

# Micro Motion™ UL-D-IS Installation Instructions, MVD™ Transmitters

Preparation

## Safety messages

Safety messages are provided throughout this manual to protect personnel and equipment. Read each safety message carefully before proceeding to the next step.

## Safety and approval information

This Micro Motion product complies with all applicable European directives when properly installed in accordance with the instructions in this manual. Refer to the EU declaration of conformity for directives that apply to this product. The EU declaration of conformity, with all applicable European directives, and the complete ATEX Installation Drawings and Instructions are available on the internet at [www.emerson.com](http://www.emerson.com) or through your local Micro Motion support center.

Information affixed to equipment that complies with the Pressure Equipment Directive, can be found on the internet at [www.emerson.com](http://www.emerson.com).

For hazardous installations in Europe, refer to standard EN 60079-14 if national standards do not apply.

## Other information

Full product specifications can be found in the product data sheet. Troubleshooting information can be found in the configuration manual. Product data sheets and manuals are available from the Micro Motion web site at [www.emerson.com](http://www.emerson.com).

## Return policy

Follow Micro Motion procedures when returning equipment. These procedures ensure legal compliance with government transportation agencies and help provide a safe working environment for Micro Motion employees. Micro Motion will not accept your returned equipment if you fail to follow Micro Motion procedures.

Return procedures and forms are available on our web support site at [www.emerson.com](http://www.emerson.com), or by phoning the Micro Motion Customer Service department.

## Emerson Flow customer service

Email:

- Worldwide: [flow.support@emerson.com](mailto:flow.support@emerson.com)
- Asia-Pacific: [APflow.support@emerson.com](mailto:APflow.support@emerson.com)

Telephone:

North and South America		Europe and Middle East		Asia Pacific	
United States	800-522-6277	U.K.	0870 240 1978	Australia	800 158 727
Canada	+1 303-527-5200	The Netherlands	+31 (0) 704 136 666	New Zealand	099 128 804
Mexico	+41 (0) 41 7686 111	France	0800 917 901	India	800 440 1468
Argentina	+54 11 4837 7000	Germany	0800 182 5347	Pakistan	888 550 2682
Brazil	+55 15 3413 8000	Italy	8008 77334	China	+86 21 2892 9000
		Central & Eastern	+41 (0) 41 7686 111	Japan	+81 3 5769 6803
		Russia/CIS	+7 495 995 9559	South Korea	+82 2 3438 4600
		Egypt	0800 000 0015	Singapore	+65 6 777 8211
		Oman	800 70101	Thailand	001 800 441 6426
		Qatar	431 0044	Malaysia	800 814 008
		Kuwait	663 299 01		
		South Africa	800 991 390		
		Saudi Arabia	800 844 9564		
		UAE	800 0444 0684		

# Contents

<b>Chapter 1</b>	<b>Before you begin.....</b>	<b>5</b>
	1.1 About this document.....	5
	1.2 Hazard messages.....	5
	1.3 Hazardous area installations.....	6
<b>Chapter 2</b>	<b>1700 and 2700 transmitters.....</b>	<b>7</b>
	2.1 1700 and 2700 transmitter outputs.....	7
	2.2 1700/2700 4-wire installations.....	13
	2.3 1700/2700 integral core processor installations.....	17
	2.4 1700/2700 remote core processor installations.....	23
<b>Chapter 3</b>	<b>3500 transmitters.....</b>	<b>29</b>
	3.1 3500 4-wire installations.....	29
	3.2 3500 remote core processor installations.....	33
<b>Chapter 4</b>	<b>3700 transmitters.....</b>	<b>39</b>
	4.1 3700 4-wire installations.....	39
	4.2 3700 core processor installations.....	44
	4.3 3700 remote core processor installations.....	48
<b>Chapter 5</b>	<b>Booster amplifiers.....</b>	<b>55</b>
	5.1 Booster amplifiers with CMF400 sensors.....	55
	5.2 Booster amplifiers with D600 sensors.....	58
<b>Chapter 6</b>	<b>Direct host 4-wire.....</b>	<b>61</b>



# 1 Before you begin

## 1.1 About this document

Use this manual to ensure that any applicable Micro Motion flow meter installation complies with Underwriter Laboratories (UL) safety standards.

The information in this document assumes that users understand basic transmitter and sensor installation concepts and procedures.

This manual provides only information associated with installation of transmitters through UL-D\_IS, MVD instructions. For complete information on flow meter installation, see the documentation provided with your sensor and transmitter.

## 1.2 Hazard messages

This document uses the following criteria for hazard messages based on ANSI standards Z535.6-2011 (R2017).

 **DANGER**

Serious injury or death will occur if a hazardous situation is not avoided.

 **WARNING**

Serious injury or death could occur if a hazardous situation is not avoided.

 **CAUTION**

Minor or moderate injury will or could occur if a hazardous situation is not avoided.

---

**NOTICE**

Data loss, property damage, hardware damage, or software damage can occur if a situation is not avoided. There is no credible risk of physical injury.

---

**Physical access**

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**NOTICE**

Unauthorized personnel can potentially cause significant damage and/or misconfiguration of end users' equipment. Protect against all intentional or unintentional unauthorized use.

Physical security is an important part of any security program and fundamental to protecting your system. Restrict physical access to protect users' assets. This is true for all systems used within the facility.

---

## 1.3 Hazardous area installations

If your cable will be installed in a hazardous area, ensure that it meets the hazardous area requirements.



### **WARNING**

Failure to maintain intrinsic safety in a hazardous area could cause an explosion resulting in injury or death.

To keep sensor wiring intrinsically safe:

- Keep intrinsically safe (IS) sensor wiring separate from power supply wiring and output wiring.
- Do not install power cable in the same conduit or cable tray as flow meter cable.
- Use this document with the appropriate approvals documentation. These manuals are shipped with the flow meter or available at [www.emerson.com](http://www.emerson.com).
- For hazardous area installations in Europe, refer to standard EN 60079-14 if national standards do not apply.

## 2 1700 and 2700 transmitters

### 2.1 1700 and 2700 transmitter outputs

#### List of drawings

Transmitter	Drawing
1700/2700 mA Outputs	EB-3600478, Revision DA
1700/2700 intrinsically safe outputs	EB-3600630, Revision EA
2700 configurable inputs and outputs	EB-3600666, Revision CA
1700/2700 FOUNDATION™ fieldbus outputs	EB-3600475, Revision G
1700/2700 Profibus-PA outputs	EB-3600472, Revision G

## 2.1.1 1700/2700 mA Outputs

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MODEL 1700/2700  
WITH ANALOG OUTPUTS

Installation Instructions  
Type UL-D-IS

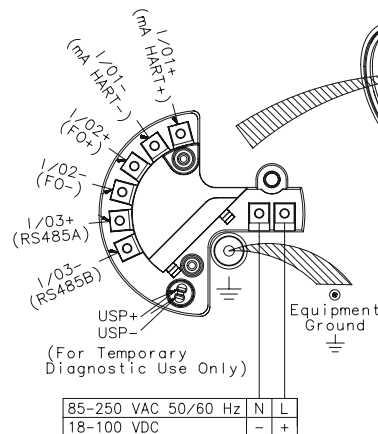
### MODEL 1700/2700 WITH ANALOG OUTPUTS IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR DIVISION 2 OR INTRINSIC SAFETY)

DIV 2 NON-INCENDIVE PARAMETERS		mA HART	FO	RS485
Vac (Vdc)		24	24	3.1
Isc (mA)		25	11	1.0
Po (W)		-	-	-
Ca ( $\mu$ F)	A,B	0.345	0.345	-
	C	2.06	2.06	-
	D	8.25	8.25	-
La (H)	A,B	0.128	0.661	-
	C	0.384	1	-
	D	1	1	-
Vmax (Vdc)		-	30	12
Imax (mA)		-	500	250
Ci ( $\mu$ F)		-	0.0	0.0005
Li ( $\mu$ H)		-	0.0	0.0

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G  
Temp. Code T4A  
Or Unclassified Locations

Note:  
Hazardous area classification on an integrally mounted 1700/2700 transmitter can be limited by hazardous area classification of the sensor. Refer to sensor tag.



The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Note:  
300V insulation is required between power circuits and communication circuits.  
For field wiring, use 14/22 AWG wire with an 11 in-lb. torque value.

(WARNING: DO NOT REMOVE OR REPLACE FUSES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS OF FLAMMABLE SUBSTANCES)

(WARNING: EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS)

Electronics: 1700/2700 ANALOG

EB-3600478 Rev. DA  
SHT 1 OF 1



## 2.1.2 1700/2700 intrinsically safe outputs

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MODEL 1700/2700  
WITH I.S. OUTPUTS

Installation Instructions  
Type UL-D-IS

### MODEL 1700/2700 WITH I.S. OUTPUTS IN HAZARDOUS LOCATION

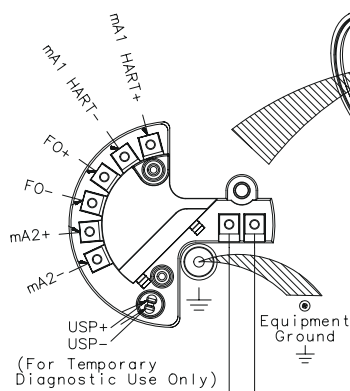
(WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY  
FOR DIVISION 2 OR INTRINSIC SAFETY)

DIVISION 1 I.S. OUTPUT ENTITY PARAMETERS			DIVISION 2 NON-INCENDIVE PARAMETERS		
	mA1 HART, mA2	FO		mA1 HART, mA2	FO
VMAX	30 Vdc	30 Vdc	VMAX	30 Vdc	30 Vdc
I <sub>max</sub>	300 mA	100 mA			
P <sub>max</sub>	1.0W	0.75W			
Ci	0.0005μF	0.0005μF	Ci	0.0005μF	0.0005μF
Li	0.0μH	0.0μH	Li	0.0μH	0.0μH

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G  
Temp. Code T4  
Or Unclassified Locations

Note:  
Hazardous area classification on an integrally mounted 1700/2700 transmitter can be limited by hazardous area classification of the sensor. Refer to sensor tag.

Warning:  
To reduce the risk of ignition of hazardous atmospheres, listed explosionproof cable seals or conduit seals must be installed within 2 inches of the wiring compartment enclosure.



The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Notes:

1. Install intrinsically safe systems in accordance with this drawing and Article 504 of the National Electrical Code, NFPA 70. Refer to ISA RP12.6 for recommended practices for installing intrinsically safe equipment.
2. 300V insulation is required between power circuits and communication circuits. For field wiring, use 14/22 AWG wire with an 11 in-lb. torque value.

85-250 VAC	50/60 Hz	N	L
18-100 VDC		-	+

(WARNING: DO NOT REMOVE OR REPLACE FUSES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS OF FLAMMABLE SUBSTANCES)

(WARNING: EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS)

Electronics: 1700/2700 I.S. OUTPUT

EB-3600630 Rev. EA  
SHT 1 OF 1

## 2.1.3 2700 configurable inputs and outputs

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MODEL 2700  
WITH CONFIG I/O

Installation Instructions  
Type UL-D-IS

MODEL 2700 WITH CONFIG I/O IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR DIVISION 2 OR INTRINSIC SAFETY)

DIV 2 NON-INCENDIVE PARAMETERS		mA HART	CHB	CHC
Voc (Vdc)		24	15	15
Isc (mA)		25	25	7.0
Po (W)		-	-	-
Ca ( $\mu$ F)	A,B	0.345	2.25	2.25
	C	2.06	15.15	15.15
	D	8.25	75	75
La (H)	A,B	0.096	0.096	1
	C	0.384	0.384	1
	D	0.768	0.768	1
Vmax (Vdc)		-	30	30
Imax (mA)		-	500	500
Ci ( $\mu$ F)		-	0.0011	0
Li ( $\mu$ H)		-	4.0	4.0

**Hazardous Area**  
 Class I Div. 1 Groups C,D  
 Class I Div. 2 Groups A,B,C,D  
 Class II Groups E,F,G  
 Temp. Code T4A  
 Or Unclassified Locations

**Note:**  
 Hazardous area classification on an integrally mounted 2700 transmitter can be limited by hazardous area classification of the sensor. Refer to sensor tag.

The **Internal Ground Screw** provided in the enclosure **must** be used for the equipment grounding connection. The **external ground** (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

85-250 VAC 50/60 Hz	N	L
18-100 VDC	-	+

**Note:**  
 300V insulation is required between power circuits and communication circuits. For field wiring, use 14/22 AWG wire with an 11 in-lb. torque value.

(WARNING: DO NOT REMOVE OR REPLACE FUSES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS OF FLAMMABLE SUBSTANCES)

(WARNING: EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS)

Electronics: 2700 CONFIG I/O

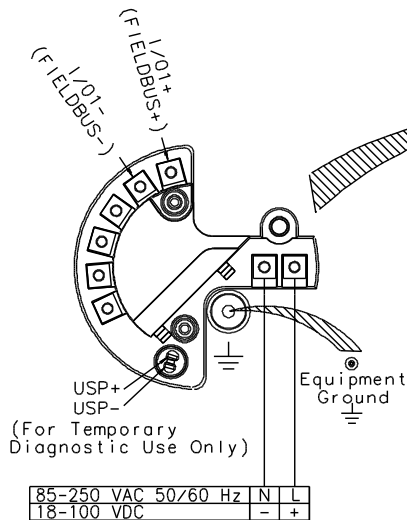
EB-3600666 Rev. CA  
SHT 1 OF 1

## 2.1.4 1700/2700 FOUNDATION™ fieldbus outputs

### MODEL 1700/2700 WITH FIELDBUS IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

DIVISION 1 I.S. FIELDBUS PARAMETERS	DIVISION 2 NON-INCENDIVE FIELDBUS PARAMETERS
VMAX 30 Vdc	VMAX 30 Vdc
I <sub>max</sub> 300 mA	I <sub>max</sub> 500 mA
P <sub>max</sub> 1.3W	
C <sub>i</sub> 0.0μF	C <sub>i</sub> 0.0μF
L <sub>i</sub> 0.0μH	L <sub>i</sub> 0.0μH



Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G  
Temp. Code T4A

Note:  
Hazardous area classification on an integrally mounted 1700/2700 transmitter can be limited by hazardous area classification of the sensor. Refer to sensor tag.

Warning:  
To reduce the risk of ignition of hazardous atmospheres, listed explosionproof cable seals or conduit seals must be installed within 2 inches of the wiring compartment enclosure.

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Notes:

1. Install intrinsically safe systems in accordance with this drawing and Article 504 of the National Electrical Code, NFPA 70. Refer to ISA RP12.6 for recommended practices for installing intrinsically safe equipment.
2. 300V insulation is required between power circuits and communication circuits. For field wiring, use 14/22 AWG wire with an 11 in-lb. torque value.

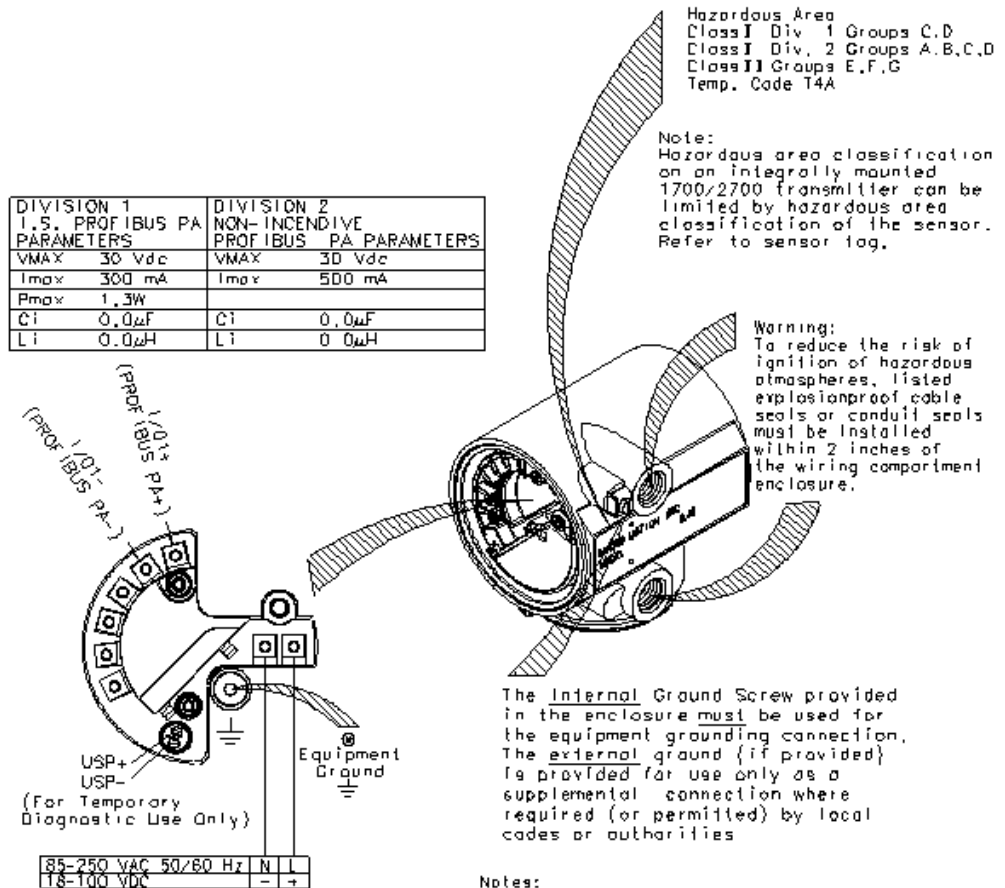
Electronics: 1700/2700 FIELDBUS

EB-3600475 Rev. G  
SHT 1 OF 1

## 2.1.5 1700/2700 Profibus-PA outputs

### MODEL 1700/2700 WITH PROFIBUS PA IN HAZARDOUS LOCATION

{WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY}



Electronics 1700/2700 PROFIBUS PA

EB-3600472 Rev G  
SHT 1 OF 1

## 2.2 1700/2700 4-wire installations

### List of drawings

Installation	Drawing
1700/2700 4-wire with core processor and sensor	EB-3600481, Revision DA
1700/2700 4-wire with core processor and CMF400 sensor with booster amplifier	EB-3005809, Revision D
1700/2700 4-wire with core processor and D600 sensor	EB-1005075, Revision C

## 2.2.1 1700/2700 4-wire with core processor and sensor

This drawing does not apply to D600 sensors or CMF400 sensors with a booster amplifier.

