

**I/A Series Digital Coriolis Mass Flow Transmitter  
Model CFT51**

**Safety Connection Diagrams (FM, CSA)**



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# 1. FM Approvals

## Flowtube and Transmitter in Class I, Division 2 (Non-Incendive)

Connect a CFS10 or CFS20 flowtube to the CFT51 Transmitter per the following diagram.

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**! WARNING**

These products must be installed to meet all applicable local installation regulations such as hazardous location requirements, electrical wiring codes, and mechanical piping codes. Persons involved in the installation must be trained in these code requirements to ensure that the installation takes maximum advantage of the safety features designed into the transmitter.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures.

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**! WARNING**

Explosion hazard substitution of components may impair suitability for Class I, Division 2.

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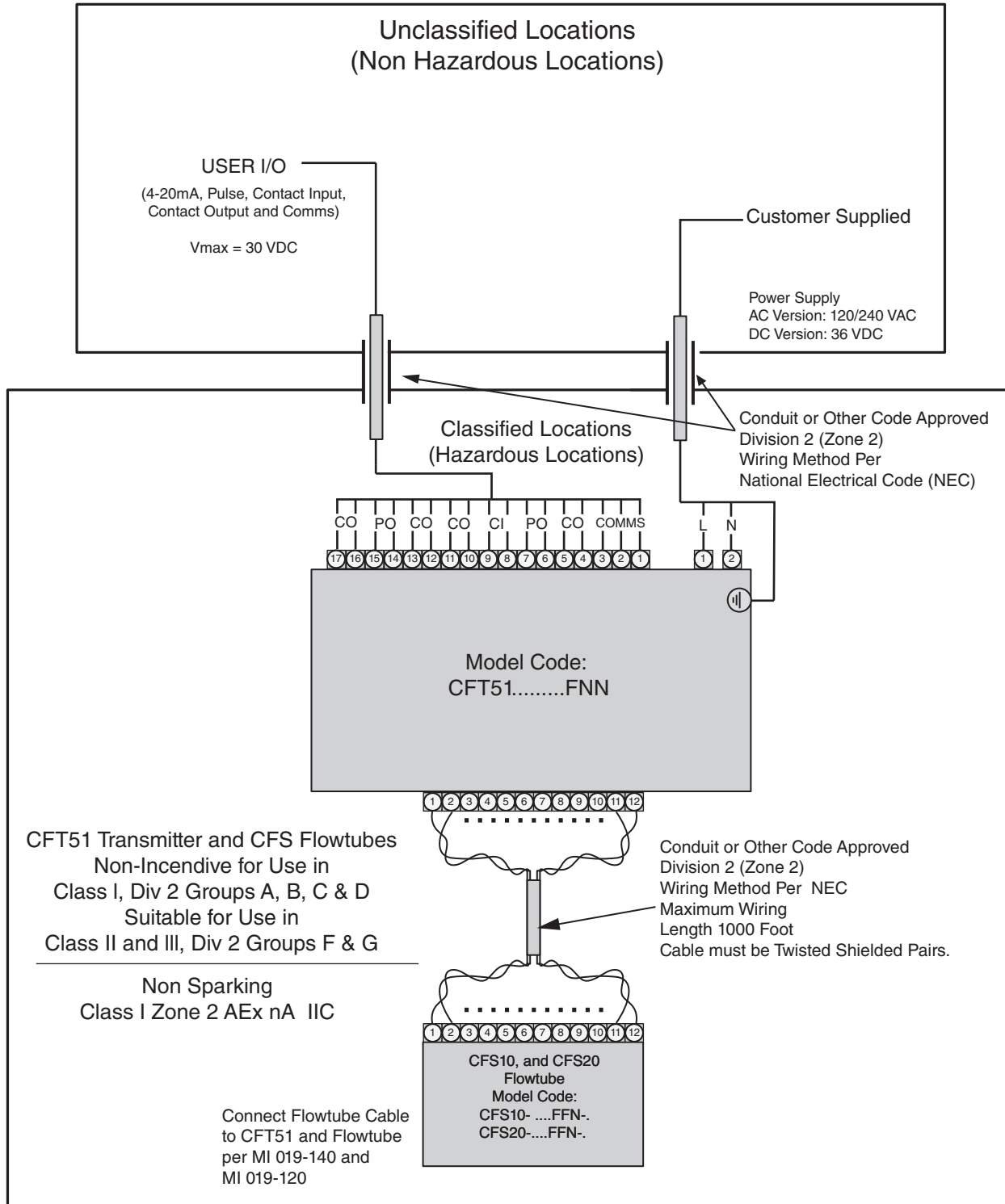
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**NOTE**

1. Figure 1 must not be revised without prior FM approval.
  2. Dust-tight conduit seal must be used when installed in Class II and Class III environments.
-

**Figure 1. FM Approvals, Flowtube (CFS10 or CFS20) and Transmitter Located in Class I, Division 2 (Non-Incendive) Area**

**FM Approvals  
CFT51 Transmitters and CFS Series Flowtube in Class I Division 2 (NI) Area**





# Flowtube in Class I, Division 1 (Intrinsic Safety); Transmitter in Class I, Division 2 (Non-Incendive)

Connect a CFS10 or CFS20 flowtube to the CFT51 Transmitter per the following diagram.

