



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: **Baseefa03ATEX0338 – Issue 7**

4 Equipment or Protective System: **007 K4-20 Position Transmitter**

5 Manufacturer: **K. Controls Ltd**

6 Address: **2 Crown Way, Crown Business Centre, Horton Road, West Drayton,  
Middlesex UB7 8HZ**

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, 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's. None

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

**EN 60079-0: 2006 EN 60079-11: 2007 EN 61241-0: 2006 EN 61241-1: 2004**

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 2 GD Ex ia IIC / IIB T4 Gb  
Ex tb IIIC T135°C Db IP6x (see schedule for code variations)**

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

Baseefa Customer Reference No. **0600**

Project File No. **10/0413**

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

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**R S SINCLAIR**  
DIRECTOR  
On behalf of  
Baseefa

13

## Schedule

14

Certificate Number Baseefa03ATEX0338 – Issue 7

### 15 Description of Equipment or Protective System

The 007 K4-20 Position Transmitter consist an aluminium or stainless steel enclosure containing a terminal block, up to two volt free switches or up to four certified proximity sensors in any combination, a potentiometer and an optional Position Transmitter. The enclosure has an optional mechanical visual indicator.

Models of the 007 K4-20 Position Transmitter containing only a position transmitter are designated as follows:

#### Type T020D

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb ( $-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C}$ )

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x ( $-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C}$ )

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

#### Type T100D

No indicator of indicator  $\leq 100\text{cm}^2$  surface area

Ex ia IIB T4 Gb ( $-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C}$ )

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x ( $-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C}$ )

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

Models of the 007 K4-20 Position Transmitter containing up to two voltage free (VF) contacts and a position transmitter are designated as follows:

#### Type TM020D

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb ( $-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C}$ )

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x ( $-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C}$ )

VF Contact  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

#### Type TM100D

No indicator of indicator  $\leq 100\text{cm}^2$  surface area

Ex ia IIB T4 Gb ( $-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C}$ )

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x ( $-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C}$ )

VF Contact  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$



**Models of the 007 K4-20 Position Transmitter that contain up to two proximity sensors and a position transmitter are designated as follows:**

**Type TP020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

Each Sensor  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 150\text{nF}$   $L_i = 150\mu\text{H}$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

**Type TP100D**

No indicator or indicator  $\leq 100\text{cm}^2$  surface area

Ex ia IIB T4 Gb  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

Each Sensor  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 150\text{nF}$   $L_i = 150\mu\text{H}$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

**Models of the 007 K4-20 Position Transmitter containing up to four proximity sensors NCB2-V3-N0 in the 2:1 mode (AC function), are designated as follows:**

**Type TA020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

Each Sensor

Circuit  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 200\text{nF}$   $L_i = 200\mu\text{H}$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

**Type TA100D**

No indicator or indicator  $\leq 100\text{cm}^2$  surface area

Ex ia IIB T4 Gb  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

Each Sensor

Circuit  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 200\text{nF}$   $L_i = 200\mu\text{H}$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

**Models of the 007 K4-20 Position Transmitter containing only a potentiometer are designated as follows:**

**Type R020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

Potentiometer  $U_i = 28\text{V}$   $P_i = 0.84\text{W}$   $C_i = 0$   $L_i = 0$

**Type R100D**

No indicator or indicator  $\leq 100\text{cm}^2$  surface area

Ex ia IIB T4 Gb  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

Potentiometer  $U_i = 28\text{V}$   $P_i = 0.84\text{W}$   $C_i = 0$   $L_i = 0$



**Models of the 007 K4-20 Position Transmitter containing up to two voltage free (VF) contacts and a potentiometer are designated as follows:**

**Type RM020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

VF Contact  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

Potentiometer  $U_i = 28\text{V}$   $P_i = 0.84\text{W}$   $C_i = 0$   $L_i = 0$

**Type RM100D**

No indicator of indicator  $\leq 100\text{cm}^2$  surface area

Ex ia IIB T4 Gb  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

VF Contact  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

Potentiometer  $U_i = 28\text{V}$   $P_i = 0.84\text{W}$   $C_i = 0$   $L_i = 0$

**Models of the 007 K4-20 Position Transmitter that contain up to two proximity sensors and a potentiometer are designated as follows:**