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MODEL 1700/2700 REMOTE MOUNT INSTALLATION  
WITH SENSOR MOUNTED CORE PROCESSOR

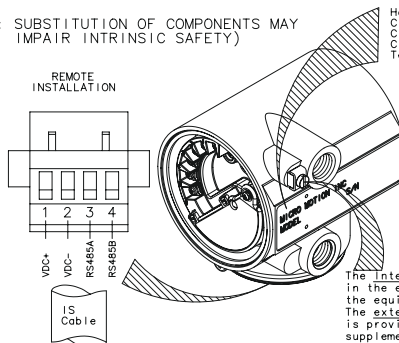
Installation Instructions  
Type UL-D-IS

### REMOTE MOUNT MODEL 1700/2700 IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTION OF COMPONENTS MAY  
IMPAIR INTRINSIC SAFETY)

For proper installation including I/O, power, gland and hazardous area location, refer to appropriate 1700/2700 output option UL-D-IS installation instructions

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Po (W)	2.05	2.05
Ca (µF)	A, B C D	N/A 8.32 33.75
La (µH)	A, B C D	N/A 252 1000 2100



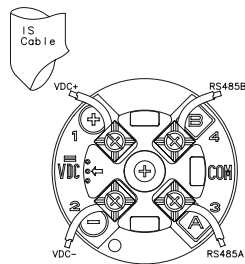
Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G  
Temp. Code T4A

Note:  
Hazardous area classification on an integrally mounted 1700/2700 transmitter can be limited by hazardous area classification of the sensor. Refer to sensor tag.  
The internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

Refer to sensor tag for complete hazardous area classification.

I.S. AND NON-INCNDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
Imax	484 mA
Pmax	2.1W
Ci	220pF
Li	30µH



The internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

#### INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS
Voc <= Vmax
Isc <= Imax
(Voc x Isc) / 4 <= Pmax
Ca >= Ccable + Ci1 + Ci2 + ... + Cin
La >= Lcable + Li1 + Li2 + ... + Lin

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft  
Cable Inductance = 0.20µH/ft

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: 1700/2700

EB-3600481 Rev. DA  
SHT 1 OF 1

## 2.2.2 1700/2700 4-wire with core processor and CMF400 sensor with booster amplifier

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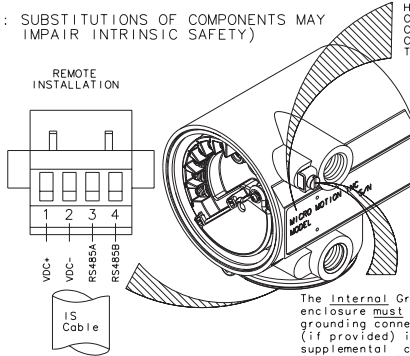
MODEL 1700/2700 REMOTE MOUNT  
INSTALLATION WITH CMF400 SENSOR  
MOUNTED CORE PROCESSOR

Installation Instructions  
Type UL-D-IS

### REMOTE MOUNT MODEL 1700/2700 IN HAZARDOUS LOCATION

For proper installation including I/O, power, gland and hazardous area location, refer to appropriate 1700/2700 output option UL-D-IS installation instructions

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Pa (W)	2.05	2.05
Ca (µF)	A, B C 2.06 D 8.5	N/A 1.21 8.32 33.75
La (µH)	A, B C 151 D 607	N/A 252µH 1000 2100



Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G  
Temp. Code T4A

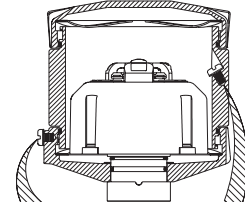
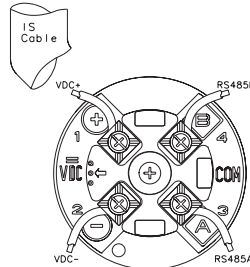
Note:  
Hazardous area classification on an integrally mounted 1700/2700 transmitter can be limited by hazardous area classification of the sensor. Refer to sensor tag.

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

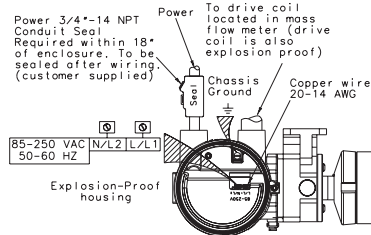
Refer to sensor tag for complete hazardous area classification.

I.S. AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
I <sub>max</sub>	484 mA
P <sub>max</sub>	2.1W
C <sub>i</sub>	2200pF
L <sub>i</sub>	30µH



The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Allowable process fluid temperature range for integrally mounted booster amplifier is  $-40^{\circ}\text{C} \leq T_{\text{fluid}} \leq +60^{\circ}\text{C}$ .



Install per National Electric Code Article 504.

Micro Motion mass flowmeter system connection for intrinsically safe operation

For model CMF400M\*\*\*N, followed by N followed by \*U\*AZ\* see additional installation requirements on drawing EB-3005973

#### INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc	$\leq V_{\text{max}}$
Isc	$\leq I_{\text{max}}$
$(V_{\text{oc}} \times I_{\text{sc}}) / 4$	$\leq P_{\text{max}}$
C <sub>a</sub>	$\leq C_{\text{cable}} + C1 + C2 + \dots + C_{\text{in}}$
L <sub>a</sub>	$\leq L_{\text{cable}} + L1 + L2 + \dots + L_{\text{in}}$

\*The total C<sub>i</sub> is equal to the sum of all C<sub>i</sub>'s of all devices on the network. C<sub>cable</sub> is the total capacitance of all cable on the network.

\*The total L<sub>i</sub> is equal to the sum of all L<sub>i</sub>'s of all devices on the network. L<sub>cable</sub> 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 = 60pF/ft  
Cable Inductance = 0.20µH/ft

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

Electronics: 1700/2700

EB-3005809 Rev. D

## 2.2.3 1700/2700 4-wire with core processor and D600 sensor

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MODEL 1700/2700 REMOTE MOUNT  
INSTALLATION WITH D600 SENSOR  
MOUNTED CORE PROCESSOR

Installation Instructions  
Type UL-D-IS

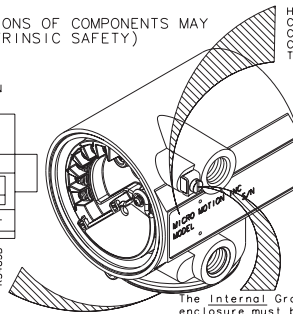
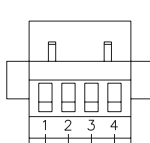
### REMOTE MOUNT MODEL 1700/2700 IN HAZARDOUS LOCATION

For proper installation including I/O, power, gland and hazardous area location, refer to appropriate 1700/2700 output option UL-D-IS installation instructions

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Po (W)	2.05	2.05
Ca (μF)	A, B C	N/A 1.21 8.32
La (μH)	D	8.5 33.75
	A, B C	N/A 252 1000
	D	607 2100

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

REMOTE  
INSTALLATION



Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G  
Temp. Code T4A

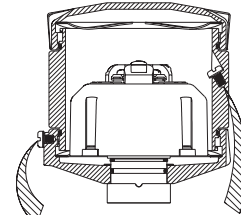
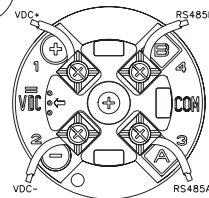
Note:  
Hazardous area classification on an integrally mounted 1700/2700 transmitter can be limited by hazardous area classification of the sensor. Refer to sensor tag.

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

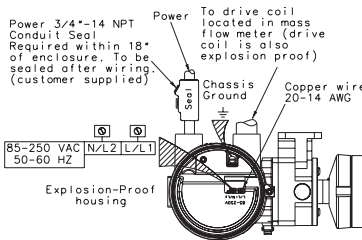
Refer to sensor tag for complete hazardous area classification.

I.S. AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
I <sub>max</sub>	484 mA
P <sub>max</sub>	2.1W
C <sub>i</sub>	2200pF
L <sub>i</sub>	30μH



The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Allowable process fluid temperature range for integrally mounted booster amplifier is -40°C ≤ T<sub>max</sub> ≤ +60°C.



Power 3/4"-14 NPT  
Conduit Seal  
Required within 18"  
of enclosure. To be  
sealed after wiring  
(customer supplied)

To drive coil  
located in mass  
flow meter (drive  
coil is also  
explosion proof)

Chassis Ground  
Copper wire  
20-14 AWG

85-250 VAC  
50-60 HZ  
N/L2/L/L1

Explosion-Proof  
housing

Install per National  
Electric Code Article  
504.

Consult factory for  
use of spare orange  
red and brown (RTD  
and P.O.) wires.  
1-800-522-6277

Micro Motion mass  
flowmeter system  
connection for  
intrinsically safe  
operation

For model DS600S\*\*\*S, followed by N followed by +U+A2Z see additional installation requirements on drawing EB-1005076

#### INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc	≤ V <sub>max</sub>
Isc	≤ I <sub>max</sub>
(Voc × Isc) / 4	≤ P <sub>max</sub>
*Ca	> C <sub>ccable</sub> + C <sub>i1</sub> + C <sub>i2</sub> + ... + C <sub>in</sub>
*La	> L <sub>ccable</sub> + L <sub>i1</sub> + L <sub>i2</sub> + ... + L <sub>in</sub>

\*The total C<sub>i</sub> is equal to the sum of all C<sub>i</sub>'s of all devices on the network. C<sub>ccable</sub> is the total capacitance of all cable on the network.

\*The total L<sub>i</sub> is equal to the sum of all L<sub>i</sub>'s of all devices on the network. L<sub>ccable</sub> 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 = 60pF/ft  
Cable Inductance = 0.20μH/ft

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

Electronics: 1700/2700

EB-1005075 Rev. C



## 2.3 1700/2700 integral core processor installations

### List of drawings

Installation	Drawing
1700/2700 with integral core processor and CMF, F, T, D, or DL sensors	EB-3600420, Rev EA
1700/2700 with integral core processor and CMF300A sensor	EB-3600533, Revision D
1700/2700 with integral core processor and CMF400 sensor with booster amplifier	EB-3006198, Revision C
1700/2700 with integral core processor and D600 sensor	EB-1005116, Revision B
1700/2700 with integral core processor and DT sensor	EB-3600532 Rev D

## 2.3.1 1700/2700 with integral core processor and CMF, F, T, D, or DL sensors

This drawing does not apply to the D600, DT, CMF300A, or CMF400 with booster amplifier sensors.

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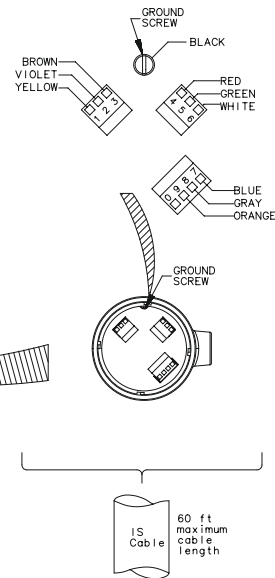
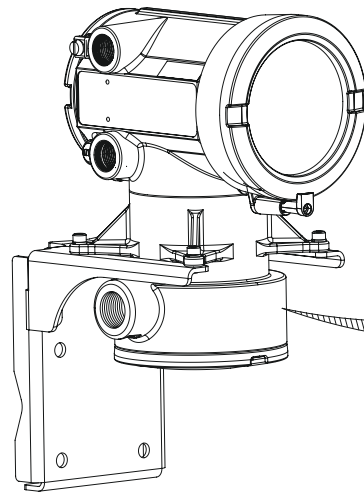
MODEL 1700/2700 REMOTE MOUNT  
INSTALLATION WITH INTEGRAL MOUNTED  
CORE PROCESSOR

Installation Instructions  
Type UL-D-IS

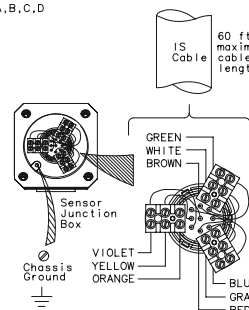
MODEL 1700/2700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G (WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

For proper installation of I/O, power and ground terminals, refer to appropriate UL-D-IS installation instructions



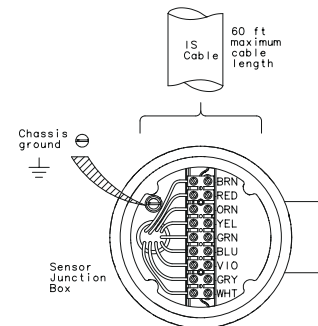
Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G



MODEL
CMF010, CMF025, CMF050 CMF100, CMF200, CMF300 T075, T100, T150 F025, F050, F100, F200

Supplied as intrinsically safe

Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G



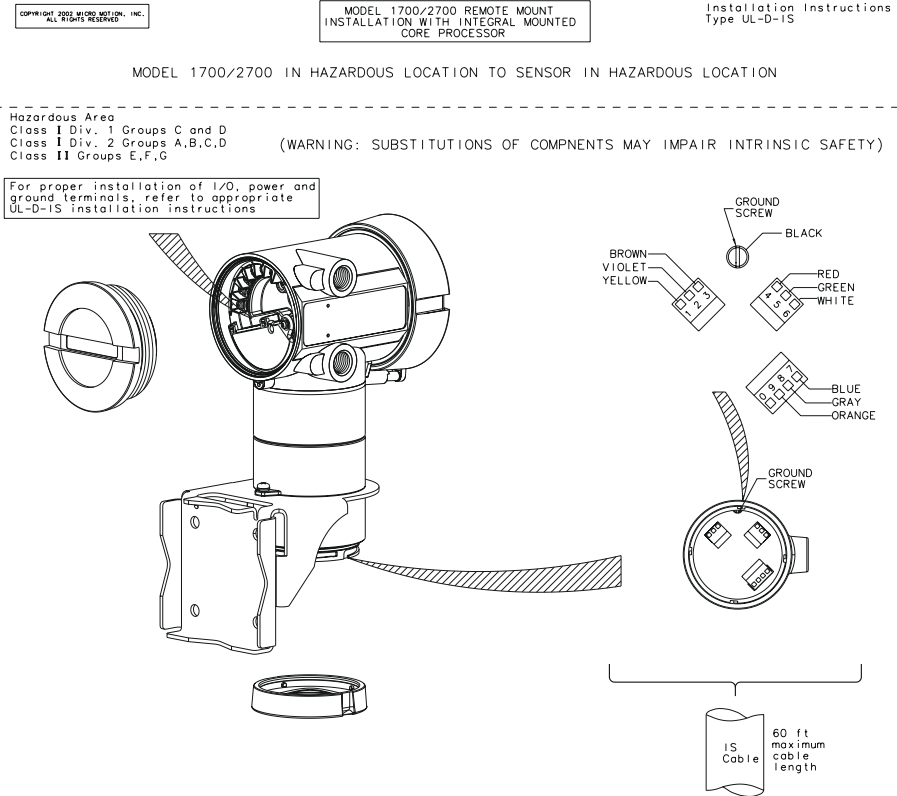
MODEL
DS025, DH025, DH038, DS040, DS065, DL065, DS100, DH100, DL100, DS150, DH150, DL200, DS300, DH300,

Supplied as intrinsically safe

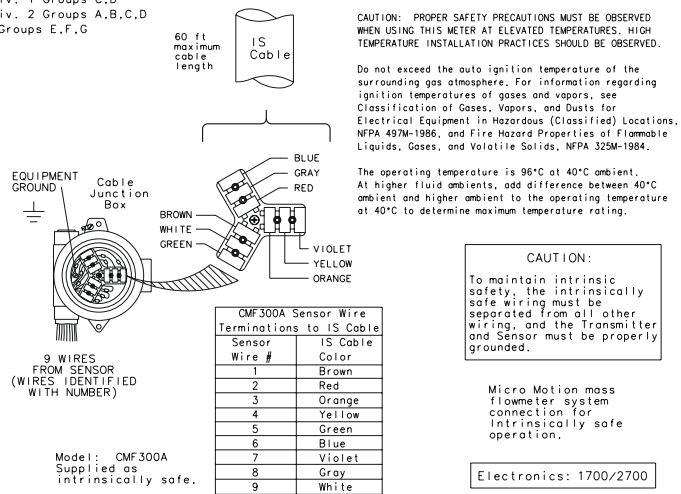
Electronics: 1700/2700

EB-3600420 Rev. EA  
SHT 1 OF 1

## 2.3.2 1700/2700 with integral core processor and CMF300A sensor



Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G



## 2.3.3 1700/2700 with integral core processor and CMF400 sensor with booster amplifier

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MODEL 1700/2700 REMOTE MOUNT INSTALLATION WITH INTEGRAL MOUNTED CORE PROCESSOR TO SENSOR CMF400 JBOX

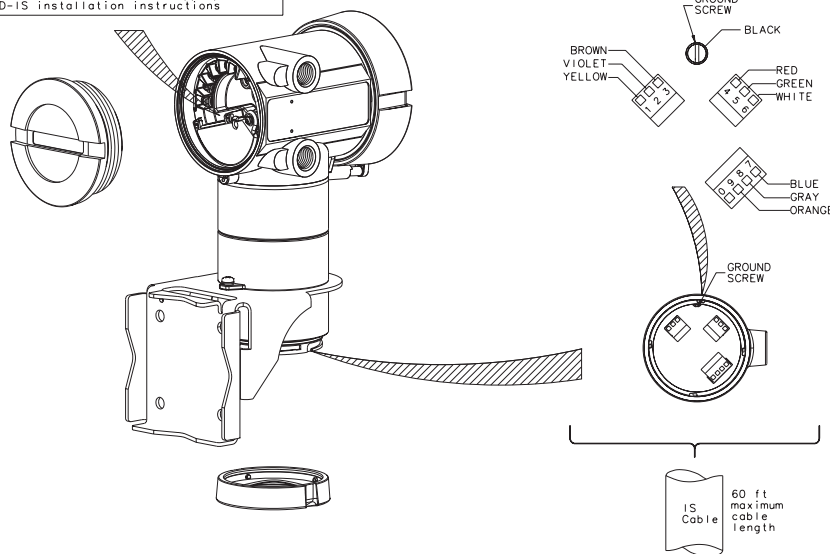
Installation Instructions  
Type UL-D-IS

MODEL 1700/2700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

For proper installation of I/O, power and ground terminals, refer to appropriate UL-D-IS installation instructions



Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

For model CMF400M\*\*\*N, followed by P followed by \*U\*AZ\* see additional installation requirements on drawing EB-3005811

Allowable process fluid temperature range for integrally mounted booster amplifier is  $-40^{\circ}\text{C} \leq T_{\text{max}} \leq 60^{\circ}\text{C}$ .

Power 3/4"-14 NPT  
Conduit Seal  
Required within 18" of enclosure. To be sealed after wiring (customer supplied)

To drive coil located in mass flow meter (drive coil is also explosion proof)

85-250 VAC N/L2/L/L1  
50-60 HZ

Chassis Ground  
Copper wire 20-14 AWG

Explosion-Proof housing

The internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Model: CMF400

Electronics: 1700/2700  
9 wire  
Sensor: CMF400

EB-3006198 Rev. C

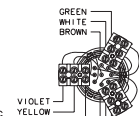
60 ft maximum cable length



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.

