

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 22 ATEX E 051 X** Issue: **01**

Equipment: **Compact Fieldbus Barrier type 937X-FB3-XXXX-XXXI**

Manufacturer: **Eaton Electric Limited**

Address: **Great Marlings, Butterfield, Luton, Bedfordshire LU2 8DL, UNITED KINGDOM**

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 22.2107 EU/N1. This issue of the EU-Type Examination Certificate replaces the previous issue of the EU-Type Examination Certificate BVS 22 ATEX E 051 X issue 00.

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

EN IEC 60079-0:2018	General requirements
EN 60079-1:2014	Flameproof enclosure "d"
EN IEC 60079-7:2015 + A1:2018	Increased Safety "e"
EN 60079-11:2012	Intrinsic Safety "i"
EN 60079-18:2015/A1:2017	Encapsulation "m"
EN 60079-31:2014	Protection by Enclosure "t"

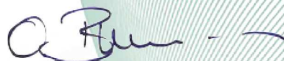
If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to 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:

 **II 2(1)G Ex db eb ib mb [ia Ga] IIC T4 Gb**
II 2D Ex tb IIIC T80°C Db

DEKRA Testing and Certification GmbH
Bochum, 2023-07-31


Managing Director

13 **Appendix**
 14 **EU-Type Examination Certificate**

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15 **Product description**

15.1 **Subject and type**

Compact Fieldbus Barrier type 937X-FB3-XXXX-XXXI

Compact Fieldbus Barrier	937	X	-FB3-	X	X	X	X	-	X	X	X	I
		X	Spur									
				X	Connection type							
				X	Enclosure							
					X	Tag Label Options						
					X	Terminals						
									X	Trunk Surge Protection options		
									X	Spur Surge Protection options		
									X	Cable entry plugs & breather options		
									I	Trunk Isolation Switch as defined in the Certification drawing - CI9373-FB3-4		

The “X”s represent character positions that can be Alpha-numeric (0-9 or A-Z) and the resulting 18 character part number will result in a design specific code where all features are covered and permitted within drawing – CI9373-FB3-4, and also covered by this certificate

15.2 **Description**

The ‘937X-FB3-XXXX-XXXI Fieldbus Barrier’ is a field-mounted wiring hub providing up to twelve, intrinsically safe spur connections from a single non-intrinsically safe trunk, for connection to Foundation™ fieldbus H1 fieldbus instruments.

The field-mounted Ex-Cell (Certificate Baseefa15ATEX0099U) enclosure contains a fieldbus barrier (Certificate Baseefa19ATEX0024U) supplied via a non-intrinsically safe trunk and converts this to several galvanically isolated, intrinsically safe, spur connections. The trunk in terminal block (Certificate DEMKO14ATEX1338U or KEMA04ATEX2048U) is the entry point for the wiring.

The wires from the terminal block are routed to the Trunk IN Isolating switch (Certificate BVS 13 ATEXE 107 U) from which the wires are routed to the trunk surge protector FS32-XE (Certificate SGS 20 ATEX 0120 U). The Isolating switch is used to turn OFF the power to the fieldbus barrier module, in case the barrier module needs to be replaced during service. DIN-rail terminals and the Isolating switch are protected by covers, that meets an IP30 ingress protection rating, since these are all bare live parts not protected by the Type of Protection “i”.

The trunk terminals are implemented as increased safety (Ex e) and the spur terminals as intrinsically safe (Ex ia) for connection to IS fieldbus instruments in IIC, Zone 0 hazardous areas. The spur connections are compatible with both FISCO and Entity-certified field instruments.

