

Installation Instructions

P/N 20004414, Rev. C

September 2008

ATEX Installation Drawings and Instructions

For ATEX-approved transmitter
installations



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.

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Model LFT Transmitters

ATEX Installation Instructions and Drawings

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

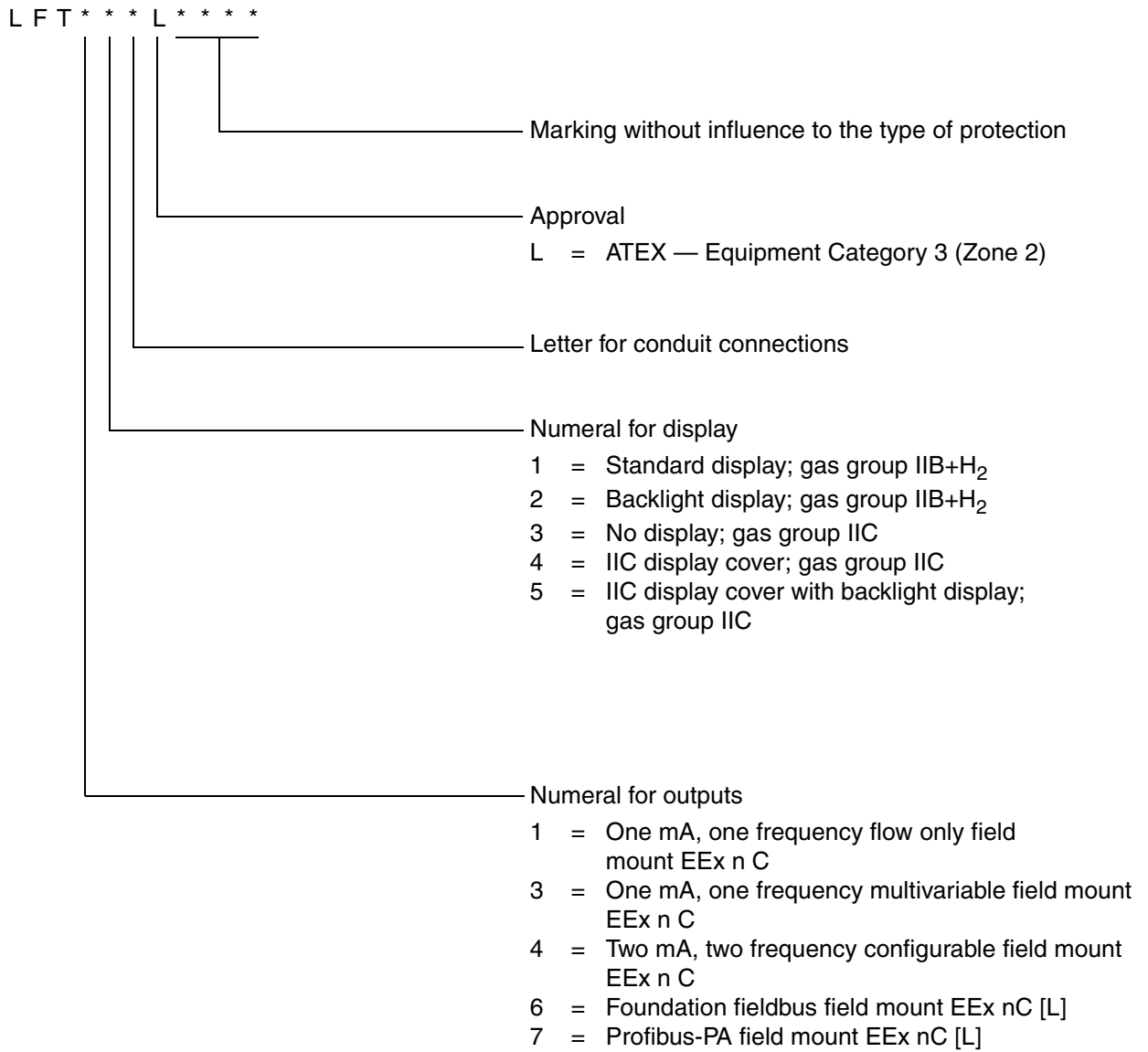


Subject:	Equipment type	Transmitter type LFT***L****
Manufactured and submitted for examination		Micro Motion, Inc.
Address		Boulder, Co. 80301, USA
Standard basis		EN 50021:1999 Non-sparking 'n' EN 50281-1-1:1998 Dust 'D'
Code for type of protection		EEx nC IIB +H₂ T6 EEx nC IIC T6 EEx nC [L] IIB +H₂ T6 EEx 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:



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 Profibus, these terminals are energy limited. The enclosure is constructed with a secondary terminal compartment with type of protection “nC” 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)

Voltage		AC/DC	18–250	V
Max voltage	Um	AC/DC	250	V

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

Voltage	Um	AC/DC	60	V
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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****

Voltage	Ui	DC	30	V
Current	li		380	mA
Power	Pi		5,32	W
Effective internal inductance	Li		Negligible	
Effective internal capacitance	Ci		Negligible	

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):





Voltage	Uo	DC	16,31	V
Current	Io		0,396	A
Power	Po		5,96	W

3.5) Ambient temperature range

LFT(1, 3, 4, 6 or 7)(1, 2, or 3)*L****	Ta	-40 °C up to +55 °C
LFT(1, 3, 4, 6 or 7)(4 or 5)*L****	Ta	-20 °C up to +55 °C

4) Marking

LFT*(1, 2 or 3)*L****	-40 °C ≤ Ta ≤ +55 °C
LFT(1, 3, 4, 6 or 7)(4 or 5)*L****	-20 °C ≤ Ta ≤ +55 °C

- type	- type of protection
LFT(1, 3, or 4)(1 or 2)*L****	 II 3 G EEx nC IIB + H ₂ 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 + H ₂ 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).

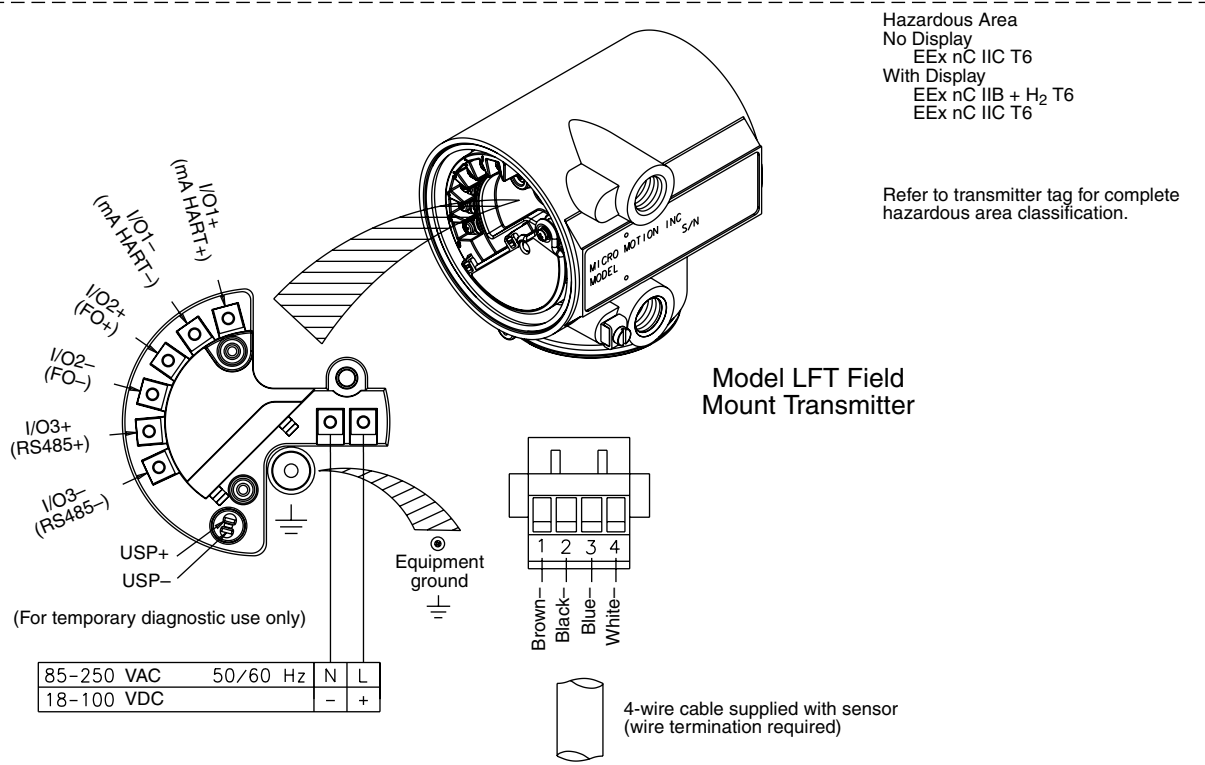
5) Special conditions for safe use / Installation instructions

- 5.1) For the application of the transmitter in an ambient temperature of less than -20 °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.

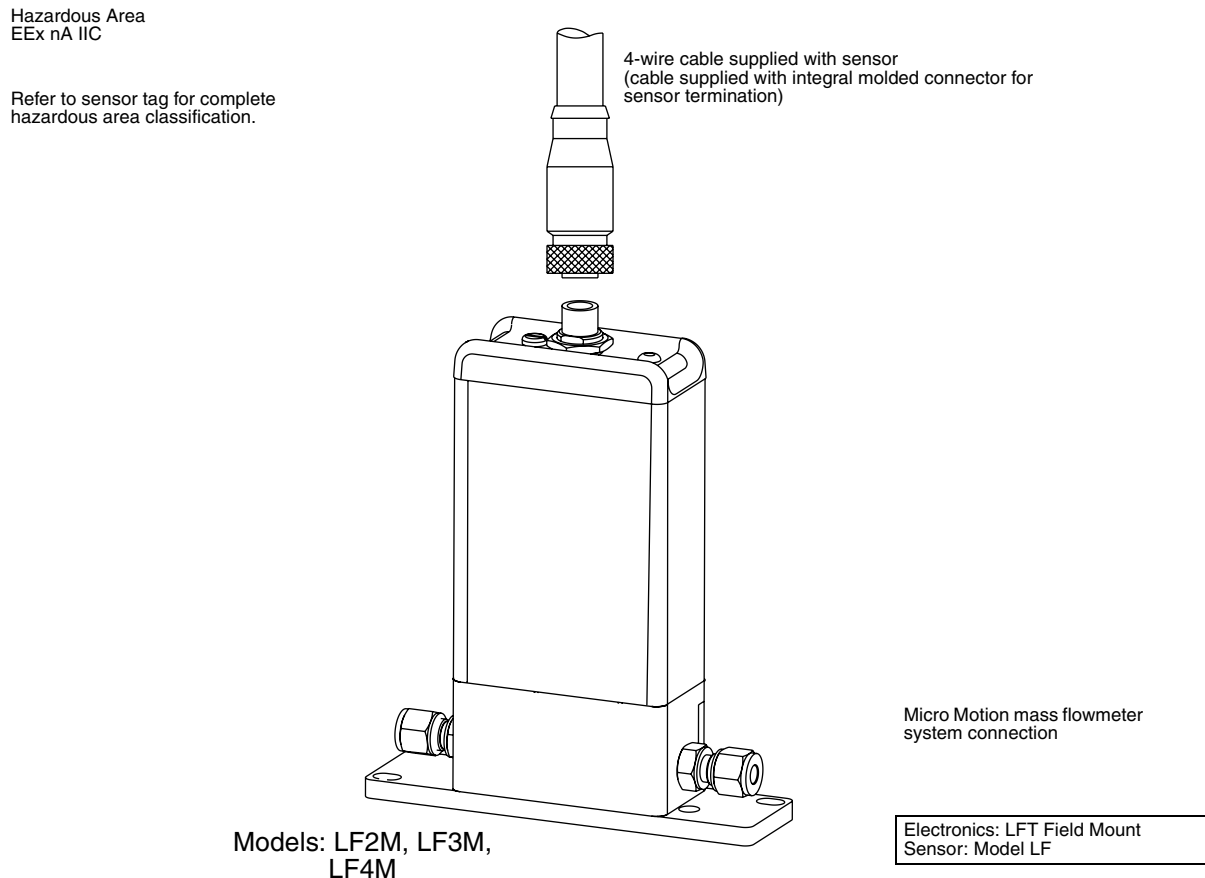
- 5.5) Replacement of fuses is not allowed.

Model LFT field-mount mA/FO transmitter to LF sensor



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

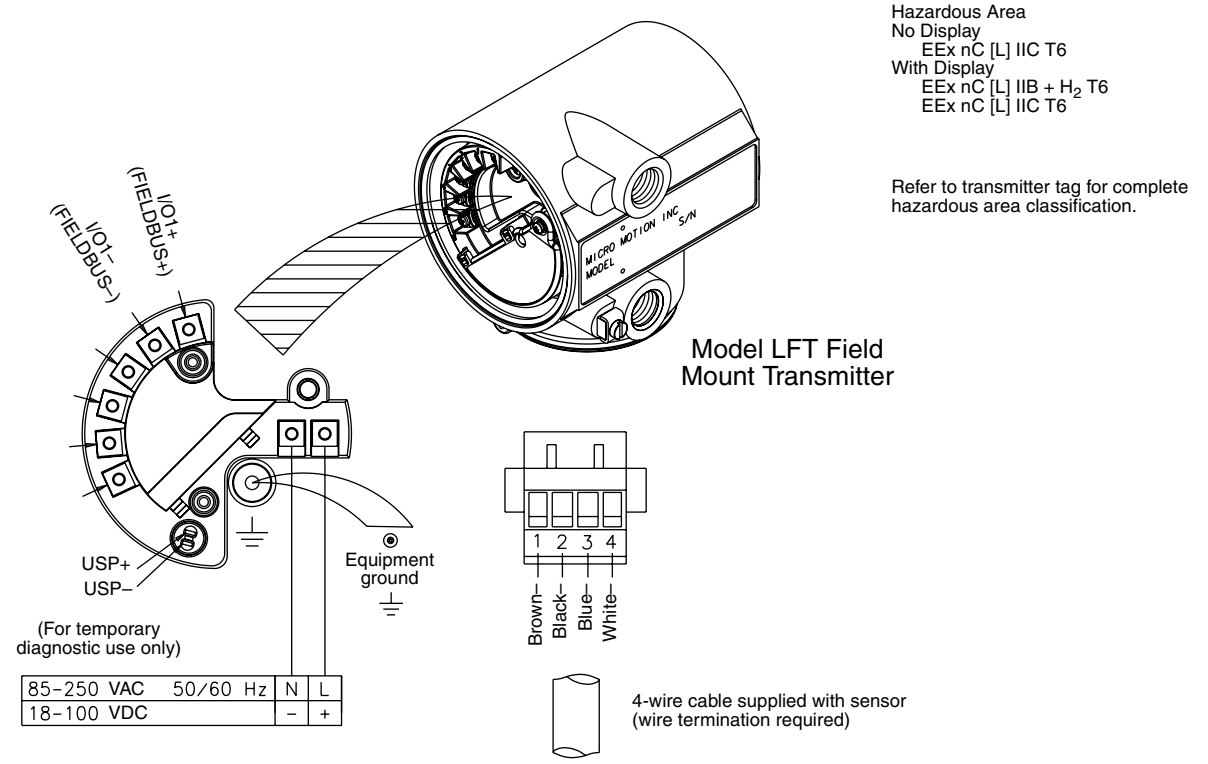
Refer to transmitter tag for complete hazardous area classification.



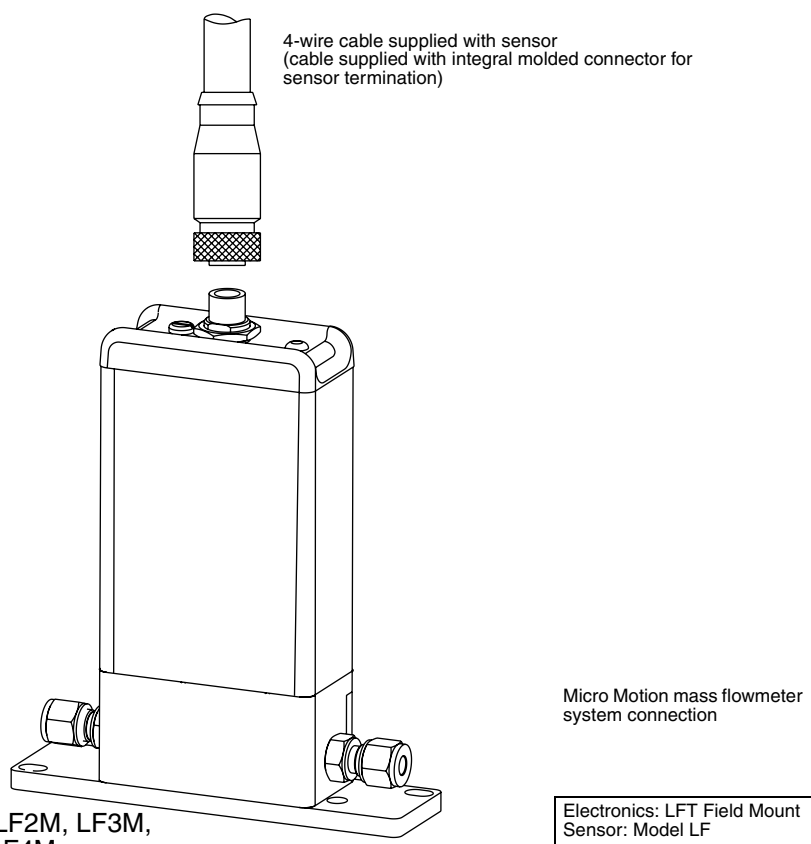
Hazardous Area
 EEx nA IIC

Refer to sensor tag for complete hazardous area classification.

Model LFT field-mount fieldbus transmitter to LF sensor

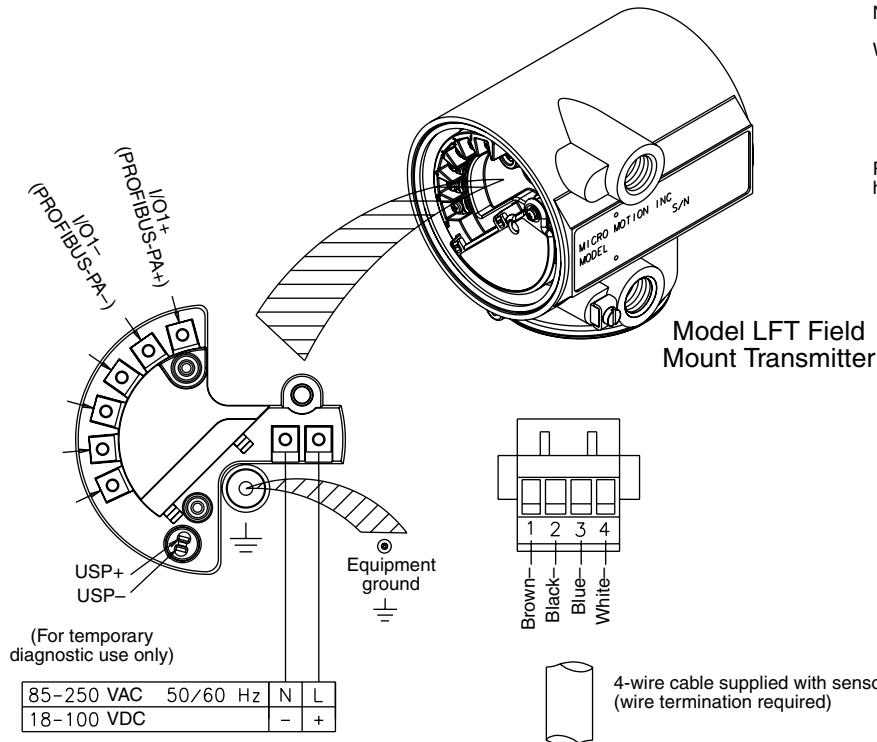


Hazardous Area
 EEx nA IIC



EB-20002236 Rev. A

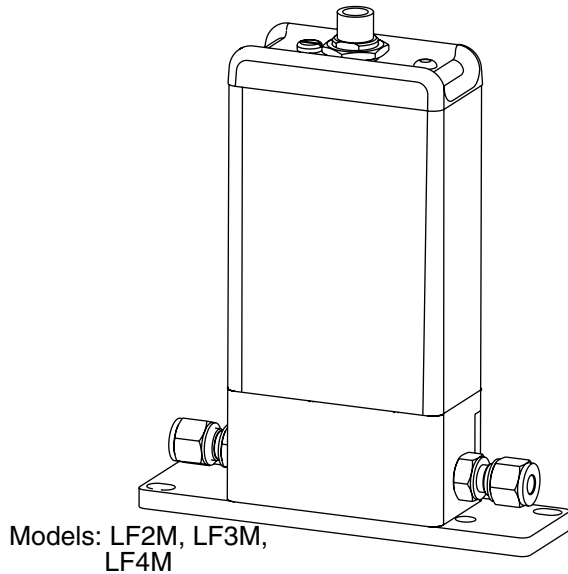
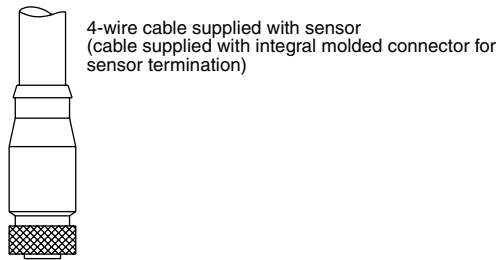
Model LFT field-mount Profibus-PA transmitter to LF sensor



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

Refer to transmitter tag for complete hazardous area classification.

Hazardous Area
EEx nA IIC

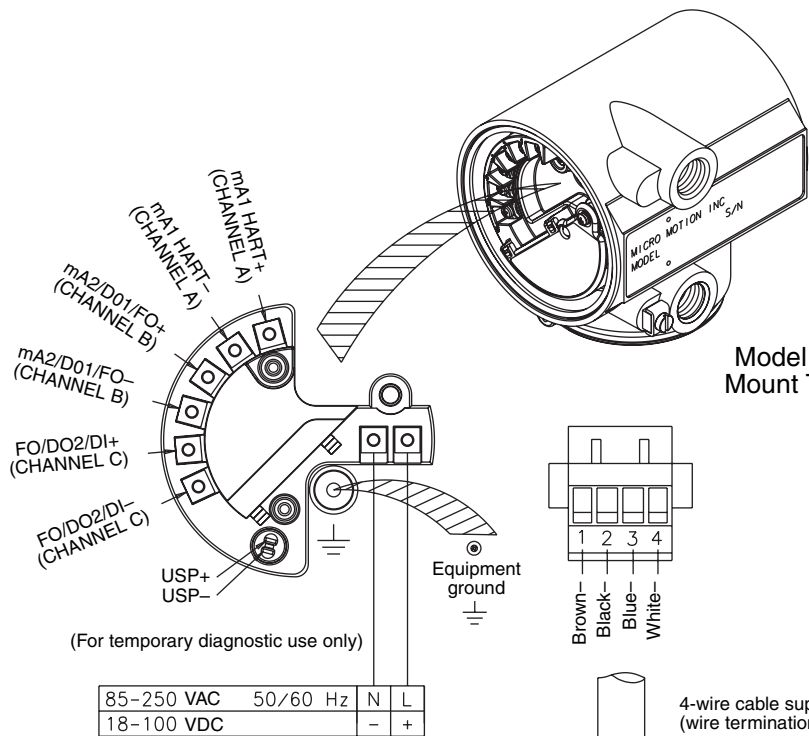


Micro Motion mass flowmeter system connection

Electronics: LFT Field Mount
Sensor: Model LF

EB-20002235 Rev. A

Model LFT field-mount config-I/O transmitter to LF sensor



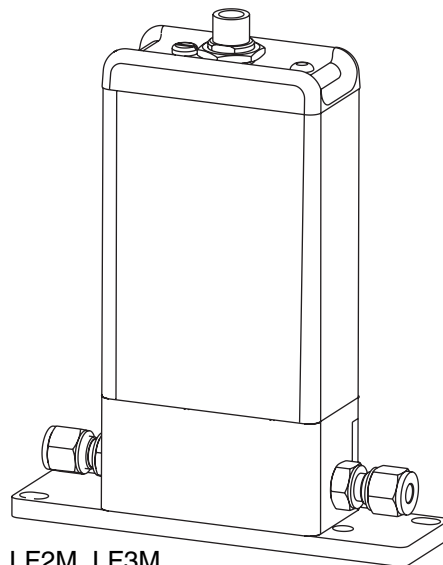
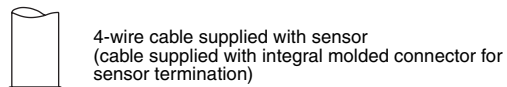
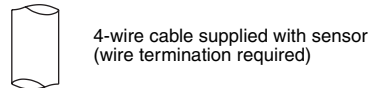
Hazardous Area
 No Display
 EEx nC IIC T6
 With Display
 EEx nC IIB + H₂ T6
 EEx nC IIC T6

Refer to transmitter tag for complete hazardous area classification.

Model LFT Field Mount Transmitter

Hazardous Area
 EEx nA IIC

Refer to sensor tag for complete hazardous area classification.