Intrinsically Safe Terminals  
Install per National Electric Code Article 504.



Micro Motion mass flowmeter system connection for intrinsically safe operation

## 2.3.4 1700/2700 with integral core processor and D600 sensor

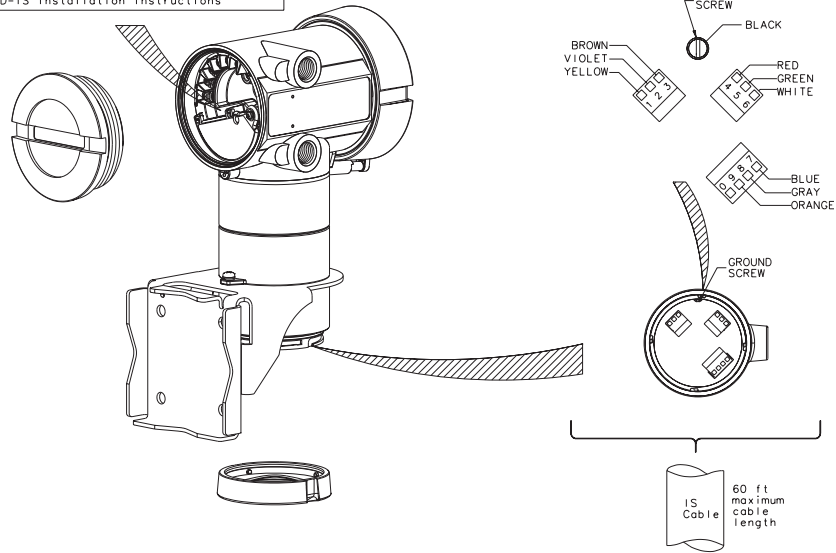
COPYRIGHT 2002 MICRO MOTION, INC. ALL RIGHTS RESERVED. MODEL 1700/2700 REMOTE MOUNT INSTALLATION WITH INTEGRAL MOUNTED CORE PROCESSOR TO SENSOR D600 JBOX Installation Instructions Type UL-D-IS

MODEL 1700/2700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

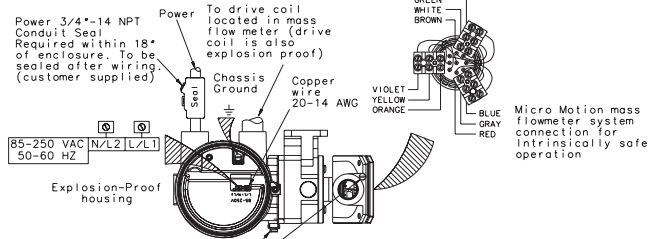
For proper installation of I/O, power and ground terminals, refer to appropriate UL-D-IS installation instructions



Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

For model D600S\*\*\*S, followed by P followed by \*U\*AZ\*, see additional installation requirements on drawing EB-1005077

Allowable process fluid temperature range for integrally mounted booster amplifier is  $-20^{\circ}\text{C} \leq T_{\text{max}} \leq 60^{\circ}\text{C}$ .



The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Model: D600

Electronics: 1700/2700  
9 wire  
Sensor: D600

EB-1005116 Rev. B

## 2.3.5 1700/2700 with integral core processor and DT sensor

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MODEL 1700/2700 REMOTE MOUNT  
INSTALLATION WITH INTEGRAL MOUNTED  
CORE PROCESSOR

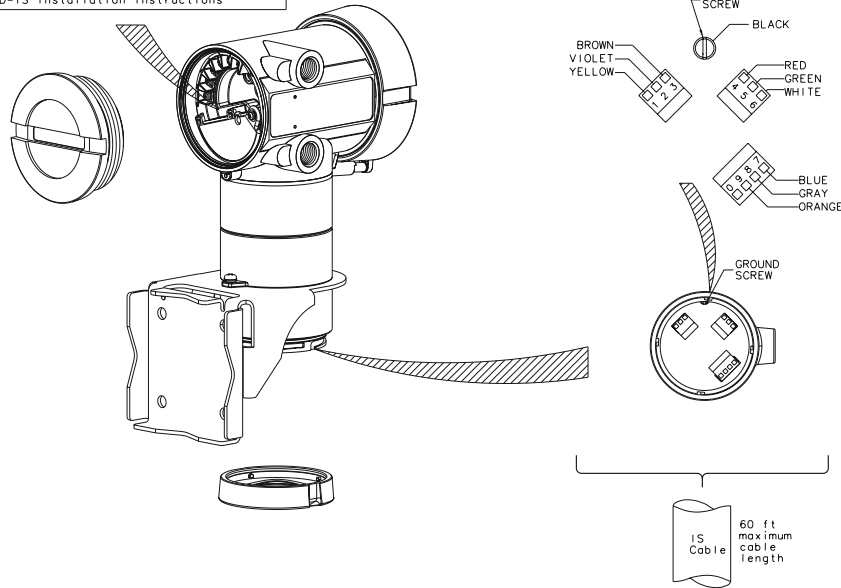
Installation Instructions  
Type UL-D-IS

MODEL 1700/2700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

For proper installation of I/O, power and ground terminals, refer to appropriate UL-D-IS installation instructions

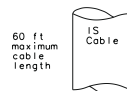


Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D

CAUTION: PROPER SAFETY PRECAUTIONS MUST BE OBSERVED WHEN USING THIS METER AT ELEVATED TEMPERATURES. HIGH TEMPERATURE INSTALLATION PRACTICES SHOULD BE OBSERVED.

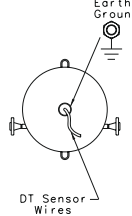
Do not exceed the auto ignition temperature of the surrounding gas atmosphere. For information regarding ignition temperatures of gases and vapors, see Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations, NFPA 497M-1986, and Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids, NFPA 325M-1984.

The operating temperature is 95°C at 40°C ambient. At higher fluid ambients, add difference between 40°C ambient and higher ambient to the operating temperature at 40°C to determine maximum temperature rating.



DT Sensor wires must be connected to IS Cable using customer supplied terminal block and Junction Box.

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.

**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 Mation mass flowmeter system connection for intrinsically safe operation.

Electronics: 1700/2700

EB-3600532 Rev. D  
SHT 1 OF 1

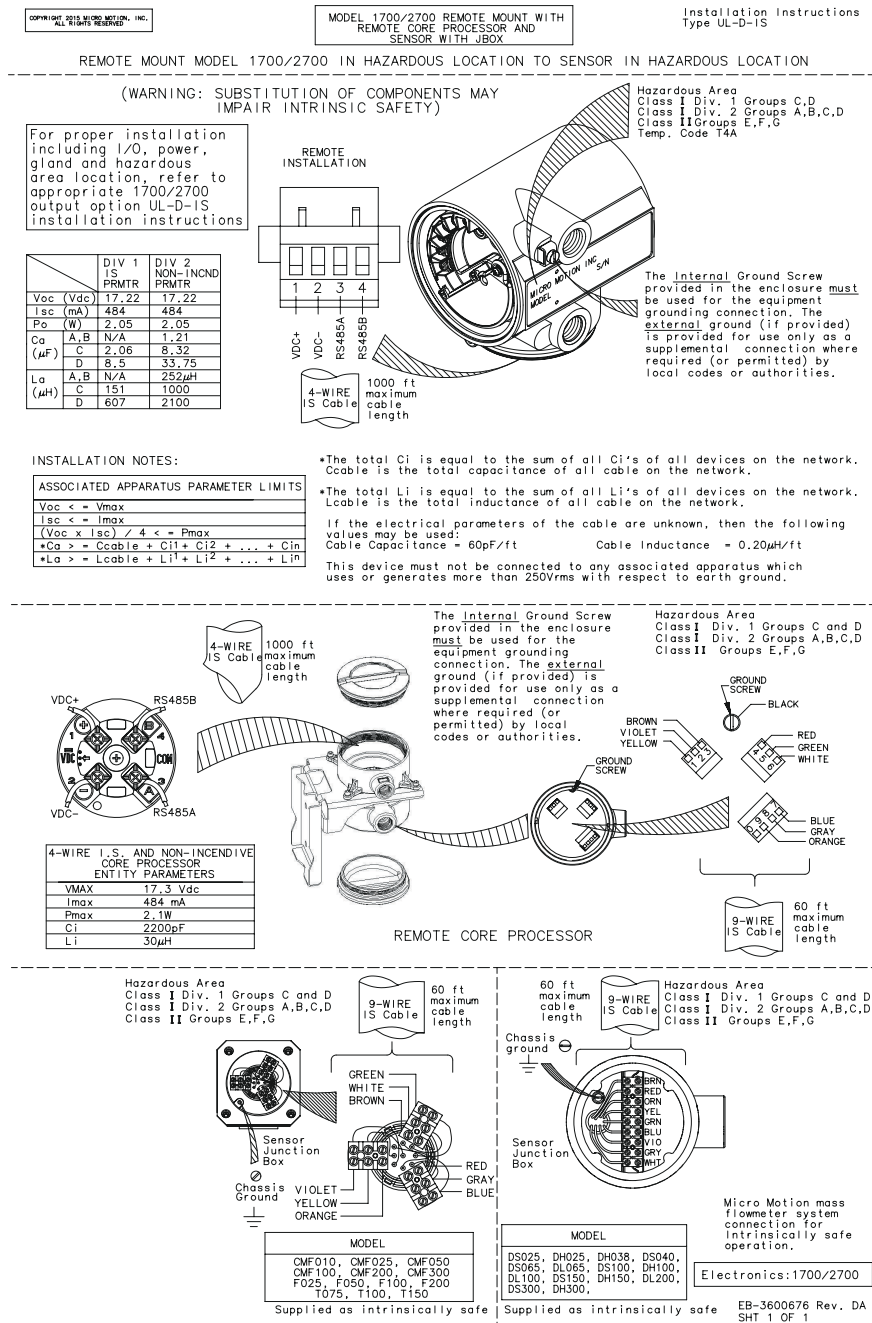
## 2.4 1700/2700 remote core processor installations

### List of drawings

Installation	Drawing
1700/2700 with remote core processor and CMF, F, T, D, or DL sensors	EB-3600676 Revision DA
1700/2700 with remote core processor and CMF300A sensor	EB-3600678, Revision D
1700/2700 with remote core processor and CMF400 sensor with booster amplifier	EB-3007060, Revision C
1700/2700 with remote core processor and D600 sensor	EB-1005118, Revision B
1700/2700 with remote core processor and DT sensor	EB-3600677, Revision C

## 2.4.1 1700/2700 with remote core processor and CMF, F, T, D, or DL sensors

This drawing does not apply to the D600, DT, CMF300A, or CMF400 with booster amplifier sensors.





## 2.4.2 1700/2700 with remote core processor and CMF300A sensor

MODEL 1700/2700 REMOTE MOUNT WITH REMOTE CORE PROCESSOR AND SENSOR WITH JBOX

Installation Instructions Type UL-D-IS

REMOTE MOUNT MODEL 1700/2700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

For proper installation including I/O, power, gland and hazardous area location, refer to appropriate 1700/2700 output option UL-D-IS installation instructions

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Po (W)	2.05	2.05
Ca (μF)	A, B 2.06 C 8.5 D 252	N/A 1.21 8.32 33.75
La (μH)	A, B 151 C 1000 D 607	N/A 252 2100

Hazardous Area Class I Div. 1 Groups C,D Class I Div. 2 Groups A,B,C,D Class II Groups E,F,G Temp. Code 1A

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc <=	Vmax
Isc <=	Imax
(Voc x Isc) / 4 <=	Pmax
Ca >=	Ccable + Ci1 + Ci2 + ... + Cin
La >=	Lcable + Li1 + Li2 + ... + Lin

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft Cable Inductance = 0.20μH/ft

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

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

4-WIRE I.S. AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
Imax	484 mA
Pmax	2.1W
Ci	2200pF
Li	30μH

Hazardous Area Class I Div. 1 Groups C and D Class I Div. 2 Groups A,B,C,D Class II Groups E,F,G

Hazardous Area Class I Div. 1 Groups C,D Class I Div. 2 Groups A,B,C,D Class II Groups E,F,G

Sensor Wire #	IS Cable Color
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Gray
9	White

CAUTION: PROPER SAFETY PRECAUTIONS MUST BE OBSERVED WHEN USING THIS METER AT ELEVATED TEMPERATURES. HIGH TEMPERATURE INSTALLATION PRACTICES SHOULD BE OBSERVED.

Do not exceed the auto ignition temperature of the surrounding gas atmosphere. For information regarding ignition temperatures of gases and vapors, see Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations, NFPA 497M-1986, and Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids, NFPA 325M-1984.

The operating temperature is 95°C at 40°C ambient. At higher fluid ambients, add difference between 40°C ambient and higher ambient to the operating temperature at 40°C to determine maximum temperature rating.

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.

Model: CMF300A Supplied as intrinsically safe.

9 WIRES FROM SENSOR (WIRES IDENTIFIED WITH NUMBER)

Electronics:1700/2700

EB-3600678 Rev. D SHT 1 OF 1

## 2.4.3 1700/2700 with remote core processor and CMF400 sensor with booster amplifier

MODEL 1700/2700 REMOTE MOUNT WITH REMOTE CORE PROCESSOR AND SENSOR WITH JBOX

Installation Instructions  
Type UL-D-IS

REMOTE MOUNT MODEL 1700/2700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

For proper installation including I/O, power, gland and hazardous area location, refer to appropriate 1700/2700 output option UL-D-IS installation instructions

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Po (W)	2.05	2.05
Ca (μF)	A, B N/A	1.21
	C 2.06	8.32
	D 8.5	33.75
La (μH)	A, B N/A	252
	C 151	1000
	D 607	2100

INSTALLATION NOTES:

•The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

•The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft      Cable Inductance = 0.20μH/ft

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

REMOTE INSTALLATION

4-WIRE IS Cable      1000 ft maximum cable length

1 2 3 4

VDC+ VDC- RS485A RS485B

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G  
Temp. Code 1A4

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

ASSOCIATED APPARATUS PARAMETER LIMITS

Voc < = Vmax
Isc < = Imax
(Voc x Isc) / 4 < = Pmax
Ca > = Ccable + Ci1 + Ci2 + ..... + Cin
La > = Lcable + Li1 + Li2 + ..... + Lin

---

4-WIRE I.S. AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS

VMAX	17.5 Vdc
IMAX	484 mA
Pmax	2.1W
Ci	2200pF
Li	30μH

4-WIRE IS Cable      1000 ft maximum cable length

9-WIRE IS Cable      60 ft maximum cable length

GROUND SCREW - BLACK

BROWN VIOLET YELLOW

RED GREEN WHITE

BLUE GRAY ORANGE

Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

60 ft maximum cable length

---

For model CMF400\*\*N, followed by P followed by \*UAZ\* see additional installation requirements on drawing EB-3005811

Allowable process fluid temperature range for integrally mounted booster amplifier is -40°C ≤ Tmw ≤ +60°C.

Power 3/4"-14 NPT Conduit Seal Required within 18" of enclosure. To be sealed after wiring (customer supplied)

Explosion-Proof housing

Power To drive coil located in mass flow meter (drive coil is also explosion proof)

Chassis Ground

Copper wire 20-14 AWG

85-250 VAC 50-60 HZ

Intrinsically Safe Terminals

GREEN WHITE BROWN

VIOLET YELLOW ORANGE

BLUE GRAY RED

Model: CMF400

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. Install per National Electric Code Article 504.

Micro Motion mass flowmeter system connection for intrinsically safe operation

IS Cable

60 ft maximum cable length

Electronics: 1700/2700  
Sensor: CMF400

EB-3007060 Rev. C

## 2.4.4 1700/2700 with remote core processor and D600 sensor

MODEL 1700/2700 REMOTE MOUNT WITH REMOTE CORE PROCESSOR AND SENSOR WITH JBOX

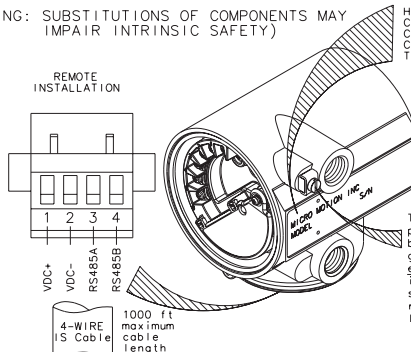
Installation Instructions  
Type UL-D-IS

REMOTE MOUNT MODEL 1700/2700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

For proper installation including I/O, power, gland and hazardous area location, refer to appropriate 1700/2700 output option UL-D-IS installation instructions

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Vac (Vdc)	17.22	17.22
Isc (mA)	484	484
Pa (W)	2.05	2.05
Ca (µF)	A,B	N/A 1.21
	C	2.06 8.32
La (µH)	D	8.5 33.75
	A,B	N/A 252µH
	C	151 1000
	D	607 2100



Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G  
Temp. Code T4A

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

INSTALLATION NOTES:

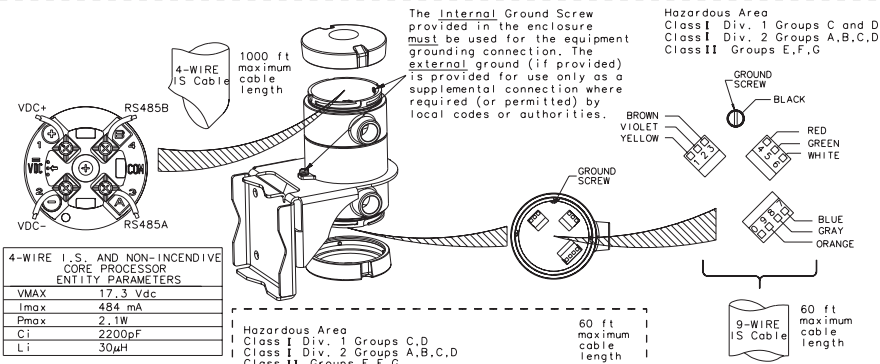
ASSOCIATED APPARATUS PARAMETER LIMITS	
Vac <=	Vmax
Isc <=	Imax
(Vac x Isc) / 4 <=	Pmax
Ca >=	Ccable + C1 + C2 + ... + Cin
La >=	Lcable + L1 + L2 + ... + Lin

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft Cable Inductance = 0.20µH/ft

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



4-WIRE I.S. AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
Imax	484 mA
Pmax	2.1W
Ci	2200pF
Li	30µH

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

For model D600S\*\*S, followed by P followed by \*U\*A\*Z\* see additional installation requirements on drawing EB-1005077

Allowable process fluid temperature range for integrally mounted booster amplifier is -20°C ≤ T<sub>max</sub> ≤ +60°C.

