DK37/M8 - H250/M8 QPS - IS
Control Drawings for hazardous location
HAZARDOUS (CLASSIFIED) LOCATION
CLASS I DIVISION 1, 2 GROUPS A,B,C,D T6...T3
CLASS I Zone 1 AEx ia IIC T6...T3 Gb Zone 1 Ex ia IIC T6...T3 Gb

NON HAZARDOUS (UNCLASSIFIED) LOCATION

NOTES:

1. THE ENTITY CONCEPT ALLOWS INTERCONNECTIONS OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED INTRINSICALLY SAFE FIELD WIRING APPARATUS, USING ANY OF THE WIRING METHODS PERMITTED FOR NON HAZARDOUS (UNCLASSIFIED) LOCATIONS.

2. USE APPROVED ASSOCIATED INTRINSICALLY SAFE FIELD WIRING APPARATUS WITH INTRINSICALLY SAFE FIELD WIRING PARAMETERS USED IN AN APPROVED CONFIGURATION SUCH THAT:

   \[ U_{i} (V_{\text{max}}) \geq U_{0} (V_{\text{oc}}) \]
   \[ I_{i} (I_{\text{max}}) \geq I_{0} (I_{\text{sc}}) \]
   \[ P_{i} (P_{\text{max}}) \geq P_{0} \]
   \[ C_{i} \geq C_{\text{cable}} + 0 \text{nF} \]
   \[ L_{i} \geq L_{\text{cable}} + 0 \text{mH} \]

3. INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ® NFPA 70, ARTICLE 500 TO 510 AND ANSI / ISA - RP 12.06.01 AND CANADIAN ELECTRICAL CODE FOR CANADA INSTALLATION.

4. RUN SHIELDED INTERCONNECTION CABLE WITH SHIELD CONNECTED TO FM APPROVED ASSOCIATED APPARATUS GROUND.

5. OBSERVE FLOW METER DK37 M8E... H250 M8E Ex AND ASSOCIATED APPARATUS MANUFACTURER’S INSTALLATION INSTRUCTIONS.

6. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN THE SPECIFIED Um OF ASSOCIATED APPARATUS.

7. THE ASSOCIATED APPARATUS MUST BE A RESISTIVELY LIMITED SINGLE OR MULTIPLE CHANNEL APPROVED BARRIER HAVING PARAMETERS LESS THAN THOSE QUOTED, AND FOR WHICH THE OUTPUT AND THE COMBINATIONS OF OUTPUTS IS NON-IGNITION CAPABLE FOR THE CLASS, DIVISION AND GROUP OF USE.

8. ELECTROSTATIC CHARGE

   AS SPECIAL CUSTOMER REQUIREMENT THICKNESS OF LAQUER SHOULD BE \( > 200\mu\text{m} \) FOR VISES DUE TO ELECTROSTATIC CHARGE, THIS INSTRUMENTS SHALL NOT BE USED IN AREAS WHERE:

   - PROCESSES THAT GENERATE STRONG CHARGES,
   - MECHANICAL FRICTION AND CUTTING PROCESSES,
   - SPRAYING OF ELECTRONS (E.G. IN THE VICINITY OF ELECTROSTATIC PAINTING SYSTEMS),
   - DUST CARRIED BY COMPRESSED AIR.

9. MAXIMUM TEMPERATURE OF TERMINALS, CABLE GLANDS AND WIRES SHOULD BE \( > 60^\circ\text{C} \). IT DEPENDS OF AMBIENT – AND PRODUCT TEMPERATURE FOR DETAILS PLEASE REFER TO PAGE 3 OF THIS DOCUMENT.

CURRENT LOOP ENTITY PARAMETERS:

\[ U_{0} (V_{\text{oc}}) \leq 30 \text{ V} \]
\[ I_{0} (I_{\text{sc}}) \leq 120 \text{ mA} \]
\[ P_{0} \leq 1 \text{ W} \]
\[ C_{0} (C_{a}) \geq C_{\text{cable}} + 0 \text{nF} \]
\[ L_{0} (L_{a}) \geq L_{\text{cable}} + 0 \text{mH} \]
Hazardous (classified) location
Class I Division 1, 2 Groups A, B, C, D T6...T3
Class I Zone 1 AEx ia IIC T6...T3 Gb Zone 1 Ex ia IIC T6...T3 Gb

DK37 M8... H250 M8... Ex

Entity Parameters
Ui (Vmax) = 16 V
li (Imax) = 25/52 mA
Pi (Pmax) = 64/169 mW
Ci = acc. to table 1
Li = acc. to table 1

Entity Parameters
Ui (Vmax) = 16 V
li (Imax) = 25/52 mA
Pi (Pmax) = 64/169 mW
Ci = acc. to table 1
Li = acc. to table 1

