



SILVERSPRING
NETWORKS

Single Channel Rotary and Turbine Meter IMU Installation

April 6, 2011



Overview

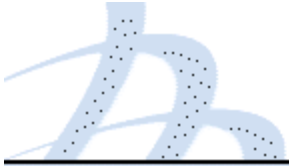
- Connect the pulser and IMU cables
- Connect the IMU battery cable
- Configure the IMU for field use
- Attach the mounting plate and the cover to the IMU enclosure
- Attach the IMU and mounting plate to the pipe or wall



Safety First!



- **Always follow applicable standards for safety!**
- **Refer to the meter documentation for further safety information.**
- **Follow your employer's best practices.**
- **If you smell gas, report it to the utility.**
- **Do not use power tools!**



RF Exposure Notice (509)

- The antenna of this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- The device should be installed so that people will not come within 20 cm (8 in.) of the antenna.
- This equipment has been tested and found to comply with Part 15 of the FCC Rules, and with Industry Canada licence-exempt RSS standard(s). This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is disconnected.
 - Consult the dealer or an experienced Radio/TV technician for help.

Modifications to the IMU not expressly approved by Silver Spring Networks may void your authority to operate the IMU.



Components and Tools

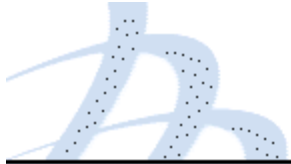
- Components:

Component	Qty.	Part Number
SSN IMU (top level, includes hardware)	1	224-040001

- See next page for hardware component detail

- Tools:

- Flathead screw driver (capable of torque setting)
- Phillips screw driver (capable of torque setting)
- Pliers
- Nut driver
- Service magnet