---

**! WARNING**

These products must be installed to meet all applicable local installation regulations such as hazardous location requirements, electrical wiring codes, and mechanical piping codes. Persons involved in the installation must be trained in these code requirements to ensure that the installation takes maximum advantage of the safety features designed into the transmitter.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures.

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**! WARNING**

Explosion hazard substitution of components may impair suitability for Class I, Division 2 or intrinsic safety.

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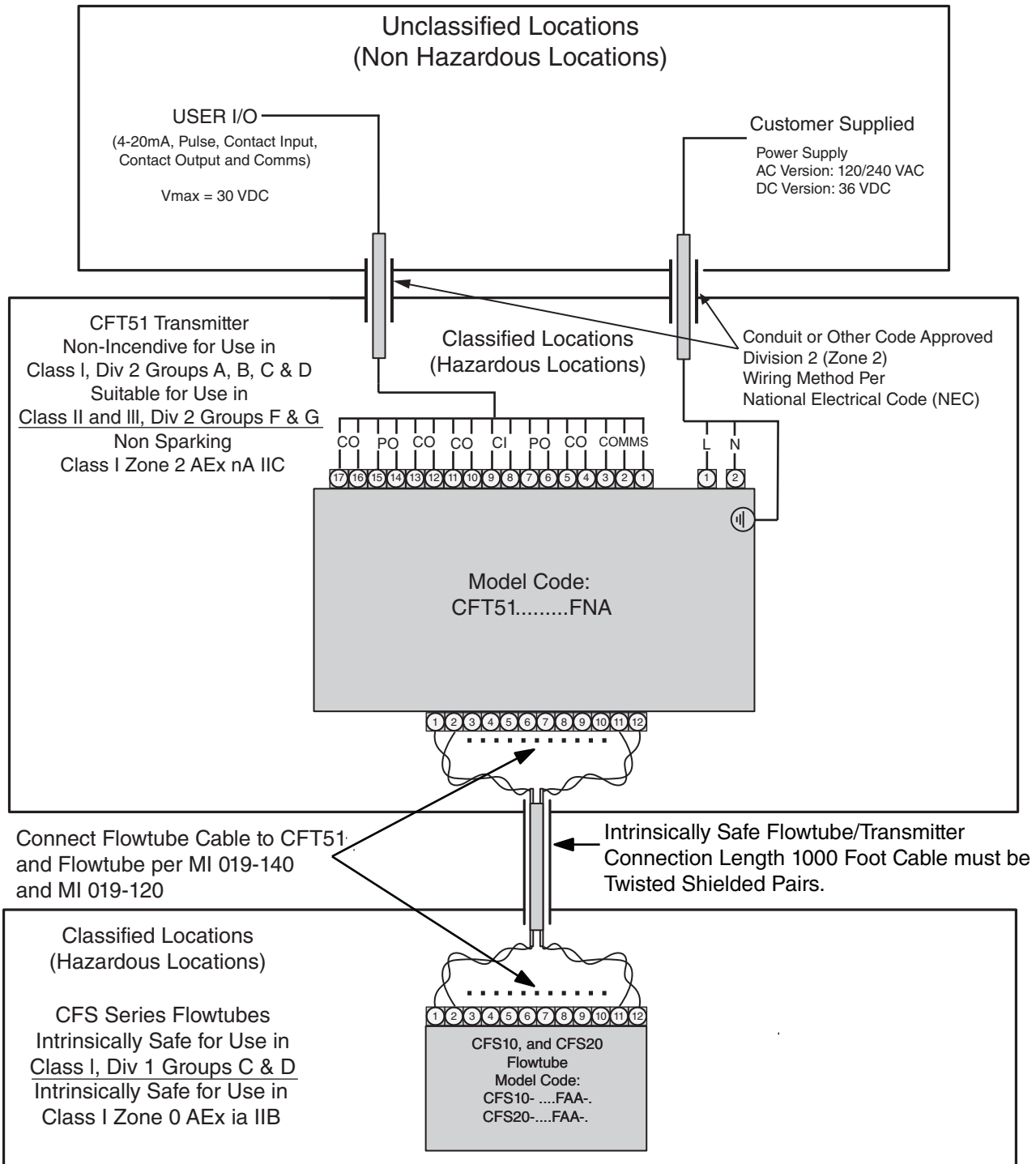
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**NOTE**

