GROUND & SURGE RECOMMENDATIONS FOR FLOW COMPUTERS

Totalflow offers a variety of choices for mounting flow computers to meter runs in the field and all of them have different requirements for ground and surge protection.

A number of these types have been selected as representative of customer installations. Select the type that matches the sketches shown on this page, then turn to the sheet number for details on grounding and surge suppression.

DIRECT MOUNTED FCU W/SADDLE MOUNTED POLE SHEET 2

SADDLE-MOUNTED FCU W/RADIO ANTENNA SHEET 5

POLE-MOUNTED FCU SHEET 6

POLE-MOUNTED FCU W/POLE-MOUNTED RADIO ANTENNA SHEET 9

SADDLE-MOUNTED FCU W/SEPARATE POLE MOUNT & RADIO ANTENNA SHEET 3

POLE-MOUNTED FCU W/SEPARATE POLE MOUNT & RADIO ANTENNA SHEET 4

POLE-MOUNTED FCU SHEET 7

POLE-MOUNTED FCU W/POLE-MOUNTED RADIO ANTENNA SHEET 8

SKID-MOUNTED FCUs W/POLE-MOUNTED RADIO ANTENNAE SHEET 10
NOTES:

1. **WARNING:** This drawing does not illustrate the installation methods required for hazardous locations. Prior to any installation in a Classified Hazardous Location, verify installation methods by the Control Drawing referenced on the product’s name tag and by national and local codes.

2. In this instance, the FCU Enclosure will have the same electrical potential as the Flow Line. Ensure that there are no inadvertent grounds to the FCU Enclosure.

3. For Direct Mount installations, the RTD Shield should not be cut-off.

4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.
NOTES:

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2. In this instance, the FCU Enclosure will have the same electrical potential as the Flow Line. Ensure that there are no inadvertent grounds to the FCU Enclosure.

3. Coax connectors (to antenna, surge suppressor, etc.) should be taped first with 3M-0 130C Rubberband Tape, and then with 3M-88 Plastic Electrical Tape. For an alternate method, use Polyphasors Weather-proofing Kit, WK-1.

4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.
NOTES:
1. WARNING: This drawing does not illustrate the installation methods required for hazardous locations. Prior to any installation in a Classified Hazardous Location, verify installation methods by the Control Drawing referenced on the product’s name tag and by national and local codes.
2. The Ground Rod should be placed to minimize the length of the Ground Wire.
3. Ground Wire to be 10 GA. THWN, Coated Green, or 6 GA. Bare Copper Wire.
4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.
5. RTD Cable to be cut to length, as short as possible. DO NOT wrap cable around pipe or curl-up excess length. RTD Shield Wire is to be cut and not terminated. Use plastic cord connector, where cable enters the enclosure.

Cadwell Polyphasor/Surge Supressor
#IS-50NX-C2-ME
P/N: 1800751-001

To Radio

FCU Enclosure

RTD Probe

Solar Panel

Ground Wire

Direct Mounted FCU W/Separate Pole Mount & Radio Antenna Protected W/Polyphasor & Ground Rod

Gas Flow

Cadwell Copper-clad Ground Rod
5/8" X 8"
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2. In this instance, the FCU Enclosure will have the same electrical potential as the Flow Line. Ensure that there are no inadvertent grounds to the FCU Enclosure.

3. For Saddle Mount installations, the RTD Shield should not be cut-off.

4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.
NOTES:

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2. In this instance, the FCU Enclosure will have the same electrical potential as the Flow Line. Ensure that there are no inadvertent grounds to the FCU Enclosure.

3. Coax connectors (to antenna, surge suppressor, etc.) should be taped first with 3M-0130C Rubberband Tape, and then with 3M-88 Plastic Electrical Tape. For an alternate method, use Polyphasors Weather-proofing Kit, WK-1.

4. For Saddle Mount installations, the RTD Shield should not be cut-off.

5. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.
NOTES:

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2. The Ground Rod should be placed to minimize the length of the Ground Wire.

3. Ground Wire to be 10 GA. THWN, Coated Green, or 6 GA. Bare Copper Wire.

4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.

