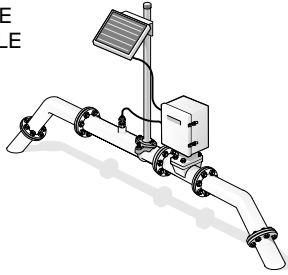


**GROUND & SURGE RECOMMENDATIONS
FOR FLOW COMPUTERS**

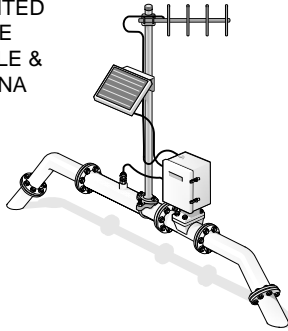
Totalflow offers a variety of choices for mounting flow computers to meter runs in the field and all of them have different requirements for ground and surge protection.

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.

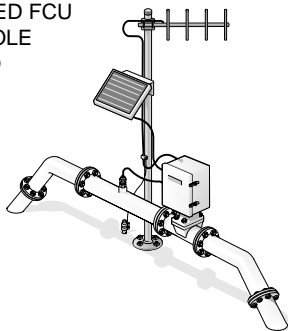
DIRECT MOUNTED
FCU W/SADDLE
MOUNTED POLE
SHEET 2



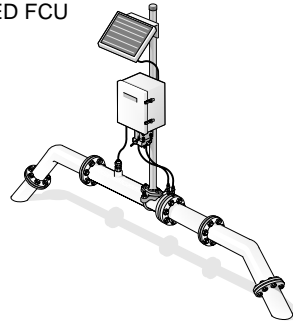
DIRECT MOUNTED
FCU W/SADDLE
MOUNTED POLE &
RADIO ANTENNA
SHEET 3



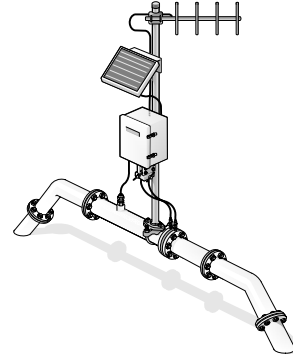
DIRECT MOUNTED FCU
W/SEPARATE POLE
MOUNT & RADIO
ANTENNA
SHEET 4



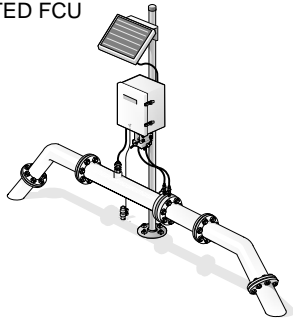
SADDLE-MOUNTED FCU
SHEET 5



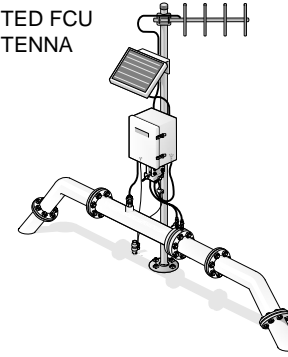
SADDLE-MOUNTED
FCU W/RADIO
ANTENNA
SHEET 6



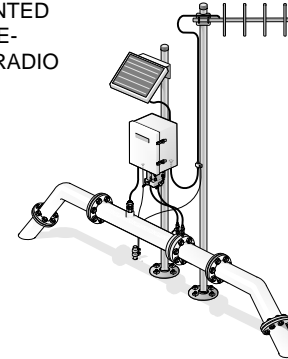
POLE-MOUNTED FCU
SHEET 7



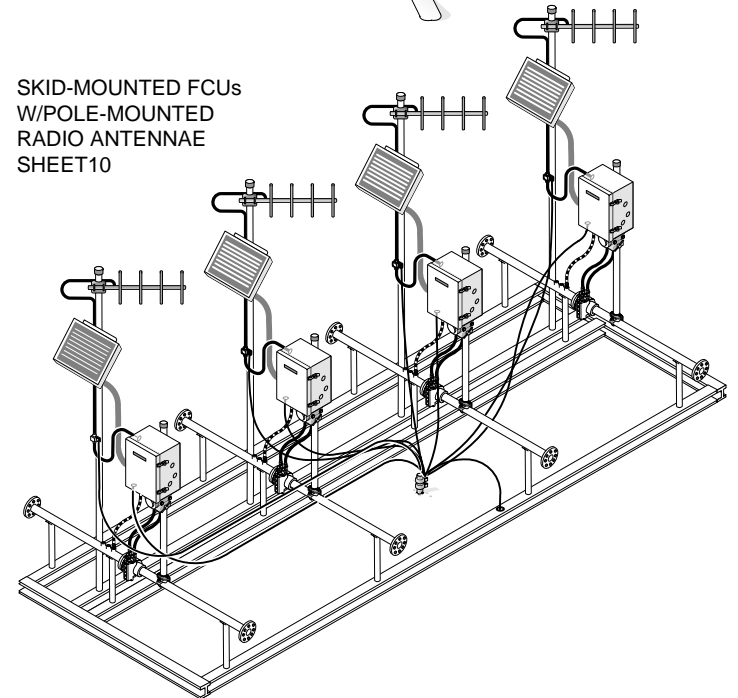
POLE-MOUNTED FCU
W/RADIO ANTENNA
SHEET 8