1. Figure 2 must not be revised without prior FM approval.
  2. Dust-tight conduit seal must be used when installed in Class II and Class III environments.
  3. Installation should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code (ANSI/NFPA 70).
  4. The I.S. ground terminal on the housing must be connected back to a suitable ground electrode per NFPA 70, article 504; the resistance of the ground path must be less than 1 ohm and the earth ground terminal on the housing must be connected to earth ground. Both ground wires must be connected at all times and must not be removed.
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**Figure 2. FM Approvals, Flowtube (CFS10 or CFS20) in Class I, Division 1 (Intrinsic Safety) and Transmitter in Class I, Division 2 (Non-Incendive) Area**

FM Approvals  
 CFT51 Transmitters in Class I Division 2 (NI) Area  
 with  
 CFS Series Flowtube in Class I Division 1 (IS) Area



## Flowtube in Class I, Division 2 (Non-Incendive); Transmitter in Class I, Division 1 (Explosionproof)

Connect a CFS10 or CFS20 flowtube to the CFT51 Transmitter per the following diagram.

---

**! WARNING**

These products must be installed to meet all applicable local installation regulations such as hazardous location requirements, electrical wiring codes, and mechanical piping codes. Persons involved in the installation must be trained in these code requirements to ensure that the installation takes maximum advantage of the safety features designed into the transmitter.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures.

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**! WARNING**

Substitution of components may impair suitability for Class I, Division 2.

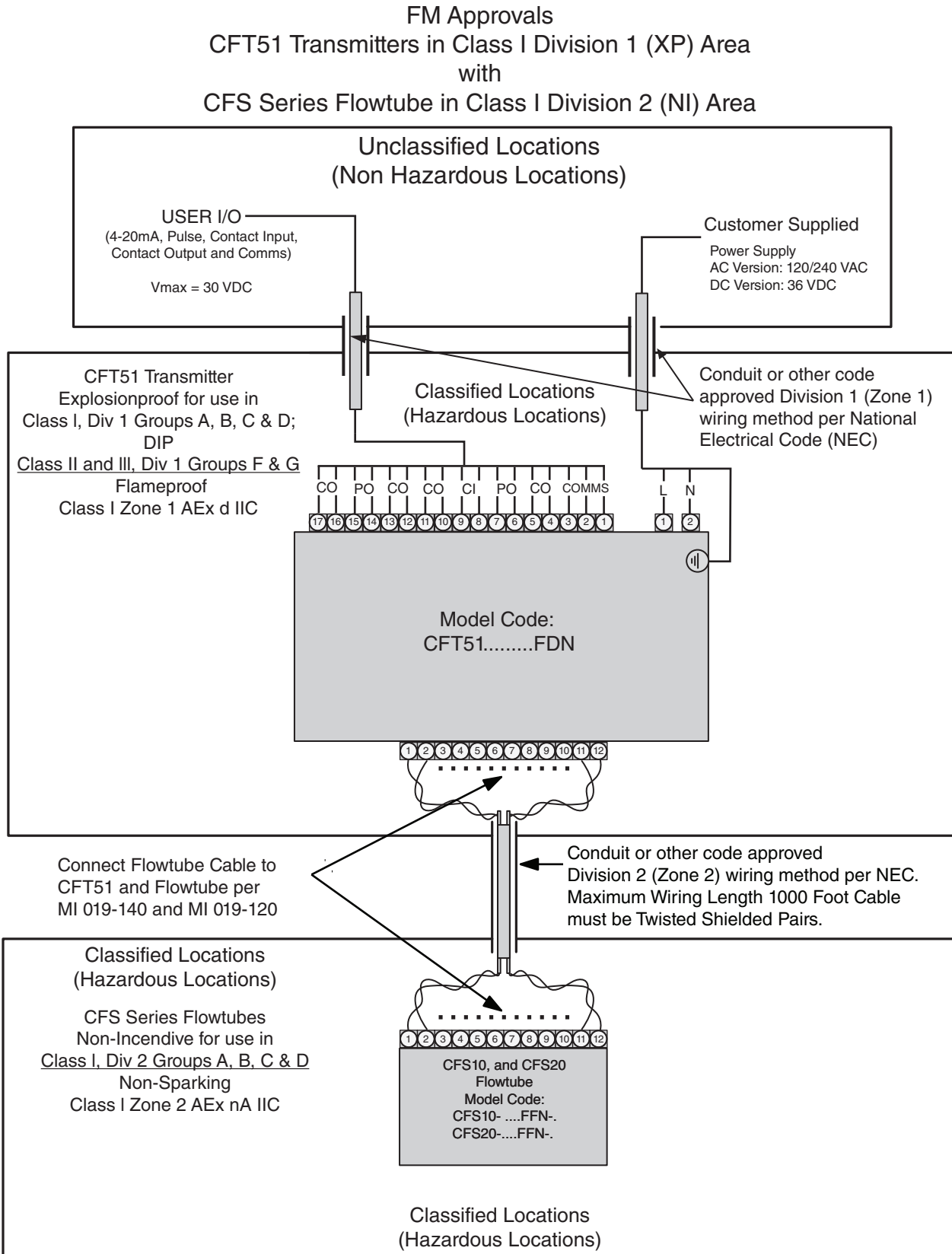
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**NOTE**