**Type RP020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

Each Sensor  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 150\text{nF}$   $L_i = 150\mu\text{H}$

Potentiometer  $U_i = 28\text{V}$   $P_i = 0.84\text{W}$   $C_i = 0$   $L_i = 0$

**Type RP100D**

No indicator of indicator  $\leq 100\text{cm}^2$  surface area

Ex ia IIB T4 Gb  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

Each Sensor  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 150\text{nF}$   $L_i = 150\mu\text{H}$

Potentiometer  $U_i = 28\text{V}$   $P_i = 0.84\text{W}$   $C_i = 0$   $L_i = 0$

**Models of the 007 K4-20 Position Transmitter containing up to four proximity sensors NCB2-V3-N0 in the 2:1 mode (AC function), and a potentiometer are designated as follows:**

**Type RA020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

Each Sensor  
Circuit  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 200\text{nF}$   $L_i = 200\mu\text{H}$

Potentiometer  $U_i = 28\text{V}$   $P_i = 0.84\text{W}$   $C_i = 0$   $L_i = 0$

**Type RA100D**

No indicator of indicator  $\leq 100\text{cm}^2$  surface area

Ex ia IIB T4 Gb  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-20^\circ\text{C} \leq \text{Ta} \leq +60^\circ\text{C})$

Each Sensor  
Circuit  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 200\text{nF}$   $L_i = 200\mu\text{H}$

Potentiometer  $U_i = 28\text{V}$   $P_i = 0.84\text{W}$   $C_i = 0$   $L_i = 0$



**The low temperature 007 K4-20 Position Transmitter containing a position transmitter is:**

**Type TL020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

**The low temperature 007 K4-20 Position Transmitter containing up to two voltage free (VF) contacts and a position transmitter is:**

**Type TLM020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 GD Ex tb IIIC T135°C Db IP6x  $(-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

VF Contact  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

**The low temperature 007 K4-20 Position Transmitter that contains up to two proximity sensors and a position transmitter is:**

**Type TLP020D**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T4 Gb  $(-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

⊕ II 2 G Ex tb IIIC T135°C Db IP6x  $(-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C})$

Each Sensor  $U_i = 16\text{V}$   $I_i = 52\text{mA}$   $P_i = 0.17\text{W}$   $C_i = 30\text{nF}$   $L_i = 100\mu\text{H}$

Transmitter  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 0.84\text{W}$   $C_i = 2\text{nF}$   $L_i = 10\mu\text{H}$

Any one of four different 2-wire Transmitters may be fitted within each of the above low temperature 007 K4-20 Position Transmitter and they each have different output parameters for the associated external sensor circuit.

Type 5331D3B	$U_o = 9.6\text{V}$	$I_o = 25\text{mA}$	$P_o = 0.06\text{W}$	$C_o = 2.4\mu\text{F}$	$L_o = 33\text{mH}$
Type 5333D	$U_o = 27\text{V}$	$I_o = 7\text{mA}$	$P_o = 0.045\text{W}$	$C_o = 90\text{nF}$	$L_o = 35\text{mH}$
Type 5350B	$U_o = 5.7\text{V}$	$I_o = 8.4\text{mA}$	$P_o = 0.012\text{W}$	$C_o = 40\mu\text{F}$	$L_o = 200\text{mH}$
Type 5335D	$U_o = 9.6\text{V}$	$I_o = 28\text{mA}$	$P_o = 0.067\text{W}$	$C_o = 3.5\mu\text{F}$	$L_o = 35\text{mH}$

External electrical connections are made via four tapped holes. For apparatus certified "D" the installation of the external connections and plugging of the unused entry must be carried out using appropriate IP6X cable glands and blanking plugs

**16 Report Number**

None.