NOTES:
1. The entity concept allows interconnections of intrinsically safe apparatus with associated intrinsically safe field wiring apparatus, using any of the wiring methods permitted for non hazardous (unclassified) locations.
2. Use approved associated intrinsically safe field wiring apparatus with intrinsically safe field wiring parameters used in an approved configuration such that:
   - Ui (Vmax) ≥ associated intrinsically safe field wiring apparatus Uo (Voc)
   - li (Imax) ≥ associated intrinsically safe field wiring apparatus Io (Isc)
   - Pi (Pmax) ≥ associated intrinsically safe field wiring apparatus Po
   - Cl + Ccable ≥ associated intrinsically safe field wiring apparatus Co (Ca)
   - Li + Lcable ≥ associated intrinsically safe field wiring apparatus Lo (La)
3. Installation shall be in accordance with the National Electrical Code® NFPA 70, Article 500 to 510 and ANSI/ISA- RP 12.06.01 and Canadian Electrical Code for Canada installation.
4. Run shielded interconnection cable with shield connected to FM approved associated apparatus ground.
5. Observe flow meter DK37 M8... H250 M8... Ex and associated apparatus manufacturer's installation instructions.
6. Control equipment connected to associated apparatus must not use or generate more than the specified Um of associated apparatus.
7. The associated apparatus must be a resistively limited single or multiple channel approved barrier having parameters less than those quoted, and for which the output and the combinations of outputs is non-ignition capable for the class, division and group of use.
8. Electrostatic charge
   - As special customer requirement thickness of lacquer should be > 200µm.
   - In order to avoid ignition hazards due to electrostatic charge, this instrument shall not be used in areas where:
     - Processes that generate strong charges,
     - Mechanical friction and cutting processes,
     - Spraying of electrons (e.g. in the vicinity of electrostatic painting systems),
     - Dust carried by compressed air.
9. Maximum temperature of terminals, cable glands and wires should be > 60°C. It depends of ambient – and product temperature for details please refer to page 3 of this document.

Control Drawing
KMT (Duisburg, D)
APP GD 821138-20 a
### DK37/M8.75/... permissible product and ambient temperatures

| Temperature class | Ambient temperature up to Type DK37/M8E../.. Type DK37/M8M/.K. at 64 mW Type DK37/M8M/.K. at 169 mW |
|-------------------|--------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
|                   | [°C]     | [°F]     | [°C] | [°F] | [°C] | [°F] | [°C] | [°F] |
| T6                | +40      | +104     | +70  | +158 | +85  | +185 | +40  | +104 |
|                  | +50      | +122     | -    | -    | +85  | +185 | -    | -    |
|                  | +60      | +140     | -    | -    | +75  | +167 | -    | -    |
| T5                | +40      | +104     | +36  | +100 | +55  | +131 | +40  | +104 |
|                  | +50      | +122     | +95  | +203 | +100 | +212 | +65  | +149 |
|                  | +60      | +140     | +75  | +167 | +100 | +212 | -    | -    |
|                  | +65      | +149     | +75  | +167 | +100 | +212 | -    | -    |

The permitted ambient temperature range is indicated on the nameplate; depending on the device version it is \( T_{\text{Amb}} = -40\ldots+65^\circ\text{C} / -40\ldots+149^\circ\text{F} \) or \( T_{\text{Amb}} = -25\ldots+65^\circ\text{C} / -13\ldots+149^\circ\text{F} \).

The minimum product temperature is \(-40^\circ\text{C} / -40^\circ\text{F}\).

### H250/..M8.G/... permissible product and ambient temperatures

| Temperature class | Ambient temperature up to Type H250/..M8EG../.. Type H250/..M8MG../.. at 64 mW Type H250/..M8MG../.. at 169 mW |
|-------------------|--------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
|                   | [°C]     | [°F]     | [°C] | [°F] | [°C] | [°F] | [°C] | [°F] |
| T6                | +40      | +104     | +85  | +185 | +85  | +185 | +40  | +104 |
|                  | +50      | +122     | -    | -    | +85  | +185 | -    | -    |
|                  | +60      | +140     | -    | -    | +85  | +185 | -    | -    |
| T5                | +40      | +104     | +100 | +212 | +100 | +212 | +100 | +212 |
|                  | +50      | +122     | +100 | +212 | +100 | +212 | +80  | +176 |
|                  | +60      | +140     | +85  | +185 | +100 | +212 | -    | -    |
|                  | +65      | +149     | -    | -    | +100 | -    | -    | -    |

The minimum product temperature is \(-40^\circ\text{C} / -40^\circ\text{F}\).

PERMANENT SERVICE TEMPERATURE OF CONNECTING CABLE AND CABLE GLAND
MIN. 70°C (158°F) EXCEPT FOR VALUES WITH ⬧ MIN. 80°C OR ⬧ MIN. 176°F