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



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



TOTALFLOW
Products

ACTION
D30119

DOC TYPE
UD

TITLE
GROUND & SURGE PROTECTION;
FLOW COMPUTER MOUNTS

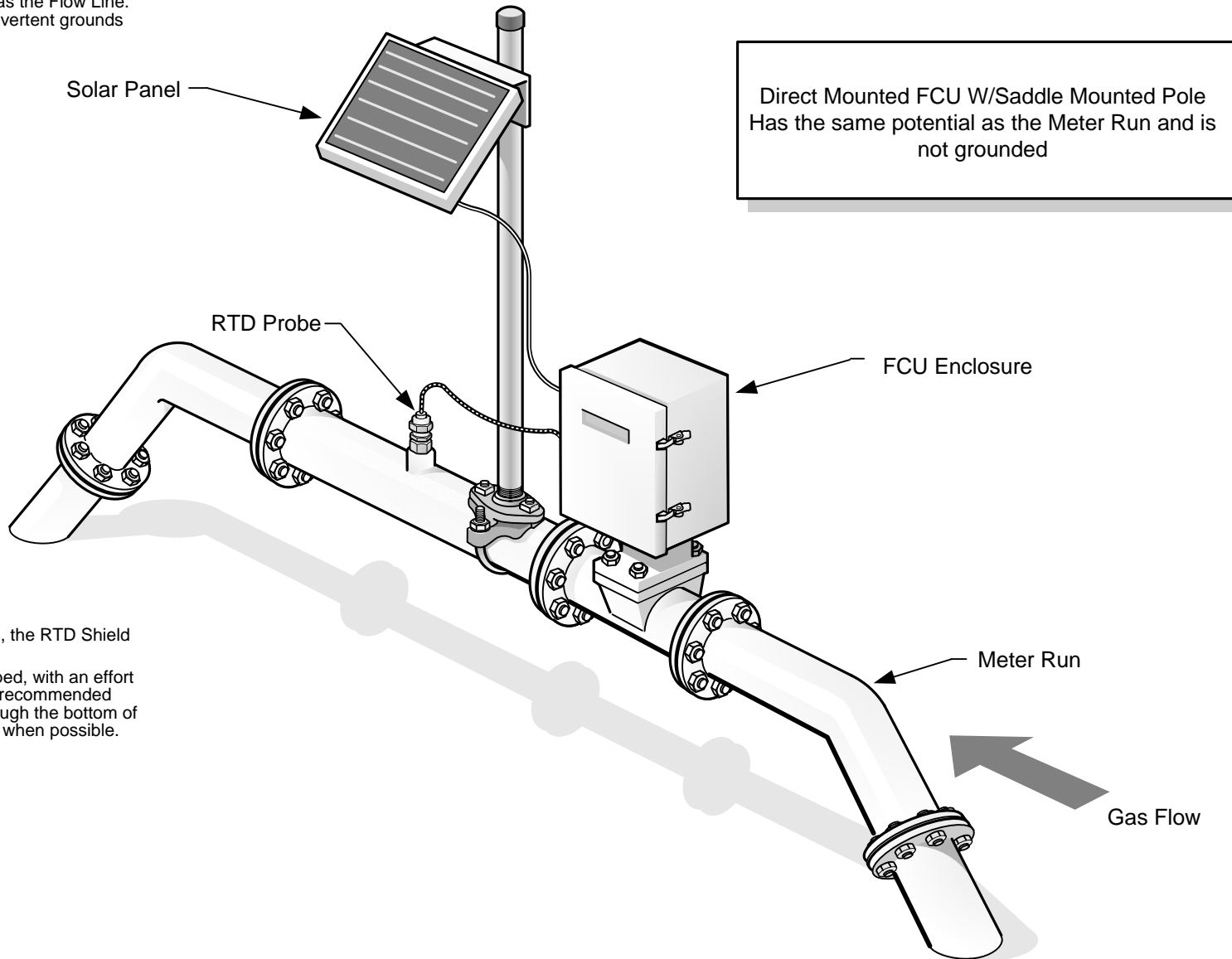
DWG NO.
2103150

REV
AC

SHEET
1 OF 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.