Models: LF2M, LF3M, LF4M

Electronics: LFT Field Mount
 Sensor: Model LF

EB-20002239 Rev. A

Model 3500 Transmitters

ATEX Installation Instructions and Drawings

- For installing the following Micro Motion transmitters:
 - Model 3500 with 4-wire connection to a core processor
 - Model 3500 with 9-wire connection to a junction box
 - Model 3500 with a remote core processor and remote sensor with a junction box

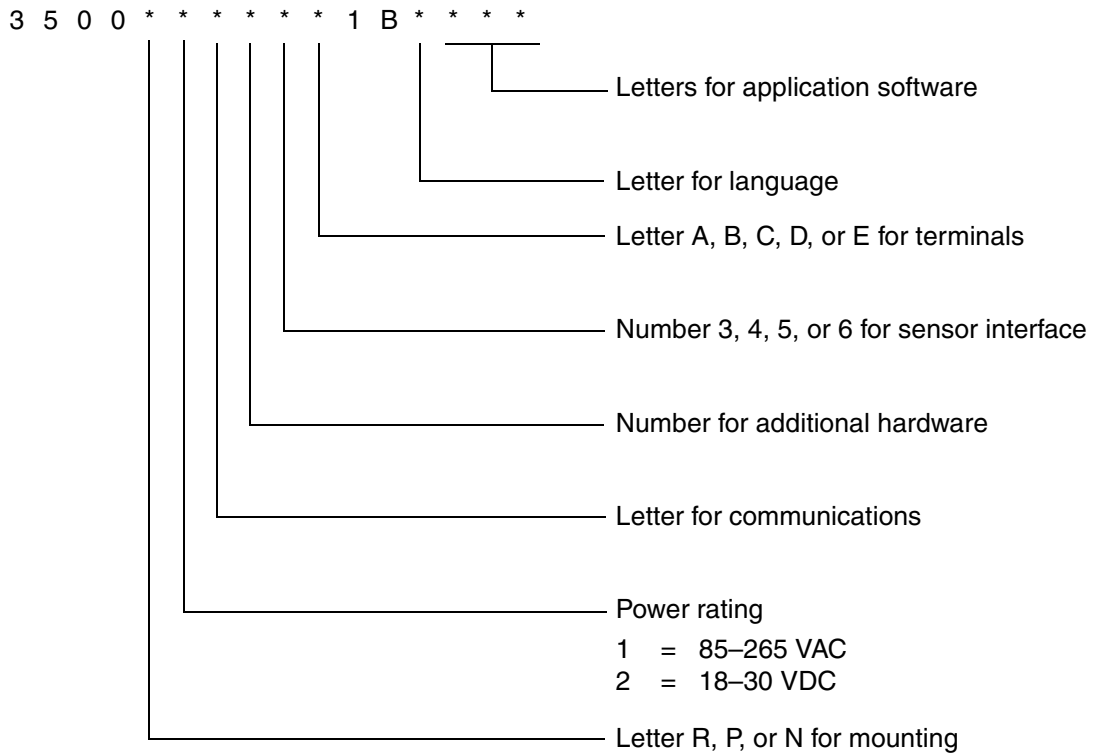


Subject:	Equipment type	Transmitter type 3500*****1B****
Manufactured and submitted for examination		Micro Motion, Inc.
Address		Boulder, Co. 80301, USA
Standard basis	EN 50014:1997 +A1-A2	General requirements
	EN 50020:1994	Intrinsic safety 'i'
Code for type of protection	[EEExib] IIB/IIC	

1) **Subject and type**

Transmitter type 3**0*****Z****

The options denoted by * are as follows:



2) Description

The transmitter is, in combination with a sensor, used for mass flow measurement and for indicating as well as entering of parameters.

The electrical components of the transmitters are securely fixed in a light metal housing which is mounted outside the hazardous area. The transmitter can be purchased with one of two mounting options. The 3500R****1B**** is suitable for rack mount installation. The 3500P****1B**** is suitable for panel mount installation. The 3500N****1B**** comes with an optional fiberglass enclosure.

The 3500****1B**** transmitter comes with different sensor interface boards. The 3500****3*1B**** is for 9 wire installation to a sensor with junction box. The 3500****4*1B**** has DSP (digital signal processing) in the sensor interface board to be compatible with T*****Z***** sensors (DMT 01 ATEX E 083 X). The 3500****5*1B**** is for 4 wire installation to a sensor with integral core processor (Model 700). The 3500****6*1B**** is for connection to the remote mount core (DMT 02 ATEX E 002).

The 3500****1B**** is available with two terminal options. Model 3500****A1B**** uses solder pins for the terminal connections. Model 3500****B1B**** uses screw terminals for the connections.

Model 3500****(C,D or E) 1B**** uses I/O cables with three different lengths for the connections, only in combination with mounting option code P.

3) Parameters

3.1) Mains circuit

For type 3500*1****1B**** (terminals J3-1 and J3-3, Power Board)

Voltage	AC	85–265	V
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For type 3500*2****1B**** (terminals J3-1 and J3-3, Power Board)

Voltage	DC	18–30	V
Max. voltage	Um	AC/DC	265 V

3.2) Intrinsically safe sensor circuits for 3500****3*1B****

3.2.1) Drive-circuit (terminals J2-A12 -C12)

Type of protection EEx ib IIC

Voltage	Uo	DC	11,4	V
Current (pulse)	Io		1,14	A
Limited by a fuse with a nominal value of			250	mA
Power	Po		1,2	W
Max. external inductance	Lo		27,4	μH
Max. external capacitance	Co		1,7	μF
Max. inductance/resistance ratio	Lo/Ro		10,9	μH/Ω

Type of protection EEx ib IIB

Voltage	Uo	DC	11,4	V
Current (pulse)	Io		1,14	A
Limited by a fuse with a nominal value of			250	mA
Power	Po		1,2	W
Max. external inductance	Lo		109	μH
Max. external capacitance	Co		11,7	μF
Max. inductance/resistance ratio	Lo/Ro		43,7	μH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times (R_i + R_o / 1,5 \times U_o)^2$$

Whereby E= 40 μJ for group IIC and E = 160 μJ for group IIB will be inserted and Ro is the total resistance (coil resistance + series resistance).

3.2.2) Pick-off circuits (terminals J2-A8/C8 and J2-A10/C10)

Type of protection EEx ib IIC

Voltage	Uo	DC	15,6	V
Current	Io		10	mA
Power	Po		40	mW
Max. external inductance	Lo		355	mH
Max. external capacitance	Co		500	nF

Type of protection EEx ib IIB

Voltage	Uo	DC	15,6	V
Current (pulse)	Io		10	mA
Power	Po		40	mW
Max. external inductance	Lo		1,4	H
Max. external capacitance	Co		3,03	μF

3.2.3) Temperature circuit (terminals J2-C6/A6/C4)

Type of protection EEx ib IIC

Voltage	Uo	DC	15,6	V
Current	Io		10	mA
Power	Po		40	mW
Max. external inductance	Lo		355	mH
Max. external capacitance	Co		500	nF

Type of protection EEx ib IIB

Voltage	Uo	DC	15,6	V
Current (pulse)	Io		10	mA
Power	Po		40	mW
Max. external inductance	Lo		1,4	H
Max. external capacitance	Co		3,03	μF

3.3) Intrinsically safe sensor circuits for 3500****4*1B*

3.3.1) Drive-circuit (terminals J2-A12 -C12)

Type of protection EEx ib IIC

Voltage	Uo	DC	11,4	V
Current (pulse)	Io		1,14	A
Limited by a fuse with a nominal value of			250	mA
Power	Po		1,2	W
Max. external inductance	Lo		27,4	μH
Max. external capacitance	Co		1,7	μF
Max. inductance/resistance ratio	Lo/Ro		10,9	μH/Ω

Type of protection EEx ib IIB

Voltage	Uo	DC	11,4	V
Current (pulse)	Io		1,14	A
Limited by a fuse with a nominal value of			250	mA
Power	Po		1,2	W
Max. external inductance	Lo		109	μH
Max. external capacitance	Co		11,7	μF
Max. inductance/resistance ratio	Lo/Ro		43,7	μH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times (R_i + R_o / 1,5 \times U_o)^2$$

Whereby E= 40 μJ for group IIC and E = 160 μJ for group IIB will be inserted and Ro is the total resistance (coil resistance + series resistance).

3.3.2) Pick-off circuits (terminals J2-A8/C8 and J2-A10/C10)

Type of protection EEx ib IIC

Voltage	Uo	DC	21,13	V
Current	Io		8,45	mA
Power	Po		45	mW
Max. external inductance	Lo		490	mH
Max. external capacitance	Co		180	nF

Type of protection EEx ib IIB

Voltage	Uo	DC	21,13	V
Current (pulse)	Io		8,45	mA
Power	Po		45	mW
Max. external inductance	Lo		1,9	H
Max. external capacitance	Co		1,24	μF

3.3.3) Temperature circuit (terminals J2-C6/A6/C4)

Type of protection EEx ib IIC

Voltage	Uo	DC	21,13	V
Current	Io		17	mA
Power	Po		90	mW
Max. external inductance	Lo		122	mH
Max. external capacitance	Co		180	nF

Type of protection EEx ib IIB

Voltage	Uo	DC	21,13	V
Current (pulse)	Io		17	mA
Power	Po		90	mW
Max. external inductance	Lo		490	mH
Max. external capacitance	Co		1,24	μF

3.4) For type 3500****5*1B**** and 3500****6*1B**** (terminals J2-A4/C4 and J2-A6/C6) 4-wire board

Type of protection EEx ib IIC

Voltage	Uo	DC	17,22	V
Current (pulse)	Io		484	mA
Power	Po		2,05	W
Max. external inductance	Lo		151,7	μH
Max. external capacitance	Co		0,333	μF
Max. inductance/resistance ratio	Lo/Ro		17,06	μH/Ω

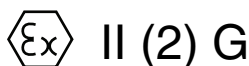
Type of protection EEx ib IIB

Voltage	Uo	DC	17,22	V
Current (pulse)	Io		484	mA
Power	Po		2,05	W
Max. external inductance	Lo		607	μH
Max. external capacitance	Co		2,04	μF
Max. inductance/resistance ratio	Lo/Ro		68,2	μH/Ω

3.5) Ambient temperature range

3500*****1B****	Ta	-20 °C up to +60 °C
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4) Marking



-20 °C ≤ Ta ≤ +60 °C

- type	- type of protection
3500*****1B****	[EExib] IIB/IIC

5) Special conditions for safe use / Installation instructions

- 5.1) The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
- 5.2) The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
- 5.3) For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

Model 3500 to sensor with enhanced core processor

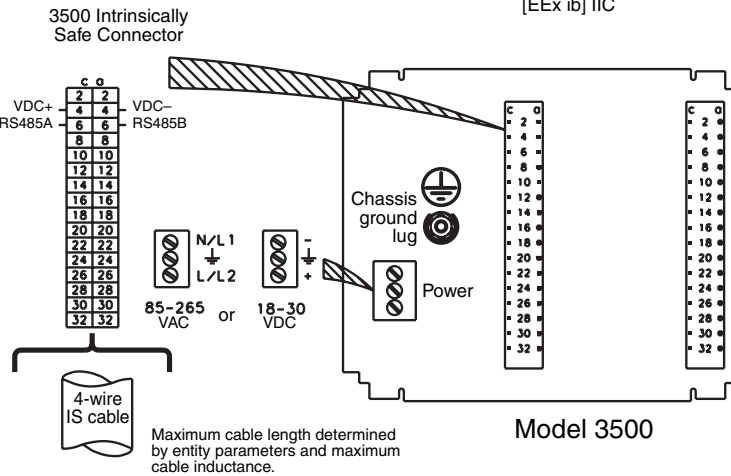
3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

Special conditions for safe use:

1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

Safe Area
[EEx ib] IIB
or
[EEx ib] IIC

I.S. 3500 outputs to core processor entity parameters	
U _o	17,22 Vdc
I _o	484 mA
P _o	2,05W
C _o	IIC 0,333 μF
	IIB 2,04 μF
L _o	IIC 15,7 μH
	IIB 607 μH
L _o /R _o	IIC 17,06 μH/Ohm
	IIB 68,2 μH/Ohm

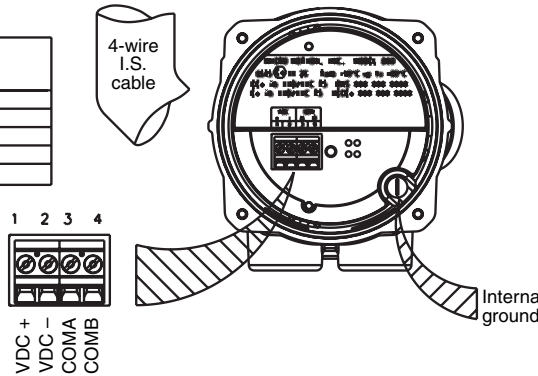


Hazardous Area
EEx ib IIC / IIB

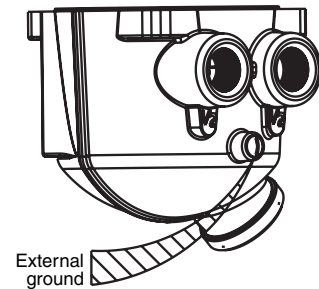
Refer to sensor tag for complete hazardous area classification.

4-wire I.S. and non-incendive core processor entity parameters	
U _i	17,3 Vdc
I _i	484 mA
P _i	2,1W
C _i	2200pF
L _i	30μH

Maximum cable length determined by entity parameters and maximum cable inductance.



Sensor mounted enhanced core processor



Installation notes:

Associated apparatus parameter limits	
V _{oc}	< = V _{max}
I _{sc}	< = I _{max}
(V _{oc} x I _{sc}) / 4	< = P _{max}
•C _o	> = C _{cable} + C _{i1} + C _{i2} + ... + C _{in}
•L _o	> = L _{cable} + L _{i1} + L _{i2} + ... + L _{in}

* The total C_i is equal to the sum of all C_i values of all devices on the network. C_{cable} is the total capacitance of all cable on the network.

* The total L_i is equal to the sum of all L_i values of all devices on the network. L_{cable} is the total inductance of all cable on the network.

If the electrical parameters of the cable are unknown, then the following values may be used:

Cable Capacitance = 197 pF/m
Cable Inductance = 0,66 μH/m

This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Electronics: 3500

EB-20003016 Rev. A

Model 3500 to CMF, F, H, R, CNG and T sensors with core processor

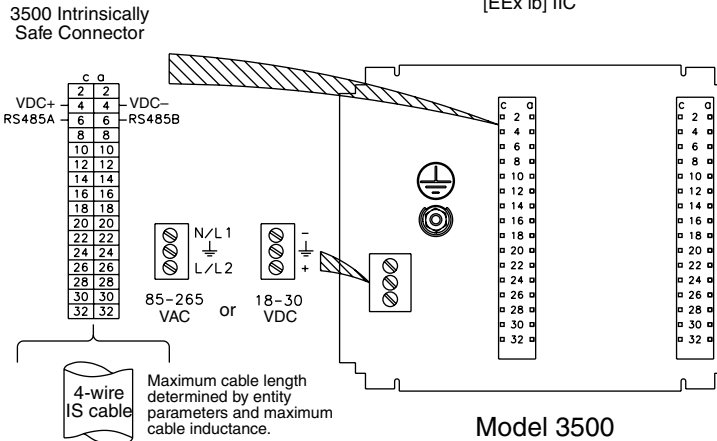
3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

Special conditions for safe use:

1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

Safe Area
[EEx ib] IIB
or
[EEx ib] IIC

I.S. 3500 outputs to core processor entity parameters	
U _o	17,22 Vdc
I _o	484 mA
P _o	2,05W
C _o	IIC 0,333 μF
	IIB 2,04 μF
L _o	IIC 15,7 μH
	IIB 607 μH
L _o /R _o	IIC 17,06 μH/Ohm
	IIB 68,2 μH/Ohm

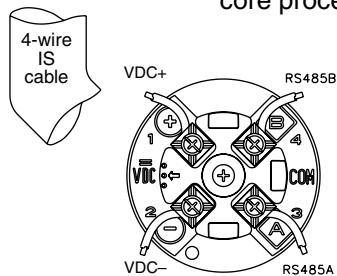


Hazardous Area
EEx ib IIB / IIC

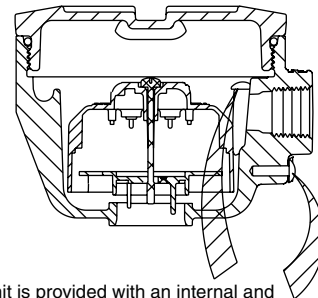
Refer to sensor tag for complete hazardous area classification.

Maximum cable length determined by entity parameters and maximum cable inductance.

4-wire I.S. and non-incendive core processor entity parameters	
U _i	17,3 Vdc
I _i	484 mA
P _i	2,1W
C _i	2200pF
L _i	30μH



Sensor mounted core processor



This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

Installation notes:

Associated apparatus parameter limits	
V _{oc}	<= V _{max}
I _{sc}	<= I _{max}
(V _{oc} x I _{sc}) / 4	<= P _{max}
*C _o	>= C _{cable} + C _{i1} + C _{i2} + ... + C _{in}
*L _o	>= L _{cable} + L _{i1} + L _{i2} + ... + L _{in}

* The total C_i is equal to the sum of all C_i values of all devices on the network. C_{cable} is the total capacitance of all cable on the network.

* The total L_i is equal to the sum of all L_i values of all devices on the network. L_{cable} is the total inductance of all cable on the network.

If the electrical parameters of the cable are unknown, then the following values may be used:

Cable Capacitance = 197 pF/m
Cable Inductance = 0,66 μH/m

This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Electronics: 3500

EB-20000251 Rev. C

Model 3500 to D600 sensor with core processor

3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

Special conditions for safe use:

1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

I.S. 3500 outputs to core processor entity parameters	
U _o	17,22 Vdc
I _o	484 mA
P _o	2,05W
C _o	IIC 0,333 μF
	IIB 2,04 μF
L _o	IIC 15,7 μH
	IIB 607 μH
L _o /R _o	IIC 17,06 μH/Ohm
	IIB 68,2 μH/Ohm

Hazardous Area
EEx de [ib] IIB

Refer to sensor tag for complete hazardous area classification.

4-wire I.S. and non-incendive core processor entity parameters	
U _i	17,3 Vdc
I _i	484 mA
P _i	2,1W
C _i	2200pF
L _i	30μH

Installation method	Fitting required	Per EN60079-14
Conduit	EEx d IIB Conduit Seal	
Cable	EEx d IIB Cable Gland	
Conduit or Cable Increased Safety	EEx e	

1/2"-14 NPT or M20 x 1,5 adapter supplied as ordered

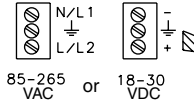
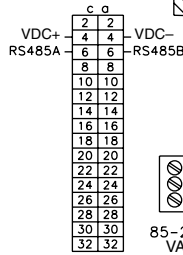
For Remote Mount Booster Amplifier wiring refer to EB-1005122.

85-265 VAC
50-60 HZ

Explosion-Proof housing

To achieve potential equalization the ground terminal must be connected to the appropriate ground terminal within the hazardous area using a potential equalizing line.

3500 Intrinsically Safe Connector

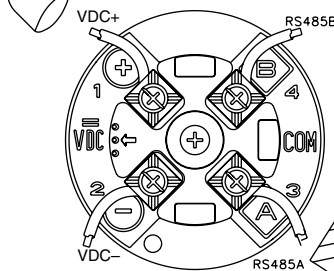


4-wire IS cable
Maximum cable length determined by entity parameters and maximum cable inductance.

Safe Area
[EEx ib] IIB
or
[EEx ib] IIC

Model 3500

4-wire IS cable
Maximum cable length determined by entity parameters and maximum cable inductance.

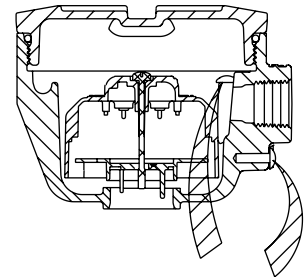


Conduit Seal Required within 18" of enclosure. To be sealed after wiring (customer supplied).

Power To drive coil located in sensor

Ground chassis

Core processor mounted on sensor booster amplifier



This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

Installation notes:

Associated apparatus parameter limits
V _{oc} < = V _{max}
I _{sc} < = I _{max}
(V _{oc} x I _{sc}) / 4 < = P _{max}
*C _o > = C _{cable} + C _{i1} + C _{i2} + ... + C _{in}
*L _o > = L _{cable} + L _{i1} + L _{i2} + ... + L _{in}

* The total C_i is equal to the sum of all C_i values of all devices on the network. C_{cable} is the total capacitance of all cable on the network.

* The total L_i is equal to the sum of all L_i values of all devices on the network. L_{cable} is the total inductance of all cable on the network.

* If the electrical parameters of the cable are unknown, then the following values may be used: Cable Capacitance = 197 pF/m Cable Inductance = 0,66 μH/m

* This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Micro Motion mass flowmeter system connection for Intrinsically safe operation

Electronics: 3500
Sensor: D600

EB-20000248 Rev. C

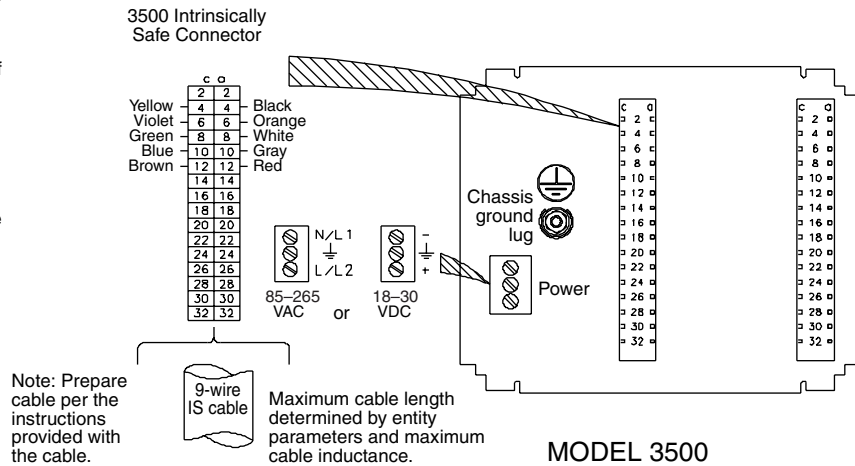
Model 3500 to CMF, D (except D600), DL, F (except F300), H (except H300), and T sensors with junction box

3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

Special conditions for safe use:

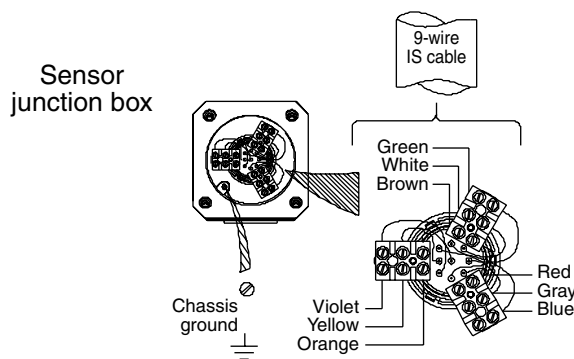
1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

Safe Area
[Ex ib] IIB
or
[Ex ib] IIC



Refer to sensor tag for complete hazardous area classification.

Hazardous Area
EEx ib IIB / IIC

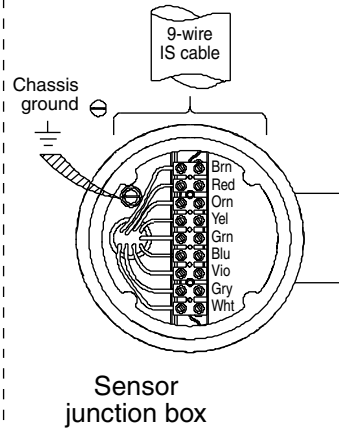


MODELS		
CMF	F (except F300 and F300A)	H (except H300)

Supplied as intrinsically safe

Hazardous Area
EEx ib IIB / IIC

Refer to sensor tag for complete hazardous area classification.



CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring, and the transmitter and sensor must be properly grounded.

MODELS
D, DL (except D600)

Supplied as intrinsically safe

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Electronics: 3500

EB-20001042 Rev. E

Model 3500 to CMF400 sensor with booster amplifier with junction box

3500 IN SAFE AREA LOCATION TO BOOSTER AMP IN HAZARDOUS LOCATION

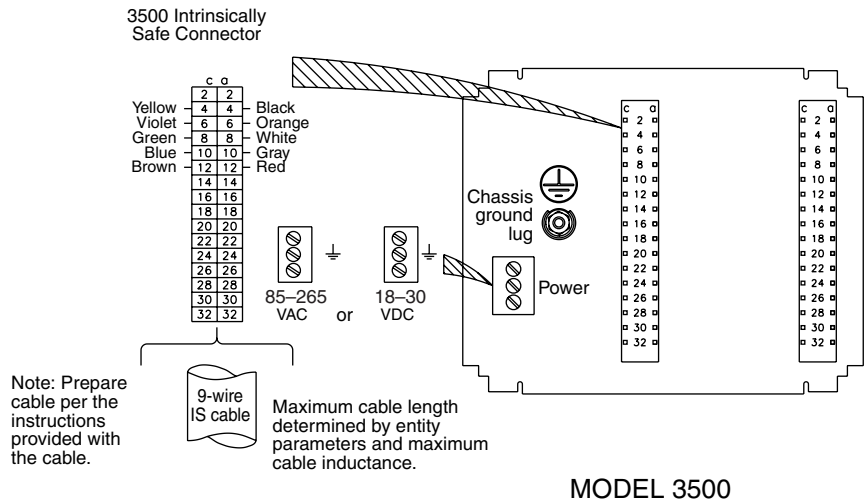
Special conditions for safe use:

1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.

