

(1) **EC-TYPE EXAMINATION CERTIFICATE**


- (2) Components intended for use in potentially explosive atmospheres - Directive 94/9/EC
- (3) EC-Type Examination Certificate Number: **KEMA 01ATEX2184 U**
- (4) Components: **Booster Amplifier**
- (5) Manufacturer: **Micro Motion, Inc.**
- (6) Address: **7070 Winchester Circle, Boulder, CO 80301, USA**
- (7) These components and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that these components have been found to comply with the Essential Health and Safety Requirements relating to the design and construction of components 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. 2015586.

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

EN 50014 : 1997	EN 50018 : 2000	EN 50019 : 2000
EN 50020 : 1994	EN 50281-1-1:1998	

- (10) The sign "U" placed after the certificate number indicates that this certificate describes components and must not be mistaken for a certificate intended for an equipment or protective system. This EC-Type Examination Certificate may be used as a basis for certification of an equipment or protective system.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified components according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of these components. These are not covered by this certificate.
- (12) The marking of the components shall include the following:


 II 2 GD EEx d [ib] IIB T6...T5 or
 EEx de [ib] IIB T6...T5
 T 80 °C

Arnhem, 4 March 2002
KEMA Quality B.V.



T. Pijpker
Certification Manager

* This Certificate may only be reproduced in its entirety and without any change

(13)

SCHEDULE

(14)

to EC-Type Examination Certificate KEMA 01ATEX2184 U

(15) **Description**

The Booster Amplifier is intended to be used with the Micro Motion Mass Flow Sensor models CMF400M or DS600S and a Micro Motion transmitter to form a Mass Flow Meter system. The Booster Amplifier may be integral or remote mounted in relation to the sensor body, depending on the maximum process temperature. The Booster Amplifier is able to accept Micro Motion's 9-Wire J-Box or Core Processor Model 700 inputs, certified as EEx ib IIB/IIC T5 under DMT 01 ATEX E 081 U.

The terminal compartment is in type of explosion protection flame proof enclosure EEx d or increased safety EEx e. The amplifier compartment is in type of explosion protection flame proof enclosure EEx d.

The Booster Amplifier additionally incorporates an intrinsically safe Junction Housing for termination and connection of intrinsically safe transmitter and sensor wiring.

Ambient temperature range -40 °C ... +60 °C.

The temperature class is T5 when the Core Processor Model 700 is used, otherwise the temperature class is T6.

The maximum surface temperature T 80 °C is related to an ambient temperature of +60 °C.

Electrical data

Non-intrinsically safe circuits:

Main power supply	85-265 V, 500 mA max., 50 W max., 50/60 Hz $U_m = 265 \text{ Vac}$
Power supply to drive coil	32 Vdc, 2 A max.

Intrinsically safe circuits:

Input circuit with Model 700

Core Processor	in type of explosion protection intrinsic safety EEx ib IIB, only for connection to certified intrinsically circuits, with the following maximum values:
(terminals 1-4)	

$$\begin{aligned} U_i &= 17,3 \text{ V} \\ I_i &= 484 \text{ mA} \\ P_i &= 2,1 \text{ W} \end{aligned}$$

The effective internal capacitance $C_i = 2,2 \text{ nF}$.
The effective internal inductance $L_i = 30 \text{ }\mu\text{H}$.

Drive coil input circuit with 9-Wire J-Box	in type of explosion protection intrinsic safety EEx ib IIB, only for connection to certified intrinsically circuits, with the following maximum values:
(Brown and Red insulated wires)	

$$\begin{aligned} U_i &= 11,4 \text{ V} \\ I_i &= 2,45 \text{ A} \\ P_i &= 2,54 \text{ W} \end{aligned}$$

The effective internal capacitance C_i and internal inductance L_i are negligibly small.

(13)

SCHEDULE

(14)

to EC-Type Examination Certificate KEMA 01ATEX2184 U

Electrical data (continued)

Pick-Off coil circuits in type of explosion protection intrinsic safety EEx ib IIB,
(Green and White, resp. only for connection to certified intrinsically circuits, with
Blue and Grey insulated wires) the following maximum values:

$$\begin{array}{rcl} U_i & = & 30 \quad \text{V} \\ I_i & = & 215 \quad \text{mA} \\ P_i & = & 1,6 \quad \text{W} \end{array}$$

The effective internal capacitance C_i and inductance L_i are negligibly small.

Temperature (RTD) circuit in type of explosion protection intrinsic safety EEx ib IIB,
(Violet, Orange and Yellow only for connection to a certified intrinsically circuit,
insulated wires) with the following maximum values:

$$\begin{array}{rcl} U_i & = & 30 \quad \text{V} \\ I_i & = & 253 \quad \text{mA} \\ P_i & = & 1,9 \quad \text{W} \end{array}$$

The effective internal capacitance C_i and inductance L_i are negligibly small.

Installation instructions

The cable and conduit entry devices and blind plugs shall be of a certified flame proof type, suitable for the conditions of use and correctly installed. In the case of conduit, a stopping box shall be used immediately on the entrance to the flameproof enclosure.

Routine tests

Each input isolation transformer (part no. 3934.008) shall be subjected to a dielectric strength test according to EN 50020, clause 11.2, using the test voltages and procedures as mentioned in drawing no. 3934.008.

(16) **Report**

KEMA No. 2015586.

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

None.

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

Covered by the standards listed at (9).

(13)

SCHEDULE

(14)

to EC-Type Examination Certificate KEMA 01ATEX2184 U

(19) **Test documentation**

1. Component Certificate KEMA No. Ex-01.E.2074 U

dated

2. Document no. EB-1005113, Rev. B (5 pages)	03.03.2002
EB-3006196, Rev. C (4 pages)	03.03.2002
EB-3005829, Rev. B	-
EB-3006200, Rev. B	-
EB-3005975, Rev. B	-
EB-3005831, Rev. B	-
EB-3600680, Rev. A	-

3. Samples