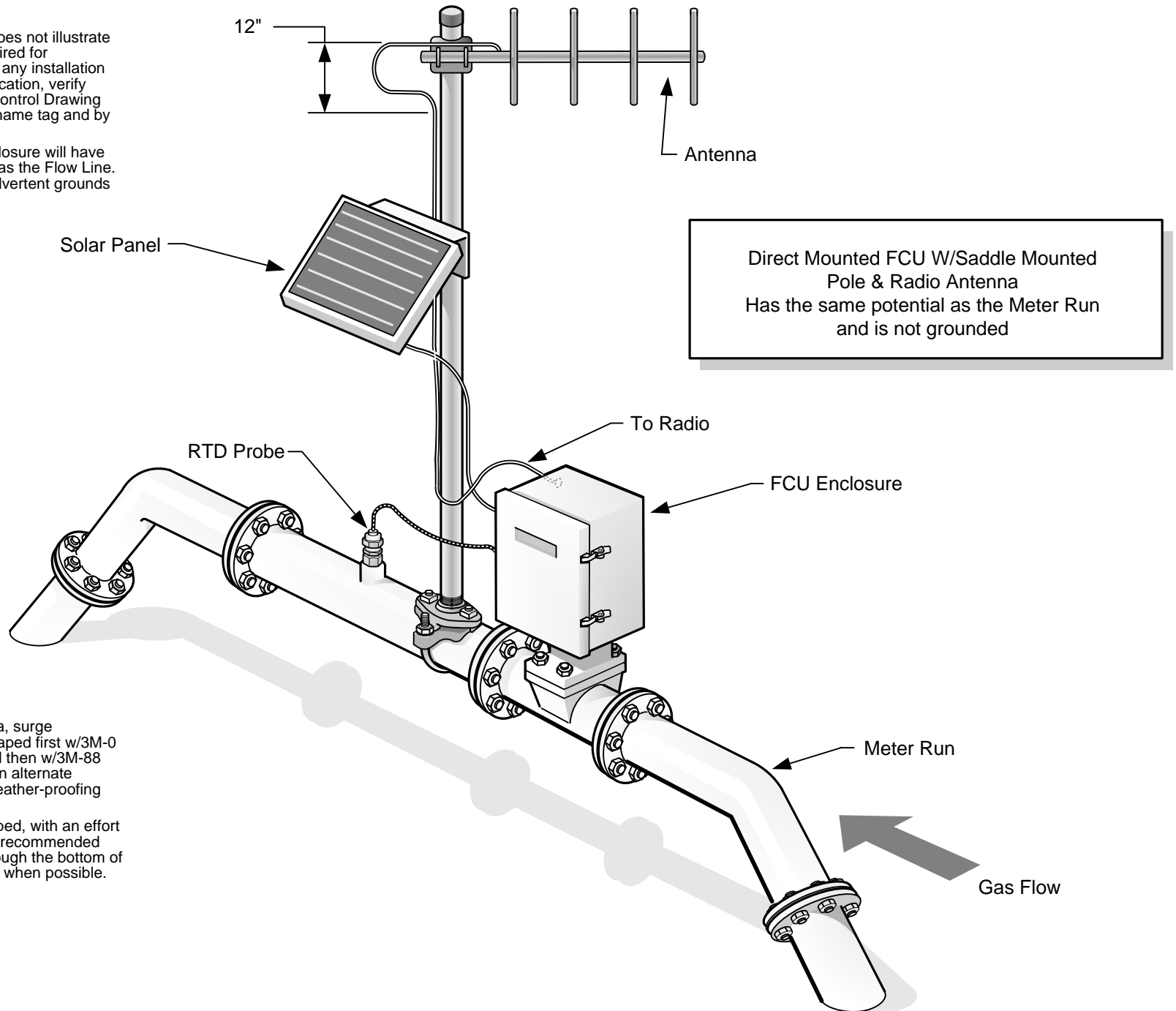


3. For Direct Mount installations, the RTD Shield should not be cut-off.
4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.

ABB	TOTALFLOW	ACTION	DOC TYPE	TITLE	DWG NO.	REV	SHEET
	Products	D30119	UD	GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	2103150	AC	2 OF 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.



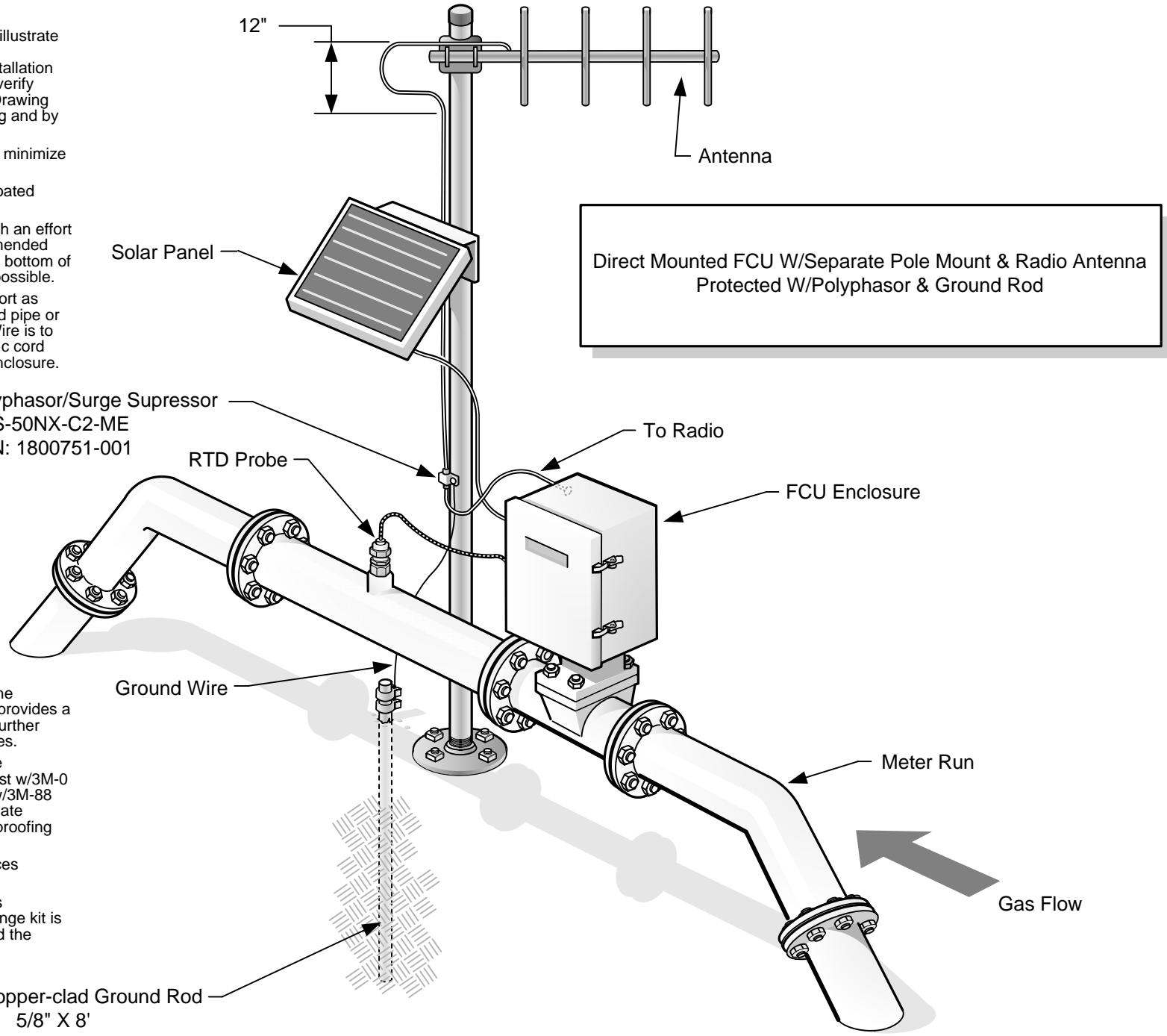
Direct Mounted FCU W/Saddle Mounted Pole & Radio Antenna Has the same potential as the Meter Run and is not grounded