1. Figure 3 must not be revised without prior FM approval.
  2. Dust-tight conduit seal must be used when installed in Class II and Class III environments.
  3. For gas group A, a conduit seal is required at the conduit entries.
  4. All conduits must be assembled with a minimum of five full threads engagement.
-

**Figure 3. FM Approvals, Flowtube (CFS10 or CFS20) in Class I, Division 2 (Non-Incendive) and Transmitter in Class I, Division 1 (Explosionproof) Area**



# Flowtube in Class I, Division 1 (Intrinsic Safety); Transmitter in Class I, Division 1 (Explosionproof)

Connect a CFS10 or CFS20 flowtube to the CFT51 Transmitter per the following diagram.

---

**! WARNING**

These products must be installed to meet all applicable local installation regulations such as hazardous location requirements, electrical wiring codes, and mechanical piping codes. Persons involved in the installation must be trained in these code requirements to ensure that the installation takes maximum advantage of the safety features designed into the transmitter.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures.

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**! WARNING**

Substitution of components may impair intrinsic safety.

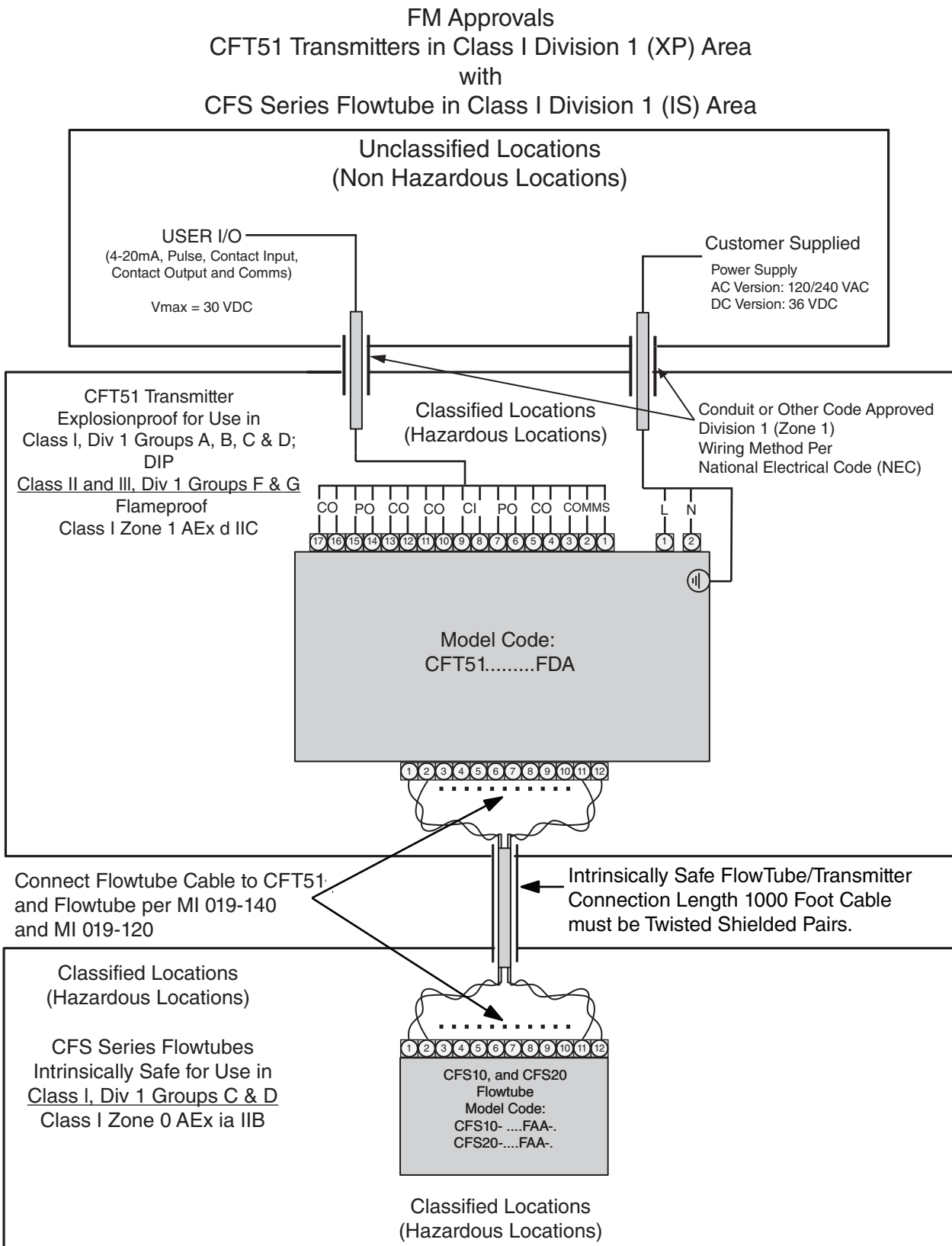
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**NOTE**

