ATEX Installation Instructions for Micro Motion® Model LFT Low Flow Transmitters
Note: For hazardous installations in Europe, refer to standard EN 60079-14 if national standards do not apply.

Information affixed to equipment that complies with the Pressure Equipment Directive can be found on the internet at www.micromotion.com/library.
Model LFT Transmitters
ATEX Installation Instructions and Drawings

• For installing a Model LFT transmitter with a 4-wire connection to an LF sensor

Subject: Equipment type
Transmitter type LFT***L****

Manufactured and submitted for examination
Micro Motion, Inc.

Address
Boulder, Co. 80301, USA

Standard basis
EN 50021:1999 Non-sparking ‘n’
EN 50281-1-1:1998 Dust ‘D’

Code for type of protection
EEEx nC IIB +H₂ T6
EEEx nC IIC T6
EEEx nC [L] IIB +H₂ T6
EEEx nC [L] IIC T6
1) **Subject and type**

Transmitter type LFT***L****

Instead of the *** letters and numerals will be inserted which characterize the following modifications:

- **L F T * * * L * * *:** Marking without influence to the type of protection
- **L:** Approval
  - ATEX — Equipment Category 3 (Zone 2)
- **Letter for conduit connections**
- **Numeral for display**
  - 1 = Standard display; gas group IIB+H₂
  - 2 = Backlight display; gas group IIB+H₂
  - 3 = No display; gas group IIC
  - 4 = IIC display cover; gas group IIC
  - 5 = IIC display cover with backlight display; gas group IIC
- **Numeral for outputs**
  - 1 = One mA, one frequency flow only field mount EEx n C
  - 3 = One mA, one frequency multivariable field mount EEx n C
  - 4 = Two mA, two frequency configurable field mount EEx n C
  - 6 = Foundation fieldbus field mount EEx nC [L]
  - 7 = Profibus-PA field mount EEx nC [L]
2) **Description**

The Low Flow Transmitter (LFT) is used in combination with LF Series Sensors for measurement of mass flow and data transmission.

2.1) LFT field mount

The electrical circuitry of the transmitters is mounted inside a metal enclosure which is divided into three compartments.

In the compartment with type of protection “nC” the Terminal Board, Power Supply Board, Feature Board, and (optionally) the Display Board are mounted. When executed with display, the gas group is IIB + H2. When it is executed without display, or with the alternative window display cover, the gas group is IIC.

The main terminal compartment with type of protection “nC” is separated into two sections. One section contains two screw terminals for supplying power to the device. The other section contains 6 terminals for general I/O. In the case of Fieldbus or Proflbus, these terminals are energy limited. The enclosure is constructed with a secondary terminal compartment with type of protection “nA” for the connection of remotely operating non sparking “nA” Model LF Series sensors.

3) **Field mount parameters (models LFT(1, 3, 4, 6 or 7)**L****

3.1) Mains circuit (terminals 9–10 in main terminal compartment)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>AC/DC 18–250 V</td>
</tr>
<tr>
<td>Max voltage</td>
<td>Um AC/DC 250 V</td>
</tr>
</tbody>
</table>

3.2) Non energy limited input/output circuits (terminals 1–6 in main terminal compartment) only for type LFT(1, 3 or 4)**L****

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>Um AC/DC 60 V</td>
</tr>
</tbody>
</table>

3.3) Energy limited output circuits type of protection EEx nL II available in main terminal compartment marked with EEx nC [L].

3.3.1) Fieldbus circuit (terminals Fieldbus 1 and 2) only for type LFT6**L**** and type LFT7**L****

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>Ui DC 30 V</td>
</tr>
<tr>
<td>Current</td>
<td>Ii 380 mA</td>
</tr>
<tr>
<td>Power</td>
<td>Pi 5.32 W</td>
</tr>
<tr>
<td>Effective internal inductance</td>
<td>Li Negligible</td>
</tr>
<tr>
<td>Effective internal capacitance</td>
<td>Ci Negligible</td>
</tr>
</tbody>
</table>

For the connection of a Fieldbus circuit in accordance with FNICO model.
3.4) Power and signal circuits in secondary terminal compartment marked with "nC" for type LFT1**L**** or LFT3**L**** or LFT4**L**** or LFT6**L**** or LFT7**L**** (to remotely mounted LF sensor):

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Uo</th>
<th>DC</th>
<th>16,31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>Io</td>
<td>A</td>
<td>0,396</td>
</tr>
<tr>
<td>Power</td>
<td>Po</td>
<td>W</td>
<td>5,96</td>
</tr>
</tbody>
</table>

3.5) Ambient temperature range

- LFT(1, 3, 4, 6 or 7)(1, 2, or 3)*L**** \(Ta\) \(-40 \, ^\circ C \text{ up to } +55 \, ^\circ C\)
- LFT(1, 3, 4, 6 or 7)(4 or 5)*L**** \(Ta\) \(-20 \, ^\circ C \text{ up to } +55 \, ^\circ C\)