3. 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.
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.

ABB	TOTALFLOW	ACTION	DOC TYPE	TITLE	DWG NO.	REV	SHEET
	Products	D30119	UD	GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	2103150	AC	3 OF 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. 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-0 130C 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.
9. On all Direct-mount installations, it is recommended that an Insulating Flange kit is used between the flow computer and the meter pipe.

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

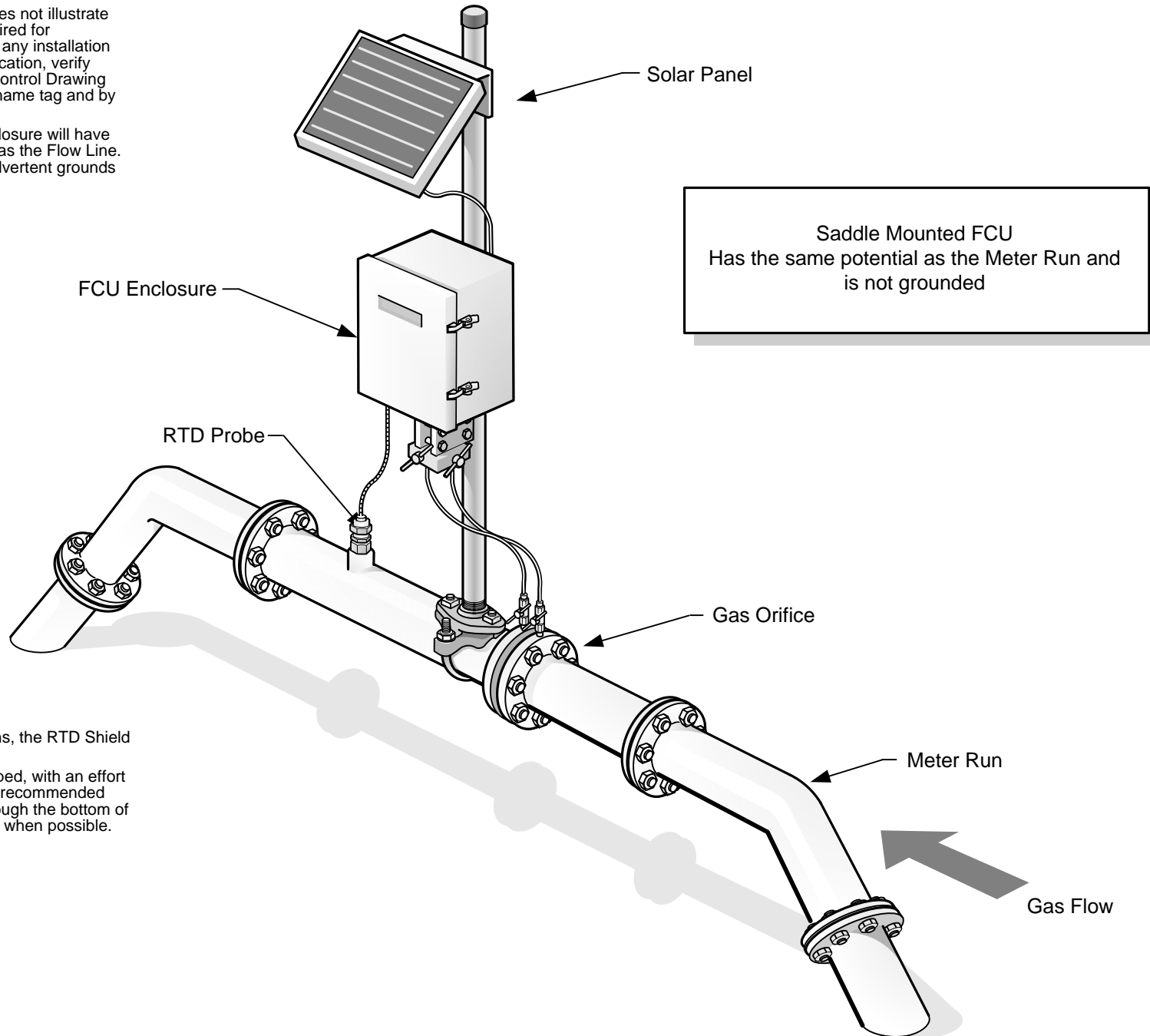
Cadwell Polyphasor/Surge Supsressor
#IS-50NX-C2-ME
P/N: 1800751-001

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

ABB	TOTALFLOW	ACTION	DOC TYPE	TITLE	DWG NO.	REV	SHEET
	Products	D30119	UD	GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	2103150	AC	4 OF 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.