1. Figure 4 must not be revised without prior FM approval.
  2. The associated apparatus manufacturer's installation drawing must be followed when installing this equipment.
  3. Dust-tight conduit seal must be used when installed in Class II and Class III environments.
  4. Installation should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code (ANSI/NFPA 70).
  5. The I.S. ground terminal on the housing must be connected back to a suitable ground electrode per NFPA 70, article 504; the resistance of the ground path must be less than 1 ohm and the earth ground terminal on the housing must be connected to earth ground. Both ground wires must be connected at all times and must not be removed.
  6. For gas group A, a conduit seal is required at the conduit entries.
  7. All conduits must be assembled with a minimum of five full threads engagement.
-

**Figure 4. FM Approvals, Flowtube (CFS10 or CFS20) in Class I, Division 1 (Intrinsic Safety) and Transmitter in Class I, Division 1 (Explosionproof) Area**



## 2. CSA International

### Flowtube and Transmitter in Class I, Division 2 (Non-Incendive)

Connect a CFS10 or CFS20 flowtube to the CFT51 Transmitter per the following diagram.

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**! WARNING**

These products must be installed to meet all applicable local installation regulations such as hazardous location requirements, electrical wiring codes, and mechanical piping codes. Persons involved in the installation must be trained in these code requirements to ensure that the installation takes maximum advantage of the safety features designed into the transmitter.

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**! WARNING**

Explosion hazard - Do not disconnect equipment unless power has been turned off or the area is known to be non-hazardous.

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**! WARNING**

Do not open unless area is known to be non-hazardous.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, disconnect power before removing covers and servicing.

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**! WARNING**

To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures.

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**! WARNING**

Explosion hazard substitution of components may impair suitability for Class I, Division 2 / Zone 2 or intrinsic safety.

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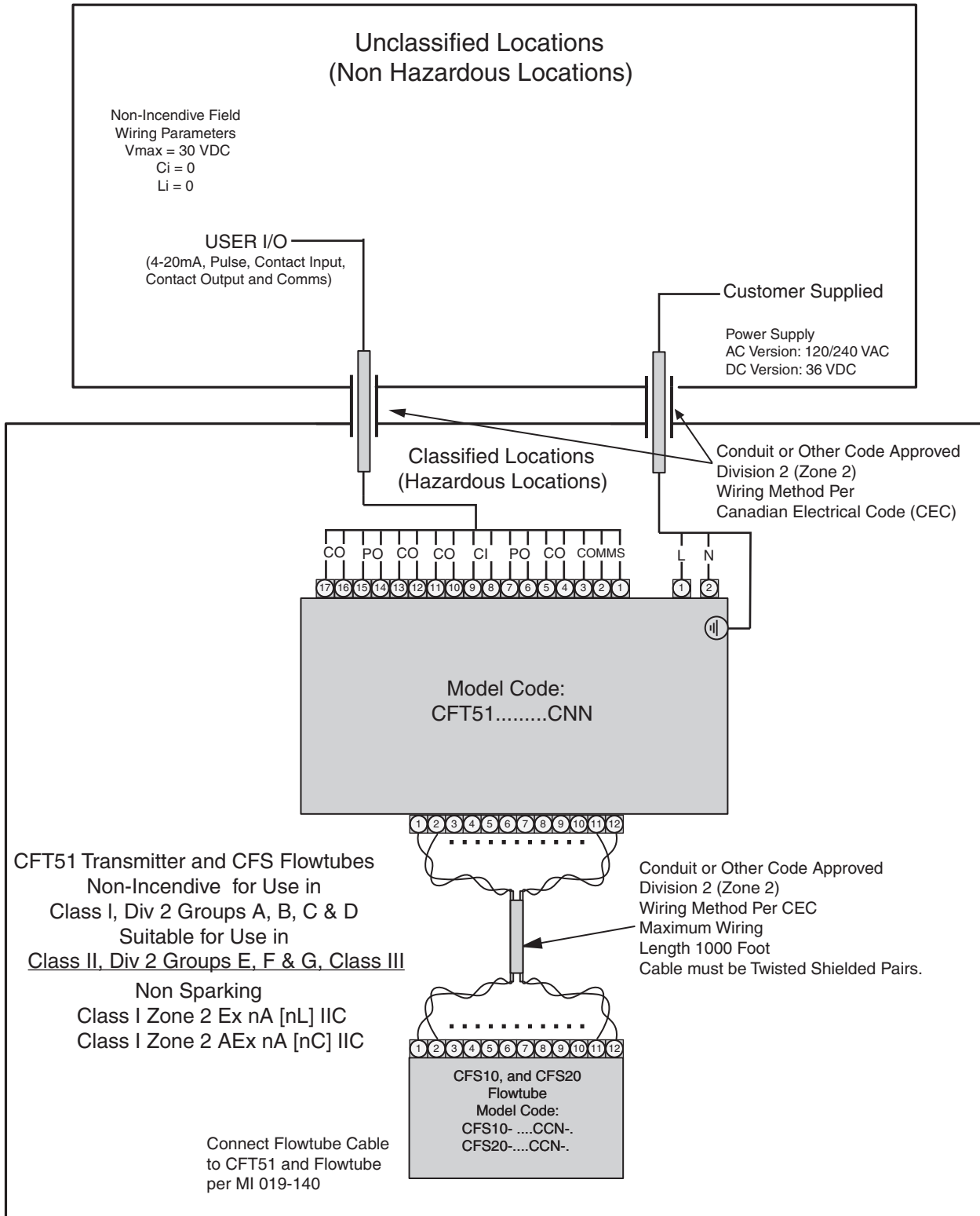
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**NOTE**