2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.

3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

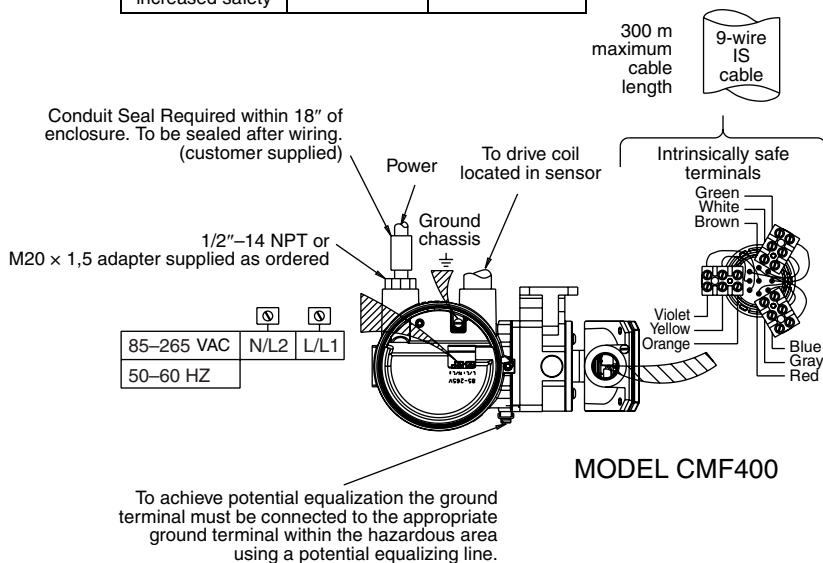
Safe Area
[EEx ib] IIB
or
[EEx ib] IIC



MODEL 3500

Hazardous Area
EEx de [ib] ib IIB

Installation method	Fitting required	Per EN 60079-14
Conduit	EEx d IIB conduit seal	
Cable	EEx d IIB cable gland	
Conduit or cable increased safety	EEx e	



MODEL CMF400

CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14 Transmitter and sensor must be properly grounded.

Micro Motion mass flowmeter system connection for intrinsically safe operation

For Remote Mount Booster Amplifier wiring refer to EB-3005831

Electronics: 3500
Sensor: CMF400

EB-20000276 Rev. B

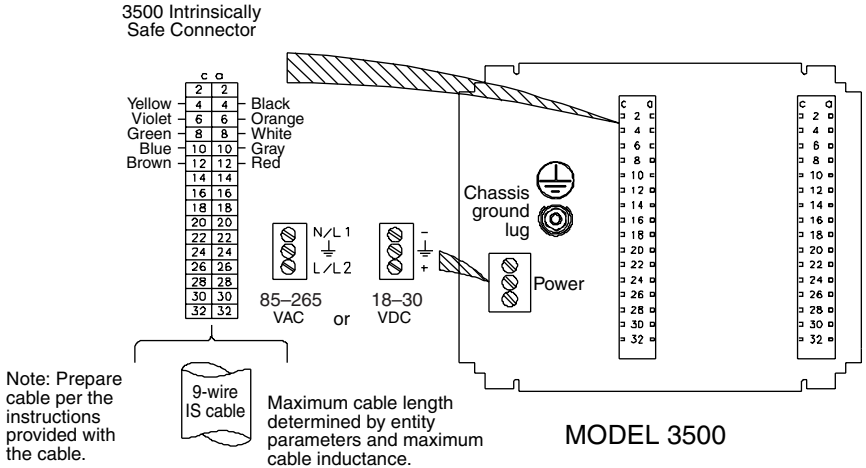
Model 3500 to D600 sensor with junction box

3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

Special conditions for safe use:

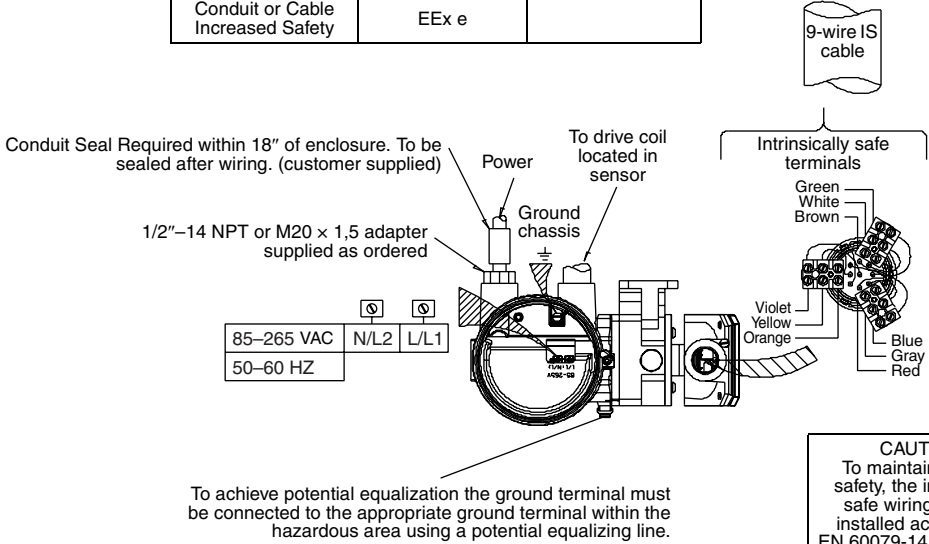
1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

Safe Area
[EEx ib] IIB
or
[EEx ib] IIC



Hazardous Area
EEx de [ib] IIB

Installation method	Fitting required	Per EN60079-14
Conduit	EEx d IIB Conduit Seal	
Cable	EEx d IIB Cable Gland	
Conduit or Cable Increased Safety	EEx e	



For Remote Mount
Booster Amplifier wiring
refer to EB-3007062.

Micro Motion mass
flowmeter system
connection for intrinsically
safe operation.

Electronics: 3500
Sensor: D600

EB-20000277 Rev. B

Model 3500 to DT sensor with junction box

3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

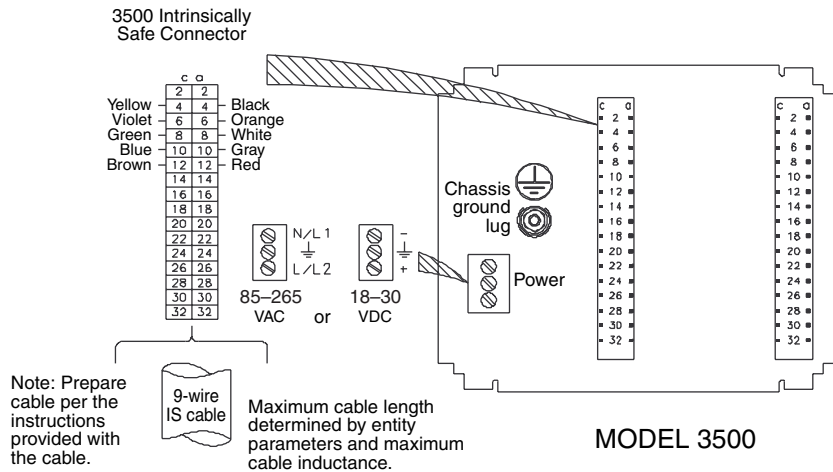
Special conditions for safe use:

1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.

2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.

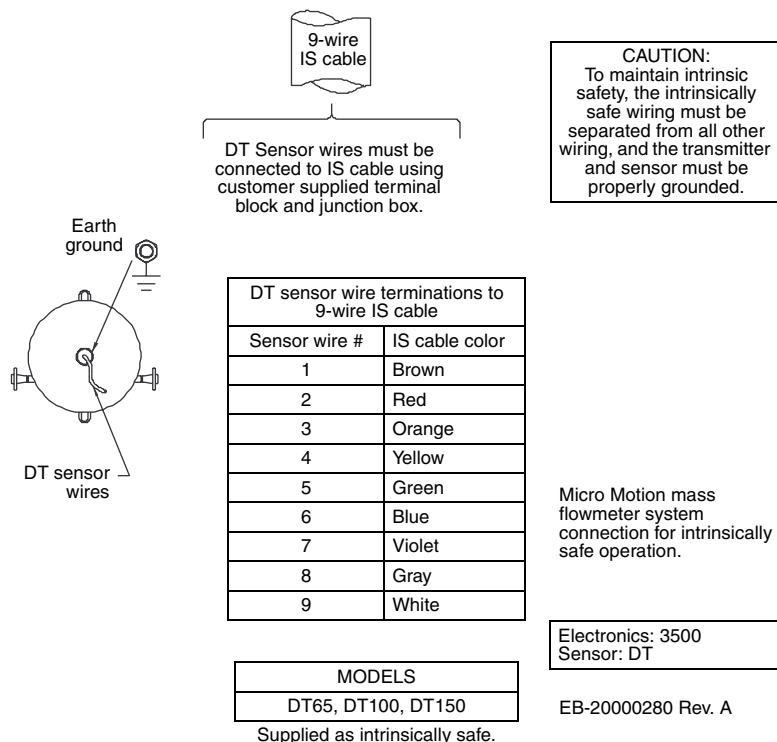
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

Safe Area
[EEEx ib] IIB
or
[EEEx ib] IIC



MODEL 3500

Hazardous Area
EEx ib IIB



EB-20000280 Rev. A

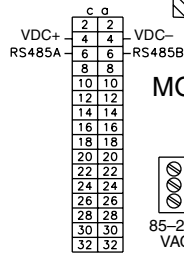
Model 3500 to remote core processor to CMF, D (except D600), DL, F, H and T sensors with junction box

3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

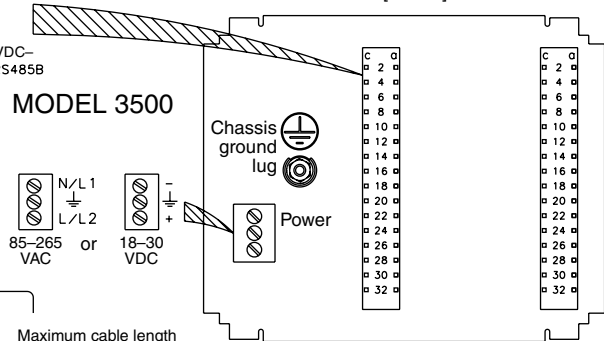
Special conditions for safe use:

1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

3500 Intrinsically Safe Connector



Safe Area [EEx ib] IIB or [EEx ib] IIC



I.S. 3500 outputs to core processor entity parameters		
U _o	17,22 Vdc	
I _o	484 mA	
P _o	2,05W	
C _o	IIC	0,333 μF
	IIB	2,04 μF
L _o	IIC	151,7 μH
	IIB	607 μH
L/R	IIC	17,06 μH/Ohm
	IIB	68,2 μH/Ohm

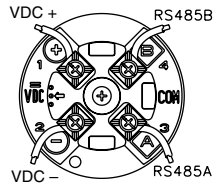
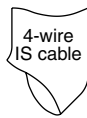
Installation notes:

Associated apparatus parameter limits	
V _{oc} <=	V _{max}
I _{sc} <=	I _{max}
$(V_{oc} \times I_{sc}) / 4 <= P_{max}$	
*C _o >	C _{able} + C _{i1} + C _{i2} + ... + C _{in}
*L _o >	L _{able} + L _{i1} + L _{i2} + ... + L _{in}

4-wire IS cable
Maximum cable length determined by entity parameters and maximum cable inductance.

- * The total C_i is equal to the sum of all C_i values of all devices on the network. C_{able} is the total capacitance of all cable on the network.
- * The total L_i is equal to the sum of all L_i values of all devices on the network. L_{able} is the total inductance of all cable on the network.
- * If the electrical parameters of the cable are unknown, then the following values may be used: Cable Capacitance = 197pF/m Cable Inductance = 0,66μH/m
- * This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Maximum cable length determined by entity parameters and maximum cable inductance.

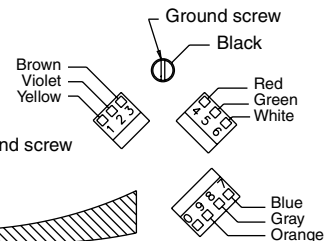


4-wire and non-incident core processor entity parameters	
U _i	17,3 Vdc
I _i	484 mA
P _i	2,1W
C _i	2200pF
L _i	30μH

Refer to remote core processor tag for complete hazardous area classification.

Hazardous Area EEx ib IIB / IIC

Remote core processor



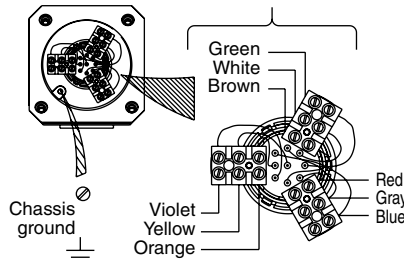
Refer to sensor tag for complete hazardous area classification.

Hazardous Area EEx ib IIB / IIC

Hazardous Area EEx ib IIB / IIC

9-wire IS cable 20 m. maximum cable length

Sensor junction box

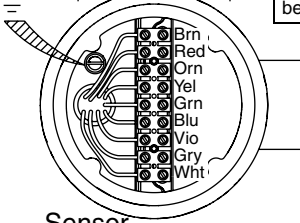


20 m. maximum cable length

9-wire IS cable

CAUTION: To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring, and the transmitter and sensor must be properly grounded.

Chassis ground



Sensor junction box

Refer to sensor tag for complete hazardous area classification.

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Model			
CMF	T	F	H

Supplied as intrinsically safe

Model
D, DL (EXCEPT D600)

Supplied as intrinsically safe

Electronics: 3500

EB-20001041 Rev. E

Model 3500 to remote core processor to D600 sensor with junction box

3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

Special conditions for safe use:

1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

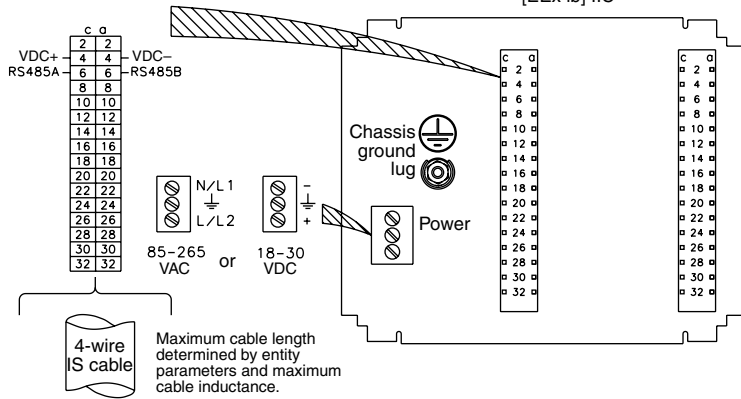
3500 Intrinsically Safe Connector

Safe Area [EEx ib] IIB or [EEx ib] IIC

I.S. 3500 outputs to core processor entity parameters	
U _o	17, 22 Vdc
I _o	484 mA
P _o	2, 05W
C _o	IIC 0, 333 μF
	IIB 2, 04 μF
L _o	IIC 151, 7 μH
	IIB 607 μH
L/R	IIC 17, 06 μH/Ohm
	IIB 68, 2 μH/Ohm

Installation notes:

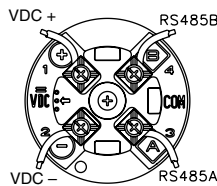
Associated apparatus parameter limits	
V _{oc} <=	V _{max}
I _{sc} <=	I _{max}
$(V_{oc} \times I_{sc}) / 4 <= P_{max}$	
*C _o >	C _{able} + C _{i1} + C _{i2} + ... + C _{in}
*L _o >	L _{able} + L _{i1} + L _{i2} + ... + L _{in}



- * The total C_i is equal to the sum of all C_i values of all devices on the network. C_{able} is the total capacitance of all cable on the network.
- * The total L_i is equal to the sum of all L_i values of all devices on the network.
- * If the electrical parameters of the cable are unknown, then the following values may be used: Cable Capacitance = 197pF/m Cable Inductance = 0,66μH/m
- * This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

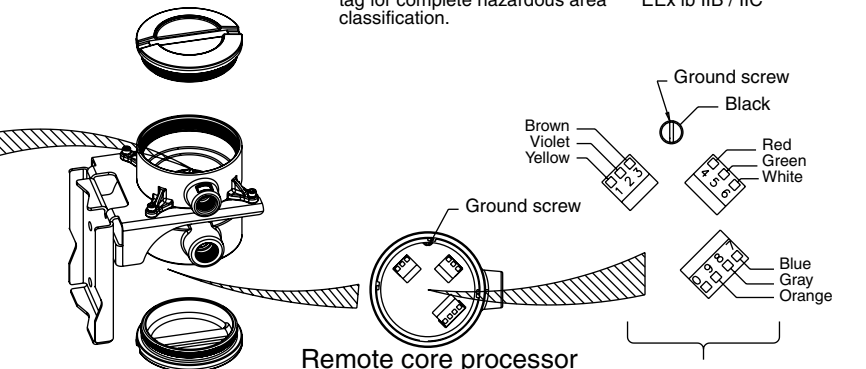
Maximum cable length determined by entity parameters and maximum cable inductance.

4-wire IS cable



Refer to remote core processor tag for complete hazardous area classification.

Hazardous Area EEx ib IIB / IIC



4-wire and non-incendive core processor entity parameters	
U _i	17, 3 Vdc
I _i	484 mA
P _i	2, 1W
C _i	2200pF
L _i	30μH

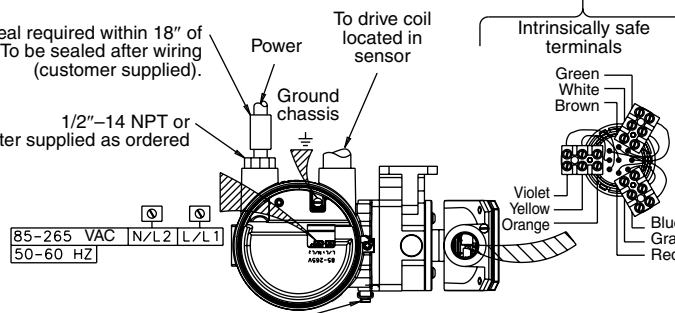
Installation method	Fitting required	Per EN60079-14
Conduit	EEx d IIB conduit seal	
Cable	EEx d IIB cable gland	
Conduit or cable increased safety	EEx e	

Hazardous Area EEx de [ib] IIB

Refer to sensor tag for complete hazardous area classification.

For remote mount booster amplifier wiring refer to EB-3007062.

Conduit seal required within 18" of enclosure. To be sealed after wiring (customer supplied).
1/2"-14 NPT or M20 x 1.5 adapter supplied as ordered



CAUTION: To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14. Transmitter and sensor must be properly grounded.

Micro Motion mass flowmeter system connection for intrinsically safe operation

To achieve potential equalization the ground terminal must be connected to the appropriate ground terminal within the hazardous area using a potential equalizing line.

Sensor booster amplifier

Electronics: 3500
Sensor: D600

EB-20000233 Rev. C

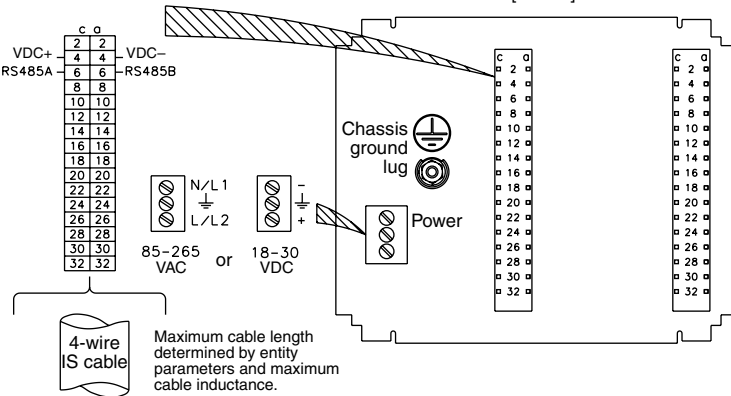
Model 3500 to remote core processor to DT sensor with junction box

3500 IN SAFE AREA LOCATION TO SENSOR IN HAZARDOUS LOCATION

Special conditions for safe use:

1. The transmitter has to be installed outside the hazardous area into a housing which shall at least have a degree of protection of IP 20 according to IEC Publication 529.
2. The installation of the transmitter shall be such that the clearances between bare parts of intrinsically safe circuits and metallic housing parts will be at least 3 mm and between bare parts of intrinsically safe circuits and bare parts of the non-intrinsically safe circuits be at least 6 mm.
3. For type 3500****A1B**** the terminals for connection of external intrinsically safe circuits shall be so arranged that the distance between those terminals and terminals of unisolated conductors of non-intrinsically safe circuits will be at least 50 mm or that they are separated by a barrier according to EN 50020 clause 6.4.1.

3500 Intrinsically Safe Connector



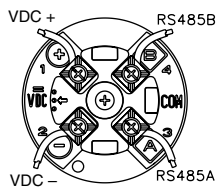
I.S. 3500 outputs to core processor entity parameters	
U _o	17,22 Vdc
I _o	484 mA
P _o	2,05W
C _o	IIC 0,333 μF
	IIB 2,04 μF
L _o	IIC 151,7 μH
	IIB 607 μH
L/R	IIC 17,06 μH/Ohm
	IIB 68,2 μH/Ohm

Installation notes:

Associated apparatus parameter limits	
V _{oc} < =	V _{max}
I _{sc} < =	I _{max}
$(V_{oc} \times I_{sc}) / 4 < = P_{max}$	
*C _o > =	C _{cable} + C _{i1} + C _{i2} + ... + C _{in}
*L _o > =	L _{cable} + L _{i1} + L _{i2} + ... + L _{in}

- * The total C_i is equal to the sum of all C_i values of all devices on the network. C_{cable} is the total capacitance of all cable on the network.
- * The total L_i is equal to the sum of all L_i values of all devices on the network.
- * If the electrical parameters of the cable are unknown, then the following values may be used: Cable Capacitance = 197pF/m Cable Inductance = 0,66μH/m
- * This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

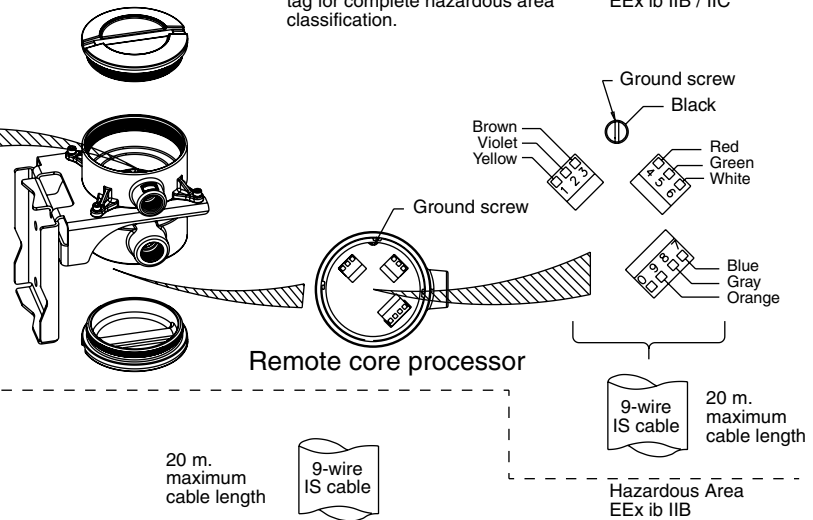
Maximum cable length determined by entity parameters and maximum cable inductance.



4-wire and non-incendive core processor entity parameters	
U _i	17,3 Vdc
I _i	484 mA
P _i	2,1W
C _i	2200pF
L _i	30μH

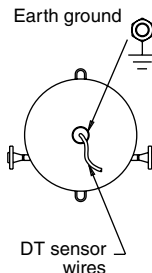
Refer to remote core processor tag for complete hazardous area classification.

Hazardous Area EEx ib IIB / IIC



DT sensor wire terminations to IS cable	
DT sensor wire #	IS cable color
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Gray
9	White

Models: DT65, DT100, DT150
Supplied as intrinsically safe



DT sensor wires must be connected to IS cable using customer supplied terminal block and junction box.

CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring, and the transmitter and sensor must be properly grounded.

Micro Motion mass flowmeter system connection for intrinsically safe operation

Electronics: 3500
Sensor: DT

EB-20000242 Rev. C

Model 3350/3700 Transmitters

ATEX Installation Instructions and Drawings

- For installing the following Micro Motion transmitters:
 - Model 3350/3700 with 4-wire connection to a core processor
 - Model 3350/3700 with 9-wire connection to a junction box
 - Model 3350/3700 with a remote core processor and remote sensor with a junction box



Subject: Equipment type

Transmitter type 30*****Z******

Manufactured and submitted for examination

Micro Motion, Inc.

