



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: **Baseefa02ATEX0062**

4 Equipment or Protective System: **A WIS1311 Galvanically Isolated 4-20mA Repeater**

5 Manufacturer: **RTK Engineering Ltd**

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 Baseefa (2001) Ltd. Notified body number 1180, 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 No. 02(C)0166

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

EN 50014: 1997 + A1 & A2 **EN 50020: 2002**

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. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

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

Ⓔ II (1) G [EE_x ia] IIC (-20°C ≤ Ta ≤ +60°C)

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

Baseefa (2001) Ltd. Customer Reference No. 2308

Project File No. 02/0166

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa (2001) Ltd.

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R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa02ATEX0062

15 Description of Equipment or Protective System

The WIS1311 Galvanically Isolated 4-20mA Repeater is designed for mounting in a safe area, as an interface between safe area and hazardous area apparatus. A 4-20mA signal generated in the hazardous area is reproduced at the safe area terminals.

The isolated driver comprises two transformers, protected by three fuses, with the output voltage clamped at the terminals by two groups of triplicated zener diodes or back to back diodes either protected by a fuse or resistor and with the output current protected by current limiting resistors. The channels may be considered as separate intrinsically safe circuits or may be combined.

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

Terminals 11, 12, 21, and 22:

$$U_M = 250V$$

Terminal 13 w.r.t. 14:

$$U_o = 26.3V$$

$$I_o = 87mA$$

$$P_o = 0.57W$$

$$C_i = 0$$

$$L_i = 0$$

Terminal 23 w.r.t. 14:

$$U_o = \pm 1.1V$$

$$I_o = 2mA$$

$$P_o = 0.003W$$

$$C_i = 0$$

$$L_i = 0$$

Terminal 13, 23 and 14 combined:

$$U_o = 27.4V$$

$$I_o = 89mA$$

$$P_o = 0.58W$$

$$C_i = 0$$

$$L_i = 0$$

The terminals 23 w.r.t. 14 do not generate or store more than the values of energy, voltage and current specified in Clause 5.4 of EN50020 : 2002.

Cable Parameters.

The Capacitance and either the Inductance or the Inductance to Resistance (L_o/R_o) ratio of the cables connected to the combined output terminals of the isolator should not exceed the following values:-

GROUP	C μF	L mH	OR	L_o/R_o Ratio $\mu H/ohm$
IIC	0.087	3.05 (4.2)		45
IIB	0.677	9.15 (12.6)		167
IIA	2.260	24.4 (33.6)		353



When the external circuit contains no lumped inductance greater than $10\mu\text{H}$ i.e. the L_i of any attached apparatus is less than $10\mu\text{H}$ the cable inductance may be increased to the values shown within parentheses.

Variation 0.1

To permit the addition of a further isolating transformer and additional unspecified circuitry to form a WIS1312 Galvanically Isolated 4-20mA (Smart) Repeater.

This unit provides additional hazardous area terminals 33 and 34 and safe area terminals 31 and 32. These terminals are connected directly in parallel with the existing terminals 13/33, 23/34, 11/31 and 12/32 respectively, and provide termination facilities for the Smart data connections. The output parameters and the load parameters for the WIS1312 Repeater are identical to the WIS 1311 Repeater above but are shown here including the additional terminals.

Terminals 11/31, 12/32, 21, and 22:

$U_m = 250\text{V}$ d.c. or r.m.s.

Terminal 13/33 w.r.t. 14:

$U_o = 26.3\text{V}$
 $I_o = 87\text{mA}$
 $P_o = 0.57\text{W}$
 $C_i = 0$
 $L_i = 0$

Terminal 23/43 w.r.t. 14:

$U_o = \pm 1.1\text{V}$
 $I_o = 2\text{mA}$
 $P_o = 0.003\text{W}$
 $C_i = 0$
 $L_i = 0$

Terminal 13/33, 23/43 and 14 combined:

$U_o = 27.4\text{V}$
 $I_o = 89\text{mA}$
 $P_o = 0.58\text{W}$
 $C_i = 0$
 $L_i = 0$

The terminals 23/43 w.r.t. 14 do not generate or store more than the values of energy, voltage and current specified in Clause 5.4 of EN50020 : 2002.

16 Report No.

02(C)0166

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

None additional to those covered by the standards listed at item 9

19 Drawings and Documents

Number	Issue	Date	Description
CE5677	0	14/07/2003	Circuit Diagram WIS1311
CE5678	0	25/07/2003	General Assembly WIS1311
CE5676	0	22/07/2003	Printed Circuit Track Layout
CE5203**	-	23/11/2001	Power Transformer TF1
CE5204**	2	17/01/2002	Transformers TF2 and TF3



Number	Issue	Date	Description
*CE5206**	2	17/01/2002	Power Transformer Bobbin
*CE5205**	3	18/03/2002	Marking Methods
*CE5207**	-	23/11/2001	EG12 Housing

* These Drawings are also associated with WIS 1411 Certificate No. Baseefa02ATEX0063

**These Drawings are also associated with WIS 1313 Certificate No. BAS02ATEX7107

Drawings associated with Variation 0.1

Number	Issue	Date	Description
CE5681	0	18/07/2003	Circuit Diagram WIS1312
CE5682	0	18/07/2003	General Assembly WIS1312