Power 3/4"-14 NPT Conduit Seal Required within 18" of enclosure. To be sealed after wiring. (customer supplied)

To drive coil located in mass flow meter (drive coil is also explosion proof)

Chassis Ground

Copper wire 20-14 AWG

Explosion-Proof housing

85-250 VAC N/L2/L/L1 50-60 HZ

Intrinsically Safe Terminals

GREEN WHITE BROWN VIOLET YELLOW ORANGE BLUE GRAY RED

Micro Motion mass flowmeter system connection for intrinsically safe operation

Electronics: 1700/2700 Sensor: D600

Model: D600

EB-1005118 Rev. B

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. Install per National Electric Code Article 504.

## 2.4.5 1700/2700 with remote core processor and DT sensor

MODEL 1700/2700 REMOTE MOUNT WITH REMOTE CORE PROCESSOR AND SENSOR WITH JBOX

Installation Instructions  
Type UL-D-IS

REMOTE MOUNT MODEL 1700/2700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

For proper installation including I/O, power, gland and hazardous area location, refer to appropriate 1700/2700 output option UL-D-IS installation instructions

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Po (W)	2.05	2.05
Ca (μF)	A, B N/A	1.21
	C 2.06	8.32
	D 8.5	33.75
La (μH)	A, B N/A	252
	C 151	1000
	D 607	2100

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

**INSTALLATION NOTES:**

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc < = Vmax	
Isc < = Imax	
(Voc x Isc) / 4 < = Pmax	
Ca > = Ccable + C1 + C2 + ... + Cin	
La > = Lcable + L1 + L2 + ... + Lin	

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft      Cable Inductance = 0.20μH/ft

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

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Hazardous Area  
Class I Div. 1 Groups C and D  
Class I Div. 2 Groups A, B, C, D  
Class II Groups E, F, G

4-WIRE I. S. AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
Imax	484 mA
Pmax	2.1W
Ci	2200pF
Li	30μH

Hazardous Area  
Class I Div. 1 Groups C, D  
Class I Div. 2 Groups A, B, C, D

DT Sensor wires must be connected to IS Cable using customer supplied terminal block and Junction Box.

DT Sensor Wire #	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.

CAUTION: PROPER SAFETY PRECAUTIONS MUST BE OBSERVED WHEN USING THIS METER AT ELEVATED TEMPERATURES. HIGH TEMPERATURE INSTALLATION PRACTICES SHOULD BE OBSERVED.

Do not exceed the auto ignition temperature of the surrounding gas atmosphere. For information regarding ignition temperatures of gases and vapors, see Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations, NFPA 497M-1986, and Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids, NFPA 325M-1984.

The operating temperature is 96°C at 40°C ambient. At higher fluid ambients, add difference between 40°C ambient and higher ambient to the operating temperature at 40°C to determine maximum temperature rating.

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: 1700/2700

EB-3600677 Rev. C  
SHT 1 OF 1

## 3 3500 transmitters

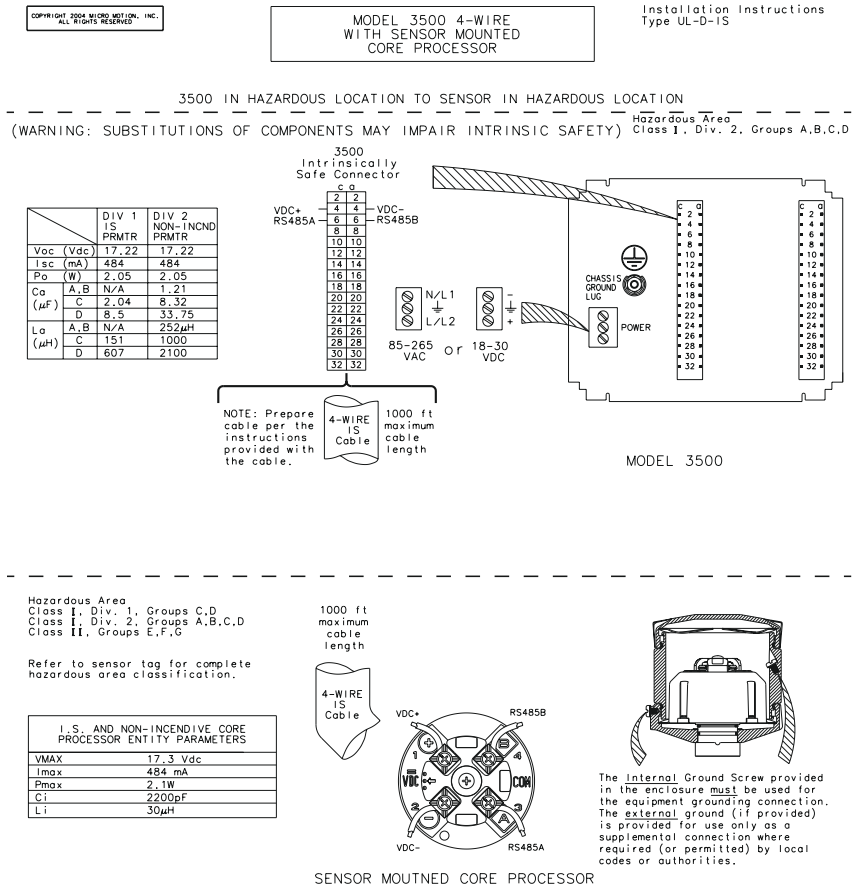
### 3.1 3500 4-wire installations

#### List of drawings

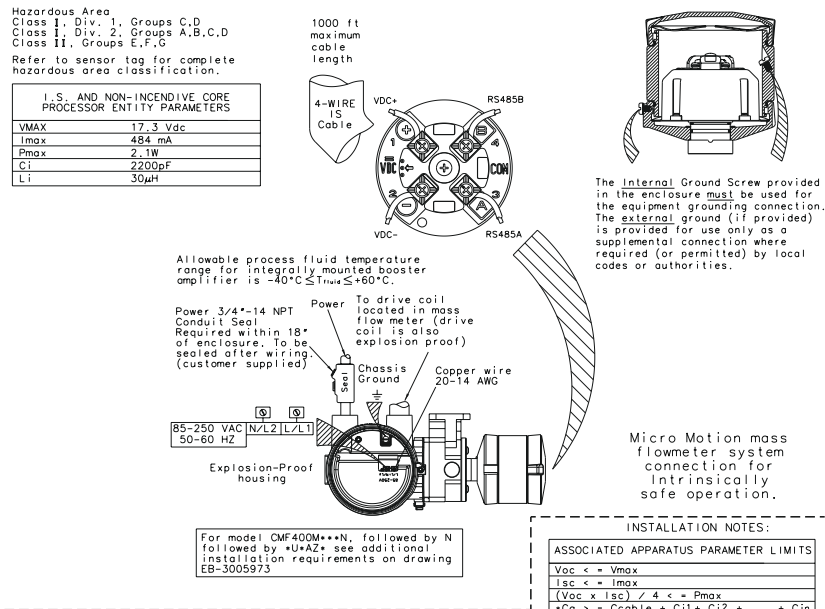
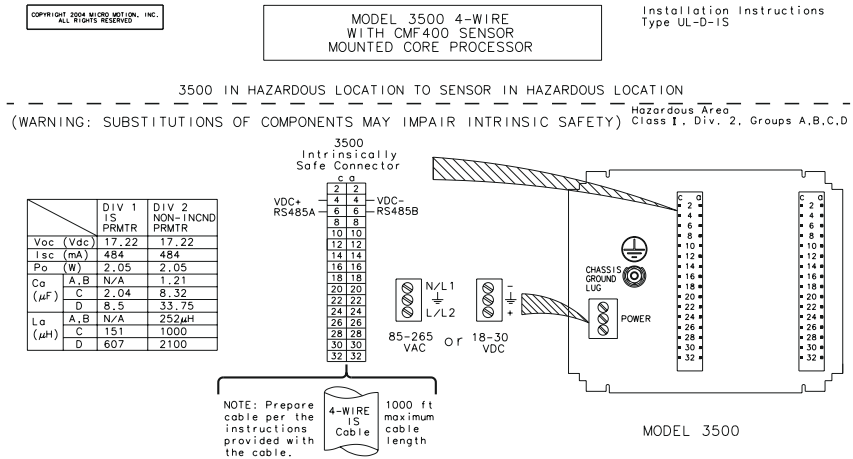
Installation	Drawing
3500 4-wire with core processor and sensor	EB-20000249, Revision BA
3500 4-wire with core processor and CMF400 sensor with booster amplifier	EB-20000243, Revision B
3500 4-wire with core processor and D600 sensor	EB-20000246, Revision B

### 3.1.1 3500 4-wire with core processor and sensor

This drawing does not apply to D600 sensors or CMF400 sensors with a booster amplifier.



### 3.1.2 3500 4-wire with core processor and CMF400 sensor with booster amplifier



\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft  
Cable Inductance = 0.20μH/ft

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

Electronics: 3500  
Sensor: CMF400  
EB-20000243 Rev. B  
SHT 1 OF 1

### 3.1.3 3500 4-wire with core processor and D600 sensor

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**MODEL 3500 4-WIRE  
WITH D600 SENSOR  
MOUNTED CORE PROCESSOR**

Installation Instructions  
Type UL-D-IS

3500 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Po (W)	2.05	2.05
Ca (μF)	A, B	N/A
	C	2.04
La (μH)	A, B	N/A
	C	151
	D	607

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

---

Hazardous Area  
Class I, Div. 1, Groups C,D  
Class I, Div. 2, Groups A,B,C,D  
Class II, Groups E,F,G

Refer to sensor tag for complete hazardous area classification.

I.S. AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
I <sub>max</sub>	484 mA
P <sub>max</sub>	2.1W
C <sub>i</sub>	2200pF
L <sub>i</sub>	30μH

Allowable process fluid temperature range for integrally mounted booster amplifier is -40°C ≤ T<sub>max</sub> ≤ +60°C.

To drive coil located in mass flow meter (drive coil is also explosion proof)

Power 3/4"-14 NPT Conduit Seal Required within 18" of enclosure. To be sealed after wiring. (customer supplied)

Chassis Ground Copper wire 20-14 AWC

Explosion-Proof housing

For model DS600S\*\*\*S, followed by N followed by \*U\*A\*Z\*Z see additional installation requirements on drawing EB-1005076

**INSTALLATION NOTES:**  
**ASSOCIATED APPARATUS PARAMETER LIMITS**

Voc	≤ Vmax
Isc	≤ Imax
(Voc × Isc) / 4	≤ Pmax
Ca	> Ccable + C1 + C2 + ... + Cn
La	> Lcable + L1 + L2 + ... + Ln

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft  
 Cable Inductance = 0.20μH/ft

Electronics: 3500  
 Sensor: D600

EB-20000246 Rev. B  
 SHT 1 OF 1

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



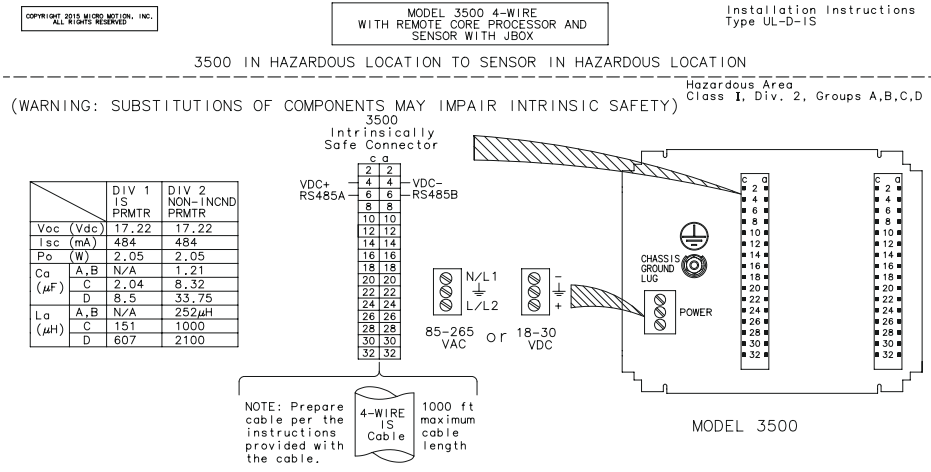
## 3.2 3500 remote core processor installations

### List of drawings

Installation	Drawing
3500 with remote core processor and CMF, D, DL, F, or T sensors	EB-20000234, Revision BA
3500 with remote core processor and CMF300A sensor	EB-20000237, Revision C
3500 with remote core processor and CMF400 sensor with booster amplifier	EB-20000228, Revision B
3500 with remote core processor and D600 sensor	EB-20000231, Revision B
3500 with remote core processor and DT sensor	EB-20000240, Revision B

### 3.2.1 3500 with remote core processor and CMF, D, DL, F, or T sensors

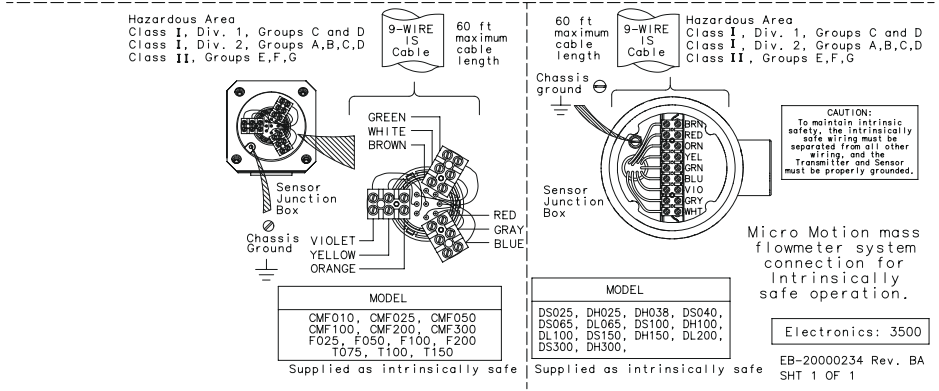
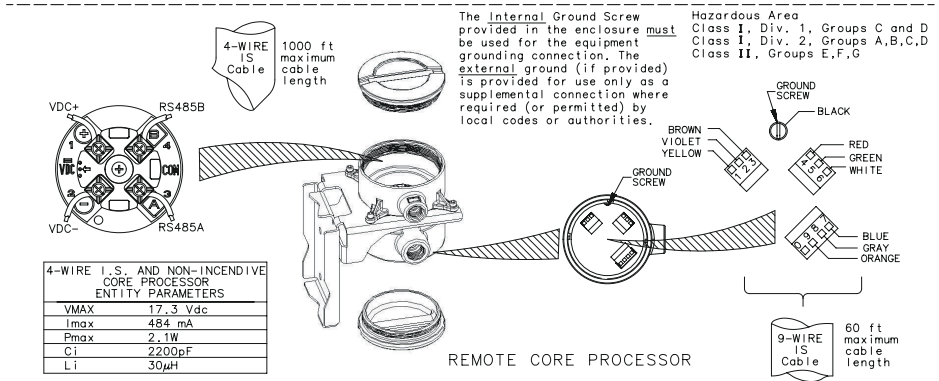
This drawing does not apply to the D600, DT, CMF300A, or CMF400 with booster amplifier sensors.



**INSTALLATION NOTES:**

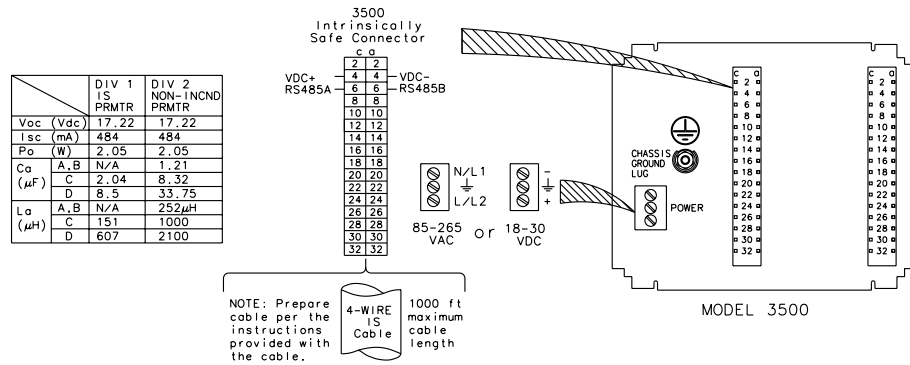
ASSOCIATED APPARATUS PARAMETER LIMITS
Vac < Vmax
Isc < Imax
(Vac x Isc) / 4 < Pmax
Ca > Ccable + C1 + C2 + ... + Cin
La > Lcable + L1 + L2 + ... + Ln

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.  
\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft      Cable Inductance = 0.20μH/ft  
This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.