Address

Boulder, Co. 80301, USA

Standard basis

EN 50014:1997 +A1-A2

General requirements

EN 50018:2000

Flameproof enclosure 'd'

EN 50019:2000

Increased safety 'e'

EN 50020:2002

Intrinsic safety 'i'

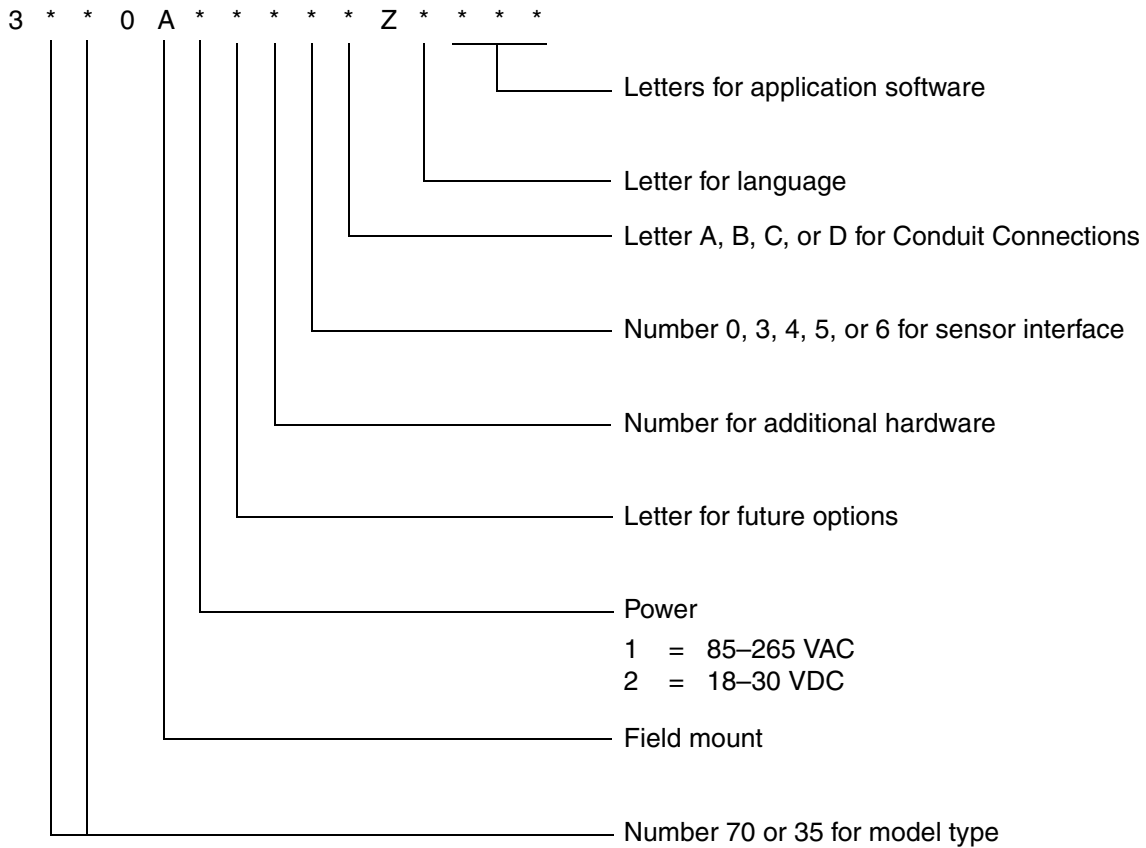
Code for type of protection

EEx de [ib] IIB/IIC T4

1) Subject and type

Transmitter type 3**0*****Z****

The options denoted by * are as follows:



2) Description

The transmitter is, in combination with a sensor, used for mass flow measurement and for indicating as well as entering of parameters.

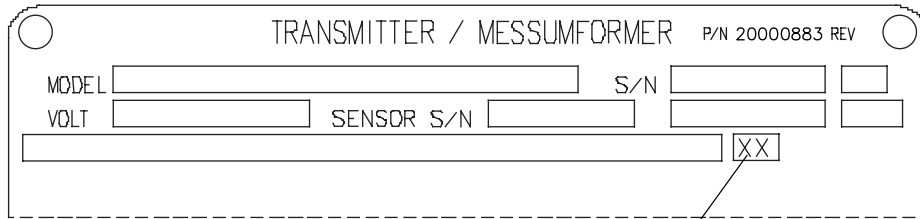
The electrical components of the transmitters are mounted in a light metal housing which is divided into three compartments.

In the compartment with type of protection “flameproof enclosure” are the assemblies of the Power Board, APPS Board, PPI Barrier Board, 9-wire Sensor Interface Board, or 4-Wire Sensor Interface board.

In the compartment “Increased safety” are the terminals for intrinsically safe and non-intrinsically safe circuits securely fixed.

In the front cover of the housing are the keypad, I.S. PPI assembly, and behind a window, a securely fixed display.

The 3**0A*****Z**** transmitter comes with different sensor interface boards. The 3**0A***3*Z**** is for 9 wire installation to a sensor with junction box. The 3**0A***4*Z**** has DSP (digital signal processing) in the sensor interface board to be compatible with T*****Z***** sensors (DMT 01 ATEX E 083 X). The 3**0A***5*Z**** is for 4 wire installation to a sensor with integral core processor (Model 700). The 3**0A***6*Z**** is for connection to the remote mount core (DMT 02 ATEX E 002).



Construction identification code (CIC) located approximately where shown.

Amendment No. 3 to the ATEX Certificate DMT 02 ATEX E 252 X reflects the use of the revised Display Cover and a Plastic PPI Back Shield. Transmitters constructed using the revised Display Cover and Plastic PPI Back Shield will be identified with a Construction Identification Code (C.I.C.) of A1.

3) Parameters

3.1) Mains circuit

For type 3**0A1****Z**** (terminals J18-10 and J18-9)

Voltage		AC	85–265	V
Max. voltage	Um	AC	265	V

For type 3**0A2****Z**** (terminals J18-9 and J18-10)

Voltage		DC	18–30	V
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3.2) Non-intrinsically safe data circuits

Terminals J18-1 and J18-8 and J18-11 and J18-20

Voltage	up to	DC	29	V
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3.3) Intrinsically safe sensor circuits for 3**0A***3*Z****

3.3.1) Drive-circuit (terminals J19-11 and J19-12)

Type of protection EEx ib IIC

Voltage	Uo	DC	11,4	V
Current (pulse)	Io		1,14	A
Limited by a fuse with a nominal value of			250	mA
Power	Po		1,2	W
Max. external inductance	Lo		27,4	μH
Max. external capacitance	Co		1,7	μF
Max. inductance/resistance ratio	Lo/Ro		10,9	μH/Ω

Type of protection EEx ib IIB

Voltage	Uo	DC	11,4	V
Current (pulse)	Io		1,14	A
Limited by a fuse with a nominal value of			250	mA
Power	Po		1,2	W
Max. external inductance	Lo		109	μH
Max. external capacitance	Co		11,7	μF
Max. inductance/resistance ratio	Lo/Ro		43,7	μH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times (R_i + R_o / 1,5 \times U_o)^2$$

Whereby E= 40 µJ for group IIC and E = 160 µJ for group IIB will be inserted and R_o is the total resistance (coil resistance + series resistance).

3.3.2) Pick-off circuits (terminals J19-18/17 and J19-20/19)

Type of protection EEx ib IIC

Voltage	U _o	DC	15,6	V
Current	I _o		10	mA
Power	P _o		40	mW
Max. external inductance	L _o		355	mH
Max. external capacitance	C _o		500	nF

Type of protection EEx ib IIB

Voltage	U _o	DC	15,6	V
Current (pulse)	I _o		10	mA
Power	P _o		40	mW
Max. external inductance	L _o		1,4	H
Max. external capacitance	C _o		3,03	µF

3.3.3) Temperature circuit (terminals J19-15/16/13)

Type of protection EEx ib IIC

Voltage	U _o	DC	15,6	V
Current	I _o		10	mA
Power	P _o		40	mW
Max. external inductance	L _o		355	mH
Max. external capacitance	C _o		500	nF

Type of protection EEx ib IIB

Voltage	U _o	DC	15,6	V
Current (pulse)	I _o		10	mA
Power	P _o		40	mW
Max. external inductance	L _o		1,4	H
Max. external capacitance	C _o		3,03	µF

3.4) Intrinsically safe sensor circuits for 3**0A***4*Z****

3.4.1) Drive-circuit (terminals J19-11 and J19-12)

Type of protection EEx ib IIC

Voltage	Uo	DC	11,4	V
Current (pulse)	Io		1,14	A
Limited by a fuse with a nominal value of			250	mA
Power	Po		1,2	W
Max. external inductance	Lo		27,4	μH
Max. external capacitance	Co		1,7	μF
Max. inductance/resistance ratio	Lo/Ro		10,9	μH/Ω

Type of protection EEx ib IIB

Voltage	Uo	DC	11,4	V
Current (pulse)	Io		1,14	A
Limited by a fuse with a nominal value of			250	mA
Power	Po		1,2	W
Max. external inductance	Lo		109	μH
Max. external capacitance	Co		11,7	μF
Max. inductance/resistance ratio	Lo/Ro		43,7	μH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times (R_i + R_o / 1,5 \times U_o)^2$$

Whereby E= 40 μJ for group IIC and E = 160 μJ for group IIB will be inserted and Ro is the total resistance (coil resistance + series resistance).

3.4.2) Pick-off circuits (terminals J19-18/17 and J19-20/19)

Type of protection EEx ib IIC

Voltage	Uo	DC	21,13	V
Current	Io		8,45	mA
Power	Po		45	mW
Max. external inductance	Lo		490	mH
Max. external capacitance	Co		180	μF

Type of protection EEx ib IIB

Voltage	Uo	DC	21,13	V
Current (pulse)	Io		8,45	mA
Power	Po		45	mW
Max. external inductance	Lo		1,9	H
Max. external capacitance	Co		1,24	nF

3.4.3) Temperature circuit (terminals J19-15/16/13)

Type of protection EEx ib IIC

Voltage	Uo	DC	21,13	V
Current	Io		17	mA
Power	Po		90	mW
Max. external inductance	Lo		122	mH
Max. external capacitance	Co		180	nF

Type of protection EEx ib IIB

Voltage	Uo	DC	21,13	V
Current (pulse)	Io		17	mA
Power	Po		90	mW
Max. external inductance	Lo		492	mH
Max. external capacitance	Co		1,24	μF

3.5) For type 3**0A***5*Z**** and 3**0A***6*Z**** (terminals J19-13/14 and J19-15/16) 4-wire board

Type of protection EEx ib IIC

Voltage	Uo	DC	17,22	V
Current (pulse)	Io		484	mA
Power	Po		2,05	W
Max. external inductance	Lo		151,7	μH
Max. external capacitance	Co		0,333	μF
Max. inductance/resistance ratio	Lo/Ro		17,06	μH/Ω

Type of protection EEx ib IIB

Voltage	Uo	DC	17,22	V
Current (pulse)	Io		484	mA
Power	Po		2,05	W
Max. external inductance	Lo		607	μH
Max. external capacitance	Co		2,04	μF
Max. inductance/resistance ratio	Lo/Ro		68,2	μH/Ω

3.6) Circuits to the display (terminals J19-1 and J19-4)

Voltage	Uo	DC	13,4	V
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3.7) Ambient temperature range

3**0*****Z****	Ta	-20 °C up to +60 °C -30 °C up to +60 °C available with special order and factor test
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4) Marking



-20 °C ≤ Ta ≤ +60 °C or
-30 °C ≤ Ta ≤ +60 °C (available with special order and factory test)

- type	- type of protection
3**0*****Z****	EEx de [ib] IIB/IIC T4

5) Special conditions for safe use / Installation instructions

- 5.1) The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible if the cables are suitable for that temperature and the cable glands are certified for that use.
- 5.2) The keypad in the front cover of the enclosure was tested in accordance with the low risk of mechanical danger (4 Joule) according to table 4 of EN50014:1997 A1 + A2.

Model 3700 to sensor with enhanced core processor

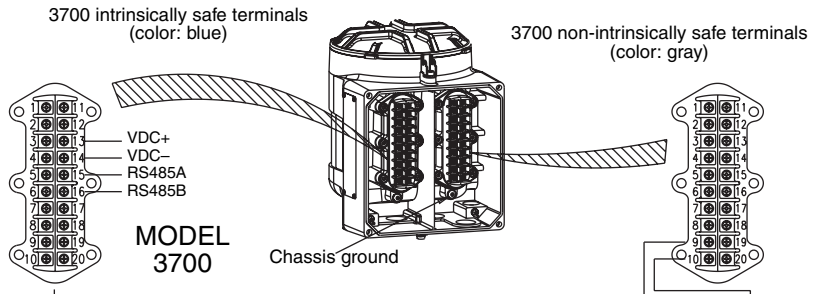
3700 IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Hazardous Area
EEx de [ib] IIB / IIC

Conditions for safe use:

1. The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.



I.S. 3700 outputs to core processor entity parameters		
U_o	17,22 Vdc	
I_o	484 mA	
P_o	2,05W	
C_o	IIC	0,333 μF
	IIB	2,04 μF
L_o	IIC	15,7 μH
	IIB	607 μH
L_o/R_o	IIC	17,06 $\mu\text{H}/\text{Ohm}$
	IIB	68,2 $\mu\text{H}/\text{Ohm}$

4-wire IS cable

Maximum cable length determined by entity parameters and maximum cable inductance.

This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

	9	10
85-265 VAC	L/L2	N/L1
18-30 VDC	+	-

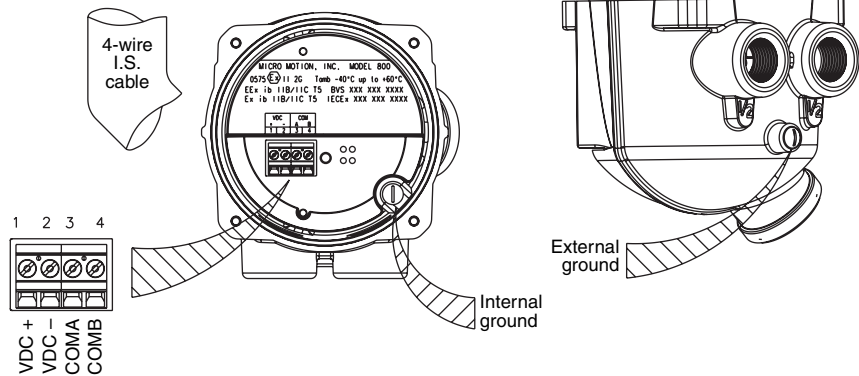
Hazardous Area
EEx ib IIC / IIB

Refer to sensor tag for complete hazardous area classification.

Maximum cable length determined by entity parameters and maximum cable inductance.

Sensor mounted enhanced core processor

4-wire I.S. and non-incendive core processor entity parameters	
U_i	17,3 Vdc
I_i	484 mA
P_i	2,1W
C_i	2200pF
L_i	30 μH



Installation notes:

Associated apparatus parameter limits
$V_{oc} < = V_{max}$
$I_{sc} < = I_{max}$
$(V_{oc} \times I_{sc}) / 4 < = P_{max}$
$*C_o > = C_{cable} + C_{i1} + C_{i2} + \dots + C_{in}$
$*L_o > = L_{cable} + L_{i1} + L_{i2} + \dots + L_{in}$

- * The total C_i is equal to the sum of all C_i values of all devices on the network. C_{cable} is the total capacitance of all cable on the network.
- * The total L_i is equal to the sum of all L_i values of all devices on the network. L_{cable} is the total inductance of all cable on the network.

If the electrical parameters of the cable are unknown, then the following values may be used:

Cable Capacitance = 197 pF/m
Cable Inductance = 0,66 $\mu\text{H}/\text{m}$

This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Electronics: 3700

EB-20003017 Rev. A

Model 3700 to CMF, F, H, R, CNG and T sensors with core processor

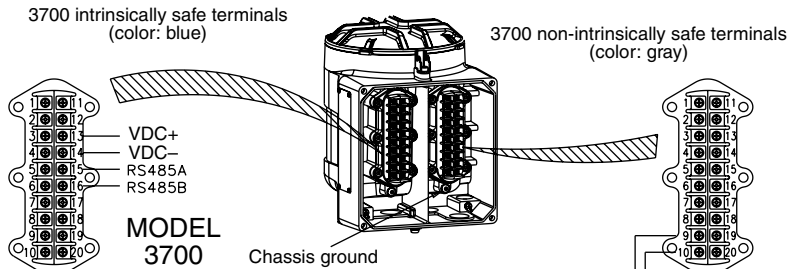
3700 IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Hazardous Area
EEx de [ib] IIB / IIC

Conditions for safe use:

1. The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.



I.S. 3700 outputs to core processor entity parameters

U _o	17,22 Vdc
I _o	484 mA
P _o	2,05W
C _o	IIC 0,333 μF
	IIB 2,04 μF
L _o	IIC 15,7 μH
	IIB 607 μH
L _o /R _o	IIC 17,06 μH/Ohm
	IIB 68,2 μH/Ohm

4-wire IS cable

Maximum cable length determined by entity parameters and maximum cable inductance.

This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

	9	10
85-265 VAC	L/L2	N/L1
18-30 VDC	+	-

Hazardous Area
EEx ib IIB / IIC

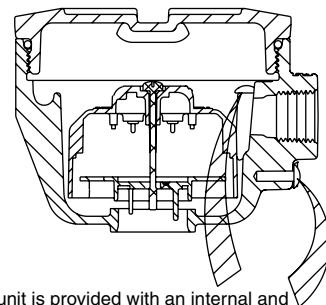
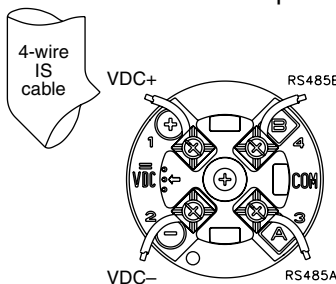
Refer to sensor tag for complete hazardous area classification.

Maximum cable length determined by entity parameters and maximum cable inductance.

Sensor mounted core processor

4-wire I.S. and non-incendive core processor entity parameters

U _i	17,3 Vdc
I _i	484 mA
P _i	2,1W
C _i	2200pF
L _i	30μH



This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

Installation notes:

Associated apparatus parameter limits	
V _{oc}	<= V _{max}
I _{sc}	<= I _{max}
(V _{oc} x I _{sc}) / 4	<= P _{max}
*C _o	>= C _{cable} + C _{i1} + C _{i2} + ... + C _{in}
*L _o	>= L _{cable} + L _{i1} + L _{i2} + ... + L _{in}

- * The total C_i is equal to the sum of all C_i values of all devices on the network. C_{cable} is the total capacitance of all cable on the network.
- * The total L_i is equal to the sum of all L_i values of all devices on the network. L_{cable} is the total inductance of all cable on the network.

If the electrical parameters of the cable are unknown, then the following values may be used:

Cable Capacitance = 197 pF/m
Cable Inductance = 0,66 μH/m

This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Electronics: 3700

EB-20000225 Rev. C

Model 3700 to D600 sensor with core processor

3700 IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

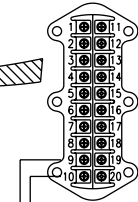
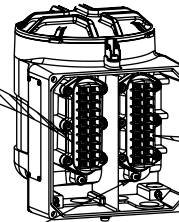
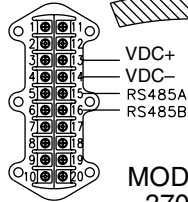
Hazardous Area
EEx de [ib] IIB / IIC

Conditions for Safe Use:

1. The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible, if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.

3700 intrinsically safe terminals (color: blue)

3700 non-intrinsically safe terminals (color: gray)



I.S. 3700 outputs to core processor entity parameters		
U_o	17,22 Vdc	
I_o	484 mA	
P_o	2,05W	
C_o	IIC	0,333 μF
	IIB	2,04 μF
L_o	IIC	15,7 μH
	IIB	607 μH
L_o/R_o	IIC	17,06 $\mu\text{H}/\Omega\text{hm}$
	IIB	68,2 $\mu\text{H}/\Omega\text{hm}$

4-wire IS cable

Maximum cable length determined by entity parameters and maximum cable inductance.

This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

85-265 VAC	L/L2	N/L1
18-30 VDC	+	-

Hazardous Area
EEx de [ib] IIB

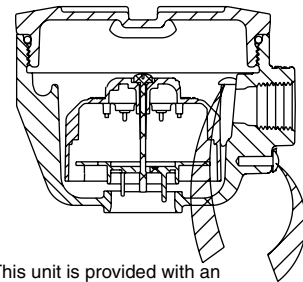
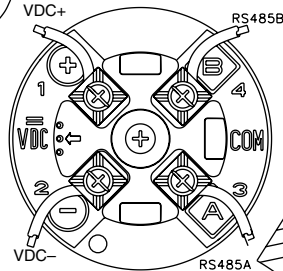
Refer to sensor tag and booster amplifier tags for complete hazardous area classification.

4-wire I.S. and non-incendive core processor entity parameters	
U_i	17,3 Vdc
I_i	484 mA
P_i	2,1W
C_i	2200pF
L_i	30 μH

4-wire IS cable

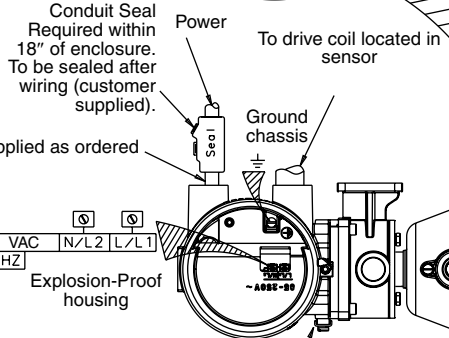
Maximum cable length determined by entity parameters and maximum cable inductance.

Core processor mounted on sensor booster amplifier



This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

Installation method	Fitting required	Per EN60079-14
Conduit	EEx d IIB Conduit Seal	
Cable	EEx d IIB Cable Gland	
Conduit or Cable Increased Safety	EEx e	



For Remote Mount Booster Amplifier wiring refer to EB-1005122.

85-265 VAC 50-60 HZ N/L2 L/L1

Installation notes:

Associated apparatus parameter limits
$V_{oc} < = V_{max}$
$I_{sc} < = I_{max}$
$(V_{oc} \times I_{sc}) / 4 < = P_{max}$
$C_o > = C_{cable} + C_{i1} + C_{i2} + \dots + C_{in}$
$L_o > = L_{cable} + L_{i1} + L_{i2} + \dots + L_{in}$

* The total C_i is equal to the sum of all C_i values of all devices on the network. C_{cable} is the total capacitance of all cable on the network.

* The total L_i is equal to the sum of all L_i values of all devices on the network. L_{cable} is the total inductance of all cable on the network.

* If the electrical parameters of the cable are unknown, then the following values may be used: Cable Capacitance = 197 pF/m Cable Inductance = 0,66 $\mu\text{H}/\text{m}$

* This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Micro Motion mass flowmeter system connection for Intrinsically safe operation

Electronics: 3700
Sensor: D600

EB-20000222 Rev. C

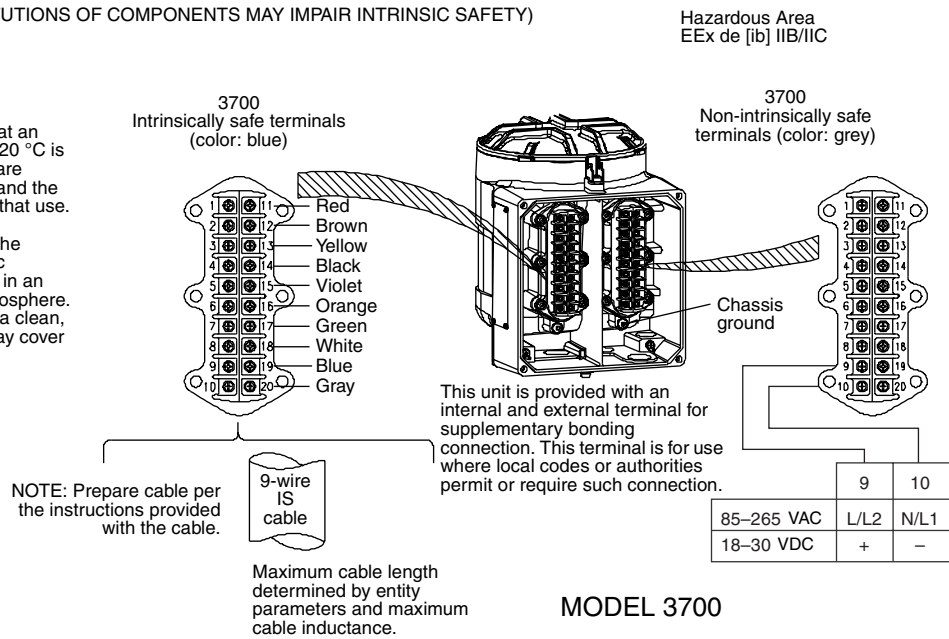
Model 3700 to CMF, F (except F300), H (except H300), D (except D600), and DL sensors with junction box

3700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

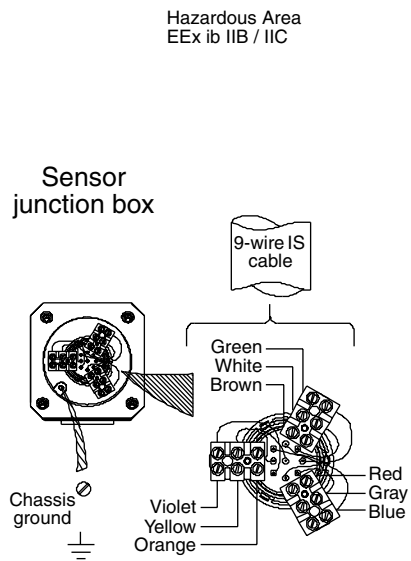
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Conditions for safe use:

1. The use of the transmitter at an ambient temperature under -20°C is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.



