

UK Type Examination Certificate CML 21UKEX2941X Issue 0**United Kingdom Conformity Assessment**


- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Transmitter Power Supply Type HiC2027***
- 3 Manufacturer **Pepperl+Fuchs SE**
- 4 Address **Lilienthalstrasse 200
68307 Mannheim
Germany**

- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.


- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:
EN 60079-0:2018 EN 60079-11:2012

- 10 The equipment shall be marked with the following:

 II (1) G


[Ex ia Ga] IIC

(-20°C ≤ Ta ≤ +60°C / +70°C)

 II (1) D

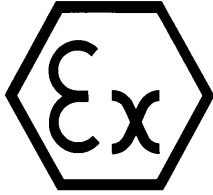
Ex ia Da] III C

(-20°C ≤ Ta ≤ +60°C / +70°C)

 I (M1)

[Ex ia Ma] I

(-20°C ≤ Ta ≤ +60°C / +70°C)



CML 21UKEX2941X
Issue 0

11 Description

The Transmitter Power Supply Type HiC2027* is designed to transfer monitoring signals from equipment in a hazardous area to unspecified apparatus located in a non-hazardous area and to transfer communication signals in both directions. The hazardous area circuit is galvanically isolated from the non-hazardous area circuit using transformers and the voltage and current appearing at the hazardous area connectors are limited to intrinsically safe levels.

The Transmitter Power Supply HiC2027* comprises a number of electronic components including four isolating transformers, fuses, Zener diodes and resistors all mounted on a single printed circuit board and housed in a plastic enclosure with two polarised sockets in the base of the enclosure for hazardous and non-hazardous area connections via a terminal backplane. LED indication is provided for power-on status.

The following variants are covered by this certificate:

HiC2027
HiC2027ES
HiC2027DE
HiC2027(**)-Y1..n
HiC2017
HiC2017ES
HiC2017(**)-Y1..n

Input / Output Parameters

Non-Hazardous Area Connector(s)

Power Supply: SL1, pins 1a[-] / 1b[-] w.r.t. pins 2a[+] / 2b[+]

$$U_m = 253V \text{ r.m.s.}$$

The circuit connected to the power supply pins is designed to operate from a d.c. supply voltage of 19-30V. Output: SL1, pin 8a[+] w.r.t 7a[-] & 10a[+] w.r.t 9a[-]

$$U_m = 253V \text{ r.m.s.}$$

The circuit connected to the output is designed to operate from a d.c. supply of up to 30V.

Hazardous Area Connector(s)

Input: SL2, pin 5a[+] w.r.t. 5b[-]

$$\begin{array}{ll} U_o = 25.2 \text{ V} & C_i = 12 \text{ nF} \\ I_o = 93 \text{ mA} & L_i = 0 \\ P_o = 656 \text{ mW} & \end{array}$$

The output characteristic is trapezoidal, $U_Q = 28.2V$ (see Annex C, EN 60079-25:2010).

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area load connected to the hazardous area connections of the apparatus must not exceed the following values:

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO ($\mu\text{H}/\text{ohm}$)
IIC	0.095	3.400		54.53
IIB	0.808	16.44		218.12
IIA	2.888	32.88		436.25
I	4.788	53.95		715.73



The above parameters apply when one of the two conditions below is given:
 - the total L_j of the external circuit (excluding the cable) is $< 1\%$ of the L_0 value or
 - the total C_j of the external circuit (excluding the cable) is $< 1\%$ of the C_0 value.

The above parameters are reduced to 50% when both of the two conditions below are given:
 - the total L_j of the external circuit (excluding the cable) $\geq 1\%$ of the L_0 value and
 - the total C_j of the external circuit (excluding the cable) $\geq 1\%$ of the C_0 value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than $1\mu\text{F}$ for Groups I, IIA & IIB and 600nF for Group IIC.

Input: SL2, pin 1a[+] w.r.t. 1b[-] / 7a[-]

$$\begin{array}{ll} U_j = 30\text{V} & C_j = 12\text{n} \\ I_j = 115\text{mA} & L_j = 0 \\ P_j = 700\text{mW} & \end{array}$$

Input: SL2, pin 1a[+] w.r.t. 1b[-] / 7a[-]

$$\begin{array}{ll} U_o = 5\text{V} & C_j = 12\text{n} \\ I_o = 0\text{mA} & L_j = 0 \\ P_o = 0\text{mW} & \end{array}$$

Input: SL2, pin 1b[+] / 7a[+] w.r.t. 1a[-]

$$\begin{array}{ll} U_o = 0.9\text{V} & C_j = 12\text{n} \\ I_o = 6.8\text{mA} & L_j = 0 \\ P_o = 1.6\text{mW} & \end{array}$$

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area load connected to the hazardous area connections of the apparatus must not exceed the following values:

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO ($\mu\text{H}/\text{ohm}$)
IIC	100	768		23466
IIB	1000	3075		93866
IIA	1000	6151		187773
I	1000	10092		308000

The above parameters apply when one of the two conditions below is given:
 - the total L_j of the external circuit (excluding the cable) is $< 1\%$ of the L_0 value or
 - the total C_j of the external circuit (excluding the cable) is $< 1\%$ of the C_0 value.

The above parameters are reduced to 50% when both of the two conditions below are given:
 - the total L_j of the external circuit (excluding the cable) $\geq 1\%$ of the L_0 value and
 - the total C_j of the external circuit (excluding the cable) $\geq 1\%$ of the C_0 value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than $1\mu\text{F}$ for Groups I, IIA & IIB and 600nF for Group IIC.

12 Certificate history and evaluation reports



CML 21UKEX2941X
Issue 0

Issue	Date	Associated report	Notes
0	18 Oct 2021	R14112AZ/00	Prime Certificate issued.

Note: Drawings that describe the equipment are listed or referred to in the Annex.

13 Conditions of Manufacture

None.

14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

1. The HiC2027* must be installed in a controlled environment with suitably reduced pollution.
2. The socket connections at the base of the enclosure must be afforded a degree of protection of at least IP20 when installed

Certificate Annex

Certificate Number CML 21UKEX2941X
Equipment Transmitter Power Supply Type HiC2027*
Manufacturer Pepperl+Fuchs SE



The following documents describe the equipment defined in this certificate:

Issue 0

For drawings describing the equipment, refer to attached certificate Baseefa 13ATEX0075X. In addition to the drawings listed on Baseefa 13ATEX0075X, the following drawings include the additional marking required for this UK Type Examination certification:

Drawing No	Sheets	Rev	Approved date	Title
16-1555CM-10	1 to 2	0	18 Oct 2021	Additional Marking Requirements for UKCA