1. Figure 5 must not be revised without prior CSA approval.
  2. Dust-tight conduit seal must be used when installed in Class II and Class III environments.
  3. All conduits must be assembled with a minimum of five full threads engagement and thread lubricant applied. Only Fiske Brothers L0113-001 AERO (Foxboro Part Number X0114AT) lubricant is allowed.
-

**Figure 5. CSA International, Flowtube (CFS10 or CFS20) and Transmitter Located in Class I, Division 2 (Non-Incendive) Area**

CSA International  
 CFT51 Transmitter and CFS Series Flowtube in Class I Division 2 (NI) Area





## Flowtube in Class I, Division 1 (Intrinsic Safety); Transmitter in Class I, Division 2 (Non-Incendive)

Connect a CFS10, CFS20, or CFS25 flowtube to the CFT51 Transmitter per the diagram.

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### ! WARNING

These products must be installed to meet all applicable local installation regulations such as hazardous location requirements, electrical wiring codes, and mechanical piping codes. Persons involved in the installation must be trained in these code requirements to ensure that the installation takes maximum advantage of the safety features designed into the transmitter.

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### ! WARNING

Explosion hazard - do not disconnect equipment unless power has been turned off or the area is known to be non-hazardous.

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### ! WARNING

Do not open unless area is known to be non-hazardous.

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### ! WARNING

To prevent ignition of flammable or combustible atmospheres, disconnect power before removing covers and servicing.

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### ! WARNING

To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures.

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### ! WARNING

Explosion hazard substitution of components may impair suitability for Class I, Division 2 / Zone 2 or intrinsic safety.