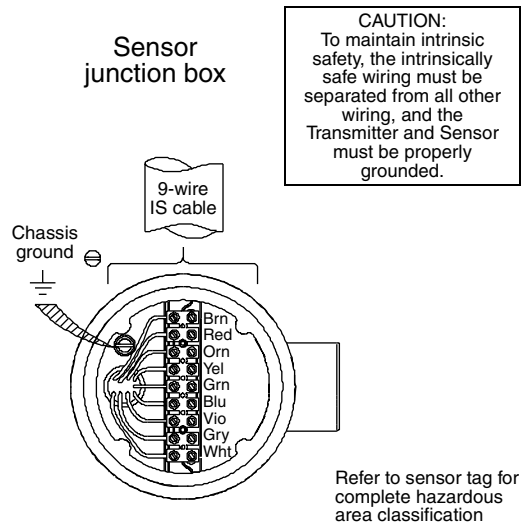
Refer to sensor tag for complete hazardous area classification



MODELS			
CMF	F (except F300 and F300A)	H (except H300)	

Supplied as intrinsically safe

Hazardous Area EEx ib IIB / IIC



MODELS
D, DL (except D600)

Supplied as intrinsically safe

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Electronics: 3700

EB-20001045 Rev. E

Model 3700 to CMF400 sensor with booster amplifier with junction box

3700 IN HAZARDOUS LOCATION TO BOOSTER AMP IN HAZARDOUS LOCATION

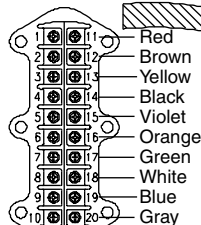
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Hazardous Area
EEx de [ib] IIB / IIC

Conditions for safe use:

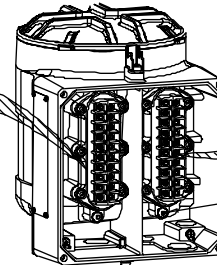
1. The use of the transmitter at an ambient temperature under -20°C is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.

3700
Intrinsically safe terminals
(color: blue)



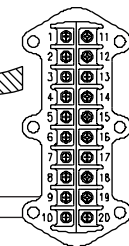
NOTE: Prepare cable per the instructions provided with the cable.

9-wire IS cable
300 m maximum cable length



The unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

3700
Non-intrinsically safe terminals
(color: gray)



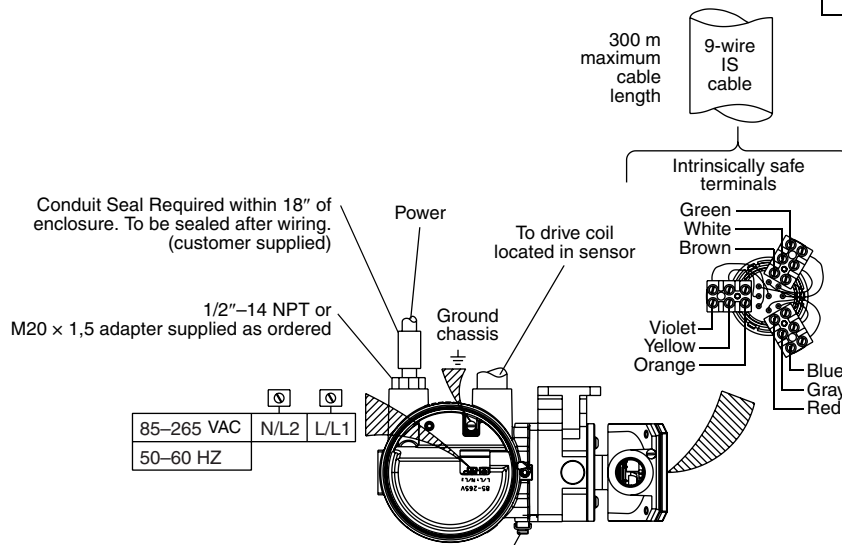
	9	10
85-265 VAC	L/L2	N/L1
18-30 VDC	+	-

MODEL 3700

Hazardous Area
EEx de [ib] ib IIB

Installation method	Fitting required	Per EN 60079-14
Conduit	EEx d IIB conduit seal	
Cable	EEx d IIB cable gland	
Conduit or cable increased safety	EEx e	

CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14 Transmitter and sensor must be properly grounded.



Conduit Seal Required within 18" of enclosure. To be sealed after wiring. (customer supplied)

Power
To drive coil located in sensor

To achieve potential equalization the ground terminal must be connected to the appropriate ground terminal within the hazardous area using a potential equalizing line.

MODEL CMF400

Micro Motion mass flowmeter system connection for intrinsically safe operation

For Remote Mount Booster Amplifier wiring refer to EB-3005831

Electronics: 3700
Sensor: CMF400

EB-20000271 Rev. C

Model 3700 to D600 sensor with junction box

3700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

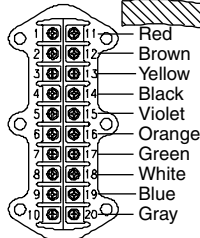
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Hazardous Area
EEx de [ib] IIB/IIC

Conditions for safe use:

1. The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.

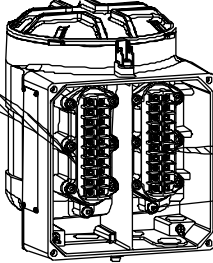
3700
Intrinsically Safe
Terminals (color: blue)



NOTE: Prepare cable per the instructions provided with the cable.

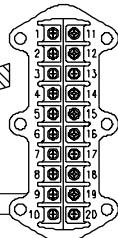


Maximum cable length determined by entity parameters and maximum cable inductance.



This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

3700
Non-Intrinsically Safe
Terminals (color: grey)

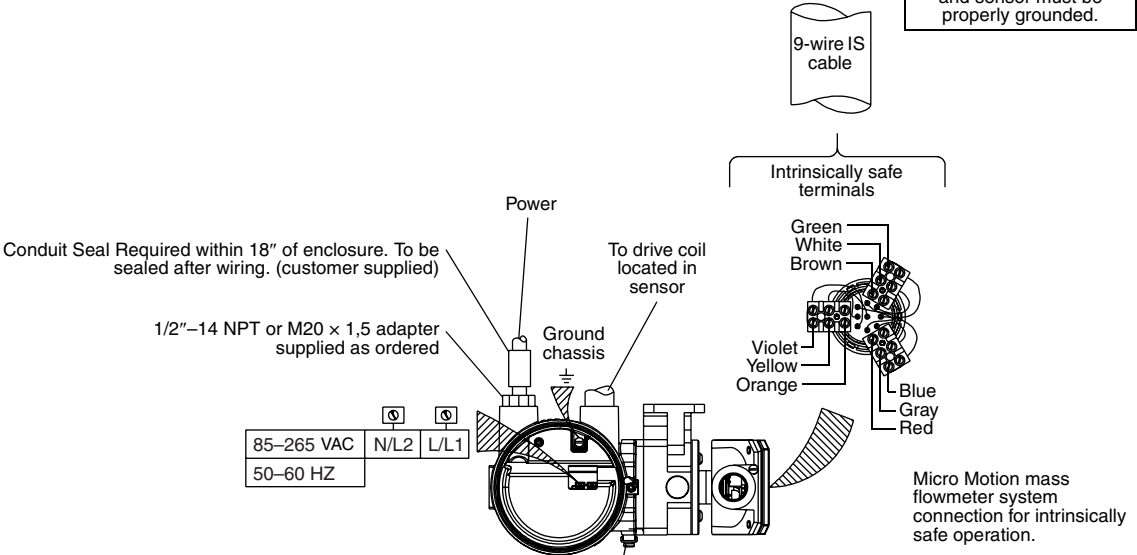


	9	10
85-265 VAC	L/L2	N/L1
18-30 VDC	+	-

Hazardous Area
EEx de [ib] IIB

Installation method	Fitting required	Per EN60079-14
Conduit	EEx d IIB Conduit Seal	
Cable	EEx d IIB Cable Gland	
Conduit or Cable Increased Safety	EEx e	

CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14. Transmitter and sensor must be properly grounded.



Micro Motion mass flowmeter system connection for intrinsically safe operation.

For Remote Mount Booster Amplifier wiring refer to EB-3007062.

Electronics: 3700
Sensor: D600

EB-20000272 Rev. B

Model 3700 to DT sensor with junction box

3700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

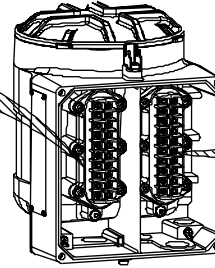
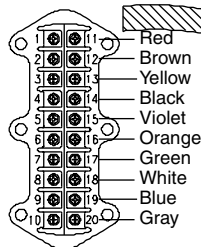
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Hazardous Area
EEx de [ib] IIB/IIC

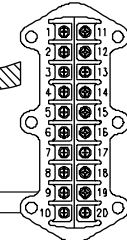
Conditions for safe use:

1. The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.

3700
Intrinsically safe terminals
(color: blue)



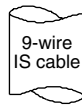
3700
Non-intrinsically safe terminals
(color: grey)



Chassis ground

This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

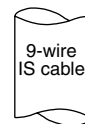
NOTE: Prepare cable per the instructions provided with the cable.



Maximum cable length determined by entity parameters and maximum cable inductance.

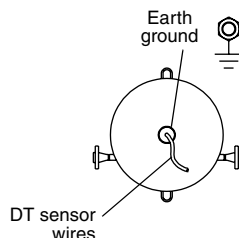
	9	10
85–265 VAC	L/L2	N/L1
18–30 VDC	+	-

Hazardous Area
EEx ib IIB



DT Sensor wires must be connected to IS cable using customer supplied terminal block and junction box.

CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring, and the transmitter and sensor must be properly grounded.



DT sensor wire terminations to 9-wire IS cable	
Sensor wire #	IS cable color
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Gray
9	White

Micro Motion mass flowmeter system connection for intrinsically safe operation.

MODELS
DT65, DT100, DT150

Supplied as intrinsically safe.

Electronics: 3700
Sensor: DT

EB-20000275 Rev. B

Model 3700 to remote core processor to CMF, D (except D600), DL, F, H and T sensors with junction box

3700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

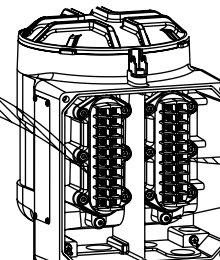
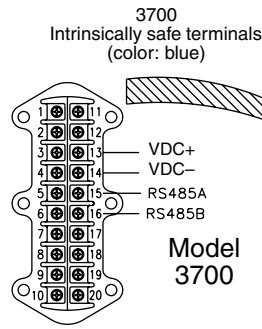
Conditions for safe use:

1. The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.

I.S. 3700 outputs to core processor entity parameters	
U_o	17,22 Vdc
I_o	484 mA
P_o	2,05W
C_o	IIC 0,333 μF
	IIB 2,04 μF
L_o	IIC 151,7 μH
	IIB 607 μH
L/R	IIC 17,06 $\mu\text{H}/\text{Ohm}$
	IIB 68,2 $\mu\text{H}/\text{Ohm}$

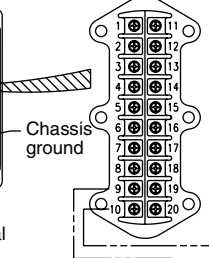
Installation notes:

Associated apparatus parameter limits	
$V_{oc} <= V_{max}$	
$I_{sc} <= I_{max}$	
$(V_{oc} \times I_{sc}) / 4 <= P_{max}$	
$C_o >= C_{cable} + C_{i1} + C_{i2} + \dots + C_{in}$	
$L_o >= L_{cable} + L_{i1} + L_{i2} + \dots + L_{in}$	



Hazardous Area
EEx de [ib] IIB / IIC

3700
Non-intrinsically safe
terminals (color: grey)



	9	10
85-265 VAC	L/L2	N/L1
18-30 VDC	+	-

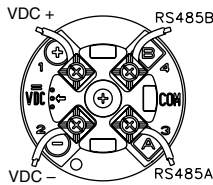
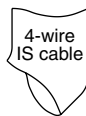
This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

Maximum cable length determined by entity parameters and maximum cable inductance.



- * The total C_i is equal to the sum of all C_i 's of all devices on the network. C_{cable} is the total capacitance of all cable on the network.
- * The total L_i is equal to the sum of all L_i 's of all devices on the network. L_{cable} is the total inductance of all cable on the network.
- * If the electrical parameters of the cable are unknown, then the following values may be used: Cable Capacitance = 197pF/m Cable Inductance = 0,66 $\mu\text{H}/\text{m}$
- * This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Maximum cable length determined by entity parameters and maximum cable inductance.



4-wire and non-incendive core processor entity parameters

U_i	17,3 Vdc
I_i	484 mA
P_i	2,1W
C_i	2200pF
L_i	30 μH

Refer to sensor tag for complete hazardous area classification.

Hazardous Area
EEx ib IIB / IIC

20 m.
maximum
cable length



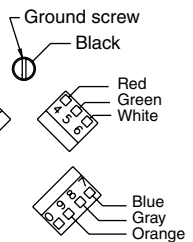
Refer to remote core processor tag for complete hazardous area classification.

Hazardous Area
EEx ib IIB / IIC

Remote core processor

Hazardous Area
EEx ib IIB / IIC

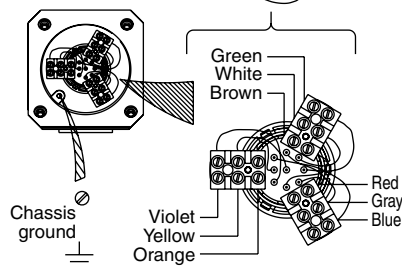
20 m.
maximum
cable length



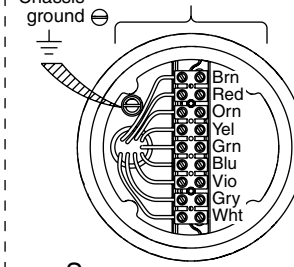
9-wire
IS cable
20 m.
maximum
cable length

CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring, and the transmitter and sensor must be properly grounded.

Sensor junction box



Sensor junction box



Refer to sensor tag for complete hazardous area classification.

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Model			
CMF	T	F	H

Supplied as intrinsically safe

Model
D, DL (EXCEPT D600)

Supplied as intrinsically safe

Electronics: 3700

EB-20001043 Rev. D

Model 3700 to remote core processor to D600 sensor with junction box

3700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Conditions for safe use:

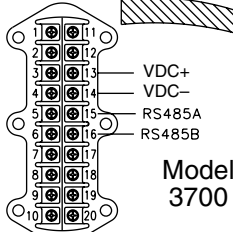
1. The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.

I.S. 3700 outputs to core processor entity parameters		
U_o		17,22 Vdc
I_o		484 mA
P_o		2,05W
C_o	IIC	0,333 μF
	IIB	2,04 μF
L_o	IIC	151,7 μH
	IIB	607 μH
L/R	IIC	17,06 $\mu\text{H}/\text{Ohm}$
	IIB	68,2 $\mu\text{H}/\text{Ohm}$

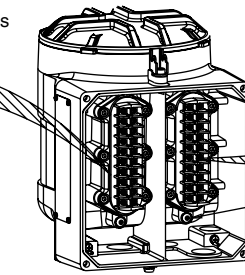
Installation notes:

Associated apparatus parameter limits	
$V_{oc} <= V_{max}$	
$I_{sc} <= I_{max}$	
$(V_{oc} \times I_{sc}) / 4 <= P_{max}$	
$C_o >= C_{cable} + C_{i1} + C_{i2} + \dots + C_{in}$	
$L_o >= L_{cable} + L_{i1} + L_{i2} + \dots + L_{in}$	

3700 Intrinsically safe terminals (color: blue)



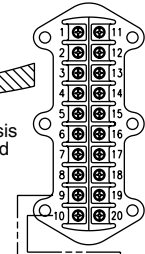
Maximum cable length determined by entity parameters and maximum cable inductance.



This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

Hazardous Area EEx de [ib] IIB / IIC

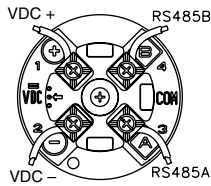
3700 Non-intrinsically safe terminals (color: grey)



	9	10
85-265 VAC	L/L2	N/L1
18-30 VDC	+	-

- * The total C_i is equal to the sum of all C_i 's of all devices on the network. C_{cable} is the total capacitance of all cable on the network.
- * The total L_i is equal to the sum of all L_i 's of all devices on the network. L_{cable} is the total inductance of all cable on the network.
- * If the electrical parameters of the cable are unknown, then the following values may be used: Cable Capacitance = 197pF/m Cable Inductance = 0,66 $\mu\text{H}/\text{m}$
- * This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Maximum cable length determined by entity parameters and maximum cable inductance.



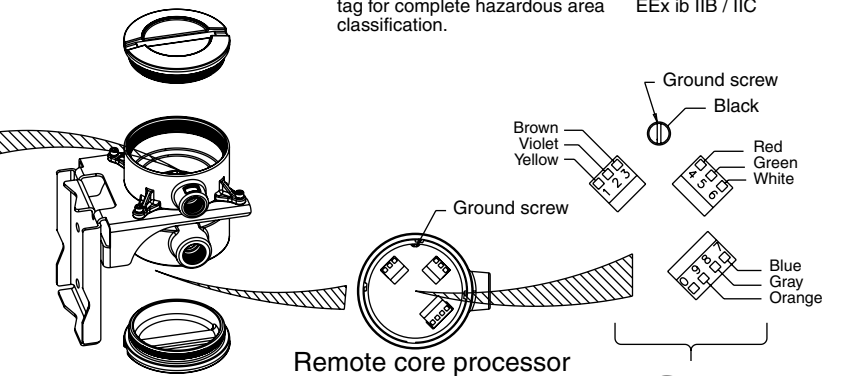
4-wire and non-incendive core processor entity parameters	
U_i	17,3 Vdc
I_i	484 mA
P_i	2,1W
C_i	2200pF
L_i	30 μH

Hazardous Area EEx de [ib] IIB

Refer to sensor tag for complete hazardous area classification.

Refer to remote core processor tag for complete hazardous area classification.

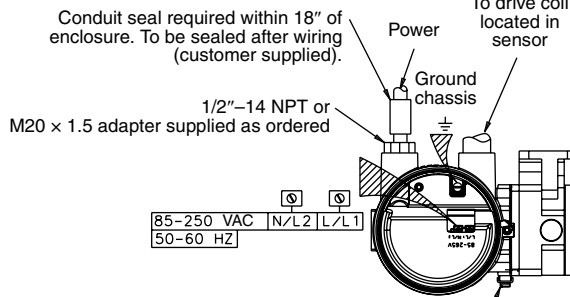
Hazardous Area EEx ib IIB / IIC



Installation method	Fitting required	Per EN60079-14
Conduit	EEx d IIB conduit seal	
Cable	EEx d IIB cable gland	
Conduit or cable increased safety	EEx e	

9-wire IS cable 20 m. maximum cable length

For remote mount booster amplifier wiring refer to EB-3007062.



Sensor booster amplifier

CAUTION: To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14. Transmitter and sensor must be properly grounded.

Micro Motion mass flowmeter system connection for intrinsically safe operation

To achieve potential equalization the ground terminal must be connected to the appropriate ground terminal within the hazardous area using a potential equalizing line.

Electronics: 3700
Sensor: D600

EB-20000207 Rev. C

Model 3700 to remote core processor to DT sensor with junction box

3700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

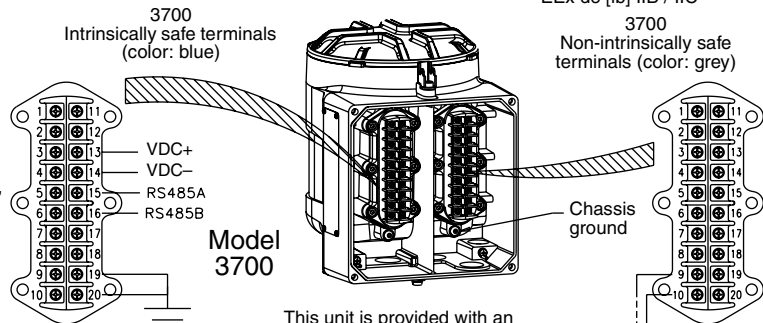
Conditions for safe use:

1. The use of the transmitter at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ is only admissible if the cables are suitable for that temperature and the cable entries are certified for that use.
2. Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere. To prevent an explosion, use a clean, damp cloth to clean the display cover in an explosive atmosphere.

I.S. 3700 outputs to core processor entity parameters	
U _o	17,22 Vdc
I _o	484 mA
P _o	2,05W
C _o	IIC 0,333 μF
	IIB 2,04 μF
L _o	IIC 151,7 μH
	IIB 607 μH
L/R	IIC 17,06 $\mu\text{H}/\text{Ohm}$
	IIB 68,2 $\mu\text{H}/\text{Ohm}$

Installation notes:

Associated apparatus parameter limits	
V _{oc} < =	V _{max}
I _{sc} < =	I _{max}
$(V_{oc} \times I_{sc}) / 4 < = P_{max}$	
C _o > =	C _{cable} + C _{i1} + C _{i2} + ... + C _{in}
L _o > =	L _{cable} + L _{i1} + L _{i2} + ... + L _{in}



This unit is provided with an internal and external terminal for supplementary bonding connection. This terminal is for use where local codes or authorities permit or require such connection.

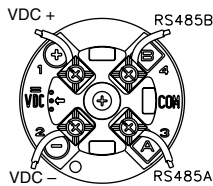
	9	10
85-265 VAC	L/L2	N/L1
18-30 VDC	+	-

Maximum cable length determined by entity parameters and maximum cable inductance.



- * The total C_i is equal to the sum of all C_i values of all devices on the network. C_{cable} is the total capacitance of all cable on the network.
- * The total L_i is equal to the sum of all L_i values of all devices on the network. L_{cable} is the total inductance of all cable on the network.
- * If the electrical parameters of the cable are unknown, then the following values may be used: Cable Capacitance = 197pF/m Cable Inductance = 0,66 $\mu\text{H}/\text{m}$
- * This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

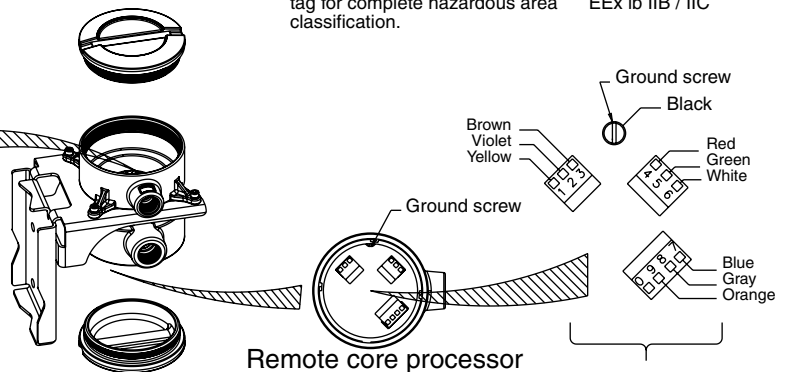
Maximum cable length determined by entity parameters and maximum cable inductance.



4-wire and non-incendive core processor entity parameters	
U _i	17,3 Vdc
I _i	484 mA
P _i	2,1W
C _i	2200pF
L _i	30 μH

Refer to remote core processor tag for complete hazardous area classification.

Hazardous Area EEx ib IIB / IIC



Remote core processor

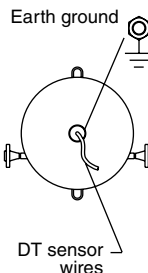
20 m. maximum cable length



9-wire IS cable 20 m. maximum cable length

Hazardous Area EEx ib IIB

DT sensor wire terminations to IS cable	
DT sensor wire #	IS cable color
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Gray
9	White



DT sensor wires must be connected to IS cable using customer supplied terminal block and junction box.

CAUTION: To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring, and the transmitter and sensor must be properly grounded.

Micro Motion mass flowmeter system connection for intrinsically safe operation

Models: DT65, DT100, DT150
Supplied as intrinsically safe

Electronics: 3700
Sensor: DT

EB-20000216 Rev. C

Model RFT9739 Transmitters

ATEX Drawings and Installation Instructions

- For installing the following Micro Motion transmitters with 9-wire connections:
 - Model RFT9739R
 - Model RFT9739D/E



Subject: Equipment type

Manufactured and submitted
for examination

Address

Standard basis

Code for type of protection

Transmitter type RFT9739E******

Micro Motion, Inc.