### 3.2.2 3500 with remote core processor and CMF300A sensor

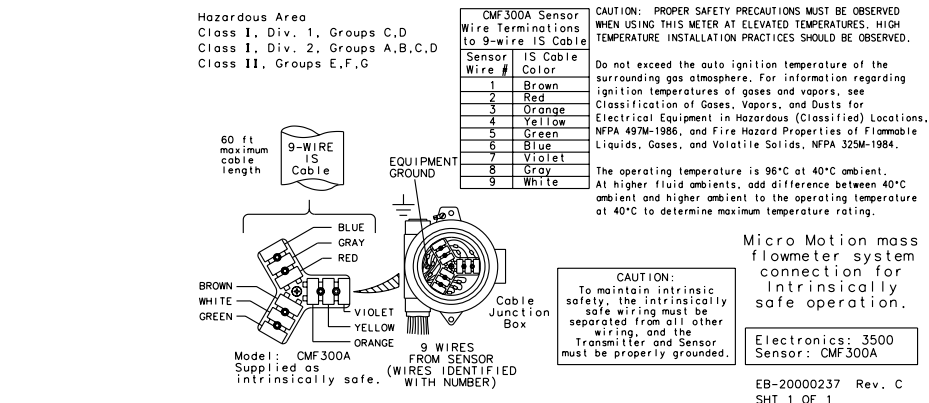
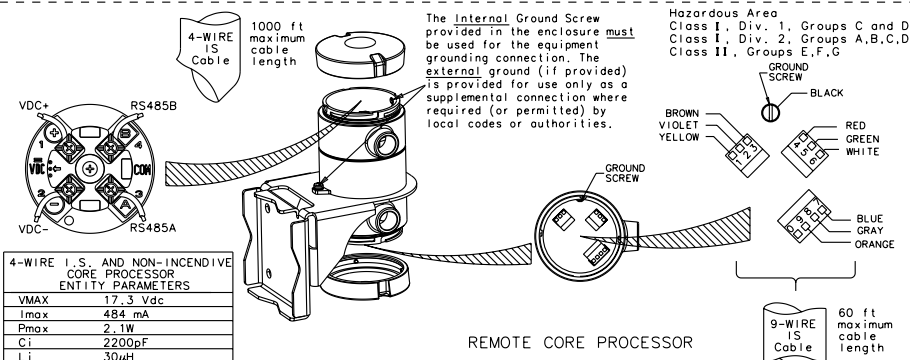
3500 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION  
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY) Hazardous Area Class I, Div. 2, Groups A,B,C,D



INSTALLATION NOTES:

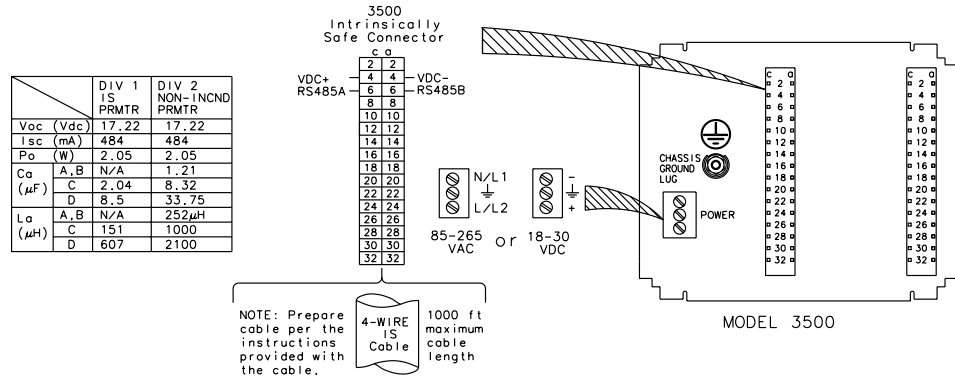
ASSOCIATED APPARATUS PARAMETER LIMITS	
Vac <=	Vmax
Isc <=	Imax
(Vac x Isc) / 4 <=	Pmax
*Ca >=	Ccable + Ci1 + Ci2 + ... + Cin
*La >=	Lcable + Li1 + Li2 + ... + Lin

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.  
\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft      Cable Inductance = 0.20μH/ft  
This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.



### 3.2.3 3500 with remote core processor and CMF400 sensor with booster amplifier

3500 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION  
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY) Hazardous Area Class I, Div. 2, Groups A,B,C,D



**INSTALLATION NOTES:**

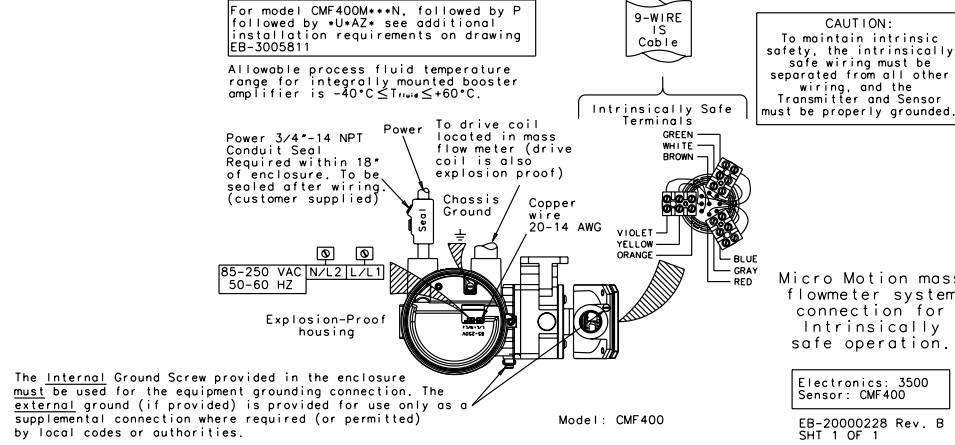
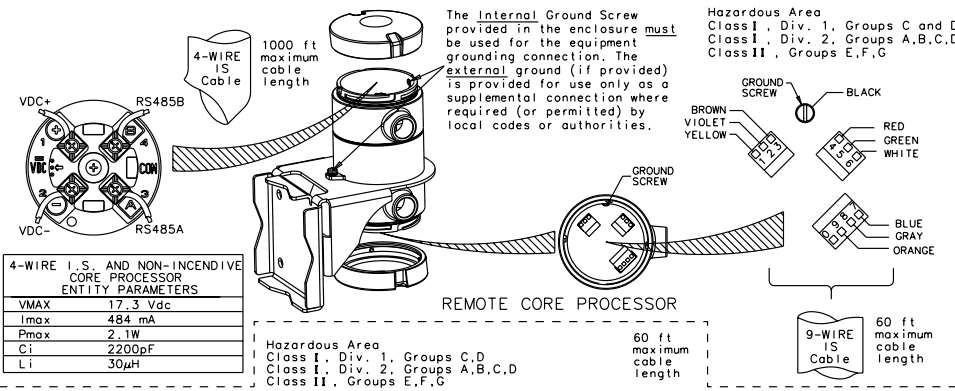
ASSOCIATED APPARATUS PARAMETER LIMITS	
Vac <=	Vmax
Isc <=	Imax
(Vac x Isc) / 4 <=	Pmax
Ca >=	Ccable + C1 + C2 + ... + Cin
La >=	Lcable + L1 + L2 + ... + Lin

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable is the total inductance of all cable on the network.

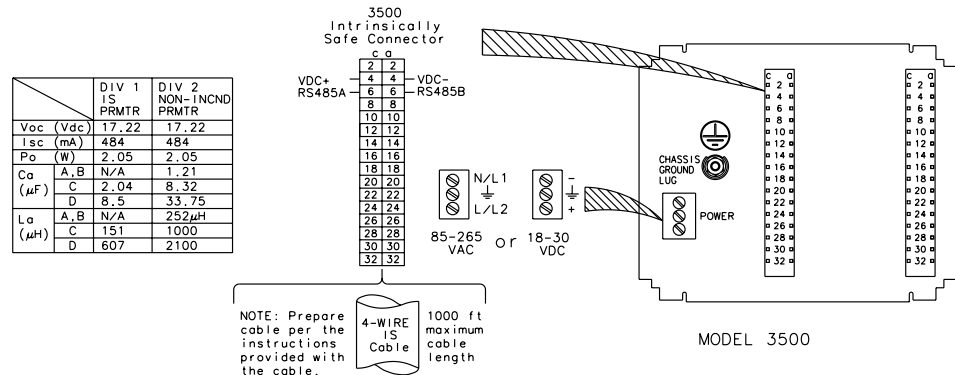
If the electrical parameters of the cable are unknown, then the following values may be used:  
Cable Capacitance = 60pF/ft      Cable Inductance = 0.20μH/ft

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



### 3.2.4 3500 with remote core processor and D600 sensor

3500 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION  
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY) Hazardous Area Class 1, Div. 2, Groups A,B,C,D

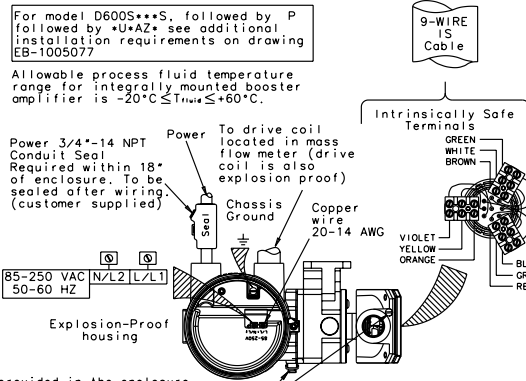
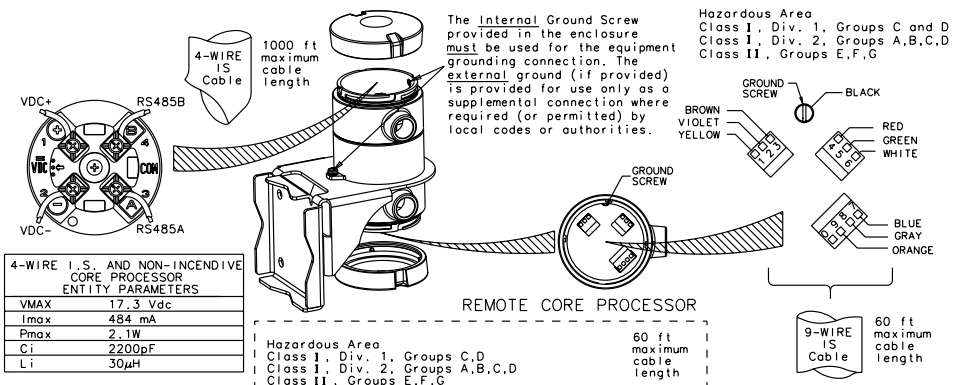


**INSTALLATION NOTES:**

**ASSOCIATED APPARATUS PARAMETER LIMITS**

Voc < = Vmax
Isc < = Imax
(Voc x Isc) / 4 < = Pmax
*Co > = Ccable + C1 + C2 + ... + Cin
*Lo > = Lcable + L1 + L2 + ... + Ln

- The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.
- The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft      Cable Inductance = 0.20μH/ft
- This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.



The internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

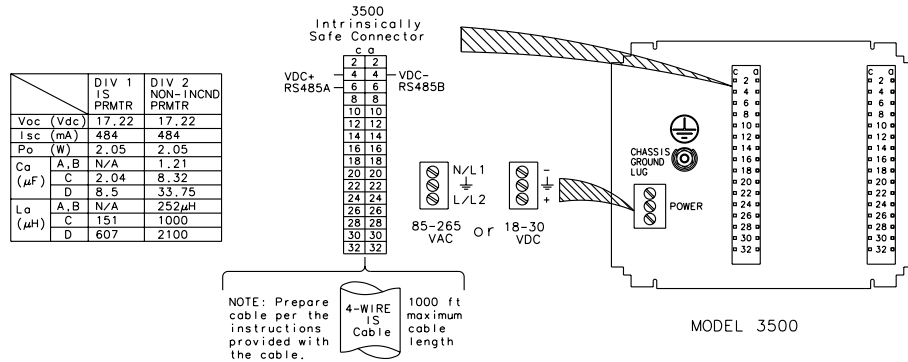
**CAUTION:**  
 To maintain intrinsic safety, the intrinsically safe wiring must be separated from all other wiring, and the Transmitter and Sensor must be properly grounded.

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Electronics: 3500  
 Sensor: D600  
 EB-20000231 Rev. B  
 SHT 1 OF 1

### 3.2.5 3500 with remote core processor and DT sensor

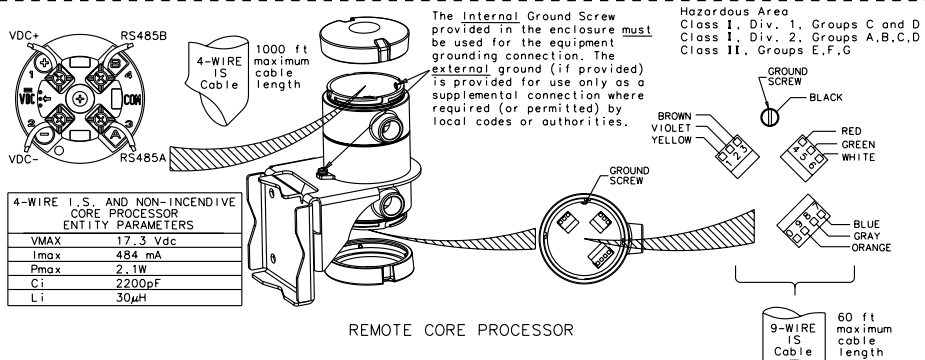
3500 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION  
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY) Hazardous Area Class I, Div. 2, Groups A,B,C,D



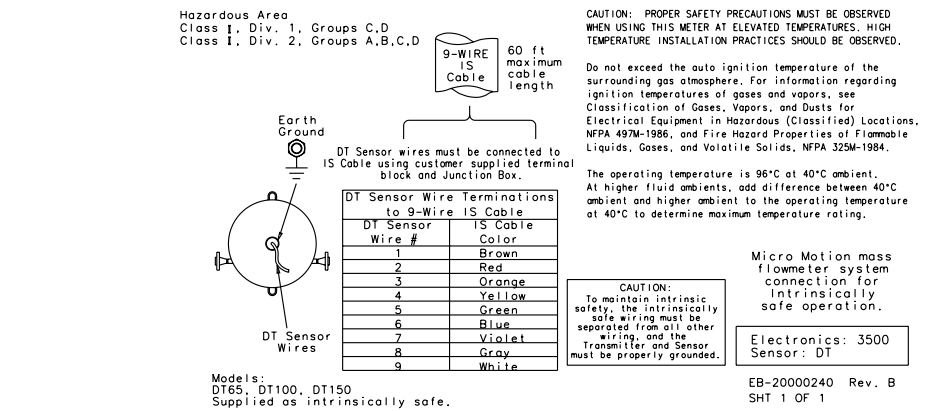
INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc <=	Vmax
Isc <=	Imax
(Voc x Isc) / 4 <=	Pmax
Ca >=	Ccable + C1 + C12 + ... + Cin
La >=	Lcable + L1 + L12 + ... + Lin

- The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.
- The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft      Cable Inductance = 0.20µH/ft
- This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.



REMOTE CORE PROCESSOR



Models: DT65, DT100, DT150  
Supplied as intrinsically safe.

Micro Motion mass flowmeter system connection for intrinsically safe operation.  
Electronics: 3500 Sensor: DT  
EB-20000240 Rev. B  
SHT 1 OF 1

## 4 3700 transmitters

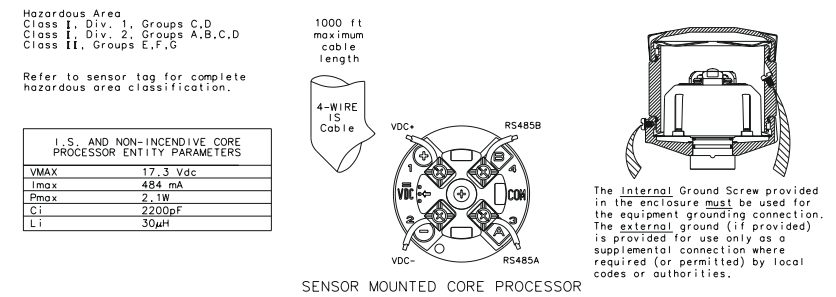
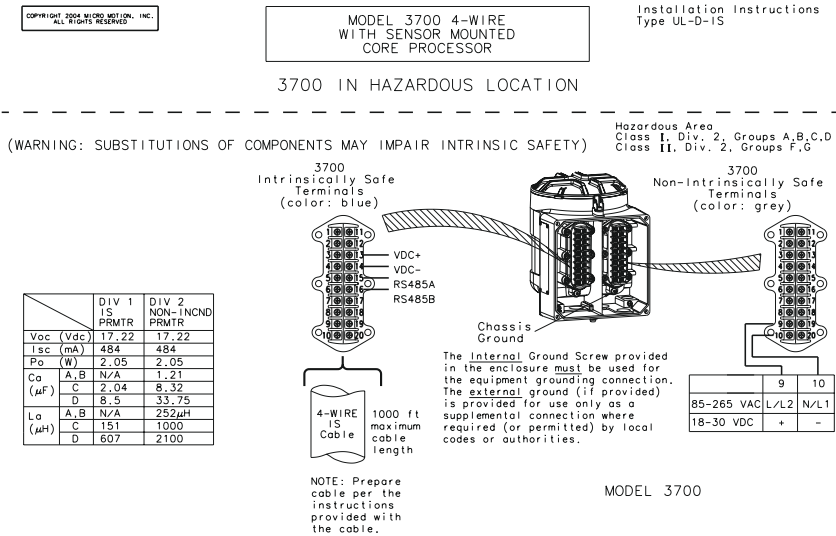
### 4.1 3700 4-wire installations

#### List of drawings

Installation	Drawing
3700 4-wire with core processor and sensor	EB-20000223 Rev BA
3700 4-wire with core processor and CMF400 sensor with booster amplifier	EB-20000217, Revision B
3700 4-wire with core processor and CMF, F, H, R, CNF, or T sensors	EB-20000208, Revision BA
3700 4-wire with core processor and D600 sensor	EB-20000220, Revision B

## 4.1.1 3700 4-wire with core processor and sensor

This drawing does not apply to D600 sensors or CMF400 sensors with a booster amplifier.



INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS
Voc <= Vmax
Isc <= Imax
(Voc x Isc) / 4 <= Pmax
*Ca >= Ccable + C11 + C12 + ... + Cin
*La >= Lcable + L11 + L12 + ... + Lin

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft  
Cable Inductance = 0.20µH/ft

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-2000223 Rev. B  
SHT 1 OF 1



# 4.1.2 3700 4-wire with core processor and CMF400 sensor with booster amplifier

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ALL RIGHTS RESERVED.

MODEL 3700 4-WIRE  
WITH CMF400 SENSOR  
MOUNTED CORE PROCESSOR

Installation Instructions  
Type UL-D-IS

3700 IN HAZARDOUS LOCATION

---

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Po (W)	2.05	2.05
Ca (µF)	A,B	N/A
	C	2.04
	D	8.5
La (µH)	A,B	N/A
	C	151
	D	607

3700 Intrinsic Safe Terminals (color: blue)  
 3700 Non-Intrinsically Safe Terminals (color: grey)

The internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

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

NOTE: Prepare cable per the instructions provided with the cable. 1000 ft maximum cable length

---

Hazardous Area  
 Class I, Div. 1, Groups C,D  
 Class I, Div. 2, Groups A,B,C,D  
 Class II, Groups E,F,G  
 Refer to sensor tag for complete hazardous area classification.

I, S, AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
Imax	484 mA
Pmax	2.1W
CI	2200pF
LI	30µH

1000 ft maximum cable length  
 4-WIRE IS Cable

Allowable process fluid temperature range for integrally mounted booster amplifier is  $-40^{\circ}\text{C} \leq T_{\text{max}} \leq +60^{\circ}\text{C}$ .

Power 3/4"-14 NPT Conduit Seal Required within 18" of enclosure. To be sealed after wiring (customer supplied).

To drive coil located in mass flow meter (drive coil is also explosion proof)

Chassis Ground Copper wire 20-14 AWG

Micro Motion mass flowmeter system connection for Intrinsically safe operation.

