



1 **EC-TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use  
in Potentially Explosive Atmospheres  
Directive 94/9/EC**

3 EC-Type Examination Certificate Number : **BAS02ATEX7107**

4 Equipment or Protective System: **A GALVANICALLY ISOLATED 4-20mA TRANSMITTER/  
REPEATER WIS1313**

5 Manufacturer: **RTK ENGINEERING LIMITED**

6 Address: **Harrogate, North Yorkshire, HG2 0NP**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 The Electrical Equipment Certification Service, notified body number 600 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N°

**01(C)1020 dated 22 March 2002**

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

**EN 50014: 1997 + Amds 1 & 2**

**EN 50020: 1994**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following:-

**Ex II (2) G [EEEx ib] IIC (-20°C ≤ T<sub>a</sub> ≤ 60°C)**

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: **EECS 2308/02/026**

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.



**Electrical Equipment Certification Service  
Health and Safety Executive  
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom  
Tel: +44(0)1298 28000 Fax: +44(0)1298 28244  
internet: www.basefa.com e-mail: basefa.info.eecs@hsl.gov.uk**



**I M CLEARE  
DIRECTOR  
22 April 2002**



13

**Schedule**

14

**EC-TYPE EXAMINATION CERTIFICATE N° BAS02ATEX7107**

15

**Description of Equipment or Protective System**

**A Galvanically Isolated 4-20mA Transmitter/Repeater WIS1313** is designed for mounting within a safe area, as an interface between safe area and hazardous area apparatus. The 4-20mA signal generated in the hazardous area is reproduced at the safe area terminals.

The isolated repeater comprises two transformers protected by three fuses, with the output voltage clamped across one of the sets of terminals by fuse protected, duplicated zener diodes with the output current limited by a duplicated active limiting circuit. For the other set of terminals the output voltage is clamped by duplicated back to back diodes with the output current limited by two current limiting resistors. The channels may be considered as separate intrinsically safe circuits or may be combined within the same intrinsically safe circuit.

The isolated repeater uses a mixture of discrete components and surface mounted components on a glass fibre printed circuit board which is housed within an outer plastic enclosure, fitted with terminals providing a degree of protection of at least IP20 and which incorporates a universal mounting foot.

Safe Area Connections

$$U_m = 250V$$

Hazardous Area Connections (Non Linear Sources)

Terminals 13 wrt 14

$$U_o = 13.7V$$

$$I_o = 36mA$$

$$P_o = 0.5W$$

$$C_i = 0$$

$$L_i = 0$$

Terminals 23 wrt 14

$$U_o = \pm 1.1V$$

$$I_o = 2.2mA$$

$$P_o = 0.003W$$

$$C_i = 0$$

$$L_i = 0$$

Terminals 13 and 23 wrt 14

$$U_o = 14.8V$$

$$I_o = 40mA$$

$$P_o = 0.6W$$

$$C_i = 0$$

$$L_i = 0$$

Terminals 23 wrt 14 do not generate or store more than the values of energy, voltage and current specified in Clause 5.4 of EN 50020: 1994.

Load Parameters

The Capacitance and the Inductance of the load connected to the combined output terminals of the isolator should not exceed the following values:-



13

**Schedule**

14

**EC-TYPE EXAMINATION CERTIFICATE N° BAS02ATEX7107**

<b>GROUP</b>	<b>CAPACITANCE in <math>\mu</math>F</b>	<b>INDUCTANCE in mH</b>
IIC	0.22	1.3
IIB	0.66	3.9
IIA	1.76	10.4

16

**Report No.**

01(C)1020

17

**Special Conditions for Safe Use**

None.

18

**Essential Health and Safety Requirements**

<b>ESSENTIAL HEALTH &amp; SAFETY REQUIREMENTS not covered by standards listed in Section 9</b>		
<b>Clause</b>	<b>Subject</b>	<b>Compliance</b>
1.1.3	Changes in characteristics of materials and combinations thereof	Report No 01(C)1020 Clause 1.1.3
1.2.2	Components for incorporation or replacement	Report No 01(C)1020 Clause 1.2.2
1.2.5	Additional means of protection	Report No 01(C)1020 Clause 1.2.5
1.2.7	Protection against other hazards	Report No 01(C)1020 Clause 1.2.7
1.4.2	Withstanding attack by aggressive substances	Report No 01(C)1020 Clause 1.4.2

19

**DRAWINGS**

<b>Number</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
CE5200	4	18 March 2002	Circuit
CE5201	4	18 March 2002	Component Layout + Safety Components
CE5202	3	12 March 2002	pcb Track Layout
CE5203	-	23 Nov 2001	Power Transformer TFA
CE5206	2	17 Jan 2002	Power Transformer Bobin + Core
CE5204	2	17 Jan 2002	Signal Transformers TFB & TFC
CE5205	3	18 March 2002	Marking Methods
CE5207	-	23 Nov 2001	EG12 Housing

This certificate may only be reproduced in its entirety and without any change, schedule included.

**BASEEFA List Keywords**  
2ISOLBAR