5. RTD Cable to be cut to length, as short as possible. DO NOT wrap cable around pipe or curl-up excess length. RTD Shield Wire is to be cut and not terminated. Use plastic cord connector, where cable enters the enclosure.

6. Use Dielectric Insulators for all devices attached to the FCU.

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**Pole Mounted FCU**
**Protected W/Ground Rod & Dielectric Insulators**

**FCU Enclosure**
**Ground Wire**

**RTD Probe**

**Gas Orifice**

**Gas Flow**

**Meter Run**

**Dielectric Insulators**
Swagelok #SS-6-DE-6

**Cadwell Copper-clad Ground Rod**
5/8" X 8'

**Solar Panel**
NOTES:

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2. The Ground Rod should be placed to minimize the length of the Ground Wire.

3. Ground Wire to be 10 GA. THWN, Coated Green, or 6 GA. Bare Copper Wire.

4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.

5. RTD Cable to be cut to length, as short as possible. DO NOT wrap cable around pipe or curl-up excess length. RTD Shield Wire is to be cut and not terminated. Use plastic cord connector, where cable enters the enclosure.

6. Mounting the surge suppressor on the antenna pole is recommended: this provides a more direct path for grounding and further isolates the FCU from lightning strikes.

7. Coax connectors (to antenna, surge suppressor, etc.) should be taped first w/3M-0130 Rubberband Tape, and then w/3M-88 Plastic Electrical Tape. For an alternate method, use Polyphasors Weather-proofing Kit, WK-1.

8. Use Dielectric Insulators for all devices attached to the FCU.
NOTES:

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2. The Ground Rod should be placed to minimize the length of the Ground Wire.

3. Ground Wire to be 10 GA. THWN, Coated Green, or 6 GA. Bare Copper Wire.

4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.

5. RTD Cable to be cut to length, as short as possible. DO NOT wrap cable around pipe or curl-up excess length. RTD Shield Wire is to be cut and not terminated. Use plastic cord connector, where cable enters the enclosure.

6. Mounting the surge suppressor on the antenna pole is recommended: this provides a more direct path for grounding and further isolates the FCU from lightning strikes.

7. Coax connectors (to antenna, surge suppressor, etc.) should be taped first w/3M-0130C Rubberband Tape, and then w/3M-88 Plastic Electrical Tape. For an alternate method, use Polyphasors Weather-proofing Kit, WK-1.

8. Use Dielectric Insulators for all devices attached to the FCU.
NOTES:
1. **WARNING:** This drawing does not illustrate the installation methods required for hazardous locations. Prior to any installation in a Classified Hazardous Location, verify installation methods by the Control Drawing referenced on the product’s name tag and by national and local codes.

2. The Ground Rod should be placed to minimize the length of the Ground Wire.

3. Ground Wire to be 10 GA. THWN, Coated Green, or 6 GA. Bare Copper Wire.

4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.

5. RTD Cable to be cut to length, as short as possible. DO NOT wrap cable around pipe or curl-up excess length. RTD Shield Wire is to be installed. Use a cord connector, where cable enters the enclosure.

6. Mounting the surge suppressor on the antenna pole is recommended: this provides a more direct path for grounding and further isolates the FCU from lightning strikes. Care must be used when sealing the attachment method to the pipe.

7. Alternate methods (such as the ground wire from the Polyphasor) can be used, as long as an unbroken Ground path is present.

8. Coax connectors (to antenna, surge suppressor, etc.) should be taped first w/ 3M-0 130C Rubberband Tape, and then w/ 3M-88 Plastic Electrical Tape. For an alternate method, use Polyphasors Weather-proofing Kit, WK-1.

9. Cables entering the FCU are required to have Drip Loops.

**NOTE:** This drawing only applies when Isolation Kits are used.

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**Diagram: Skid Mounted FCUs W/Separate Pole Mounted Radio Antennae Protected W/Polyphasors & Ground Rod**

- Skid Asm
- Cadwell Polyphasor/Surge Suppressor #IS-50NX-C2-ME P/N: 1800751-001
- Ground Wire SEE NOTES 6 & 7
- Isolation Kits applied to both ends of skids
- Cadwell Copper-clad Ground Rod 5/8" X 8'
- Loop 12"