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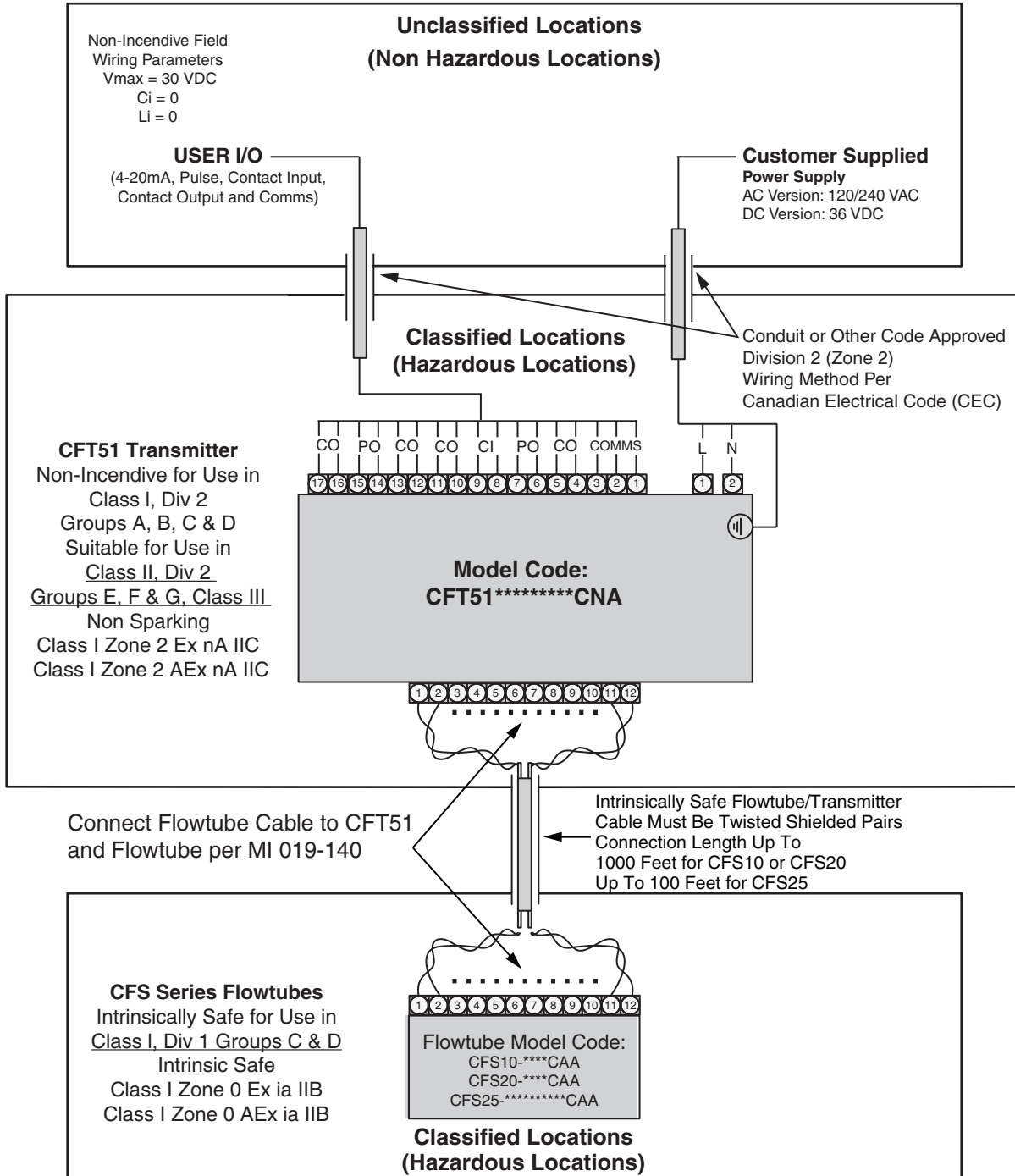
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### NOTE

1. Figure 6 must not be revised without prior CSA approval.
  2. Dust-tight conduit seal must be used when installed in Class II and Class III environments.
  3. Install in accordance with the Canadian electrical code (part 1).
  4. The I.S. ground terminal on the housing must be connected to a suitable ground electrode per CEC; the resistance of the ground path must be less than 1 ohm and the earth ground terminal on the housing must be connected to earth ground. Both ground wires must be connected at all times and must not be removed.
  5. All conduits must be assembled with a minimum of five full threads engagement and thread lubricant applied. Only Fiske Brothers L0113-001 AERO (Foxboro Part Number X0114AT) lubricant is allowed.
-

**Figure 6. CSA International, Flowtube (CFS10, CFS20, or CFS25) in Class I, Division 1 (Intrinsic Safety) and Transmitter in Class I, Division 2 (Non-Incendive) Area**

**CSA International  
CFT51 Transmitter in Class I Division 2 (NI) Area with  
CFS Series Flowtube in Class I Division 1 (IS) Area**



## Flowtube in Class I, Division 1 (Intrinsic Safety); Transmitter in Class I, Division 1 (Explosionproof)

Connect a CFS10, CFS20, or CFS25 flowtube to the CFT51 Transmitter per the diagram.

---

**! WARNING**

These products must be installed to meet all applicable local installation regulations such as hazardous location requirements, electrical wiring codes, and mechanical piping codes. Persons involved in the installation must be trained in these code requirements to ensure that the installation takes maximum advantage of the safety features designed into the transmitter.

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**! WARNING**

Explosion hazard - do not disconnect equipment unless power has been turned off or the area is known to be non-hazardous.

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**! WARNING**

Do not open unless area is known to be non-hazardous.

---

---

**! WARNING**

To prevent ignition of flammable or combustible atmospheres, disconnect power before removing covers and servicing.

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---

**! WARNING**

To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures.

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**! WARNING**

Substitution of components may impair intrinsic safety.

