KEMA
REGISTERED QUALITY

# (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: **KEMA 97ATEX1805**

(4) Equipment or protective system: **APEX Radar Level Gauge and APEX ULTRA Inventory Radar Gauge**

(5) Manufacturer: **Rosemount Inc.**

(6) Address: **12001 Technology Drive, Eden Prairie, MN, USA**

(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) KEMA, notified body number 0344 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. 71805.

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

**EN 50014 : 1992 + prA1** **EN 50018 : 1994** **prEN 50284 : 1997**

(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 1/2 G** **EEx d IIB T4**

Arnhem, 25 September 1997
by order of the Board of Directors of N.V. KEMA

C.M. Boschloo
Certification Manager



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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 97ATEX1805**

(15) **Description**

The APEX Radar Level Gauge and APEX ULTRA Inventory Radar Gauge use a radar signal to measure the level of a liquid in a vessel. The electronics is mounted in an aluminium flameproof housing on top of the housing-to-flange adapter that provides the connection to the stainless steel cone antenna.

The construction complies with the requirements of prEN50284 that allows the APEX and APEX ULTRA to be used on the boundary of Zone 1 and Zone 0.

Ambient temperature range:
- without Local Operator Interface -20°C ... +70°C
- with Local Operator interface -20°C ... +55°C.

**Electrical data**

| | |
|---|---|
| Power supply ..... | 90-250 Vac, 50/60 Hz,<br>or 18-36 Vdc |
| Power input ..... | 9 W max. |
| Power to cone antenna ..... | less than 50 mW, 24,05 GHz ... 26,05 GHz |

**Installation instruction**

The cable entry devices shall be of a certified flameproof type EEx d, suitable for the conditons of use and correctly installed.

**Routine test**

The welded joints on all flange adapters and antenna assemblies shall be submitted to a routine test according to Clause 15.1 of EN 50 018 with a test pressure of at least 18,4 bar.

(16) **Report**

KEMA No. 71805

(17) **Special conditions for safe use**

None

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 97ATEX1805**

(18) **Essential Health and Safety Requirements**

| Essential Health and Safety Requirements not covered by standards listed at (9) | |
|---|---|
| Clause | Subject |
| 1.0.4 | Surrounding area conditions |
| 1.0.5 | Marking |
| 1.0.6 | Instructions |
| 1.2.7 | Protection against other hazards |
| 1.2.8 | Overloading of equipment |
| 1.4 | Hazards arising from external effects |

These Essential Health and Safety Requirements are examined and positively judged. The results are laid down in the report listed at (16).

(19) **Test documentation**

| | | signed |
|---|---|---|
| 1. | Product compliance report including Appendix B | |
| 2. | Document No. 03700-1000, Rev. AA (4 sheets)<br>00809-0100-4731, Rev. AA<br>00809-0100-4732 | 15.08.1997 |
| 3. | Samples | |

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# AMENDMENT 1

**to EC-Type Examination Certificate KEMA 97ATEX1805**

Manufacturer: **Rosemount Inc.**

Address: **12001 Technology Drive, Eden Prairie, MN, USA**

**Description**

The range of APEX Radar Gauges is extended with the new model APEX Sentry, being identical to the APEX model except for the terminal block, which has one set of terminals for the input power and one set for a 4-20 mA/Hart output signal.

In addition, all models (APEX, APEX Sentry and APEX Ultra) may be provided with an intrinsically safe output option that limits the energy from the 4-20 mA/Hart terminals.
These models shall include the following marking:

⟨Ex⟩ II 1/2 G EEx d [ia] IIB T4

and include the electrical data as described below.

**Electrical data**

APEX, APEX Sentry, APEX Ultra with I.S. Output Option Code 2 installed:

Output circuit .....
(terminals +/- 4-20mA/Hart)

in type of explosion protection intrinsic safety EEx ia IIB, with the following maximum values:

$U_o$ = 29,4 V
$I_o$ = negligibly small

Maximum allowed external capacitance $C_o$ = 587 nF.
Maximum allowed external inductance $L_o$ is determined by the parameters of the circuit connected.

This circuit may only be connected to intrinsically safe circuits with the following maximum values:

$U_i$ = 30 V
$I_i$ = 145 mA
$P_i$ = 1,6 W

The effective internal capacitance and inductance are negligibly small.

All other data remain unchanged.

**Test documentation**

| | signed |
|---|---|
| 1. Description (4 pages) | 04.02.1999/19.02.1999 |
| 2. Product Compliance Report C1185-02 | 22.02.1999 |
| Product Compliance Report C1185-03 | 19.04.1999 |

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# AMENDMENT 1

## to EC-TYPE EXAMINATION CERTIFICATE KEMA 97ATEX1805

**Test documentation** (continued)

| | | |
|---|---|---|
| 3. | Drawing No. 03750-0123, rev. AC | 19.04.1999 |
| | 03750-0610, rev. AA (2 sheets) | 19.02.1999 |
| | 03750-0124, rev. AA | 19.02.1999 |
| | 03700-1000, rev. AE (4 sheets) | 19.04.1999 |

Arnhem, 23 June 1999
by order of the Board of Directors of N.V. KEMA

C.M. Boschloo
Certification Manager

Code: ⟨Ex⟩ II 1/2 G EEx d IIB T4 resp. EEx d [ia] IIB T4 [99.2167]

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# AMENDMENT 2

**to EC-Type Examination Certificate KEMA 97ATEX1805**

Manufacturer: **Rosemount Inc.**

Address: **12001 Technology Drive, Eden Prairie, MN, USA**

**Description**

All Radar Gauge models (APEX, APEX Sentry and APEX Ultra) have been positively evaluated to determine compliance with the requirements for code IIB + $H_2$, and shall be provided with the marking and electrical data as listed below.

Models APEX, APEX Sentry and APEX Ultra:

Marking: EEx d IIB + $H_2$ T4

All other data remain unchanged.

Models APEX, APEX Sentry and APEX Ultra with I.S. Output Option Code 2 installed:

Marking: EEx d [ia] IIB + $H_2$ T4

Electrical data:

Output circuit ..... (terminals +/- 4-20mA/Hart) in type of explosion protection intrinsic safety EEx ia IIC, with the following maximum values:

$U_o$ = 29,4 V
$I_o$ = negligibly small

Maximum allowed external capacitance $C_o$ = 71 nF.
Maximum allowed external inductance $L_o$ is determined by the parameters of the circuit connected.

This circuit may only be connected to intrinsically safe circuits with the following maximum values:

$U_i$ = 30 V
$I_i$ = 145 mA
$P_i$ = 1,6 W

The effective internal capacitance and inductance are negligibly small.

All other data remain unchanged.

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# AMENDMENT 2

**to EC-Type Examination Certificate KEMA 97ATEX1805**

**Test documentation**

| | signed |
|---|---|
| 1. Product Compliance Report C1185-04 | 17.12.1999 |
| 2. Drawing No. 03750-1000, rev. AH (4 sheets) | 15.12.1999 |
| 03750-0123, rev. AD | 15.12.1999 |
| 03750-0124(-0002), rev. AB (3 sheets) | 15.12.1999 |
| 03700-0610, rev. AD (2 sheets) | 15.12.1999 |
| 3. Samples | |

Arnhem, 14 January 2000
by order of the Board of Directors of N.V. KEMA

C.M. Boschloo
Certification Manager

Code: Ex II 1/2 G EEx d IIB + $H_2$ T4 resp. EEx d [ia] IIB + $H_2$ T4 [99.8331]