Boulder, Co. 80301, USA

EN 50014:1997 +A1-A2

EN 50018:2000

EN 50020:1994

EEx d [ib] IIC T6

[EEx ib] IIC

General requirements

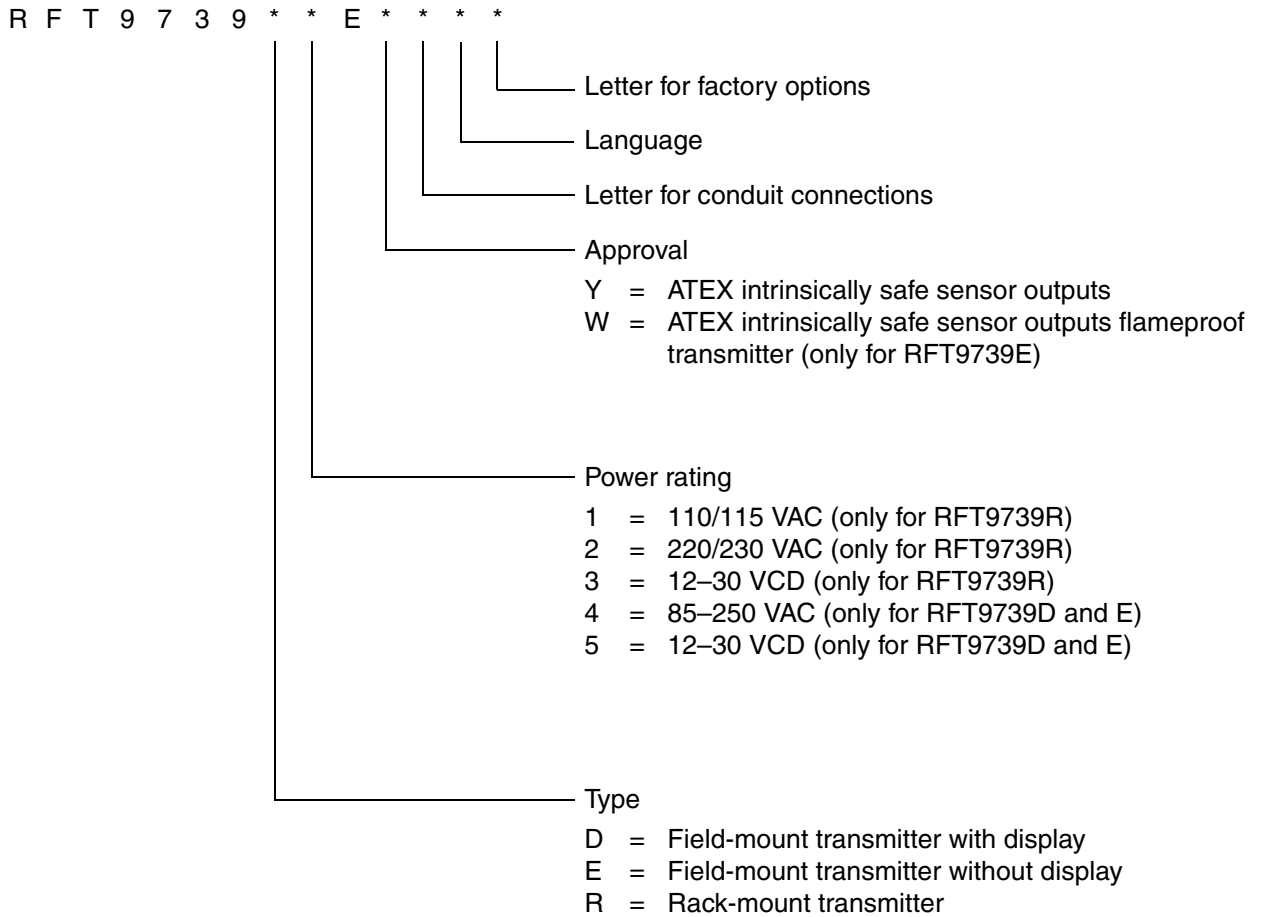
Flameproof enclosure 'd'

Intrinsic safety 'i'

1) Subject and type

Transmitter type RFT9739**E****

The options denoted by * are as follows:



2) Description

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission.

The electrical circuitry of the transmitters is mounted inside a flameproof metal enclosure type RFT9739E.

The RFT9739D and RFT9739R are not flameproof enclosures.

3) Parameters

3.1) Mains circuit (See document EB-3007165 or EB-3008013 for terminals)

Voltage		AC/DC	12–250	V
Max. voltage	Um	AC/DC	250	V

3.2) Intrinsically safe circuits type of protection EEx ib IIC / EEx ib IIB

The circuits designed for connecting sensors are classified initially in Group IIC. However, when certain sensors are connected, they can also be assigned to Group IIB.

3.2.1) Drive circuit (see document EB-3007165 or EB-3008013 for terminals)

Voltage	Umax	DC	11,4	V
Current	Imax		1,14	A
Nominal fuse			250	mA
Power	Pmax		1,2	W
Internal resistance	RI		10	Ω
Type of protection EEx ib IIC				
Max. external inductance	Lo		27,4	μH
Max. external capacitance	Co		1,7	μF
Max. inductance/resistance ratio	Lo/Ro		10,9	μH/Ω
Type of protection EEx ib IIB				
Max. external inductance	Lo		109	μH
Max. external capacitance	Co		11,7	μF
Max. inductance/resistance ratio	Lo/Ro		43,7	μH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times (R_i + R_o / 1,5 \times U_o)^2$$

Whereby E = 40 μJ for group IIC and E = 160 μJ for group IIB will be inserted and Ro is the total resistance (coil resistance + series resistance).

3.2.2) Pick-off circuits (see document EB-3007165 or EB-3008013 for terminals)

Voltage	U _{max}	DC	7,6	V
Current	I _{max}		4,75	mA
Power	P _{max}		18	mW

Type of protection EEx ib IIC

Max. external inductance	Lo		1,5	H
Max. external capacitance	Co		10,4	μF

Type of protection EEx ib IIB

Max. external inductance	Lo		6,3	H
Max. external capacitance	Co		160	μF

3.2.3) Temperature circuit (see document EB-3007165 or EB-3008013 for terminals)

Voltage	U _{max}	DC	14	V
Current	I _{max}		7	mA
Power	P _{max}		25	mW

Type of protection EEx ib IIC

Max. external inductance	Lo		725	mH
Max. external capacitance	Co		0,73	μF

Type of protection EEx ib IIB

Max. external inductance	Lo		2,9	H
Max. external capacitance	Co		4,6	μF

3.3) Ambient temperature range

RFT9739R*E****	Ta	-20 °C to +55 °C
RFT9739(D or E)*E****	Ta	-30 °C to +45 °C or
	Ta	-40 °C to +45 °C (routine test required, only for RFT9739E*EW****)

4) **Marking**

 II 2 G or II (2) G

-20 °C ≤ Ta ≤ +55 °C for RFT9739R
 -30 °C ≤ Ta ≤ +45 °C for RFT9739(D or E)*E**** or
 -40 °C ≤ Ta ≤ +45 °C (routine test required, only for RFT9739E*EW****)

- type	- type of protection
RFT9739E*EW****	EEx d[ib] IIC T6
RFT9739E*EY****	[EEx ib] IIC
RFT9739D*EY****	[EEx ib] IIC
RFT9739R*EY****	[EEx ib] IIC

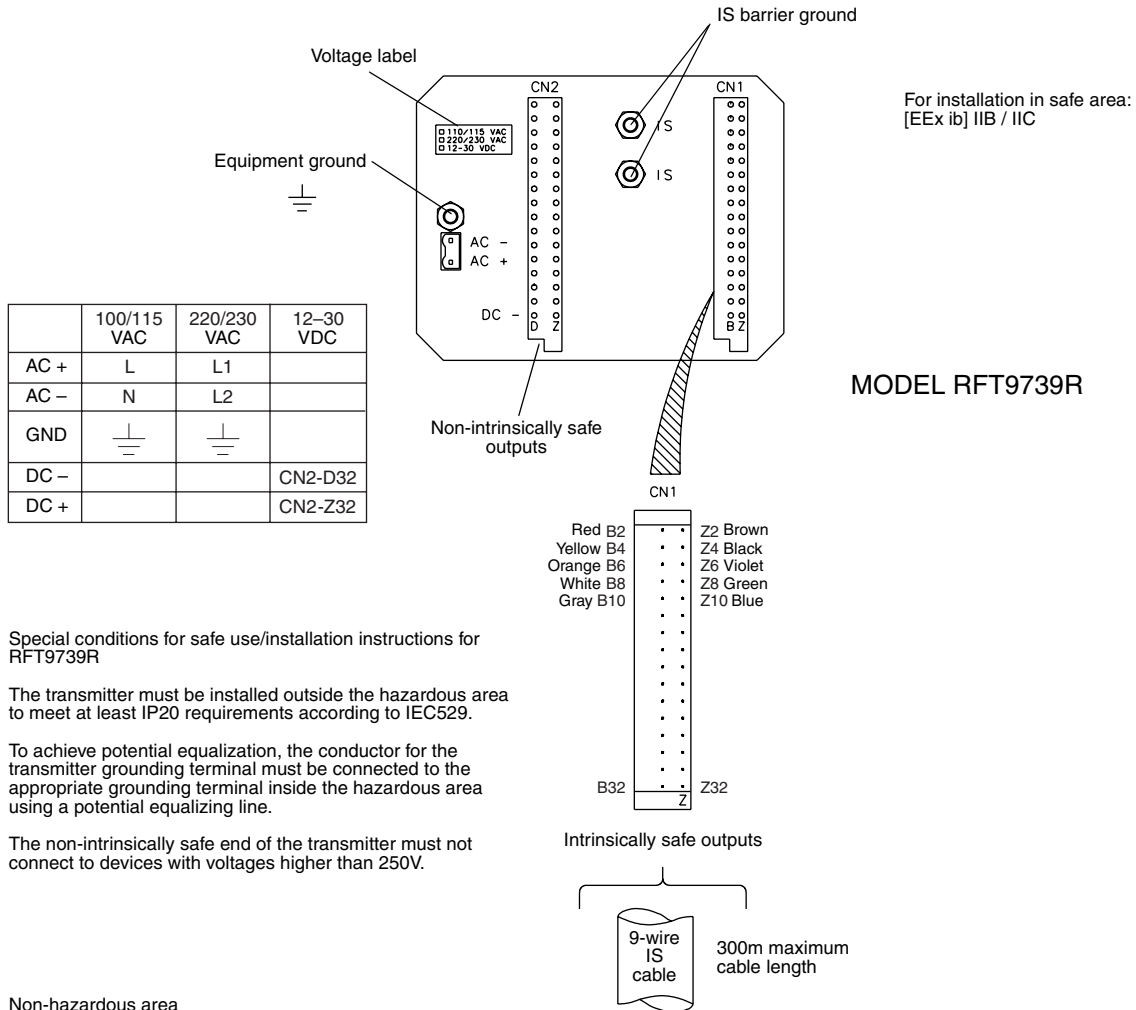
5) **Special conditions for safe use / Installation instructions for RFT9739E*EW****.**

- 5.1) For the application of the transmitter in an ambient temperature of less than -20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used
- 5.2) If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.
- 5.3) The transmitter shall only be installed within the intended hazardous area if metal cable entries (with 3/4"-14 NPT threading) are used which are classified as EEx d IIC and are for enclosures with >2dm³ and are certified by an authorized test station.
- 5.4) Entry holes which are not being used must be sealed with blanking plugs and which are classified as EEx d IIC and are certified by an authorized test station.
- 5.5) For installation outside the hazardous area, it is allowed to use cable entry fittings that are not flameproof.
- 5.6) To achieve potential equalization, the conductor for the transmitter grounding terminal must be connected to the appropriate grounding terminal inside the hazardous area using a potential equalizing line.
- 5.7) The non-intrinsically safe end of the transmitter must only be connected to devices where there are no voltages higher than 250V.
- 5.8) After de-energizing the flameproof RFT9739, delay 5 minutes before opening the cover.

- 6) Special conditions for safe use / Installation instructions for RFT9739(R or D or E)*EY***.**
- 6.1) The transmitter must be installed outside the hazardous area in such a way that it meets a degree of protection of at least IP20 according to EN60529.
 - 6.2) To achieve potential equalization, the conductor for the transmitter grounding terminal must be connected to the appropriate grounding terminal inside the hazardous area using a potential equalizing line
 - 6.3) The non-intrinsically safe end of the transmitter must only be connected to devices where there are no voltages higher than 250V.

Model RFT9739R to CMF, F (except F300), H (except H300), D (except D600), and DL sensors with junction box

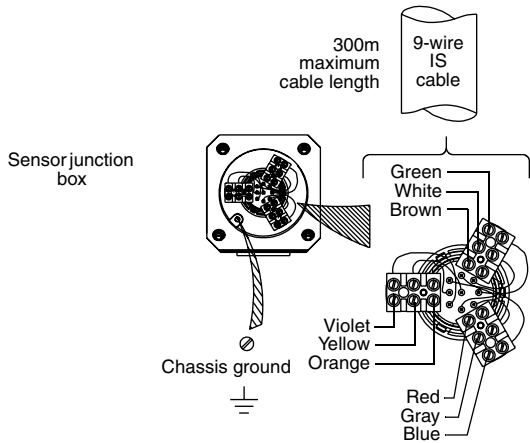
MODEL RFT9739R TRANSMITTER IN SAFE AREA TO SENSOR IN HAZARDOUS LOCATION



Non-hazardous area

Hazardous Area
EEx ib IIB / IIC

Refer to sensor tag for complete hazardous area classification

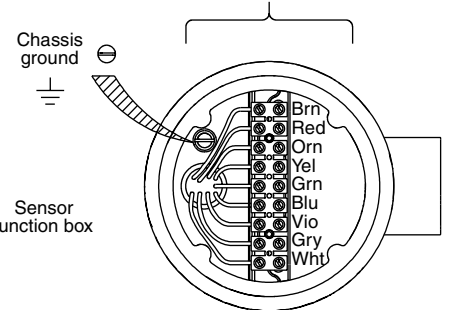


MODELS		
CMF	F (except F300 and F300A)	H (except H300)

Supplied as intrinsically safe

Hazardous Area
EEx ib IIB / IIC

Refer to sensor tag for complete hazardous area classification



MODELS
D, DL (except D600)

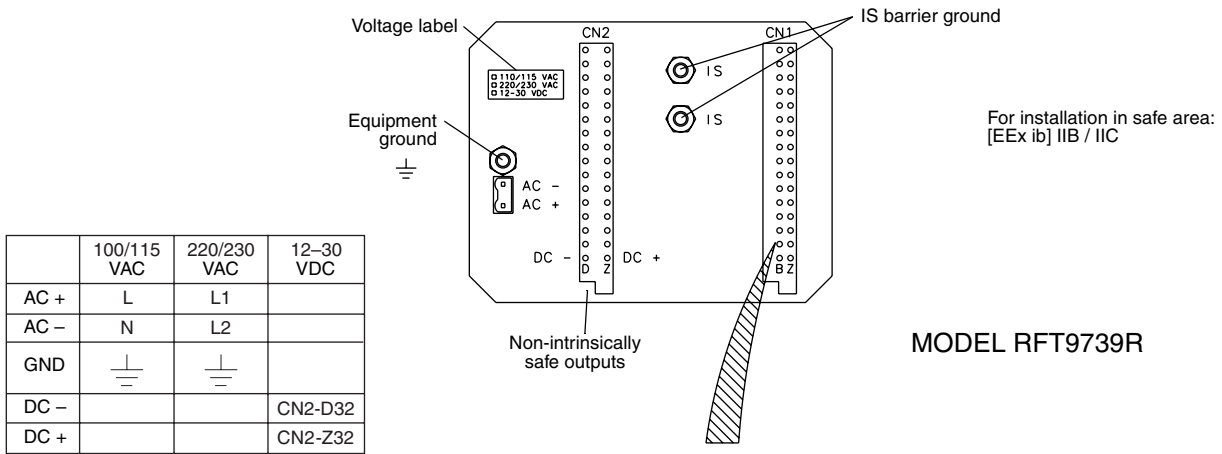
Supplied as intrinsically safe

Electronics: RFT9739R
Sensor: CMF, F, D, DL, H

EB-20001047 Rev. D

Model RFT9739R to CMF400 sensor with booster amplifier with junction box

MODEL RFT9739R TRANSMITTER IN SAFE AREA TO BOOSTER AMP IN HAZARDOUS LOCATION

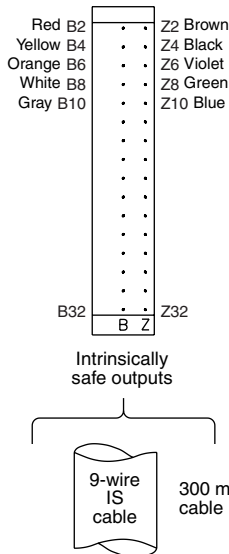


Special conditions for safe use/installation instructions for RFT9739R

The transmitter must be installed outside the hazardous area to meet at least IP20 requirements according to IEC529.

To achieve potential equalization, the conductor for the transmitter grounding terminal must be connected to the appropriate grounding terminal inside the hazardous area using a potential equalizing line.

The non-intrinsically safe end of the transmitter must not connect to devices with voltages higher than 250V.

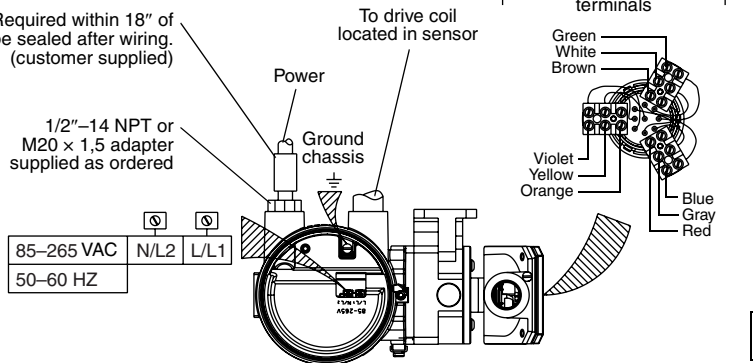


Hazardous Area
EEx de [ib] IIB

Installation Method	Fitting Required	Per EN 60079-14
Conduit	EEx d IIB Conduit Seal	
Cable	EEx d IIB Cable Gland	
Conduit or Cable Increased Safety	EEx e	

Cable O.D. must be suitably sized to gland.

Conduit Seal Required within 18" of enclosure. To be sealed after wiring. (customer supplied)



Model CMF400

CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14. Transmitter and sensor must be properly grounded.

Micro Motion mass flowmeter system connection for intrinsically safe operation

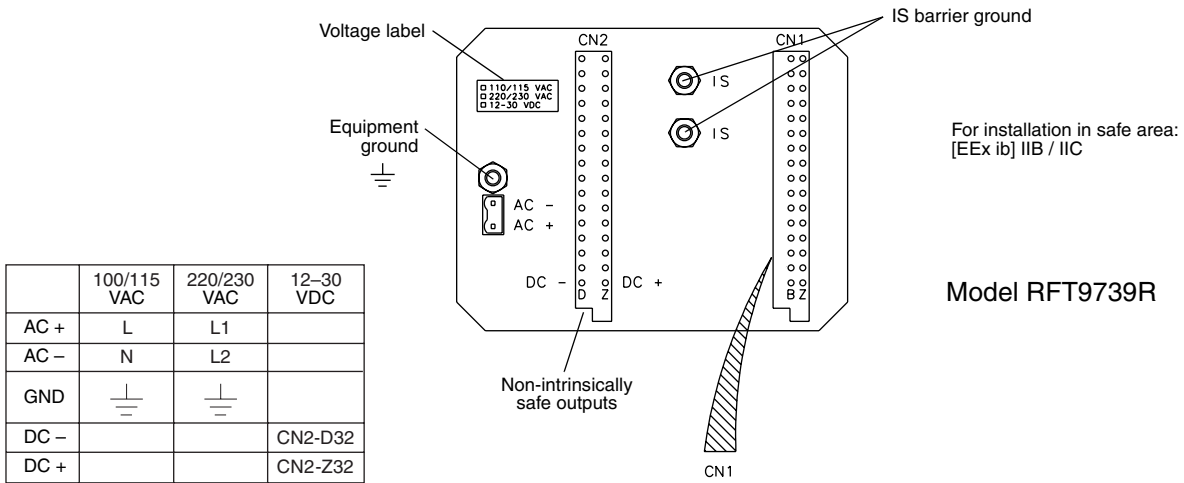
For Remote Mount Booster Amplifier wiring refer to EB-3005831.

Electronics: RFT9739R
Sensor: CMF400

EB-20002011 Rev. A

Model RFT9739R to D600 sensor with junction box

MODEL RFT9739R TRANSMITTER IN SAFE AREA TO SENSOR IN HAZARDOUS LOCATION



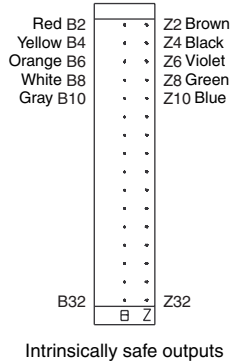
	100/115 VAC	220/230 VAC	12-30 VDC
AC +	L	L1	
AC -	N	L2	
GND			
DC -			CN2-D32
DC +			CN2-Z32

Special conditions for safe use/installation instructions for RFT9739R

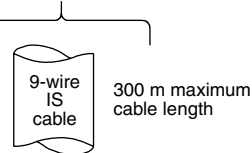
The transmitter must be installed outside the hazardous area to meet at least IP20 requirements according to IEC529.

To achieve potential equalization, the conductor for the transmitter grounding terminal must be connected to the appropriate grounding terminal inside the hazardous area using a potential equalizing line.

The non-intrinsically safe end of the transmitter must not connect to devices with voltages higher than 250V.



Intrinsically safe outputs



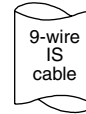
Non-hazardous area

Hazardous Area
EEx de [ib] IIB

Installation method	Fitting required	Per EN 60079-14
Conduit	EEx d IIB conduit seal	
Cable	EEx d IIB cable gland	
Conduit or cable increased safety	EEx e	

Cable O.D. must be suitably sized to gland.

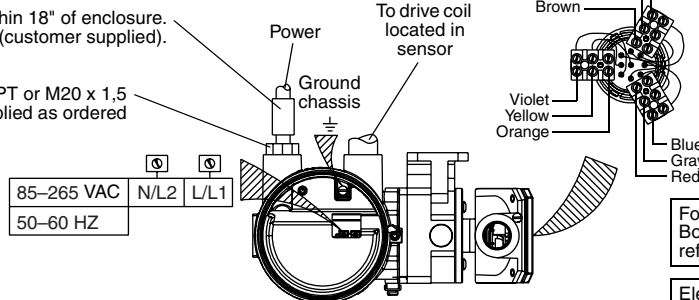
300 m maximum cable length



CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14. Transmitter and sensor must be properly grounded.

Conduit Seal Required within 18" of enclosure.
To be sealed after wiring (customer supplied).

1/2"-14 NPT or M20 x 1,5 adapter supplied as ordered



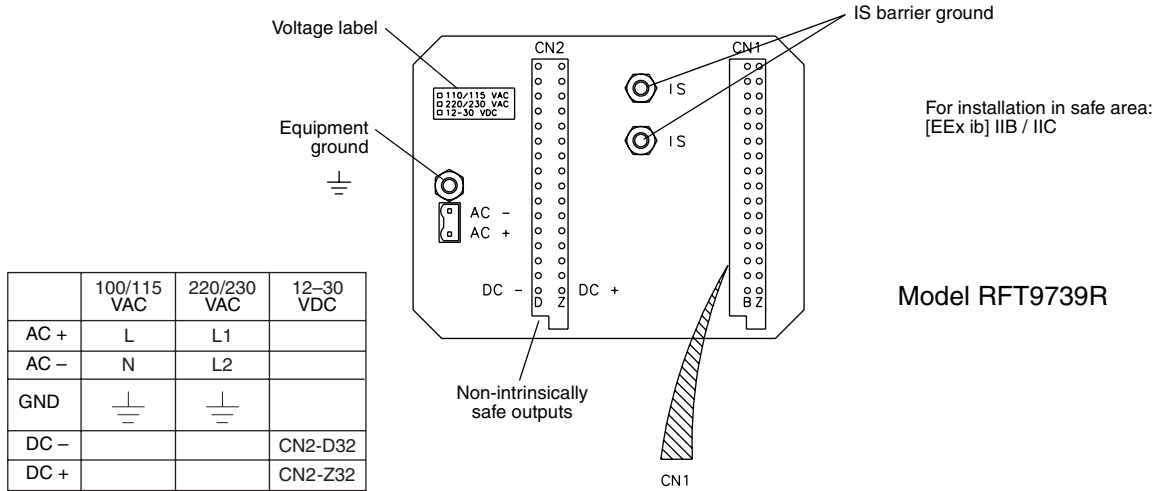
For Remote Mount
Booster Amplifier wiring
refer to EB-3007062.

Electronics: RFT9739R
Sensor: D600

EB-20000849 Rev. B

Model RFT9739R to DT sensor with junction box

MODEL RFT9739R TRANSMITTER IN SAFE AREA TO SENSOR IN HAZARDOUS LOCATION

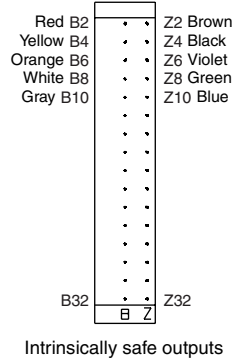


Special conditions for safe use/installation instructions for RFT9739R

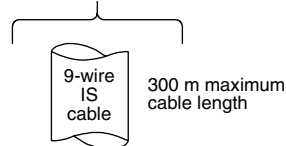
The transmitter must be installed outside the hazardous area to meet at least IP20 requirements according to IEC529.

To achieve potential equalization, the conductor for the transmitter grounding terminal must be connected to the appropriate grounding terminal inside the hazardous area using a potential equalizing line.

The non-intrinsically safe end of the transmitter must not connect to devices with voltages higher than 250V.

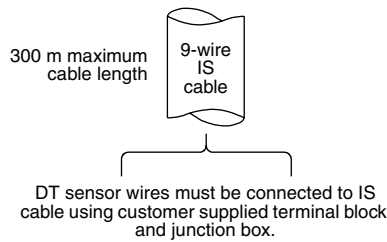


Intrinsically safe outputs



Non-hazardous area

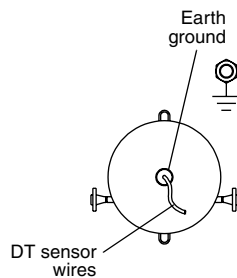
Hazardous Area
EEx ib IIB



Special conditions for safe use:

For the sensor types DT065, DT100, and DT150 the following applies:
The minimum medium temperature is +32° C.