Components



Screws 10-24 x 1/2



Tamper Seals



Mounting Plate



Flanged nut 10-24

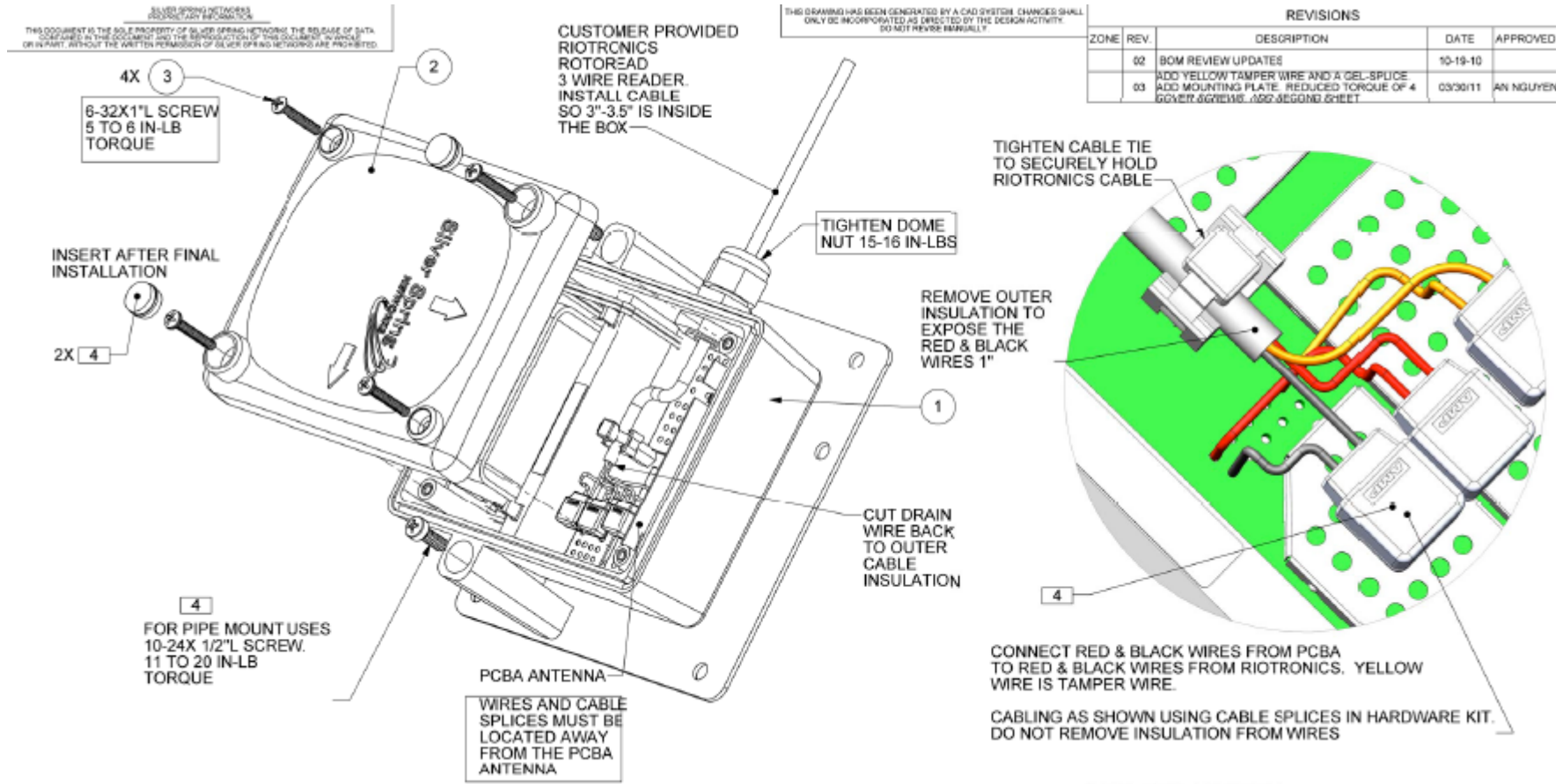


Pipe clamp



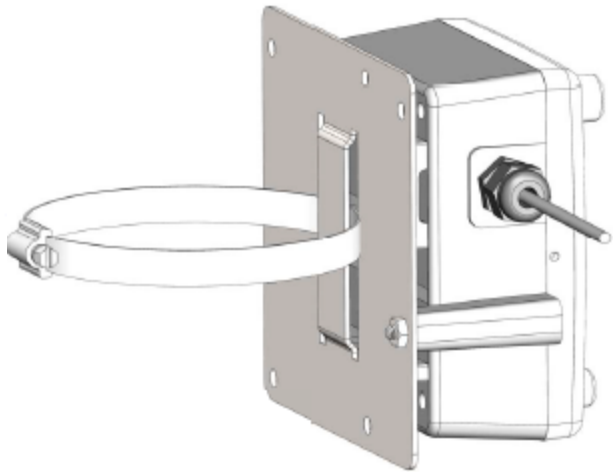
Cover screws, 6-32 x 1"

Assembly Drawing (Single Channel Rotary and Turbine Meter IMU)

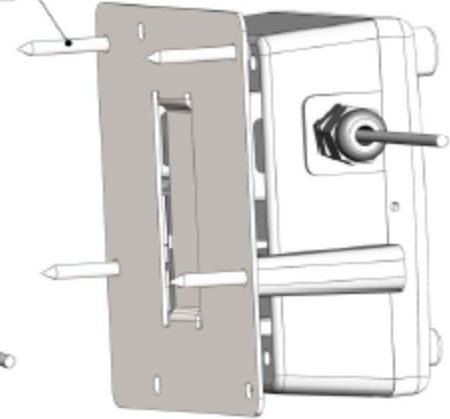


Assembly Drawing (Single Channel Rotary and Turbine Meter IMU)