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc <	Vmax
Isc <	Imax
(Voc x Isc) / 4 <	Pmax
*Co >	Ccable + C11 + C12 + ... + Cin
*La >	Lcable + L1 + L2 + ... + Lin

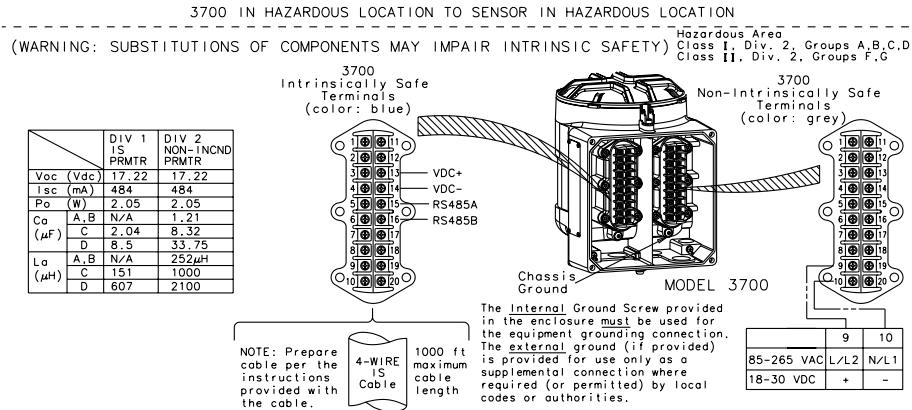
For model CMF400\*\*\*N, followed by N followed by +U+A\* see additional installation requirements on drawing EB-3005973

•The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.  
 •The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft  
 Cable Inductance = 0.20µH/ft  
 This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.

Electronics: 3700  
 Sensor: CMF400  
 EB-20000217 Rev. B  
 SHT 1 OF 1

### 4.1.3 3700 4-wire with core processor and CMF, F, H, R, CNF, or T sensors

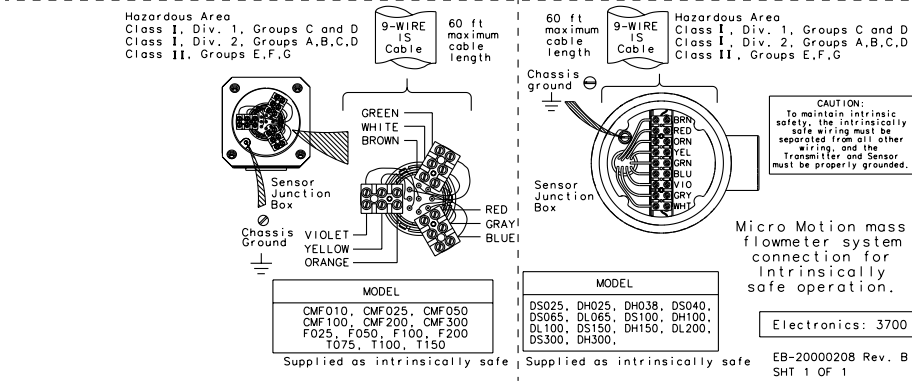
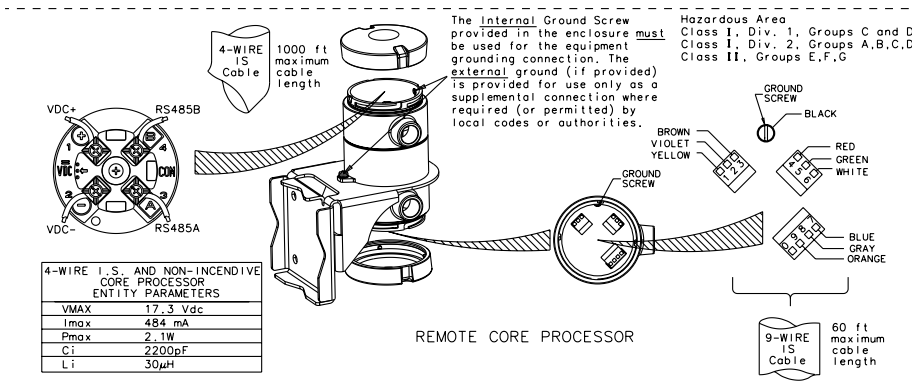
This drawing does not apply to the CMF300A sensor or to the CMF400 sensor with booster amplifier.



INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc < = Vmax	
Isc < = Imax	
(Voc x Isc) / 4 < = Pmax	
Ccable > = Ccable + C1 + C2 + ... + Cn	
La > = Lcable + L1 + L2 + ... + Ln	

- The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.
  - The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft      Cable Inductance = 0.20μH/ft
- This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.



# 4.1.4 3700 4-wire with core processor and D600 sensor

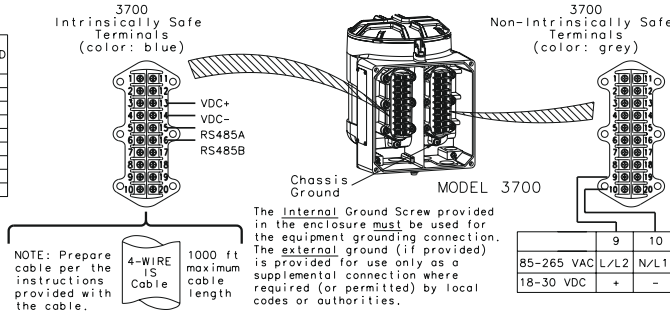
COPYRIGHT 2004 MICRO MOTION, INC. ALL RIGHTS RESERVED.
MODEL 3700 4-WIRE WITH D600 SENSOR MOUNTED CORE PROCESSOR
Installation Instructions  
Type UL-D-IS

**3700 IN HAZARDOUS LOCATION**

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Hazardous Area  
Class I, Div. 2, Groups A,B,C,D  
Class II, Div. 2, Groups F,G

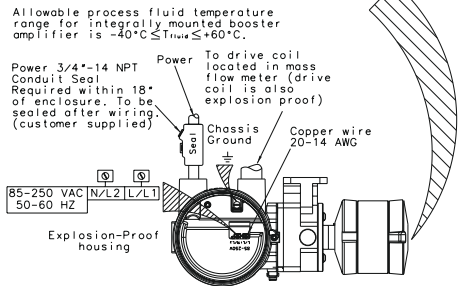
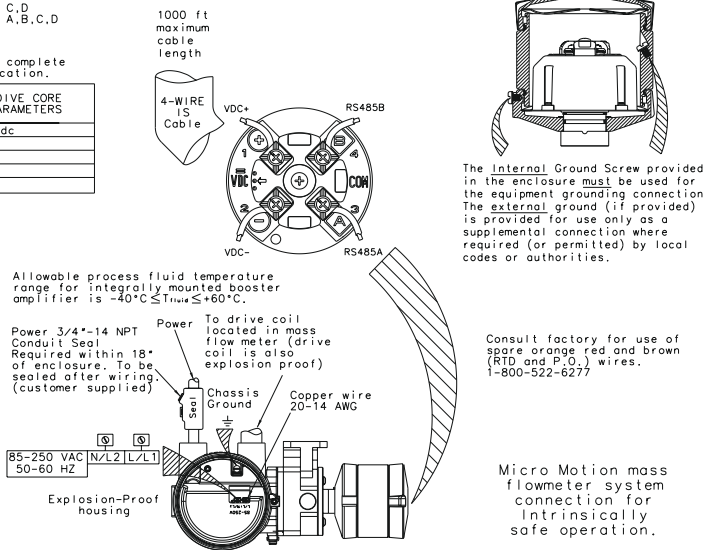
	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Pa (W)	2.05	2.05
Ca (µF)	A, B	N/A
	C	2.04
D	A, B	N/A
	C	8.5
La (µH)	A, B	N/A
	C	252
D	A, B	N/A
	C	1000
D	A, B	N/A
	C	607
D	A, B	N/A
	C	2100



Hazardous Area  
Class I, Div. 1, Groups C,D  
Class I, Div. 2, Groups A,B,C,D  
Class II, Groups E,F,G

Refer to sensor tag for complete hazardous area classification.

I S AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17.3 Vdc
I <sub>max</sub>	484 mA
P <sub>max</sub>	2.1W
C <sub>i</sub>	2200pF
L <sub>i</sub>	30µH



Allowable process fluid temperature range for integrally mounted booster amplifier is -40°C ≤ T<sub>fluid</sub> ≤ +60°C.

Power 3/4"-14 NPT Conduit Seal Required within 18" of enclosure. To be sealed after wiring. (customer supplied)

To drive coil located in mass flow meter (drive coil is also explosion proof)

Chassis Ground Copper wire 20-14 AWC

85-250 VAC N/L2 L/L1 50-60 HZ

Explosion-Proof housing

For model DS600S\*\*\*S, followed by N followed by \*U\*A\*Z\* see additional installation requirements on drawing EB-1005076

INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc	≤ Vmax
Isc	≤ Imax
(Voc × Isc) / 4	≤ Pmax
Ca	> Ccable + C1 + C2 + ... + Cn
La	> Lcable + L1 + L2 + ... + Ln

\*The total C<sub>i</sub> is equal to the sum of all C<sub>i</sub>'s of all devices on the network. C<sub>cable</sub> is the total capacitance of all cable on the network.

\*The total L<sub>i</sub> is equal to the sum of all L<sub>i</sub>'s of all devices on the network. L<sub>cable</sub> 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 = 60pF/ft  
Cable Inductance = 0.20µH/ft

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

Electronics: 3700  
 Sensor: D600  
 EB-20000220 Rev. B  
 SHT 1 OF 1

## 4.2 3700 core processor installations

### List of drawings

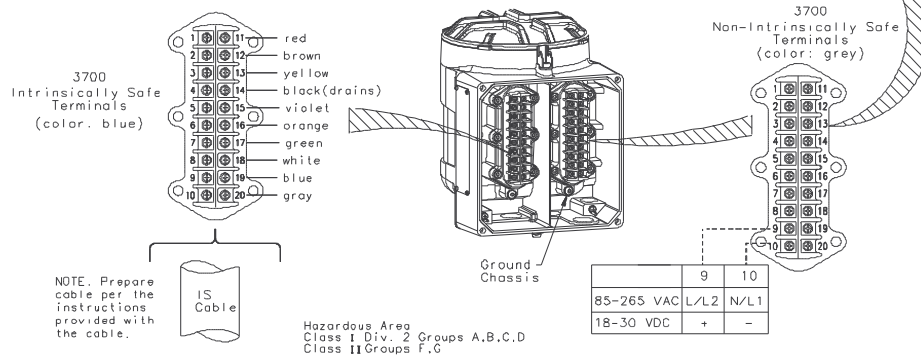
Installation	Drawing
3700 with core processor and CMF, F, or T sensors	EB-3300564, Revision D
3700 with core processor and CMF300A sensor	EB-3002935, Revision F
3700 with core processor and CMF400 sensor with booster amplifier	EB-3005808, Revision C

## 4.2.1 3700 with core processor and CMF, F, or T sensors

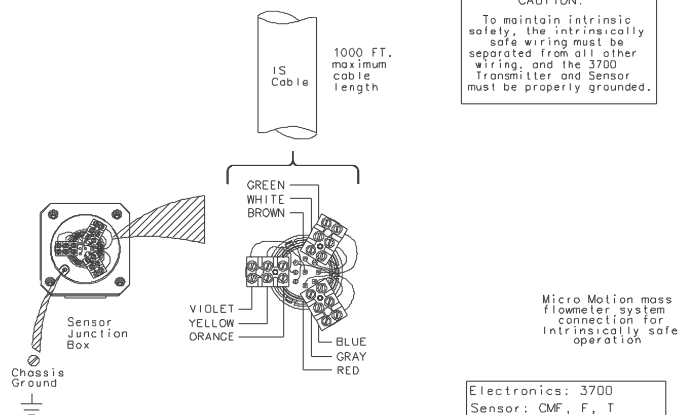
This drawing does not apply to the CMF300A sensor or to the CMF400 sensor with booster amplifier.

Division 2 nonincendive Parameters

INPUT / OUTPUT Terminal numbers	V <sub>oc</sub>	I <sub>sc</sub>	C <sub>a</sub>			L <sub>a</sub>			V <sub>max</sub>	I <sub>max</sub>	C <sub>i</sub>	L <sub>i</sub>
			A, B	C	D	A, B	C	D				
4-20 mA HART Terminals 1 & 2	29 V	25 mA	25 nF	251 nF	783 nF	1 mH	6 mH	12 mH				
4-20 mA Terminals 3 & 4	29 V	25 mA	25 nF	251 nF	783 nF	1 mH	6 mH	12 mH				
Terminals 5 & 6	5 V	6 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	1.5 mA	0 F	0 H
Discrete 1 Terminals 5 & 7	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	0.6 mA	0 F	0 H
Discrete 2 Terminals 5 & 8	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	0.6 mA	0 F	0 H
Terminals 19 & 20	24 V	16 mA	0.12 μF	0.93 μF	3.35 μF	100 mH	500 nH	1 H	30 V	500 mA	0 F	0 H
Discrete 1 Terminals 18 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H
Discrete 2 Terminals 17 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H
Discrete 3 Terminals 16 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H
RS485 A/B Terminals 11 & 12	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	5 V	250 mA	0 F	0 H



Hazardous Area  
Class I Division 1 Groups C,D  
Class I Division 2 Groups A,B,C,D  
Class II Groups E,F,G



Electronics: 3700  
Sensor: CMF, F, T

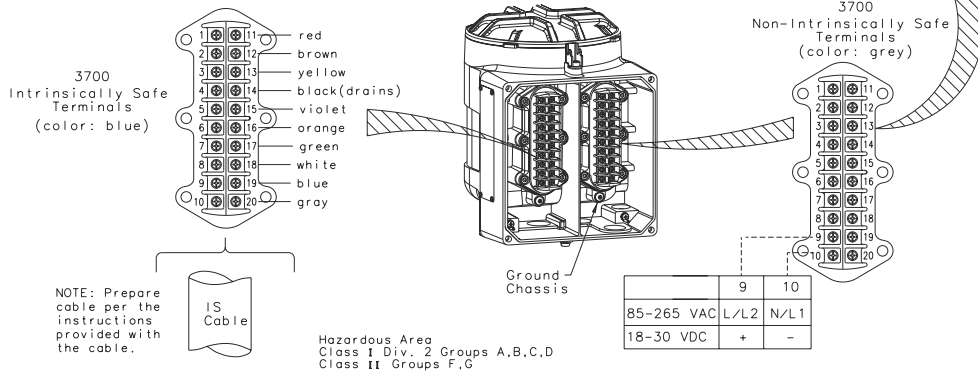
Models: CMF010, CMF025, CMF050,  
CMF100, CMF200, CMF300,  
F025, F050, F100, F200,  
T075, T100, T150  
Supplied as intrinsically safe.

EB-3300564 Rev. D

## 4.2.2 3700 with core processor and CMF300A sensor

Division 2 nonincendive Parameters

INPUT / OUTPUT Terminal numbers	V <sub>oc</sub>	I <sub>sc</sub>	C <sub>0</sub>			L <sub>0</sub>			V <sub>max</sub>	I <sub>max</sub>	C <sub>i</sub>	L <sub>i</sub>
			A, B	C	D	A, B	C	D				
4-20 mA HART Terminals 1 & 2	29 V	25 mA	25 nF	251 nF	783 nF	1 mH	6 mH	12 mH				
4-20 mA Terminals 3 & 4	29 V	25 mA	25 nF	251 nF	783 nF	1 mH	6 mH	12 mH				
Terminals 5 & 6	5 V	6 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	1.5 mA	0 F	0 H
Discrete 1 Terminals 5 & 7	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	0.6 mA	0 F	0 H
Discrete 2 Terminals 5 & 8	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	0.6 mA	0 F	0 H
Terminals 19 & 20	24 V	16 mA	0.12 μF	0.93 μF	3.35 μF	100 mH	500 mH	1 H	30 V	500 mA	0 F	0 H
Discrete 1 Terminals 18 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H
Discrete 2 Terminals 17 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H
Discrete 3 Terminals 16 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H
RS485 A/B Terminals 11 & 12	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	5 V	250 mA	0 F	0 H

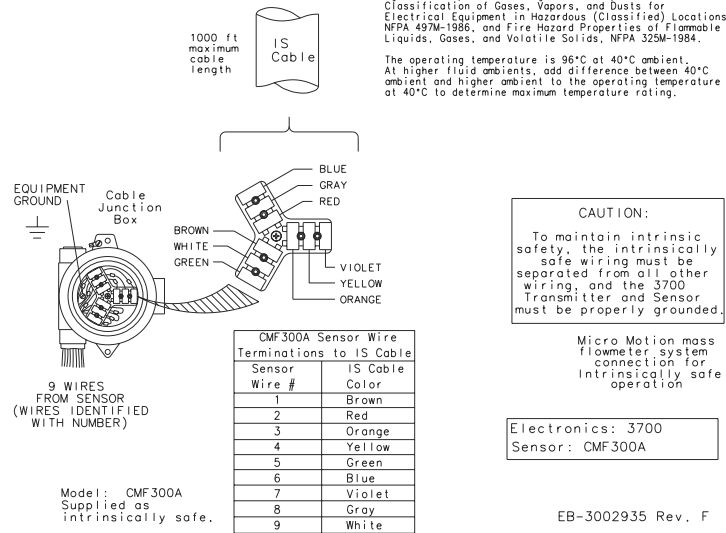


Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

CAUTION: PROPER SAFETY PRECAUTIONS MUST BE OBSERVED WHEN USING THIS METER AT ELEVATED TEMPERATURES. HIGH TEMPERATURE INSTALLATION PRACTICES SHOULD BE OBSERVED.

Do not exceed the auto ignition temperature of the surrounding gas atmosphere. For information regarding ignition temperatures of gases and vapors, see Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations, NFPA 497M-1986, and Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids, NFPA 325M-1984.