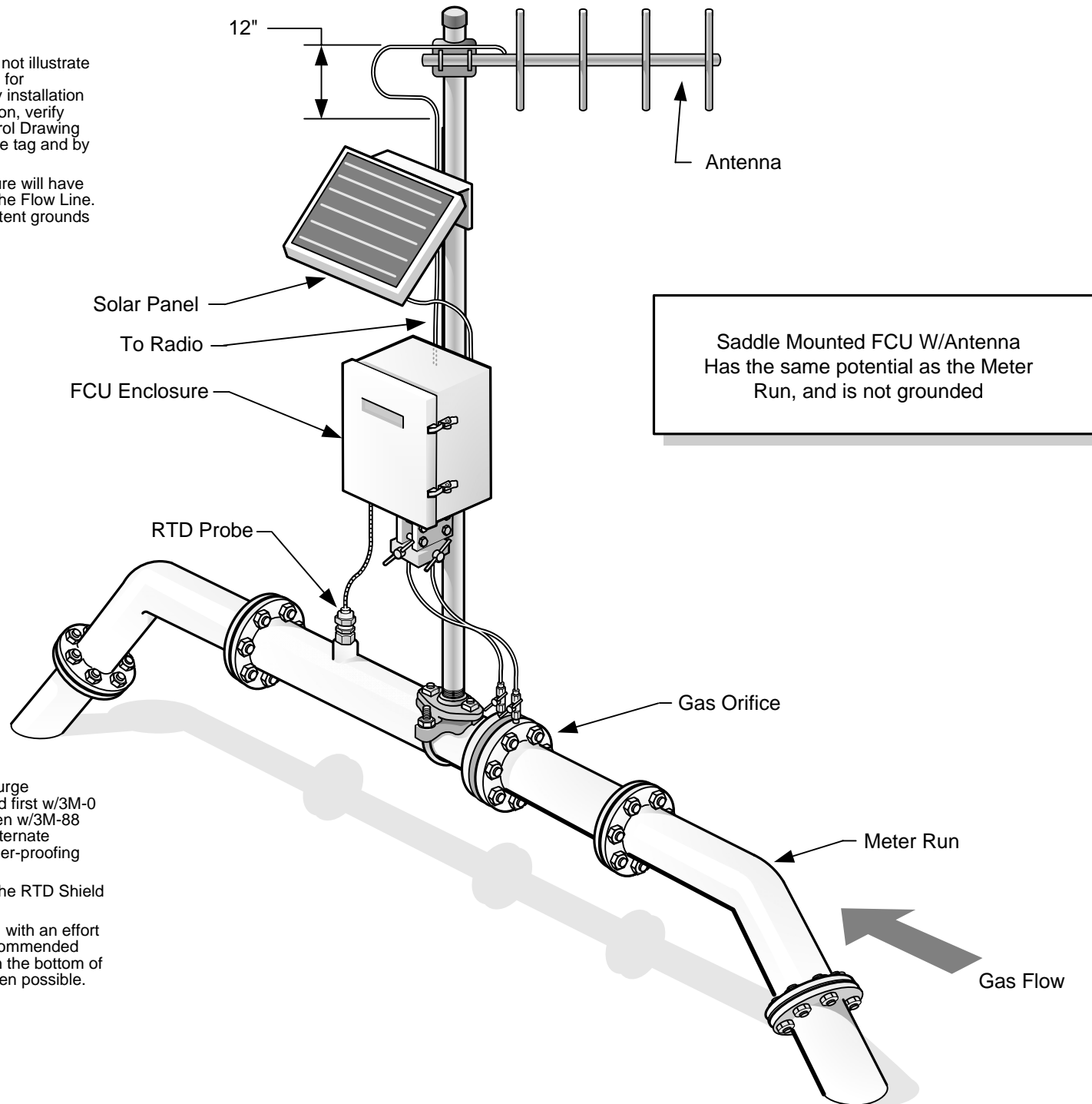


3. For Saddle Mount installations, the RTD Shield should not be cut-off.
4. Mounting pole should be capped, with an effort made to keep water out. It is recommended that all cabling be routed through the bottom of the flow computer enclosure, when possible.

ABB	TOTALFLOW	ACTION	DOC TYPE	TITLE	DWG NO.	REV	SHEET
	Products	D30119	UD	GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	2103150	AC	5 OF 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.

