductance

C_i negligible

L_i negligible

The Ethernet interface may only be connected to devices with an identically designed interface: only to Turck IS-100BASE-TX Ethernet interfaces or interfaces approved by Turck with:

Maximum output voltage

$U_o = 4.1 \text{ V}$

Maximum output current

$I_o = 277 \text{ mA}$

Maximum output power

$P_o = 283 \text{ mW}$

The following values apply to the connection cable:

Maximum cable length

100 m

Cable inductance

$L_c \leq 0.4 \text{ mH/km}$

Cable capacitance

$C_c \leq 52 \text{ nF/km}$

No concentrated external inductances or capacitances are permitted in the Ethernet-System.

The Ethernet interfaces are safely galvanically isolated from earth and from all other circuits of the media converter.

Optical interface

Transmitting diode

Type of protection op is

Wavelength

$\lambda_{\text{nominal}} = 1300 \text{ nm}$

Optical power (maximum)

$P_{\text{opt,max}} < 1 \text{ mW}$

Ethernet interface

(Only for media converter FOCEN11-3G)

RJ45 socket X300

Signal amplitude Output signal

Type of protection increased safety ec IIC

$U_{\text{nominal}} = 3.3 \text{ V}$

$U_{\text{nominal,differential}} = 1.0 \text{ V}$

Signal amplitude Input signal

$U_{\text{nominal}} = 3.3 \text{ V}$

$U_{\text{nominal,differential}} = 1.0 \text{ V}$

$U_m = 40 \text{ V}$

Thermal data

Permissible temperature range at the
place of installation of the media converter:

$T_a: -40 \text{ }^\circ\text{C} \dots 70 \text{ }^\circ\text{C}$

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17 **Specific Conditions of Use**

For use in potentially explosive gas atmospheres:
The FOCEN11Ex-2G and FOCEN11-3G media converters must be installed in an enclosure that has at least IP54 in accordance with EN IEC 60079-0.

18 **Essential Health and Safety Requirements**

Met by compliance with the requirements mentioned in item 9.

The IEC 60079-11:2023, Edition 7 standard is equivalent to the harmonised EN 60079-11:2012 standard in terms of safety.

19 **Remarks and additional information**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2024-06-21
BVS-Alh/Mu A 20230714 / 3432233



Managing Director