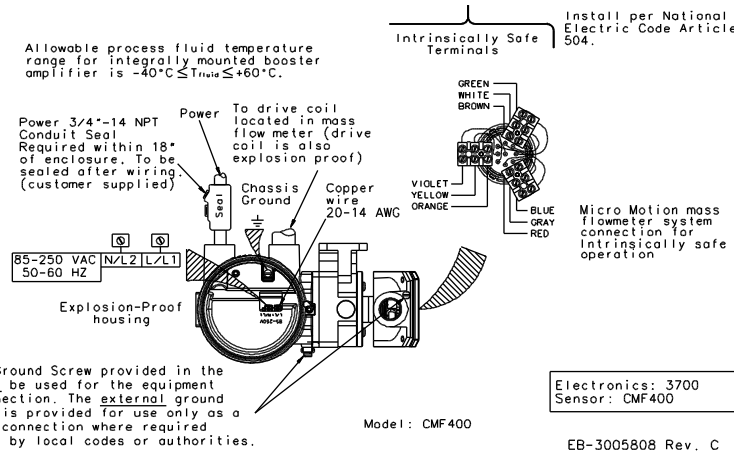
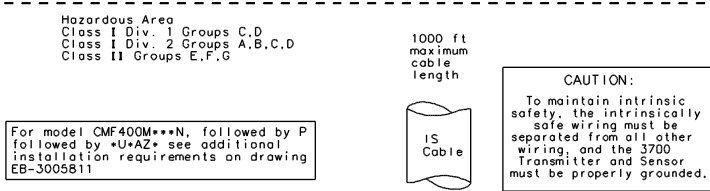
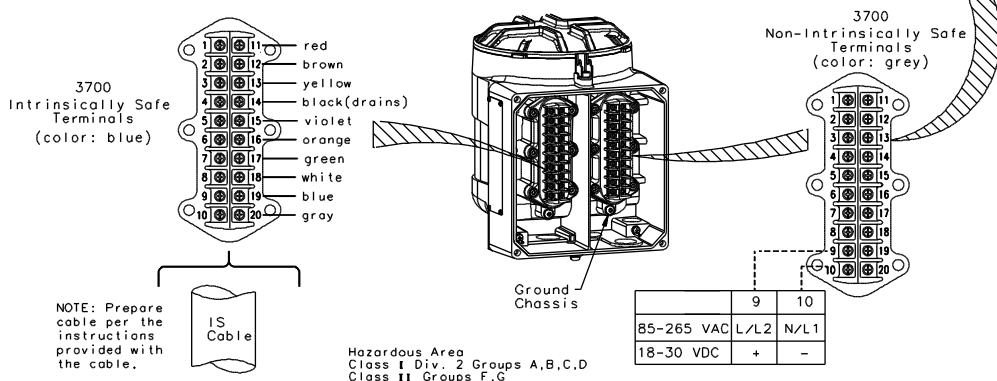
The operating temperature is 96°C at 40°C ambient. At higher fluid ambients, add difference between 40°C ambient and higher ambient to the operating temperature at 40°C to determine maximum temperature rating.



## 4.2.3 3700 with core processor and CMF400 sensor with booster amplifier

Division 2 nonincendive Parameters

INPUT / OUTPUT Terminal numbers	V <sub>oc</sub>	I <sub>sc</sub>	C <sub>0</sub>			L <sub>0</sub>			V <sub>max</sub>	I <sub>max</sub>	C <sub>i</sub>	L <sub>i</sub>													
			A, B	C	D	A, B	C	D																	
4-20 mA HART Terminals 1 & 2	29 V	25 mA	25 nF	251 nF	783 nF	1 mH	6 mH	12 mH																	
4-20 mA Terminals 3 & 4	29 V	25 mA	25 nF	251 nF	783 nF	1 mH	6 mH	12 mH																	
Terminals 5 & 6	5 V	6 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	1.5 mA	0 F	0 H													
Discrete 1 Terminals 5 & 7	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	0.6 mA	0 F	0 H													
Discrete 2 Terminals 5 & 8	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	30 V	0.6 mA	0 F	0 H													
Terminals 19 & 20	24 V	16 mA	0.12 μF	0.93 μF	3.35 μF	100 mH	500 mH	1 H	30 V	500 mA	0 F	0 H													
Discrete 1 Terminals 18 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H													
Discrete 2 Terminals 17 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H													
Discrete 3 Terminals 16 & 20	24 V	7.4 mA	0.11 μF	0.92 μF	3.34 μF	500 mH	1 H	1 H	30 V	500 mA	0.01 μF	0 H </tr <tr> <td>RS485 A/B Terminals 11 &amp; 12</td> <td>5 V</td> <td>1 mA</td> <td>11 μF</td> <td>174 μF</td> <td>3000 μF</td> <td>1 H</td> <td>1 H</td> <td>1 H</td> <td>5 V</td> <td>250 mA</td> <td>0 F</td> <td>0 H</td> </tr>	RS485 A/B Terminals 11 & 12	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	5 V	250 mA	0 F	0 H
RS485 A/B Terminals 11 & 12	5 V	1 mA	11 μF	174 μF	3000 μF	1 H	1 H	1 H	5 V	250 mA	0 F	0 H													



## 4.3 3700 remote core processor installations

### List of drawings

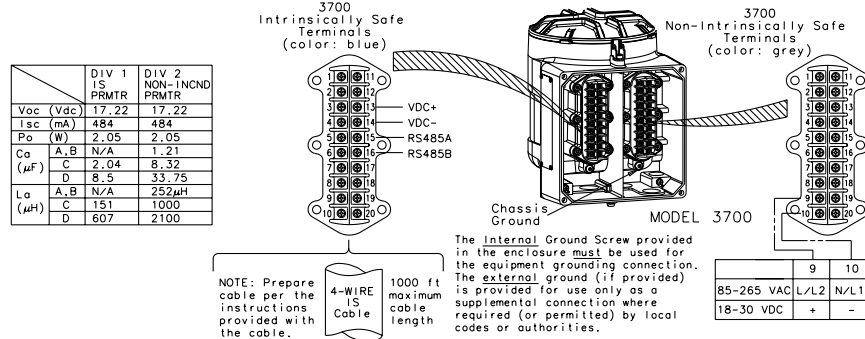
Installation	Drawing
3700 with remote core processor and CMF, D, DL, F, H, or T sensors	EB-20000208, Revision BA
3700 with remote core processor and CMF300A sensor	EB-20000211, Revision C
3700 with remote core processor and CMF400 sensor with booster amplifier	EB-20000202, Revision B
3700 with remote core processor and D600 sensor	EB-20000205, Revision B
3700 with remote core processor and DT sensor	EB-20000214, Revision B





## 4.3.2 3700 with remote core processor and CMF300A sensor

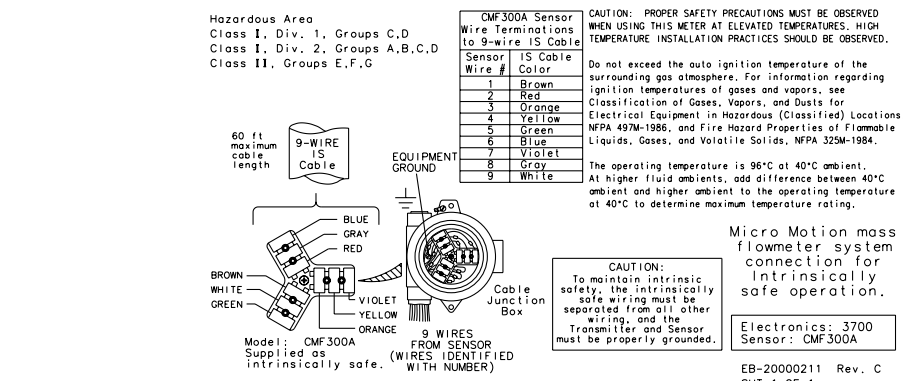
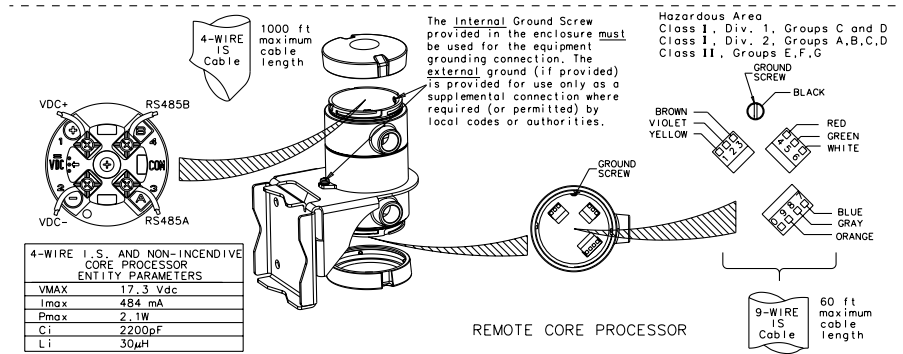
3700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION  
(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)



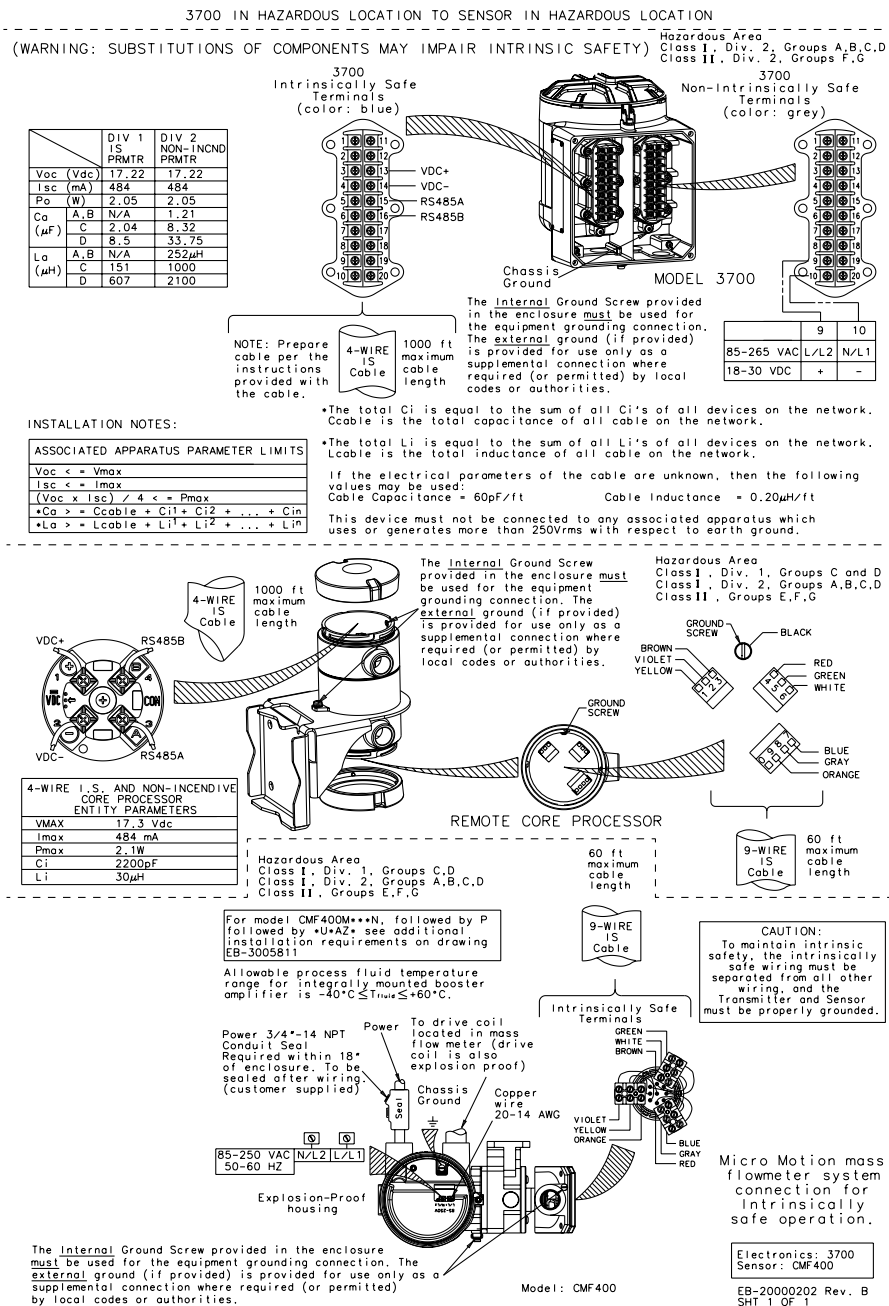
INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS	
Voc <=	Vmax
Isc <=	Imax
$(Voc \times Isc) / 4 <= Pmax$	
$Ca >= Ccable + C1 + C2 + \dots + Cin$	
$La >= Lcable + L1 + L2 + \dots + L1n$	

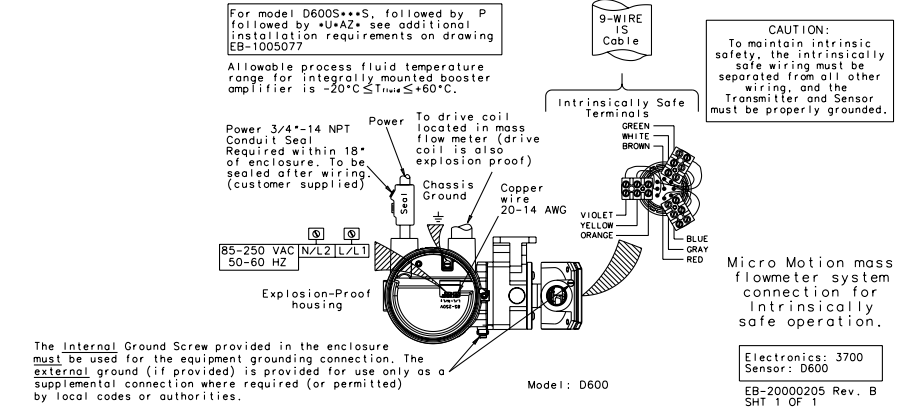
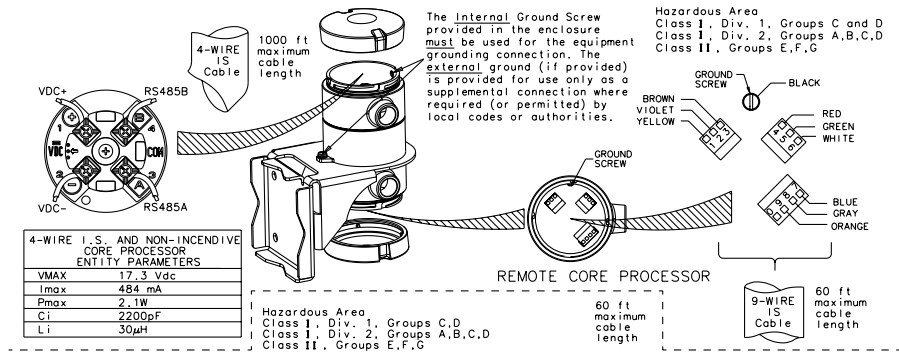
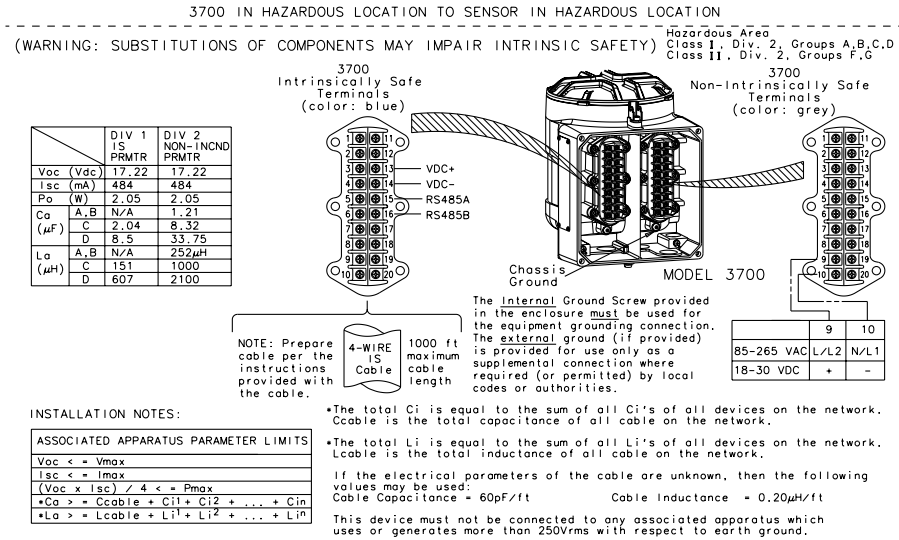
- \*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.
  - \*The total Li is equal to the sum of all Li's of all devices on the network. Lcable is the total inductance of all cable on the network.
- If the electrical parameters of the cable are unknown, then the following values may be used:  
Cable Capacitance = 60pF/ft      Cable Inductance = 0.20μH/ft
- This device must not be connected to any associated apparatus which uses or generates more than 250Vrms with respect to earth ground.



### 4.3.3 3700 with remote core processor and CMF400 sensor with booster amplifier



### 4.3.4 3700 with remote core processor and D600 sensor



### 4.3.5 3700 with remote core processor and DT sensor

3700 IN HAZARDOUS LOCATION TO SENSOR IN HAZARDOUS LOCATION

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

	DIV 1 IS PRMTR	DIV 2 NON-INCND PRMTR
Voc (Vdc)	17.22	17.22
Isc (mA)	484	484
Po (W)	2.05	2.05
Ca	A,B	N/A
	C	1.21
C <sub>i</sub> (μF)	A,B	N/A
	C	2.04
L <sub>i</sub> (μH)	A,B	N/A
	C	8.5
L <sub>o</sub> (μH)	A,B	N/A
	C	33.75
L <sub>o</sub> (μH)	A,B	N/A
	C	252
L <sub>o</sub> (μH)	A,B	N/A
	C	1000
L <sub>o</sub> (μH)	A,B	N/A
	C	2100

3700 Intrinsically Safe Terminals (color: blue)

3700 Non-Intrinsically Safe Terminals (color: grey)

Chassis Ground

MODEL 3700

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

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

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

4-WIRE IS Cable 1000 ft maximum cable length

INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS	
Vac	≤ Vmax
Isc	≤ Imax
(Vac × Isc) / 4	≤ Pmax
Ca	≤ Ccable + C1 + C2 + ... + Cin
Lo	≤ Lcable + L1 + L2 + ... + Lin

- \*The total C<sub>i</sub> is equal to the sum of all C<sub>i</sub>'s of all devices on the network. C<sub>o</sub> is the total capacitance of all cable on the network.
- \*The total L<sub>i</sub> is equal to the sum of all L<sub>i</sub>'s of all devices on the network. L<sub>o</sub> 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 = 60pF/ft Cable Inductance = 0.20μH/ft

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

4-WIRE IS, AND NON-INCENDIVE CORE PROCESSOR ENTITY PARAMETERS

VMAX	17.3 Vdc
Imax	484 mA
Pmax	2.1W
C <sub>i</sub>	2200pF
L <sub>i</sub>	30μH

REMOTE CORE PROCESSOR

9-WIRE IS Cable 60 ft maximum cable length

Hazardous Area Class I, Div. 1, Groups C and D  
Class I, Div. 2, Groups A,B,C,D

GROUND SCREW

BROWN VIOLET YELLOW RED GREEN WHITE

BLACK BLUE GRAY ORANGE

The Internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Hazardous Area Class I, Div. 1, Groups C,D  
Class I, Div. 2, Groups A,B,C,D

Earth Ground

DT Sensor wires must be connected to IS Cable using customer supplied terminal block and Junction Box.

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.

9-WIRE IS Cable 60 ft maximum cable length

CAUTION: PROPER SAFETY PRECAUTIONS MUST BE OBSERVED WHEN USING THIS METER AT ELEVATED TEMPERATURES. HIGH TEMPERATURE INSTALLATION PRACTICES SHOULD BE OBSERVED.