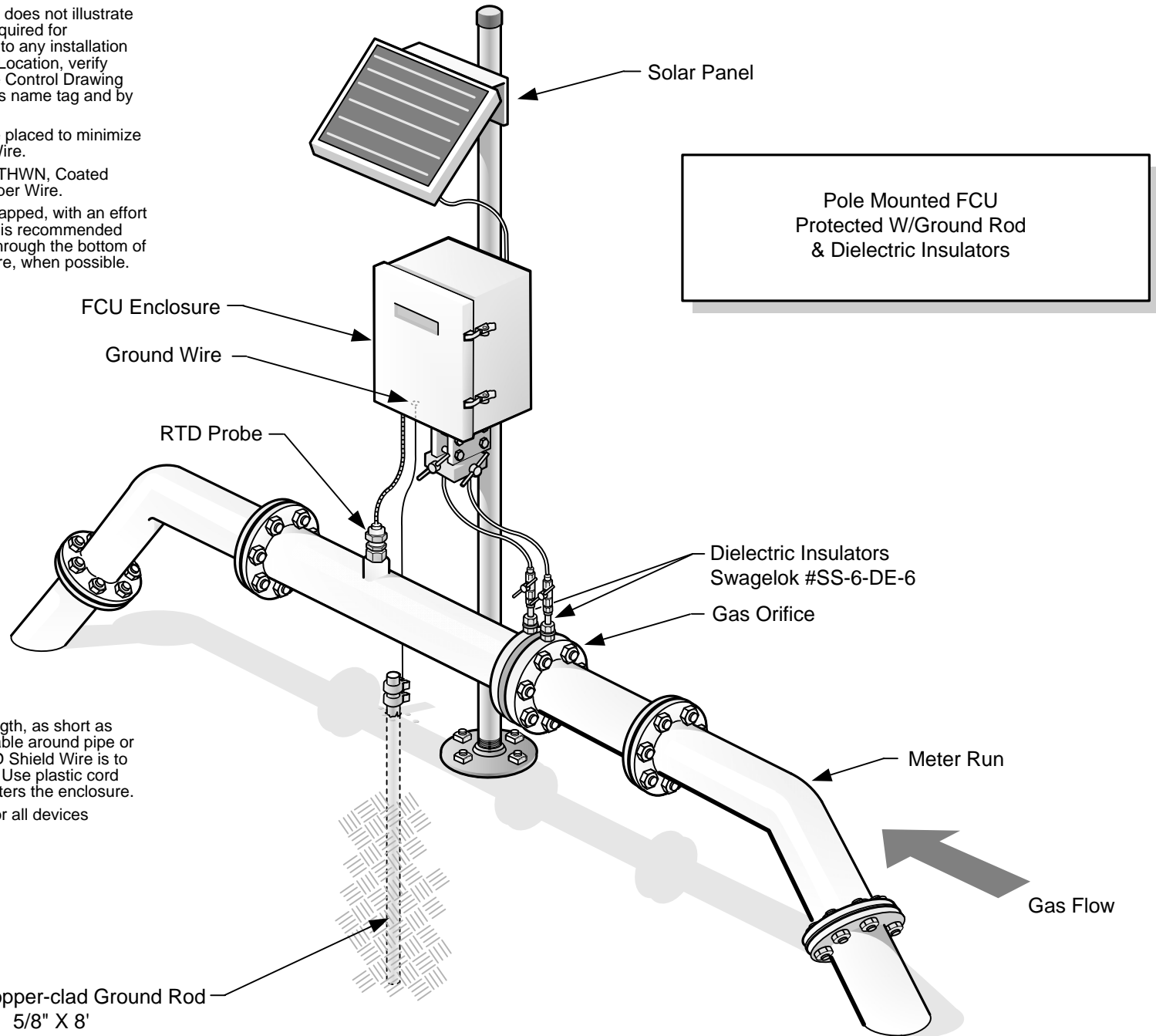


3. Coax connectors (to antenna, surge suppressor, etc.) should be taped first w/3M-0130C Rubberband Tape, and then w/3M-88 Plastic Electrical Tape. For an alternate method, use Polyphasors Weather-proofing Kit, WK-1.
4. For Saddle Mount installations, the RTD Shield should not be cut-off.
5. Mounting 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.

ABB	TOTALFLOW	ACTION	DOC TYPE	TITLE	DWG NO.	REV	SHEET
	Products	D30119	UD	GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	2103150	AC	6 OF 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. 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.