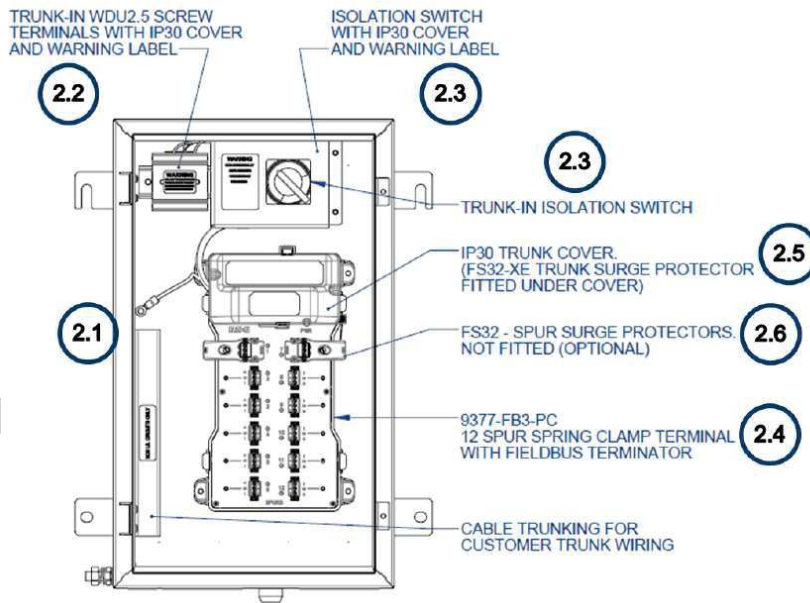
The 9377-FB3-** Compact Fieldbus Barrier (Certificate Baseefa19ATEX0024U) with built-in selectable fieldbus terminator is designed to be supplied from a 16 V to 32 Vdc IEC61158 compliant fieldbus trunk supply and produce 12 intrinsically safe spur outputs that are each compliant with the FISCO power supply requirements.

The spur outputs are isolated from the trunk input but are not isolated from each other. The electrical connections are made by either spring clamp or screw clamp terminals. A Trunk Out connection is available where the fieldbus trunk is to be connected to more than one fieldbus barrier in either the same or separate enclosures.

The spur outputs may optionally be fitted with up to 12 FS32 Spur Surge Protectors (Certificate Baseefa09ATEX0180X). Each Spur Output – Connection is suitable for Zone 0 Areas.

The 12 spur channels share a common 0 V output connection but are galvanically isolated from the connections to the safe area.

The FS32/FS32G Fieldbus Surge Protection Devices are designed as a FISCO Field Device, to provide protection for sensitive electronic Fieldbus compatible equipment, and are intended to be mounted either in a Safe Area immediately following a certified FISCO Power Supply having an intrinsically safe output or within a Hazardous Area connected in an intrinsically safe circuit.



Components of the assembly:

No	Component	Markings	Certificates
2.1	Stainless Steel Enclosure	Ex eb IIC Gb Ex tb IIIC Db	Baseefa15ATEX0099U
2.2	Trunk In terminals (Terminal Block)	Ex eb IIC Gb	Demko 14 ATEX 1338 U or KEMA 04 ATEX 2048 U
2.3	Trunk In Isolation Switch	Ex db eb I Mb Ex db eb IIB/IIC Gb Ex db ia/ib IIB/IIC Gb	BVS 13 ATEX E 107 U
2.4	Fieldbus Barrier Module	Ex eb ib mb [ia Ga] IIC Gb	Baseefa19ATEX0024U
2.5	Trunk Surge Device (1x)	Ex eb mb IIC Gb	SGS 20 ATEX 0120 U
2.6	FS32/FS32G Fieldbus Surge Protection Device (12x)	Ex ia IIC T4 Ga	Baseefa09ATEX0180X

Temperature range of the components:

No	Component	Allowable Ambient/Service Temperature range
2.1	Stainless Steel Enclosure	-55°C ≤ T _{service} ≤ +120°C when fitted with standard grey foam in place gaskets -60°C ≤ T _{service} ≤ +135°C when fitted with optional white silicone sponge flat gaskets
2.2	Trunk In terminals (Terminal Block)	T6 (- 60°C ≤ Tamb ≤ +40 °C) T5 (- 60°C ≤ Tamb ≤ +55 °C) T4 (- 60°C ≤ Tamb ≤ +70 °C)
2.3	Trunk In Isolation Switch	-60°C ≤ T _{service} ≤ +80°C (IIB) -55°C ≤ T _{service} ≤ +80°C (IIC)
2.4	Fieldbus Barrier Module	-20°C ≤ Tamb ≤ +65°C
2.5	Trunk Surge Device (1x)	-40°C ≤ Tamb ≤ +80°C
2.6	Spur Surge Device (12x)	-40°C ≤ Tamb ≤ 75°C (Power reduced to 1.8W)

Reason for this issue

Adjustment of Type-Code, to include an Option for a different number of spurs.

15.3 Parameters

15.3.1 Electrical parameters

15.3.1.1 Trunk In terminal (+, S, -)

Parameters according to the certificate Baseefa19ATEX0024U:

Maximum input voltage	U_m		253	V_{rms}
Rated voltage	U_N	DC	16...32	V
Rated current	I_N		410	mA

15.3.1.2 Intrinsically safe output spur terminals without Surge module, optional 1 to 12 spurs ("+", "S", "-"):

12 spur outputs that are each compliant with the FISCO power supply requirements according to the certificate Baseefa19ATEX0024U. The component shall only be powered from supplies conforming to IEC 61158.

Parameters according to the certificate Baseefa19ATEX0024U:

For each spur

Maximum output voltage	U_o	16.4	V
Maximum output peak current	I_o	247.9	mA
Maximum output continuous current		107.1	mA
Maximum output power	P_o	1.02	W
Maximum internal capacitance	C_i	negligible	
Maximum internal inductance	L_i	negligible	
Maximum external capacitance	C_o	0.424	μF
Maximum external inductance	L_o	0.57	mH
Maximum external inductance to resistance ratio	L_o/R_o	34.9	$\mu H/\Omega$

The 12 spur channels share a common 0V output connection but are galvanically isolated from the connections to the safe area.

15.3.1.3 Intrinsically safe output spur terminals with Surge module FS32/FS32G, optional 1 to 12 spurs ("+", "S", "-"):

For each spur

Maximum output voltage	U_o	16.4	V
Maximum output peak current	I_o	247.9	mA
Maximum output continuous current		107.1	mA
Maximum output power	P_o	1.02	W
Maximum internal capacitance	C_i	negligible	
Maximum internal inductance	L_i	negligible	
Maximum external capacitance	C_o	0.424	μF
Maximum external inductance	L_o	0.57	mH
Maximum external inductance to resistance ratio	L_o/R_o	34.94	$\mu H/\Omega$

The 12 spur channels share a common 0V output connection but are galvanically isolated from the connections to the safe area.

The FS32/FS32G Fieldbus Surge protection Devices is designed as a FISCO Field Device and the intrinsically safe output spur terminals with the Surge module (FS32/FS32G) will have the same output parameters as without Surge module, since the surge module has output parameters as input ($U_o=U_i$, $I_o=I_i$, $P_o=P_i$) according to the certificate Baseefa09ATEX0180X.

15.3.2 Thermal parameters

15.3.2.1 For type of protection “db”, “eb”, “ib”, “mb”

Temperature class	T4	$-20\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$
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15.3.2.2 For type of protection “tb”

Maximum surface temperature	T80 °C	$-20\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$
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16 **Report Number**

BVS PP 22.2107 EU, as of 2023-07-31

17 **Specific Conditions of Use**

17.1 The conditions stated in the respective certificates *must* be adhered to.

17.2 The intrinsically safe circuits can be connected to earth. Potential equalization along the intrinsically safe circuits must be ensured.

17.3 The installation requirements in hazardous areas are to be complied with in accordance with EN/IEC 60079-14.

18 **Essential Health and Safety Requirements**

Met by compliance with the requirements mentioned in item 9.

19 **Remarks and additional information**

Drawings and documents are listed in the confidential report.