4) Marking

- LFT*(1, 2 or 3)*L**** \(-40 \, ^\circ C \leq Ta \leq +55 \, ^\circ C\)
- LFT(1, 3, 4, 6 or 7)(4 or 5)*L**** \(-20 \, ^\circ C \leq Ta \leq +55 \, ^\circ C\)

<table>
<thead>
<tr>
<th>- type</th>
<th>- type of protection</th>
</tr>
</thead>
</table>
| LFT(1, 3, or 4)(1 or 2)*L**** | II 3 G EEx nC IIB + H2 T6  
II 3 D IP66/IP67 T65 °C  
KEMA 04 ATEX 1273 X |
| LFT(6 or 7)(1 or 2)*L****   | II 3 G EEx nC [L] IIB + H2 T6  
II 3 D IP66/IP67 T65 °C  
KEMA 04 ATEX 1273 X |
| LFT(1, 3, or 4)(3, 4 or 5)*L**** | II 3 G EEx nC IIC T6  
II 3 D IP66/IP67 T65 °C  
KEMA 04 ATEX 1273 X |
| LFT(6 or 7)(3, 4 or 5)*L****  | II 3 G EEx nC [L] IIC T6  
II 3 D IP66/IP67 T65 °C  
KEMA 04 ATEX 1273 X |

After de-energizing, delay 5 minutes before opening (models LFT(1, 3, 4, 6 or 7)**L**** only).

5) Special conditions for safe use / Installation instructions

5.1) For the application of the transmitter in an ambient temperature of less than \(-20 \, ^\circ C\) suitable cable and cable entries or conduit entries for this condition shall be used (models LFT*(1, 2 or 3)*L**** only).

5.2) When cable entries are used they shall conform to clause 7.2.6 of EN 50021.

5.3) For type LFT(6 or 7)**L**** only, the cover of the terminal compartment containing terminals 1–6 may be removed for short periods when the apparatus is in service to permit checking or adjustment of energized energy limited circuits.
5.4) A degree of ingress protection of at least IP 54 according to EN 60529 will only be achieved when cable and conduit entries providing IP54 according to EN 60529 are used. For applications in explosive atmospheres caused by air/dust mixtures, a degree of ingress protection of at least IP66/IP67 according to EN 60529 will only be achieved when cable and conduit entries are used that provide a degree of ingress protection of at least IP66/IP67 according to EN 60529.

5.5) Replacement of fuses is not allowed.

Model LFT installation drawings

Figure 1: Model LFT transmitter to LF sensor

COMBINE THIS DRAWING WITH FIGURE 2

Model LFT Field Mount Transmitter

Hazardous Area
No Display
EEx nC IIC T6
With Display
EEx nC IIB + H2 T6
EEx nC IIC T6

Refer to transmitter tag for complete hazardous area classification.

Model LFT terminal configuration

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Analog LFT(1 or 3)<strong>L</strong>**</th>
<th>Config I/O LFT4**L****</th>
<th>Fieldbus (I.S.) LFT6**L****</th>
<th>PROFIBUS-PA LFT7**L****</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I/O 1+</td>
<td>mA / HART +</td>
<td>mA1 / HART +</td>
<td>Channel A</td>
</tr>
<tr>
<td>2</td>
<td>I/O 1–</td>
<td>mA / HART –</td>
<td>mA1 / HART –</td>
<td>Channel A</td>
</tr>
<tr>
<td>3</td>
<td>I/O 2+</td>
<td>FO +</td>
<td>mA2 / DO1 / FO +</td>
<td>Channel B</td>
</tr>
<tr>
<td>4</td>
<td>I/O 2–</td>
<td>FO –</td>
<td>mA2 / DO1 / FO –</td>
<td>Channel B</td>
</tr>
<tr>
<td>5</td>
<td>I/O 3+</td>
<td>RS-485 A</td>
<td>FO / DO2 / DI +</td>
<td>Channel C</td>
</tr>
<tr>
<td>6</td>
<td>I/O 3–</td>
<td>RS-485 B</td>
<td>FO / DO2 / DI –</td>
<td>Channel C</td>
</tr>
</tbody>
</table>

Reference no. EB-20002237 Rev. A
EB-20002239 Rev. A
EB-20002236 Rev. A
EB-20002235 Rev. A
Figure 2: LF sensor

COMBINE THIS DRAWING WITH FIGURE 1

Hazardous Area
EEx na IIIC

4-wire cable supplied with sensor
(cable supplied with integral molded connector for sensor termination)

Refer to sensor tag for complete hazardous area classification.

Models: LF2M, LF3M, LF4M

Reference no. EB-20002237 Rev. A