Micro Motion mass flowmeter system connection for intrinsically safe operation



DT sensor wire terminations to 9-wire IS cable	
Sensor wire #	IS cable color
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Gray
9	White

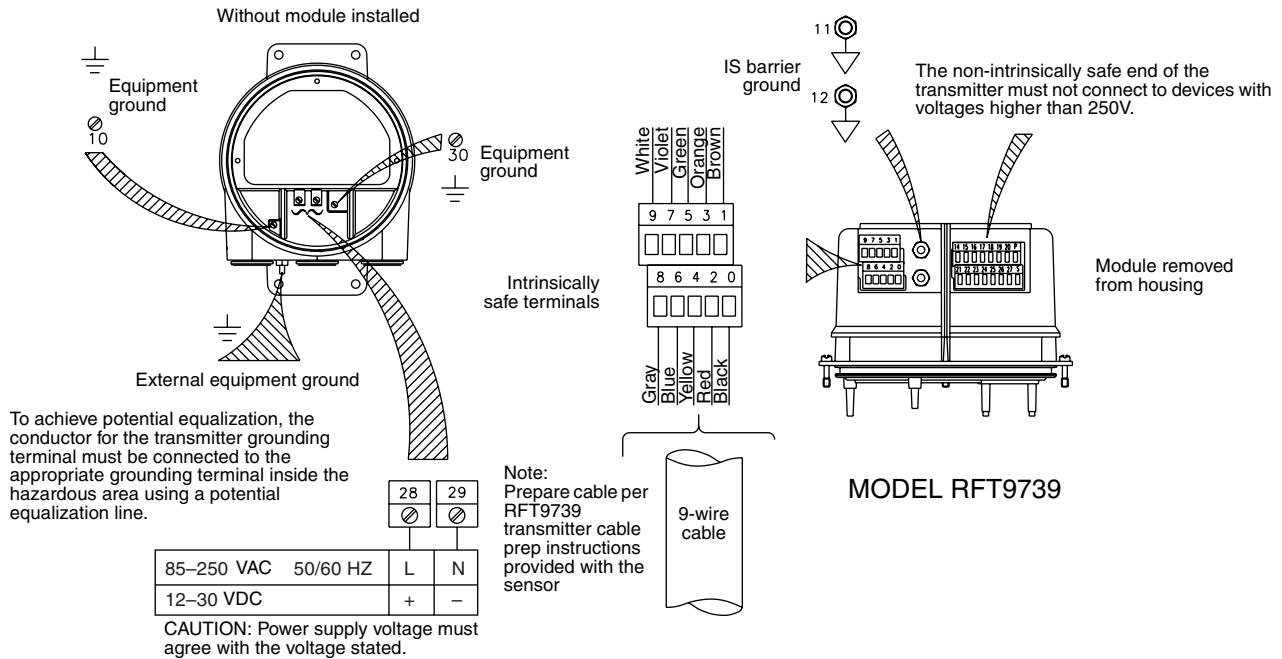
Electronics: RFT9739R
Sensor: DT

MODELS
DT65, DT100, DT150

EB-20000799 Rev. B

Model RFT9739D/E to CMF, F (except F300), H (except H300), D (except D600), and DL sensors with junction box

RFT9739D OR RFT9739E IN HAZARDOUS LOCATION OR SAFE AREA TO SENSOR IN HAZARDOUS LOCATION

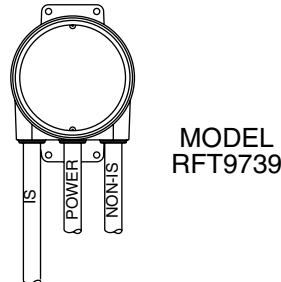


For installation in Hazardous Area EExd [ib] IIC T6 (RFT9739E with flameproof cable glands)

When ambient temperature is less than -20 °C, cable and cable entries or conduit entries certified for this condition shall be used.

To prevent ignition of hazardous atmospheres, disconnect from supply circuit before opening enclosure. Keep tightly closed when circuits are alive.

If certified conduit entries are used, the associated stopping boxes shall be installed immediately at the transmitter enclosure. The transmitter shall only be installed within the intended hazardous area if metal cable entries (with 3/4"-NPT threading) are used and are for enclosures with > 2dm³ which are classified as EEx d II C and are certified by an authorized test station. Unused entry holes must be sealed with blanking plugs that are classified as EEx d II C and certified by an authorized test station.



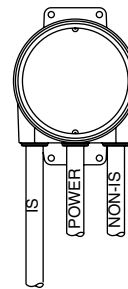
OR

For installation in Safe Area [EEx ib] IIC

(RFT9739D without flameproof cable glands)

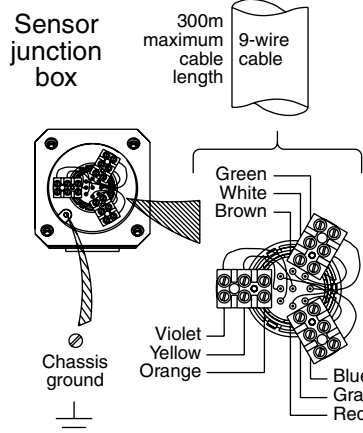
(RFT9739E without flameproof cable glands)

For installation outside the hazardous area, cable entry fittings that are not flameproof are allowed.



Hazardous Area EEx ib IIB / IIC

Refer to sensor tag for complete hazardous area classification

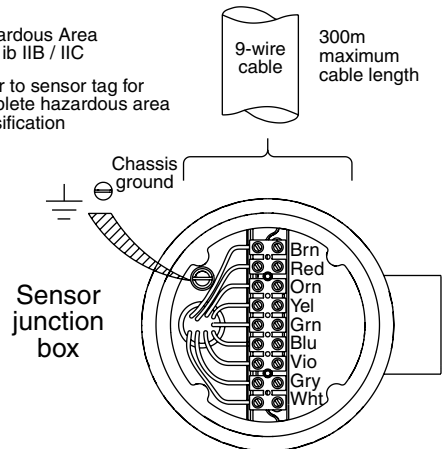


MODELS		
CMF	F (except F300 and F300A)	H (except H300)

Supplied as intrinsically safe

Hazardous Area EEx ib IIB / IIC

Refer to sensor tag for complete hazardous area classification



MODELS
D, DL (except D600)

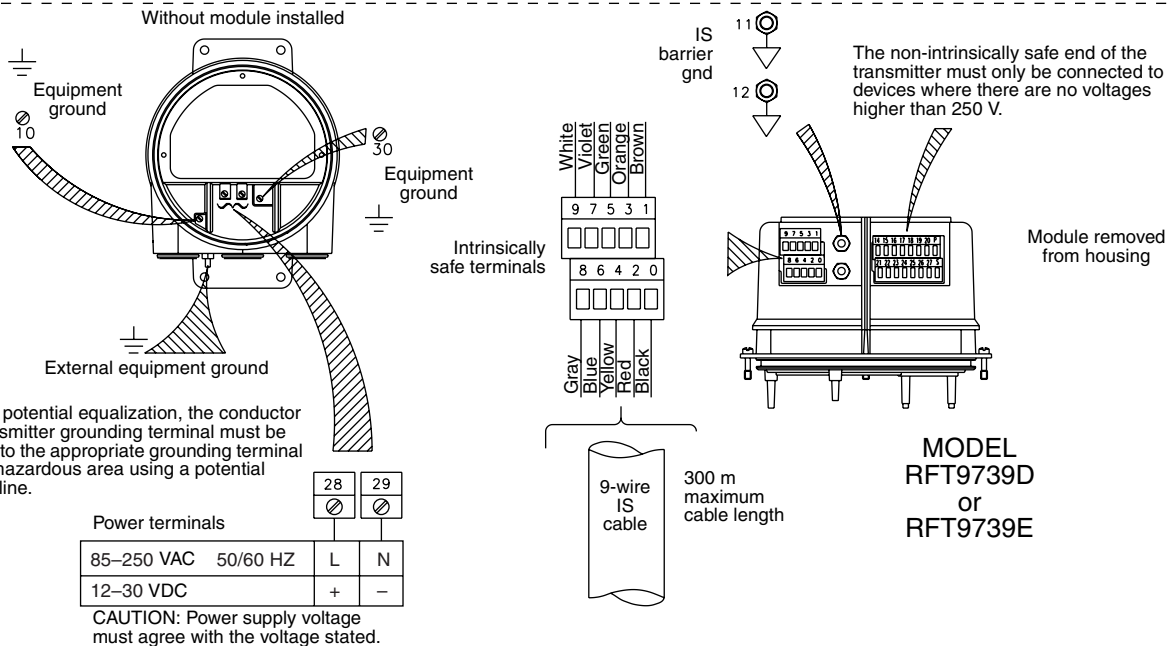
Supplied as intrinsically safe

Electronics: RFT9739D or E
Sensor: CMF, F, D, DL, H

EB-20001046 Rev. E

Model RFT9739D/E to CMF400 sensor with booster amplifier with junction box

RFT9739D OR RFT9739E IN HAZARDOUS LOCATION OR SAFE AREA TO BOOSTER AMP IN HAZARDOUS LOCATION



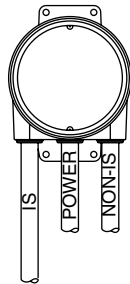
For installation in Hazardous Area EExd [ib] IIC

(RFT9739E with flameproof cable glands)
When ambient temperature is less than -20 °C, cable and cable entries or conduit entries certified for this condition shall be used.

To prevent ignition of hazardous atmospheres disconnect from supply circuit before opening enclosures. Keep tightly closed when circuits are alive.

If certified conduit entries are used, the associated stopping boxes shall be installed immediately at the transmitter enclosure.

The transmitter shall only be installed within the intended hazardous area if metal cable entries (with 3/4"-14 NPT threading) are used which are classified as EEx d IIC, are for enclosures with > 2 dm³, and are certified by an authorized test station. Unused entry holes must be sealed with blanking plugs that are classified as EEx d IIC and certified by an authorized test station.

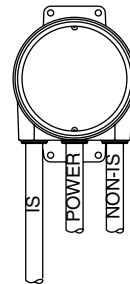


OR

For installation in Safe Area [EEx ib] IIC

(RFT9739D without flameproof cable glands)

(RFT9739E without flameproof cable glands)

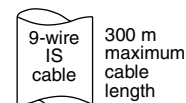


For installation outside the hazardous area, it is allowed to use cable entry fittings that are not flameproof.

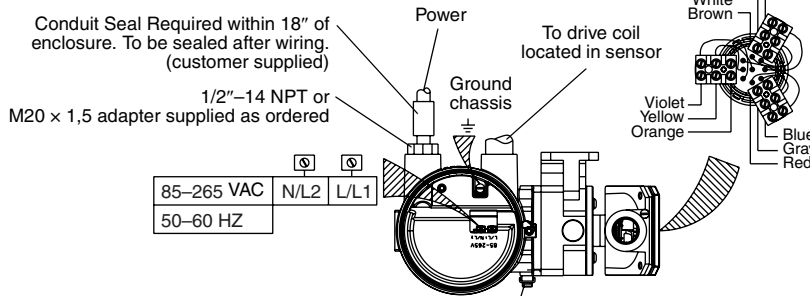
Hazardous Area EEx de [ib] ib IIB

Installation method	Fitting required	Per EN 60079-14
Conduit	EEx d IIB conduit seal	
Cable	EEx d IIB cable gland	
Conduit or cable increased safety	EEx e	

Cable O.D. must be suitably sized to gland.



CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14 Transmitter and Sensor must be properly grounded.



Micro Motion mass flowmeter system connection for intrinsically safe operation

For Remote Mount Booster Amplifier wiring refer to EB-3005831.

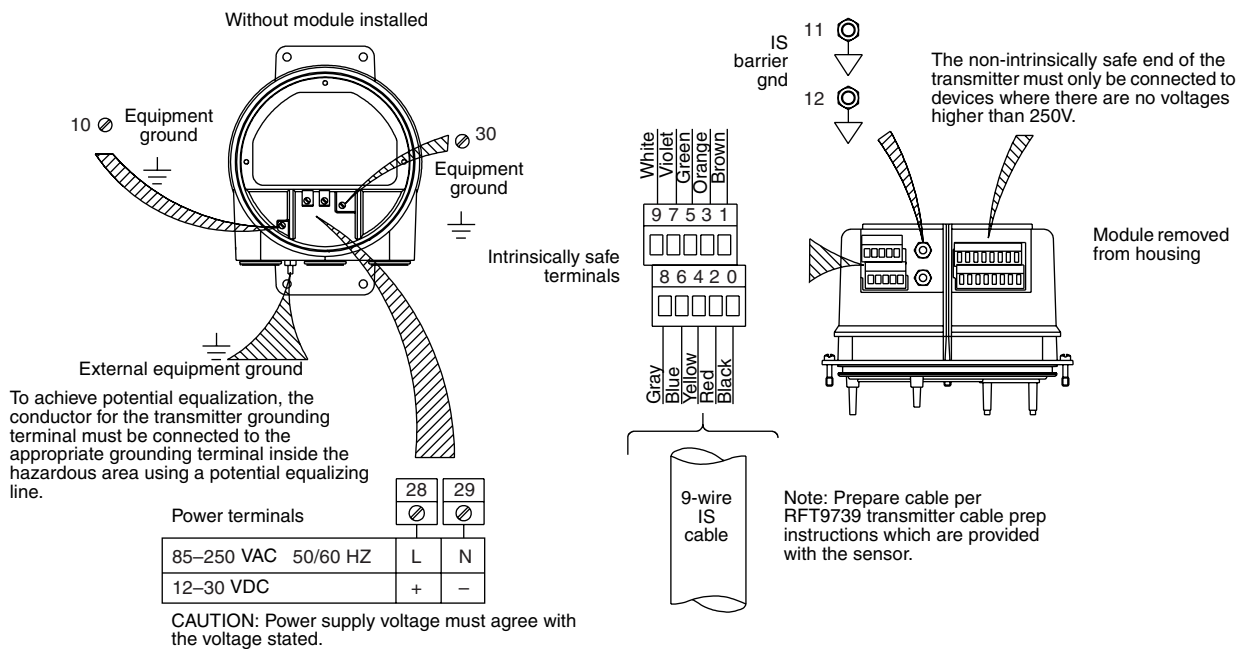
MODEL CMF400

Electronics: RFT9739D or E Sensor: CMF400

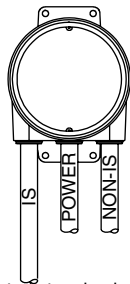
To achieve potential equalization the ground terminal must be connected to the appropriate ground terminal within the hazardous area using a potential equalizing line.

EB-20002012 Rev. A

Model RFT9739D/E to D600 sensor with junction box



For installation in Hazardous Area EExd [ib] IIC T6



(RFT9739E with flameproof cable glands).

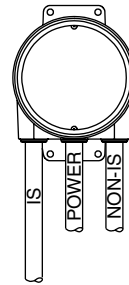
When ambient temperature is less than -20 °C, cable and cable entries or conduit entries certified for this condition shall be used.

To prevent ignition of hazardous atmospheres disconnect from supply circuit before opening enclosure. Keep tightly closed when circuits are alive.

If certified conduit entries are used, the associated stopping boxes shall be installed immediately at the transmitter enclosure. The transmitter shall only be installed within the intended hazardous area if metal cable entries (with 3/4"-14 NPT threading) are used which are classified as EEx d IIC and are for enclosures with > 2dm³, and are certified by an authorized test station. Unused entry holes must be sealed with blanking plugs that are classified as EEx d IIC and certified by an authorized test station.

OR

For Installation in Safe Area [EExib] IIC



(RFT9739D without flameproof cable glands)

(RFT9739E without flameproof cable glands)

For installation outside the hazardous area, cable entry fittings that are not flameproof are allowed.

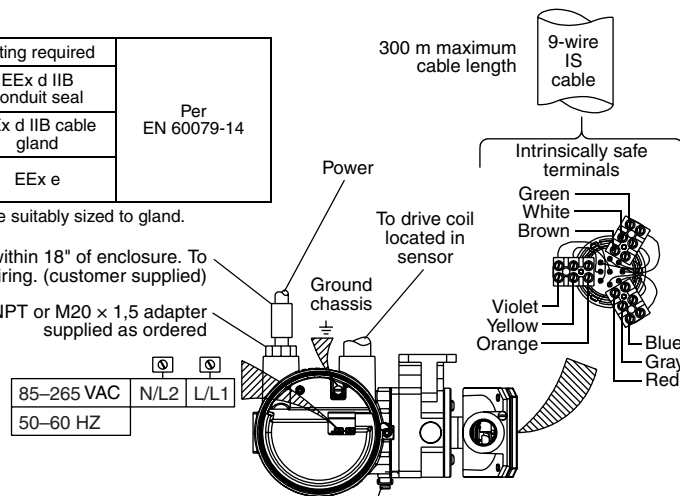
Hazardous Area EEx de [ib] IIB

Installation method	Fitting required	Per EN 60079-14
Conduit	EEx d IIB conduit seal	
Cable	EEx d IIB cable gland	
Conduit or cable increased safety	EEx e	

Cable O.D. must be suitably sized to gland.

Conduit Seal Required within 18" of enclosure. To be sealed after wiring. (customer supplied)

1/2"-14 NPT or M20 x 1,5 adapter supplied as ordered



CAUTION: To maintain intrinsic safety, the intrinsically safe wiring must be installed according to EN 60079-14. Transmitter and sensor must be properly grounded.

Micro Motion mass flowmeter system connection for intrinsically safe operation

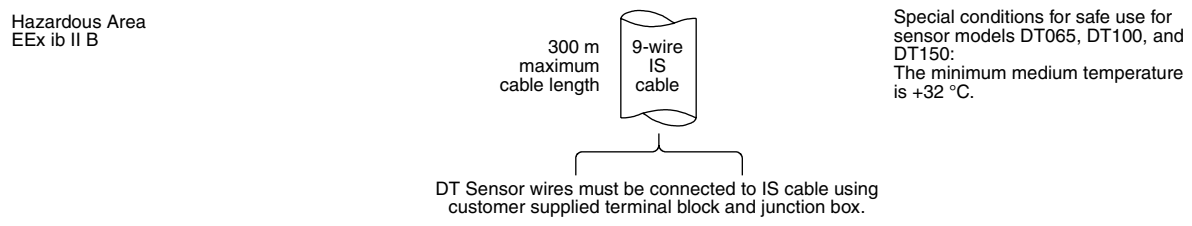
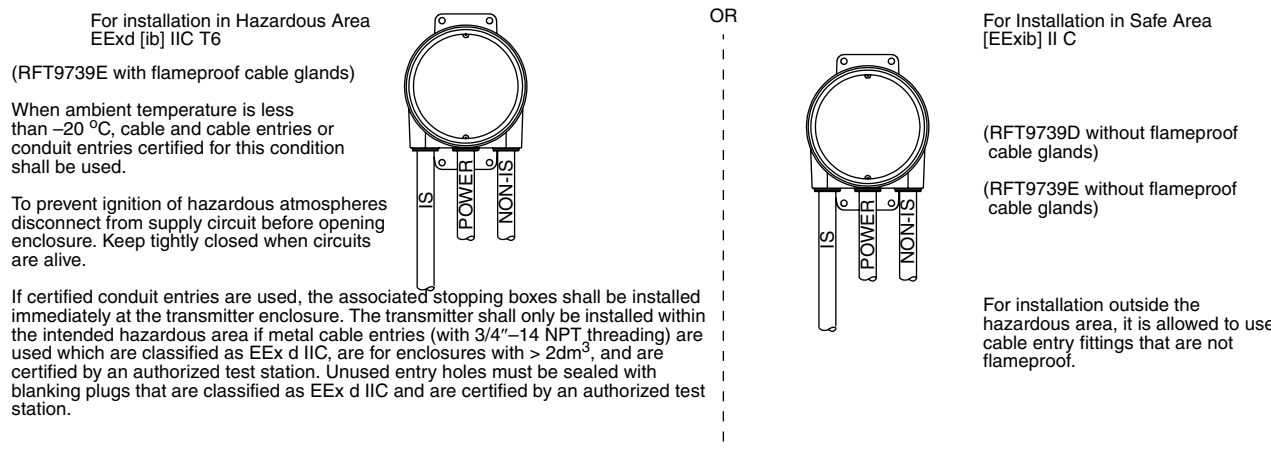
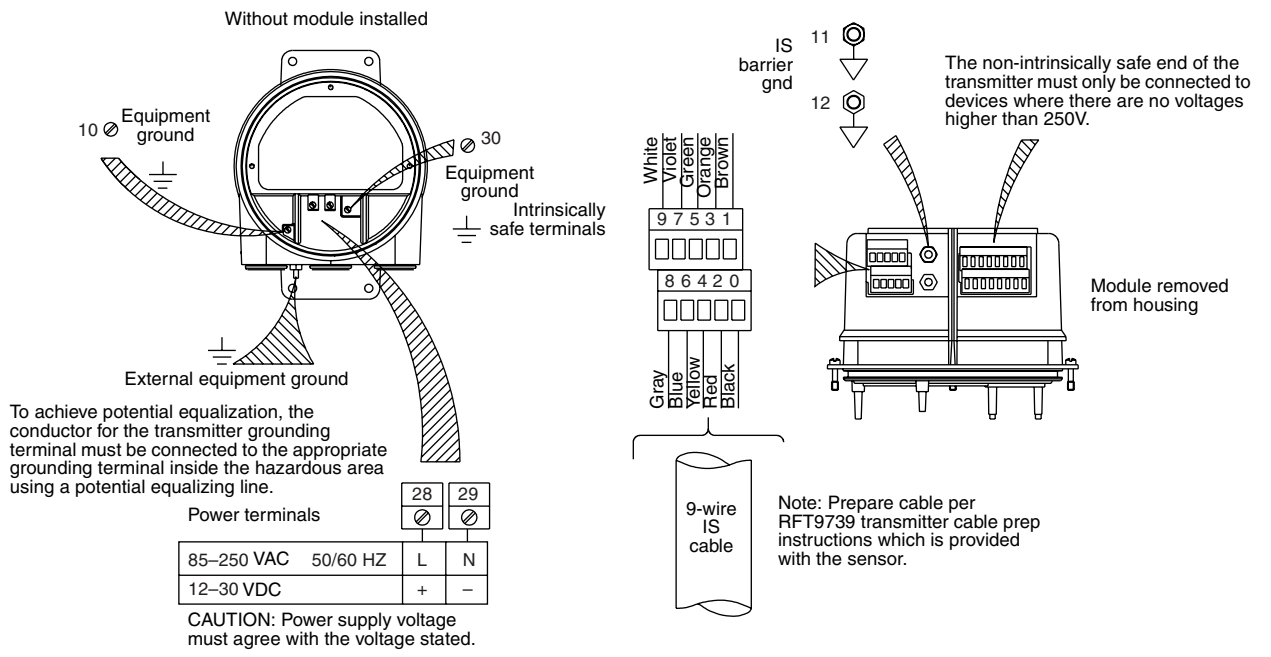
For Remote Mount Booster Amplifier wiring refer to EB-3007062.

Electronics: RFT9739D or E Sensor: D600

To achieve potential equalization the ground terminal must be connected to the appropriate ground terminal within the hazardous area using a potential equalizing line.

EB-20000850 Rev. B

Model RFT9739D/E to DT sensor with junction box



Earth ground

DT sensor wires

DT sensor wire terminations to 9-wire IS cable	
Sensor wire #	IS cable color
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Gray
9	White

MODELS
DT65, DT100, DT150

Micro Motion mass flowmeter system connection for intrinsically safe operation

Electronics: RFT9739D or E
Sensor: DT

EB-20000800 Rev. B

Model IFT9701/IFT9703 Transmitters

Installation Drawings and Instructions

- For installing the following Micro Motion transmitters:
 - Model IFT9701
 - Model IFT9703



Subject: Equipment type

Transmitter type IFT9701*** and IFT9703*C*******

Manufactured and submitted for examination

Micro Motion, Inc.