**17 Special Conditions for Safe Use**

None.

**18 Essential Health and Safety Requirements**

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

**19 Drawings and Documents**

New drawings submitted for this issue of certificate.



Number	Sheet	Issue	Date	Description
C08129	1 of 5	6	04.05.10	Intrinsically Safe ATEX Certified 007 K4-20 Position Transmitter
C08129	4 of 5	6	04.05.10	Certification Label
C9009	4 of 5	3	14.05.10	Certification Label

Current drawings also associated with this certificate.

Number	Sheet	Issue	Date	Description
C08129	2 of 5	9	06.10.09	Intrinsically Safe ATEX Certified 007 K4-20 Position Transmitter
C08129	3 of 5	4	20.07.04	Intrinsically Safe ATEX Certified 007 K4-20 Position Transmitter
C08129	5 of 5	2	12.08.09	Typical Termination Diagram for Intrinsically Safe Equipment
C09364	1 of 1	1	16.11.05	Intrinsically Safe ATEX Certified Product with Optional Connector(s)

## 20 Certificate History

Certificate No.	Date	Comments
Baseefa03ATEX0338	4 July 2003	The release of the prime certificate. The associated test and assessment is documented in Certification Report No. 03(C)0067/3.
Baseefa03ATEX0338/1	4 May 2004	To permit $C_i$ for the transmitter to be changed to $C_i = \text{InF}$ with a consequent minor change to the certification label.
Baseefa03ATEX0338/2	8 October 2004	<p>i) To permit the addition of proximity sensor type NCB2-V3-N0, Pepperl + Fuchs certificate number PTB00ATEX2032X.</p> <p>ii) The provision to use sensor type NCB2-V3-N0 in the 2:1 mode (AC function) thus forming the 007 K4-20 Position Transmitter types TA020D, TA100D, RA020D and RA100D.</p> <p>iii) The certificate for the type 5335B Transmitter Module was changed from DENKO99ATEX126965 to KEMA03ATEX1537X. The terminal parameters remained un-affected and did not affect the original intrinsic safety assessment.</p> <p>iv) The apparatus description was revised to clarify the options available.</p> <p>v) The certification label details were extended to include the option for a potentiometer to be fitted in place of the existing transmitter.</p> <p>vi) To permit minor electrical changes not affecting the original intrinsic safety assessment.</p> <p>The associated test and assessment is documented in Certification Report No. 04(C)0585.</p>
Baseefa03ATEX0338/3	21 November 2005	To permit minor mechanical changes not affecting the original intrinsic safety assessment.
Baseefa03ATEX0338/4	9 July 2007	To permit minor mechanical changes not affecting the existing certification.



Certificate No.	Date	Comments
Baseefa03ATEX0338/5	13 January 2009	<p>i) To permit the introduction of an alternative 5330B 2-wire Transmitter, Certificate Number KEMA02ATEX1318 in ant of the existing 007 K4-20 Position Transmitters and for the equivalent capacitance for the transmitter to be increased to <math>C_1 = 2nF</math> in each case.</p> <p>ii) To permit the introduction of three low temperature 007 K4-20 Position Transmitter Types TL020D, TLM020D and TLP020D.</p> <p>The associated test and assessment is documented in Certification Report No. 08(C)0909.</p>
Baseefa03ATEX0338/6	9 November 2009	<p>To permit the omission of some previously certified equipment and to confirm that the models of the 007 K4-20 Position Transmitters meet the requirements of EN 60079-0: 2006, EN 60079-11: 2007, EN 61241-0: 2006 and EN 61241-1: 2004. The marking of the apparatus has been revised in accordance with the requirements introduced by IEC 60079-0: 2007.</p> <p>The associated test and assessment is documented in Certification Report No. 09(C)0576/3.</p>
Baseefa03ATEX0338 Issue 7	19 May 2010	<p>This issue of the certificate permits minor label and drawing changes not affecting the original assessment.</p>
<p>For drawings applicable to each issue, see original of that issue.</p>		