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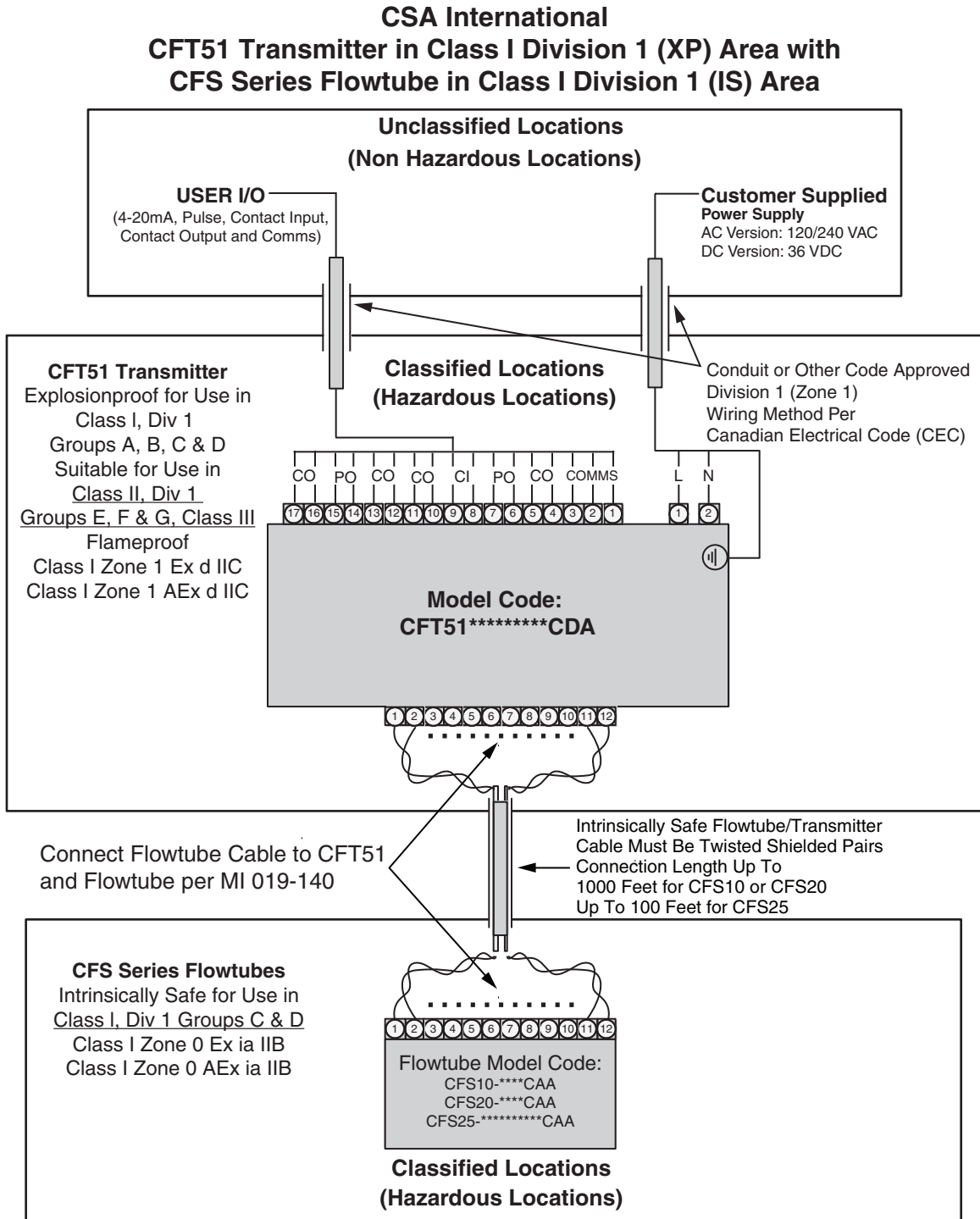
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**NOTE**

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1. Figure 7 must not be revised without prior CSA approval.
  2. The associated apparatus manufacturer's installation drawing must be followed when installing this equipment.
  3. Dust-tight conduit seal must be used when installed in Class II and Class III environments.
  4. Install in accordance with the Canadian electrical code (part 1).
  5. The I.S. ground terminal on the housing must be connected to a suitable ground electrode per CEC; the resistance of the ground path must be less than 1 ohm and the earth ground terminal on the housing must be connected to earth ground. Both ground wires must be connected at all times and must not be removed.
  6. For gas group A, a conduit seal is required at the conduit entries.
  7. All conduits must be assembled with a minimum of five full threads engagement and thread lubricant applied. Only Fiske Brothers L0113-001 AERO (Foxboro Part Number X0114AT) lubricant is allowed.
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Figure 7. CSA International, Flowtube (CFS10, CFS20, or CFS25) in Class I, Division 1 (Intrinsic Safety) and Transmitter in Class I, Division 1 (Explosionproof) Area



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