Address

Boulder, Co. 80301, USA

Standard basis

EN 50014:1997 +A1-A2	General requirements
EN 50018:2000	Flameproof enclosure 'd'
EN 50019:2000	Increased safety 'e'
EN 50020:2002	Intrinsic safety 'i'

Code for type of protection

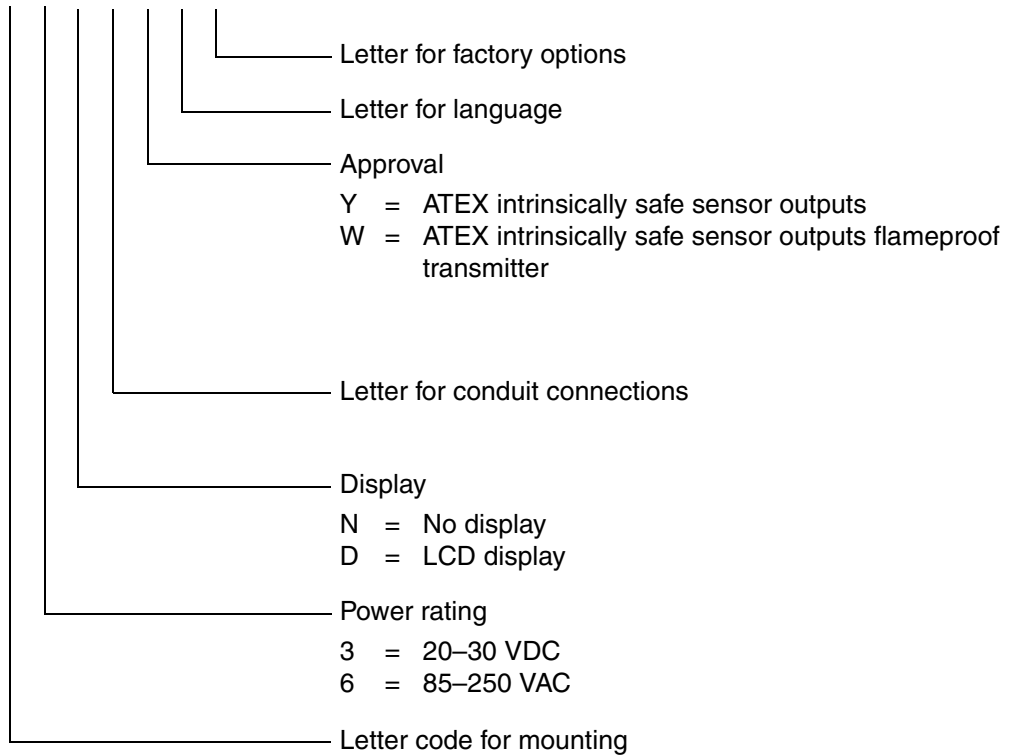
**[EEExib] IIB/IIC
EEx de [ib] IIB/IIC T6**

1) **Subject and type**

Transmitter type IFT9701*****

The options denoted by * are as follows:

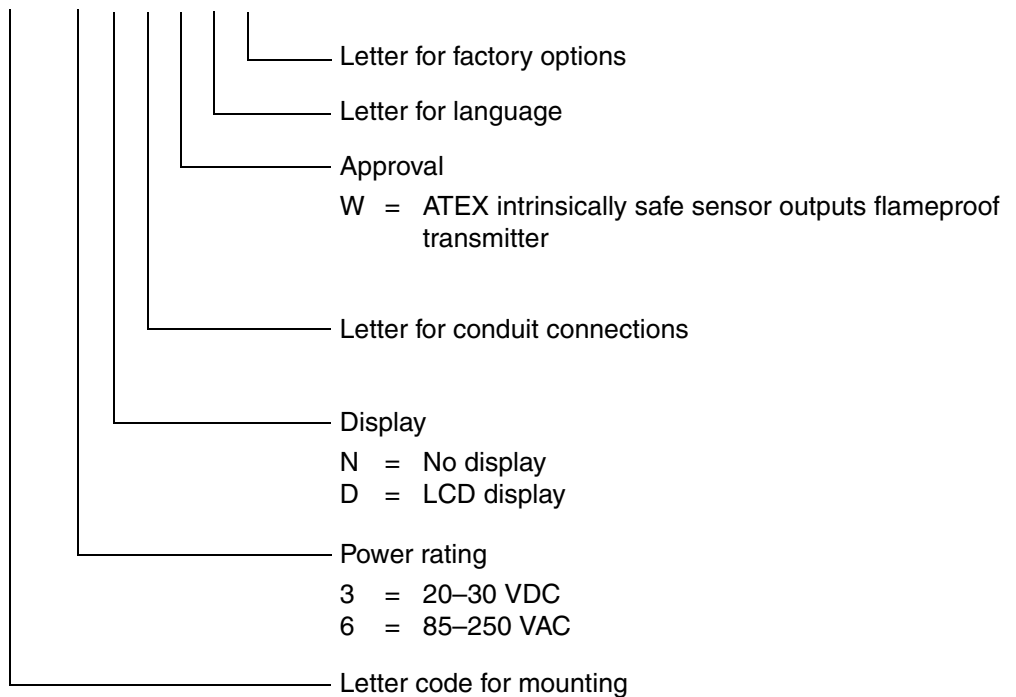
I F T 9 7 0 1 * * * * *



Transmitter type IFT9703*****

The options denoted by * are as follows:

I F T 9 7 0 3 * C * * * * *



2) Description

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission. For the transmitter two variations are available:

1. Mounted inside the hazardous area type IFT9701**N*W** and IFT9703*C*N*W**.
2. Mounted outside the hazardous area type IFT9701**(N or D)*Y** and IFT9703*C*(N or D)*Y**.

The electrical components of the transmitter are securely fixed in a light metal housing.

In the variation type IFT9701**N*W** and IFT9703*C*N*W**, the housing consists of a junction box with type of protection "Increased Safety" for the connection of the non intrinsically safe power supply and signal circuits, a compartment with type of protection "Flameproof Enclosure" and a junction box for the connection of the intrinsically safe sensor circuits.

3) Parameters

3.1) Mains circuit (terminals 7 and 8)

for type IFT9701*3**** and IFT9703*C3****

Voltage		DC	20–30	V
Max. voltage	Um	DC	30	V

for type IFT9701*6**** and IFT9703*C6****

Voltage		AC	85–250	V
Max. voltage	Um	AC	250	V

3.2) Non intrinsically safe outputs

for type IFT9701****** and IFT9703*C******
mA terminals (terminals 6 and 5)

Voltage	Um	DC	20	V
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Frequency output terminals (terminals 2 and 1)

Max. voltage	Um	DC	30	V
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3.3) Intrinsically safe circuits type of protection EEx ib IIC / EEx ib IIB

The circuits designed for connecting sensors are classified initially in Group IIC. However, when certain sensors are connected, they can also be assigned to Group IIB.

3.3.1) Drive circuit (terminals 1 and 2)

Max. voltage	Um	DC	11,4	V
Max. current	Im		1,14	A
Nominal fuse			250	mA
Max. power	Pm		1,2	W
Internal resistance	Ri		10	Ω

Type of protection EEx ib IIC				
Max. external inductance	Lo		27,4	μH
Max. external capacitance	Co		1,7	μF
Max. inductance/resistance ratio	Lo/Ro		<10,9	μH/Ω

Type of protection EEx ib IIB				
Max. external inductance	Lo		109	μH
Max. external capacitance	Co		11,7	μF
Max. inductance/resistance ratio	Lo/Ro		<43,7	μH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times (Ri + Ro / 1,5 \times Uo)^2$$

Whereby E= 40 μJ for group IIC and E = 160 μJ for group IIB and Ri = 10 Ω and Uo = 11,4 V will be inserted and Ro is the total resistance (coil resistance + series resistance).

3.3.2) Pick-off circuits (terminals 5, 9 and 6, 8)

Voltage	Umax	DC	15,6	V
Current	Imax		10	mA
Power	Pmax		40	mW

Type of protection EEx ib IIC				
Max. external inductance	Lo		355	mH
Max. external capacitance	Co		500	nF

Type of protection EEx ib IIB				
Max. external inductance	Lo		1,4	H
Max. external capacitance	Co		3,03	μF

3.3.3) Temperature circuit (terminals 3, 4, 7)

Voltage	Umax	DC	15,6	V
Current	Imax		10	mA
Power	Pmax		40	mW

Type of protection EEx ib IIC				
Max. external inductance	Lo		355	mH
Max. external capacitance	Co		500	nF

Type of protection EEx ib IIB				
Max. external inductance	Lo		1,4	H
Max. external capacitance	Co		3,03	μF

3.4) Ambient temperature range

IFT9701*****	Ta	-40 °C up to +55 °C
IFT9703*C*****	Ta	-40 °C up to +55 °C

4) **Marking**

 II 2 G or II (2) G

-40 °C ≤ Ta ≤ +55 °C

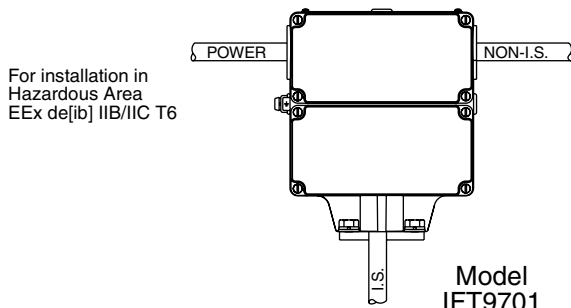
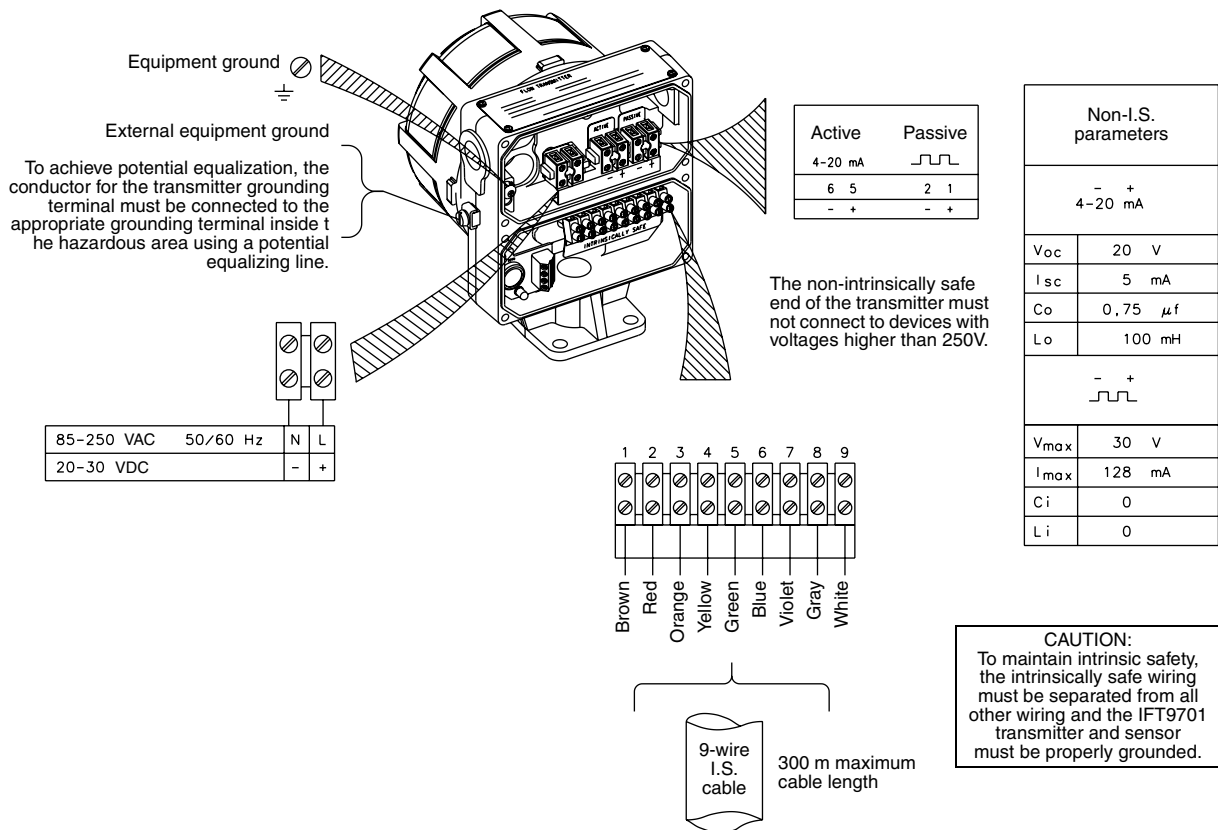
- type	- type of protection
IFT9701**N*W**	EEx de [ib] IIB/IIC T6
IFT9701**(N or D)*Y**	[EEx ib] IIB/IIC
IFT9703*C*N*W**	EEx de [ib] IIB/IIC T6
IFT9703*C*(N or D)*Y**	[EEx ib] IIB/IIC

5) **Special conditions for safe use / Installation instructions for IFT9701 or IFT9703.**

- 5.1) For the application of the transmitter in an ambient temperature of less than -20°C suitable cable and cable entries or conduit entries certified for this condition shall be used.
- 5.2) For installation outside the hazardous area, it is allowed to use cable entry fittings that are not increased safety EEx e.
- 5.3) To achieve potential equalization, the conductor for the transmitter grounding terminal must be connected to the appropriate grounding terminal inside the hazardous area using a potential equalizing line.
- 5.4) The non-intrinsically safe end of the transmitter must only be connected to devices where there are no voltages higher than 250V.
- 5.5) For types IFT9701**N*W** and IFT9703*C*N*W**
Warning — Do not open EEx d within 2 minutes after power is disconnected.

Model IFT9701 to CMF (except CMF400), H (except H300) and F (except F300) sensors with junction box

IFT9701 IN HAZARDOUS AREA OR SAFE AREA TO SENSOR IN HAZARDOUS LOCATION

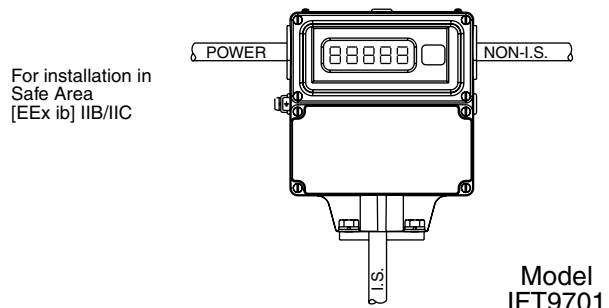


(IFT9701 with increased safety (EExe) cable glands)

For type IFT9701**N**W** transmitter in an ambient temperature of less than Below -20 °C ambient, use cable and cable entries or conduit entries certified for that temperature.

For type IFT9701*6N*W**
WARNING: Do not open EEx d within 2 minutes after power is disconnected.

Refer to sensor tag for complete hazardous area classification.



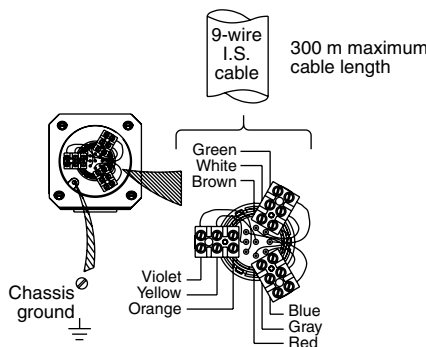
(IFT9701 with industrial cable glands)

For installation outside the hazardous area, it is allowed to use cable entry fittings that are not increased safety EExe.

Hazardous Area
EEx ib IIB / IIC

Refer to sensor tag for complete hazardous area classification.

MODELS		
CMF	F (except F300 and F300A)	H (except H300)
Supplied as intrinsically safe		



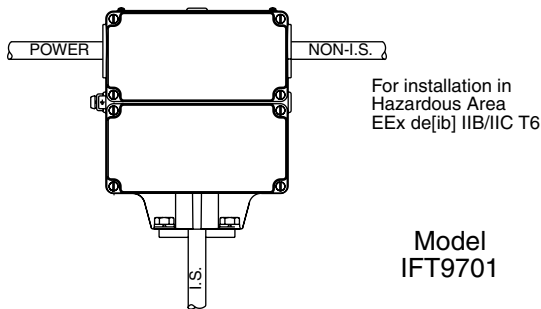
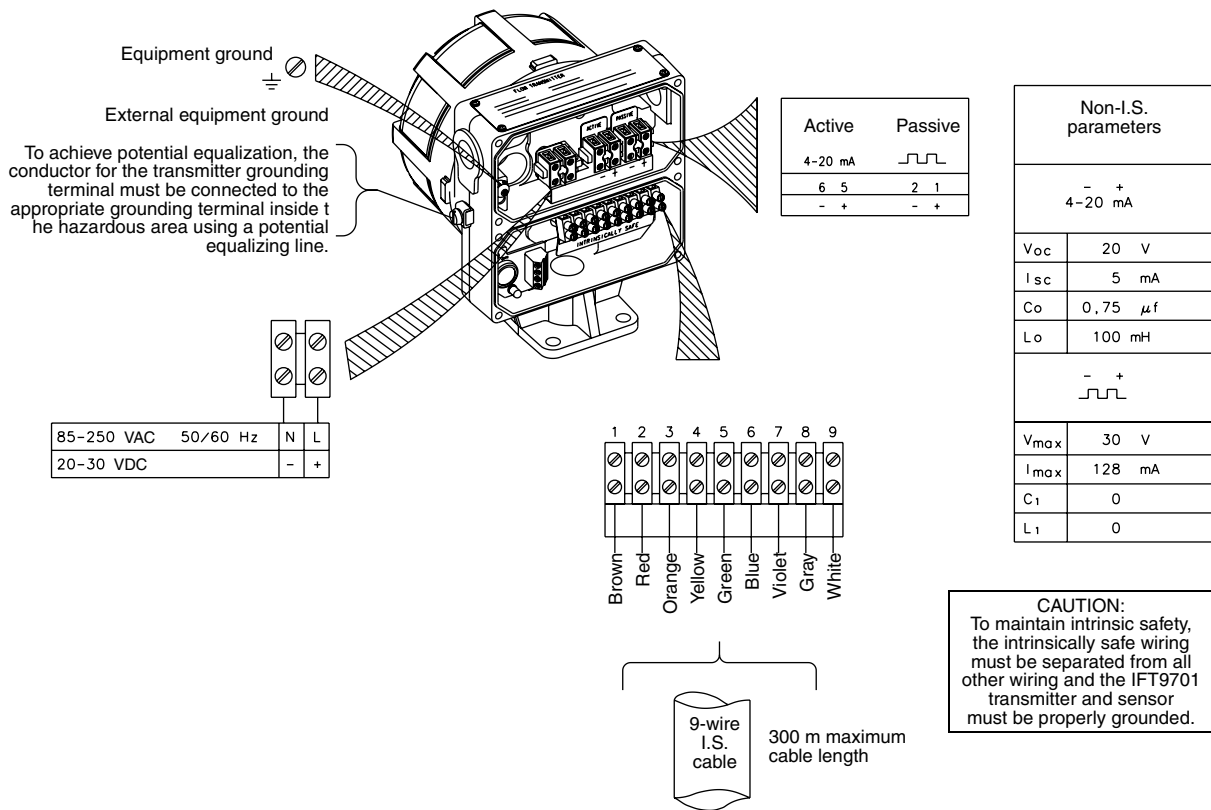
CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring and the IFT9701 transmitter and sensor must be properly grounded.

Electronics: IFT9701
Sensor: CMF, F, H

EB-20001039 Rev. E

Model IFT9701 to D (except D600) and DL sensors with junction box

IFT9701 IN HAZARDOUS AREA OR SAFE AREA TO SENSOR IN HAZARDOUS LOCATION

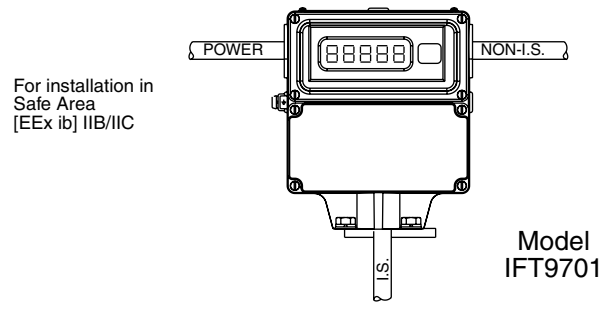


(IFT9701 with increased safety (EExe) cable glands)

For type IFT9701**N*W** transmitter in an ambient temperature of less than Below -20 °C ambient, use cable and cable entries or conduit entries certified for that temperature.

For type IFT9701*6N*W**
WARNING: Do not open EEx d within 2 minutes after power is disconnected.

Refer to sensor tag for complete hazardous area classification.



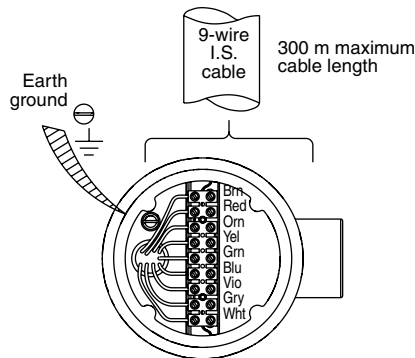
(IFT9701 with industrial cable glands)

For installation outside the hazardous area, it is allowed to use cable entry fittings that are not increased safety EExe.

Hazardous Area
EEx ib IIB / IIC

Refer to sensor tag for complete hazardous area classification.

MODELS
D, DL
Supplied as intrinsically safe

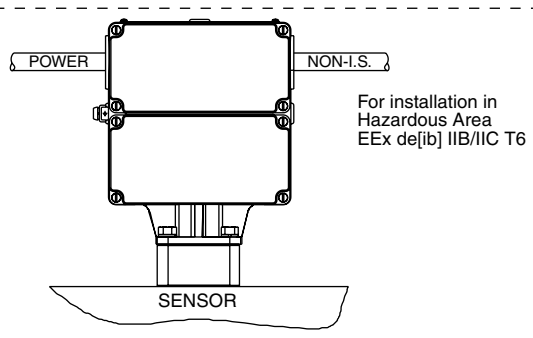
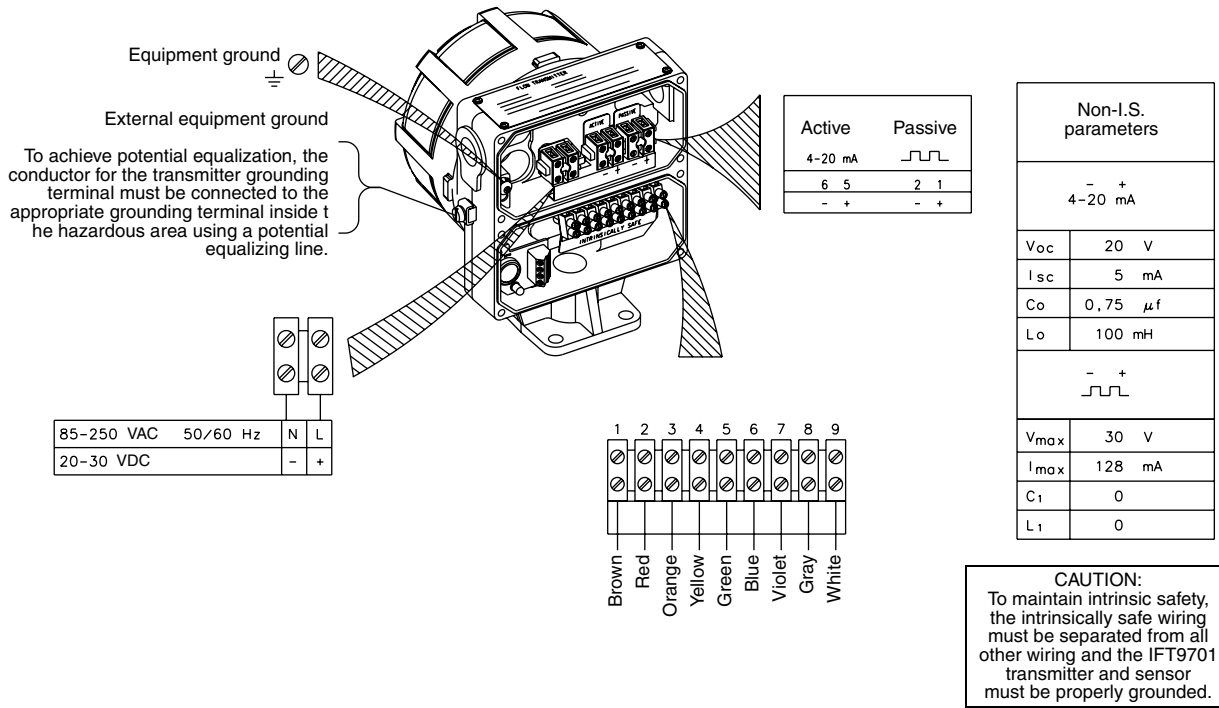


CAUTION:
To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring and the IFT9701 transmitter and sensor must be properly grounded.

Electronics: IFT9701
Sensor: D, DL

EB-20000370 Rev. B

Model IFT9701/IFT9703 Integral

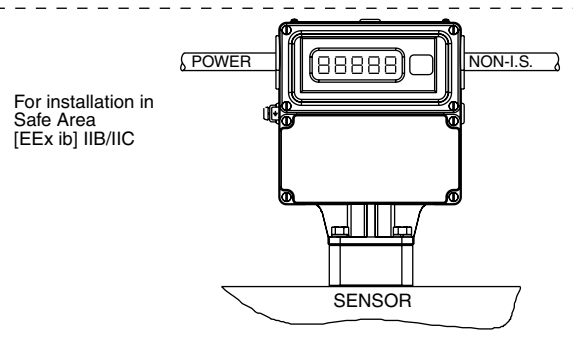


(IFT9701 with increased safety (EExe) cable glands)
(IFT9703 with increased safety (EExe) cable glands)

For type IFT9701**N*W** or IFT9703**N*W**
Below -20 °C ambient, use cable and cable entries or conduit entries certified for that temperature.

For type IFT9701*6N*W** or IFT9703*6N*W**
WARNING: Do not open EEx d within 2 minutes after power is disconnected.

Refer to sensor tag for complete hazardous area classification.



(IFT9701 with industrial cable glands)
(IFT9703 with industrial cable glands)

For installation outside the hazardous area, it is allowed to use cable entry fittings that are not increased safety EExe.

Cable glands and adapters

ATEX Installation Instructions

1) **ATEX certification requirement**

All sensor and transmitter cable glands and adapters are required to be ATEX certified. Refer to the specific manufacturer's website for installation instructions.

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