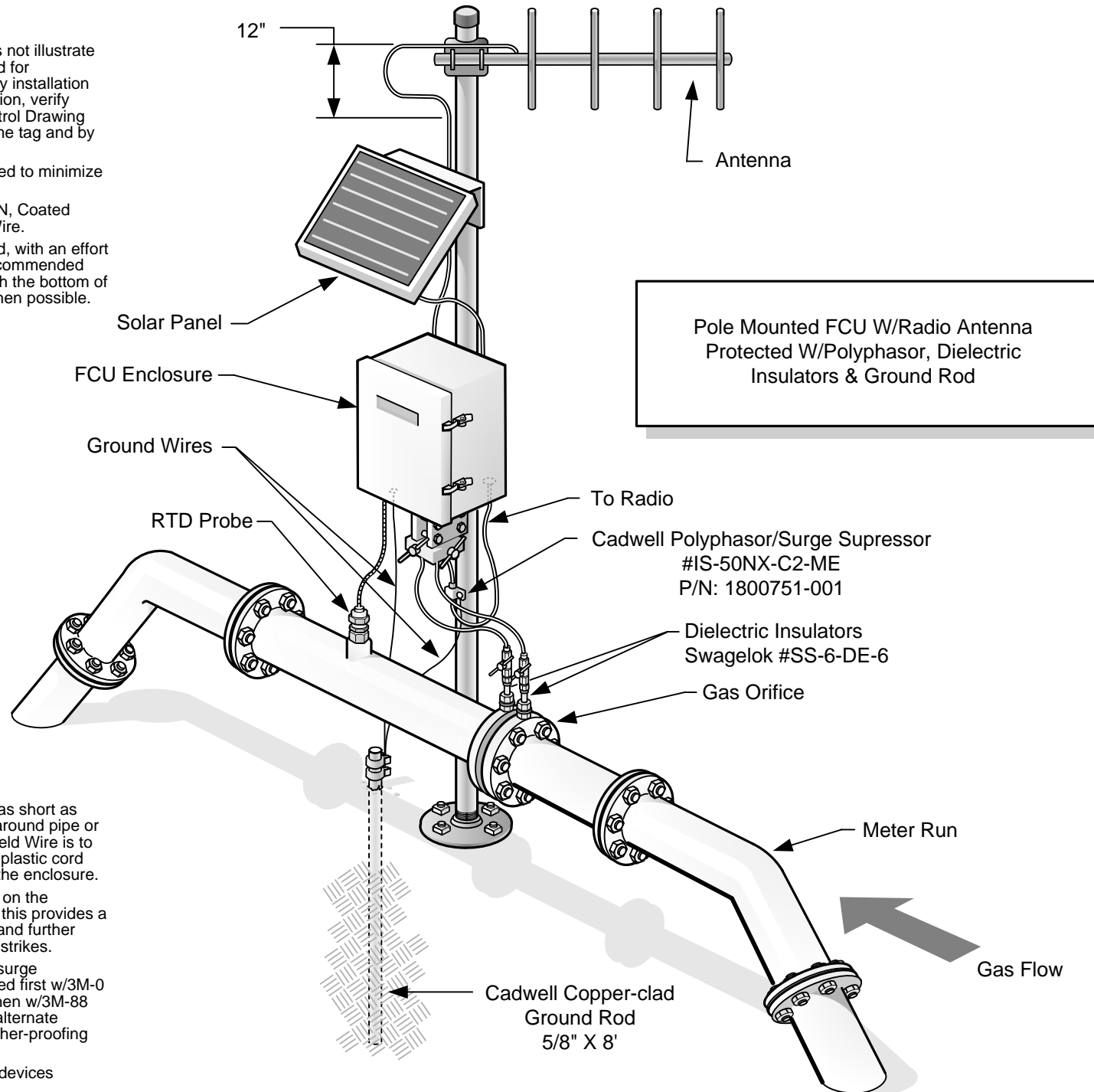


5. RTD Cable to be cut to length, as short as possible. DO NOT wrap cable around pipe or curl-up excess length. RTD Shield Wire is to be cut and not terminated. Use plastic cord connector, where cable enters the enclosure.
6. Use Dielectric Insulators for all devices attached to the FCU.

ABB	TOTALFLOW	ACTION	DOC TYPE	TITLE	DWG NO.	REV	SHEET
	Products	D30119	UD	GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	2103150	AC	7 OF 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. 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.

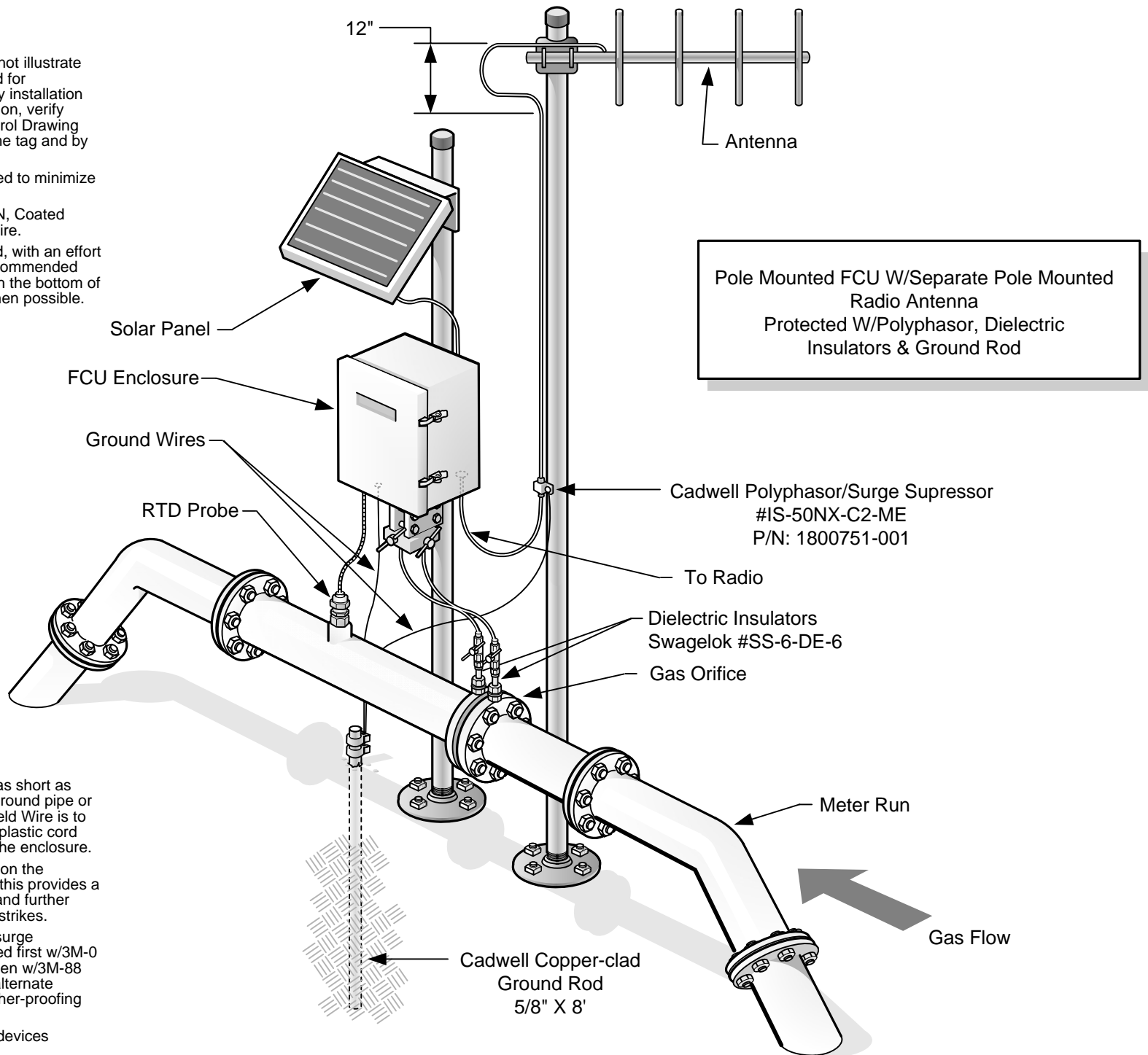


5. RTD Cable to be cut to length, as short as possible. DO NOT wrap cable around pipe or curl-up excess length. RTD Shield Wire is to be cut and not terminated. Use plastic cord connector, where cable enters the enclosure.
6. Mounting the surge suppressor on the antenna pole is recommended: this provides 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-0 130C 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.