Do not exceed the auto ignition temperature of the surrounding gas atmosphere. For information regarding ignition temperatures of gases and vapors, see Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations, NFPA 497M-1986, and Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids, NFPA 325M-1984.

The operating temperature is 96°C at 40°C ambient. At higher fluid ambients, add difference between 40°C ambient and higher ambient to the operating temperature at 40°C to determine maximum temperature rating.

Micro Motion mass flowmeter system connection for intrinsically safe operation.

Electronics: 3700 Sensor: DT

EB-20000214 Rev. B  
SHT 1 OF 1

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.



## 5 Booster amplifiers

### 5.1 Booster amplifiers with CMF400 sensors

#### List of drawings

Installation	Drawing
Booster amplifier with core processor and CMF400 sensor	EB-3005973, Revision D
Booster amplifier with junction box and CMF400 sensor	EB-3005811, Revision D

## 5.1.1 Booster amplifier with core processor and CMF400 sensor

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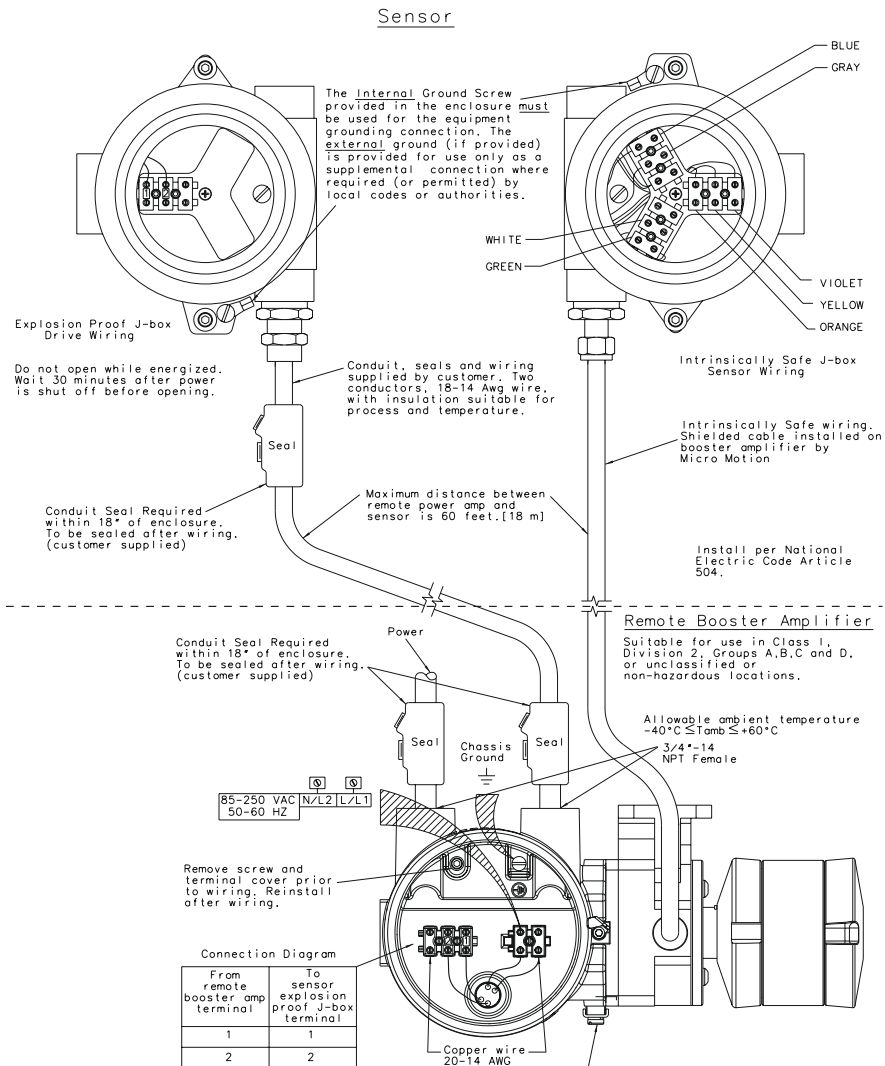
Remote Booster Amplifier  
Installation Instructions to  
Sensor CMF400 Core

Installation Instructions  
Type UL-D-IS

Conduit seals may not be required for Div. 2 applications. Check local codes for applicability.

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

Allowable process fluid temperature range for remotely mounted booster amplifier is  $-40^{\circ}\text{C} \leq T_{\text{fluid}} \leq +200^{\circ}\text{C}$ .



EB-3005973 Rev. D



## 5.1.2 Booster amplifier with junction box and CMF400 sensor

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Remote Booster Amplifier  
Installation Instructions to  
Sensor CMF400 and J-box

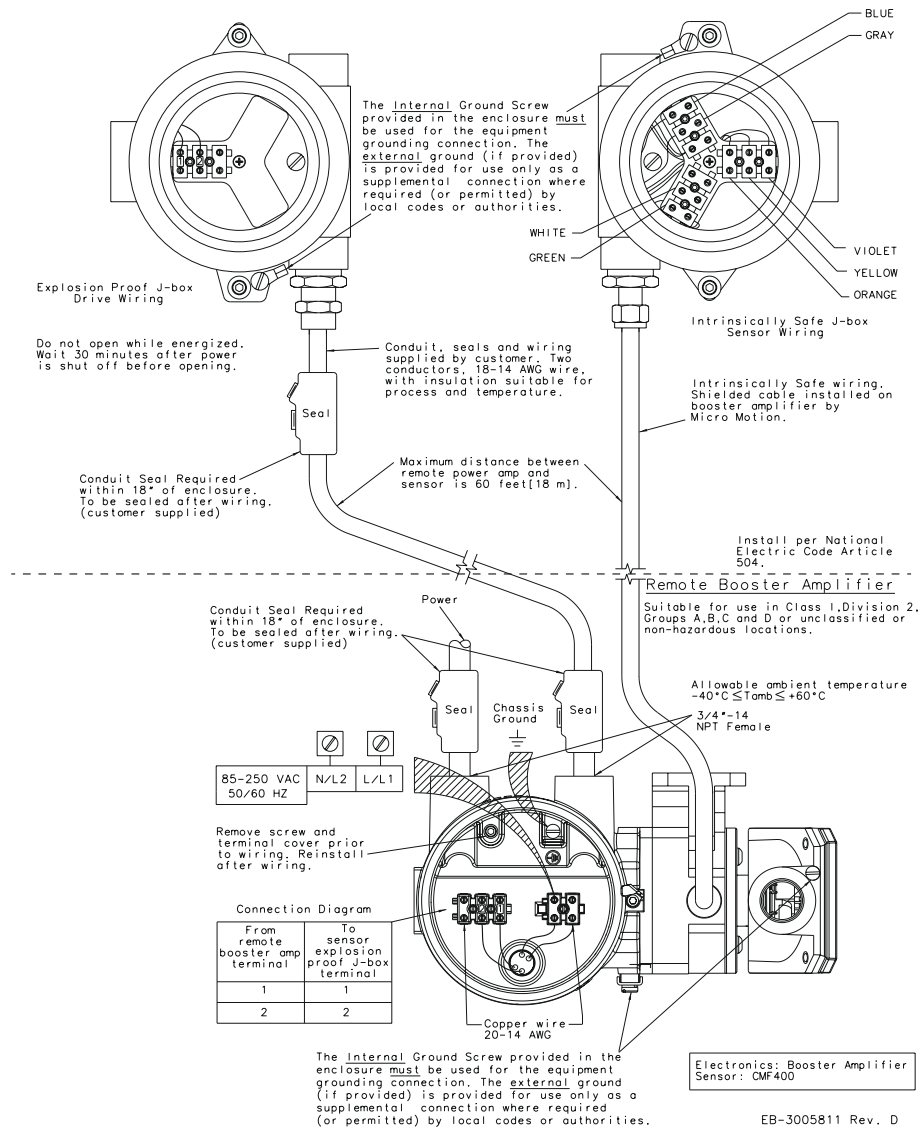
Installation Instructions  
Type UL-D-IS

Conduit seals may not be required for Div. 2 applications. Check local codes for applicability.

Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

Allowable process fluid temperature range for remotely mounted booster amplifier is  $-40^{\circ}\text{C} \leq T_{\text{fluid}} \leq +200^{\circ}\text{C}$ .

### Sensor

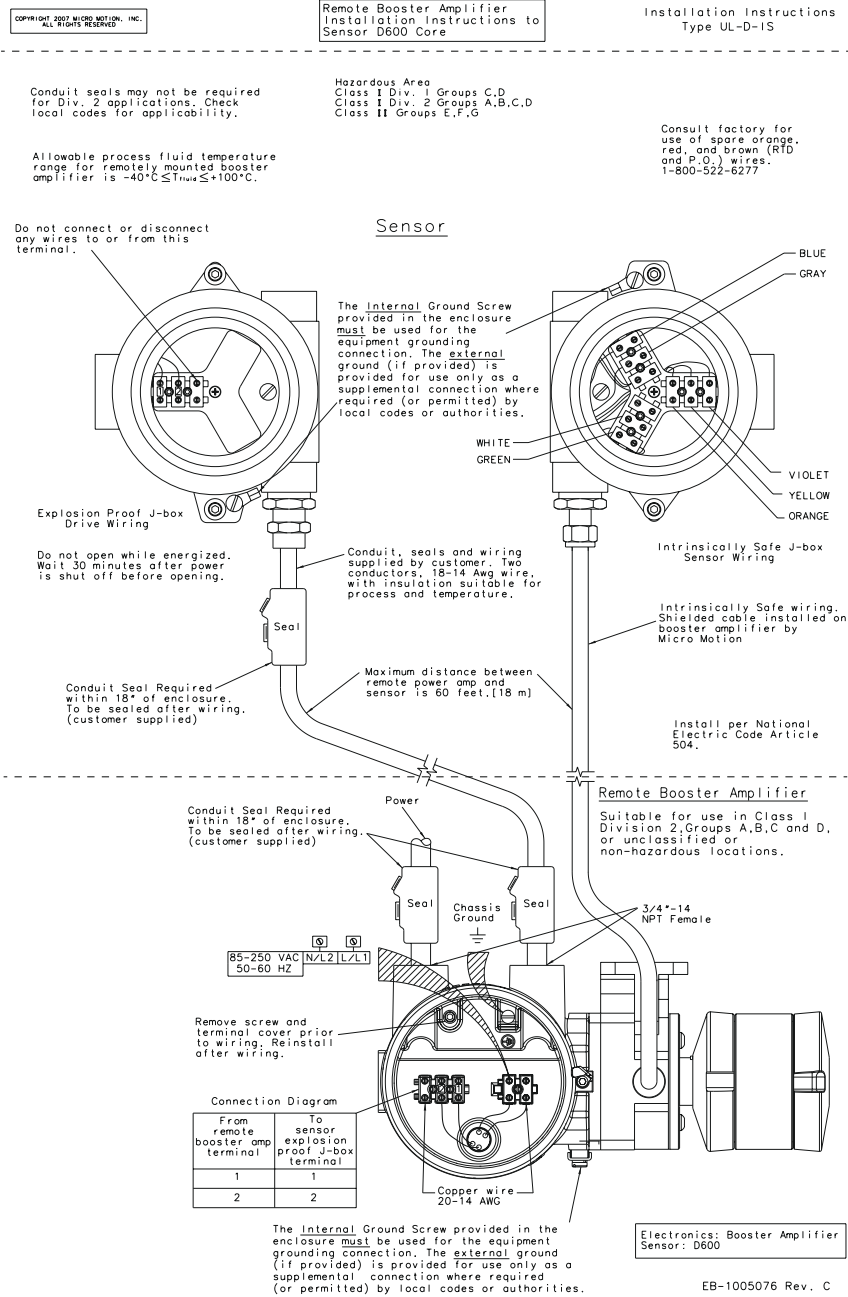


## 5.2 Booster amplifiers with D600 sensors

### List of drawings

Installation	Drawing
Booster amplifier with core processor and D600 sensor	EB-1005076, Revision C
Booster amplifier with junction box and D600 sensor	EB-1005077, Revision C

## 5.2.1 Booster amplifier with core processor and D600 sensor



## 5.2.2 Booster amplifier with junction box and D600 sensor

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Remote Booster Amplifier  
Installation Instructions to  
Sensor D600 J-box

Installation Instructions  
Type UL-D-IS

Conduit seals may not be required for Div. 2 applications. Check local codes for applicability.

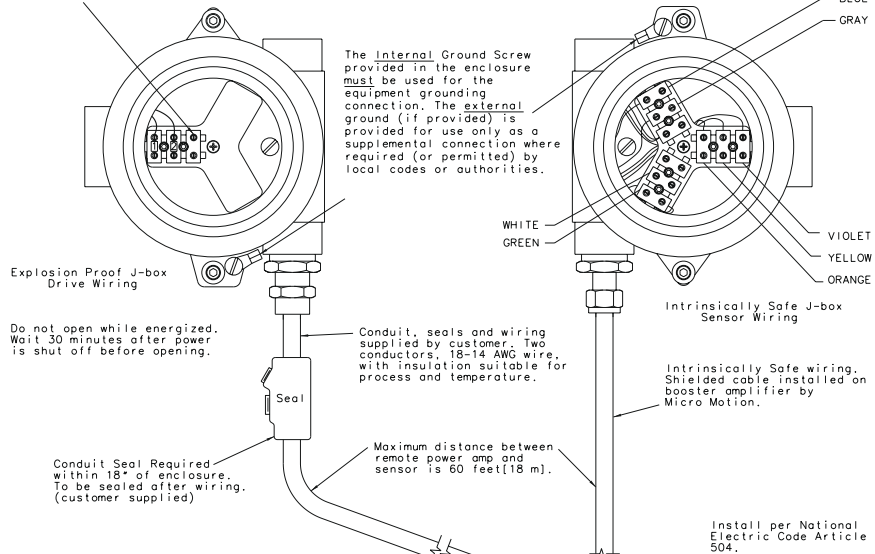
**Hazardous Area**  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

Allowable process fluid temperature range for remotely mounted booster amplifier is  $-40^{\circ}\text{C} \leq T_{\text{fluid}} \leq +100^{\circ}\text{C}$ .

Consult factory for use of spare orange, red and brown (RTD and P.O.) wires.  
1-800-522-6277

### Sensor

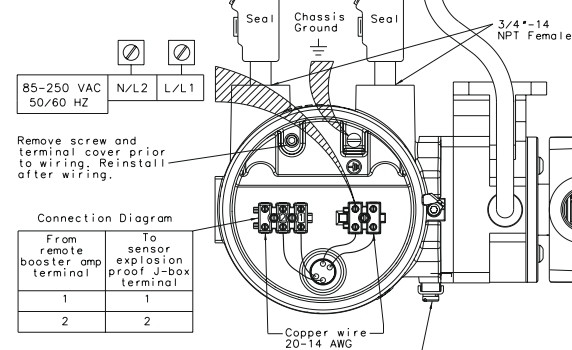
Do not connect or disconnect any wires to or from this terminal.



Install per National Electric Code Article 504.

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

**Remote Booster Amplifier**  
Suitable for use in Class I, Division 2; Groups A,B,C and D, or unclassified or non-hazardous locations.



Connection Diagram

From remote booster amp terminal	To sensor explosion proof J-box terminal
1	1
2	2

The Internal Ground Screw provided in the enclosure **must** be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Electronics: Booster Amplifier  
Sensor: D600

EB-1005077 Rev. C

# 6 Direct host 4-wire

## Core processor to direct host through a safety barrier

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P/N 3600663 SAFETY BARRIER  
WITH SENSOR MOUNTED CORE PROCESSOR

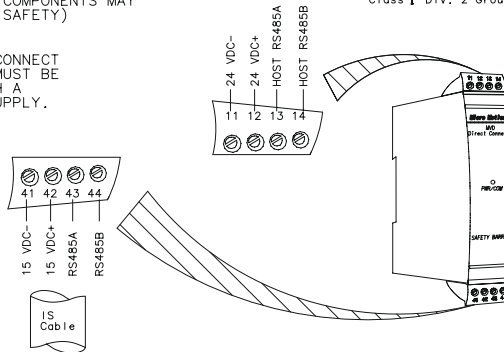
Installation Instructions  
Type UL-D-1S

(WARNING: SUBSTITUTIONS OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY)

Hazardous Area  
Class I Div. 2 Groups A,B,C,D

WARNING: THE MVD DIRECT CONNECT SAFETY BARRIER MUST BE SUPPLIED THROUGH A CLASS 2 POWER SUPPLY.

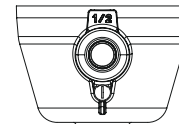
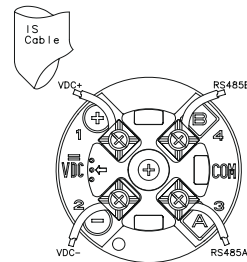
	DIV 1 IS PRMTR
Voc (Vdc)	17,22
Isc (mA)	484
Pa (W)	2,05
Ca (µF)	A, B N/A C 2,06 D 8,5
La (µH)	A, B N/A C 151 D 607



Hazardous Area  
Class I Div. 1 Groups C,D  
Class I Div. 2 Groups A,B,C,D  
Class II Groups E,F,G

Refer to sensor tag for complete hazardous area classification.

I.S. CORE PROCESSOR ENTITY PARAMETERS	
VMAX	17,3 Vdc
Imax	484 mA
Pmax	2,1W
Ci	2200pF
Li	30µH



The internal Ground Screw provided in the enclosure must be used for the equipment grounding connection. The external ground (if provided) is provided for use only as a supplemental connection where required (or permitted) by local codes or authorities.

Models:  
CMF, F, R, T, CNG050, D600

### INSTALLATION NOTES:

ASSOCIATED APPARATUS PARAMETER LIMITS
Voc <= Vmax
Isc <= Imax
(Voc x Isc) / 4 <= Pmax
*Ca >= Ccable + Ci1 + Ci2 + ... + Cin
*La >= Lcable + Li1 + Li2 + ... + Lin

\*The total Ci is equal to the sum of all Ci's of all devices on the network. Ccable is the total capacitance of all cable on the network.

\*The total Li is equal to the sum of all Li's of all devices on the network. Lcable 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 = 60pF/ft  
Cable Inductance = 0.20µH/ft

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

Depending on the location it is used, the barrier shall be installed in another enclosure suitable for the application.

Micro Motion mass flowmeter system connection for Intrinsically safe operation

Electronics: SAFETY BARRIER

EB-3600798 Rev. EA  
SHT 1 OF 1



20001964  
Rev. BC  
2019

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