ABB	TOTALFLOW	ACTION	DOC TYPE	TITLE	DWG NO.	REV	SHEET
	Products	D30119	UD	GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	2103150	AC	8 OF 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. 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.



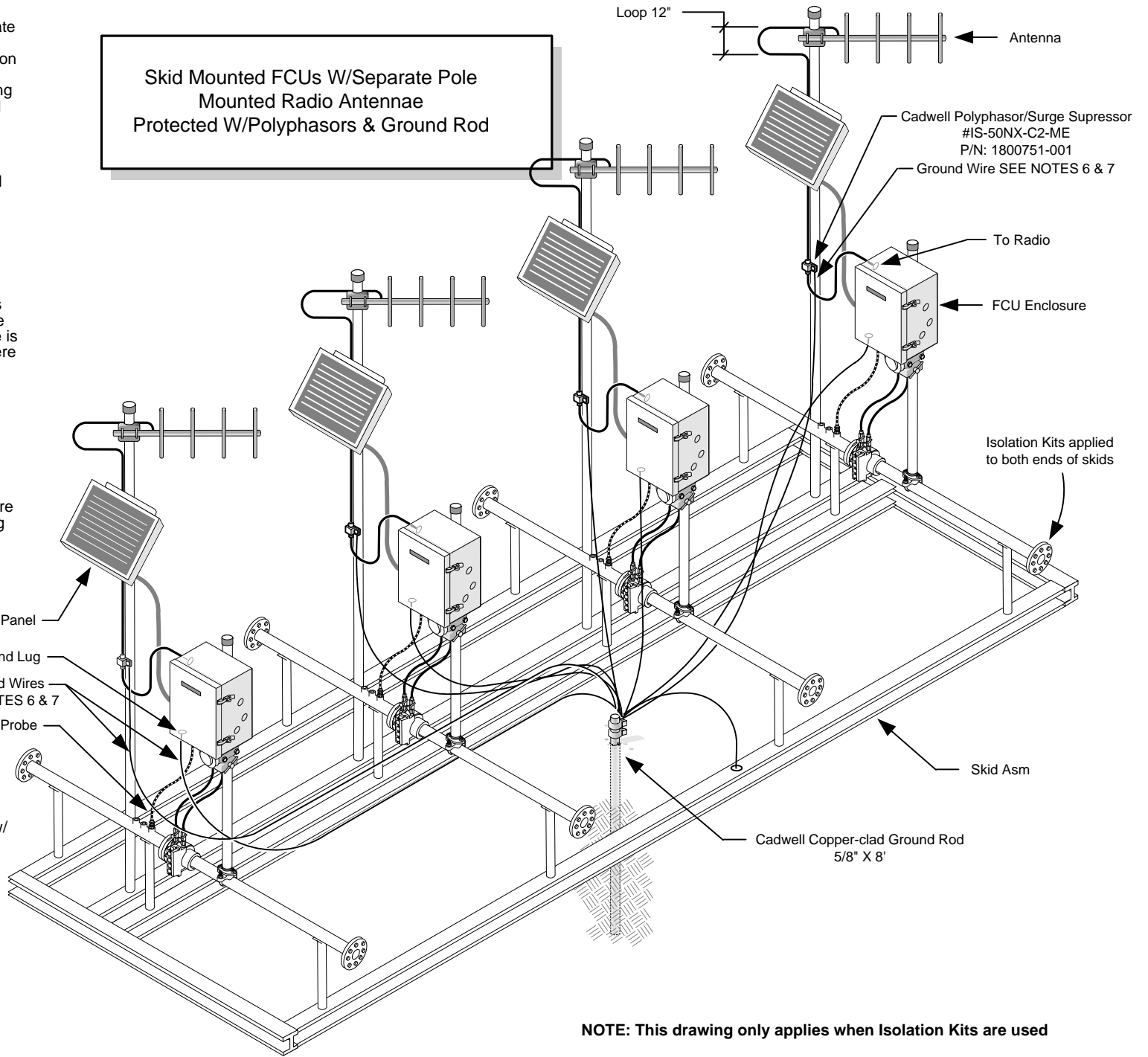
5. RTD Cable to be cut to length, as short as possible. DO NOT wrap cable around pipe or curl-up excess length. RTD Shield Wire is to be cut and not terminated. Use plastic cord connector, where cable enters the enclosure.
6. Mounting the surge suppressor on the antenna pole is recommended: this provides 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-0 130C 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.

ABB	TOTALFLOW	ACTION	DOC TYPE	TITLE	DWG NO.	REV	SHEET
	Products	D30119	UD	GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	2103150	AC	9 OF 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. 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.

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



NOTE: This drawing only applies when Isolation Kits are used

ABB	TOTALFLOW Products	ACTION D30119	DOC TYPE UD	TITLE GROUND & SURGE PROTECTION; FLOW COMPUTER MOUNTS	DWG NO. 2103150	REV AC	SHEET 10 OF 10