VERTICAL PIPE MOUNT OPTION



WALL MOUNT OPTION



10-16X1 1/2"L
SELF TAP SCREW.
TORQUE UNTIL SCREW
BOTTOM OUT

4X

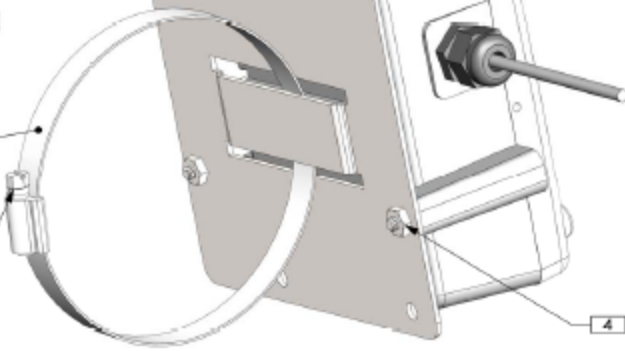
4

4

12 TO 20 IN-LB
TORQUE

4

HORIZONTAL PIPE MOUNT



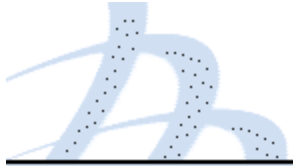
Inspect the Pulsar Cable

- Inspect the end of the pulsar cable that will connect to the IMU.
 - There should be three wires exiting the outside insulation.
 - The red and black wires are insulated.
 - The 3rd wire is bare coming out of outside insulation, with a white sleeve on the end.
- If needed, trim the pulsar wires so the conductor is flush with the insulation and sleeve.



Insert photo

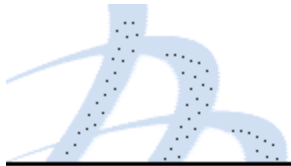
Pulsar installation onto the gas meter is not covered here. Refer to the pulsar manufacturer's installation instructions.



Inspect the IMU

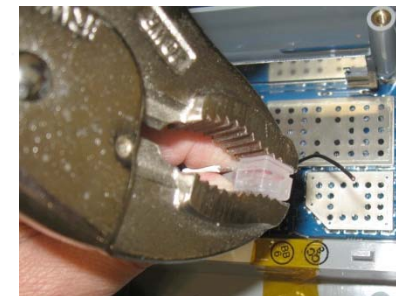
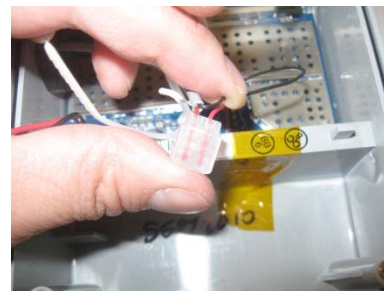
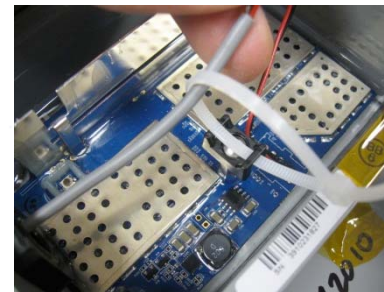
- Verify that the IMU has 3 wires
- Verify that the enclosure is not cracked and that the MAC Address label is present
- Verify that the battery connectors are undamaged.
- Verify

If the IMU is damaged, return it to your supervisor and get a replacement.



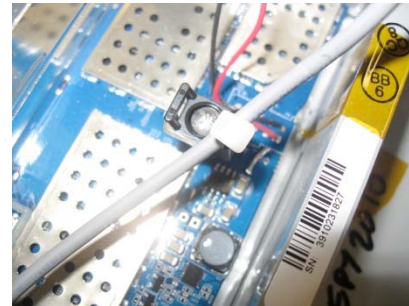
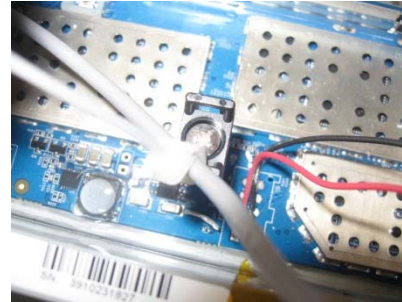
Connect the Pulsar to the IMU

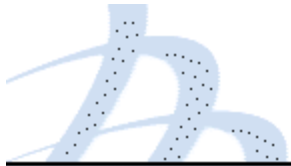
- Thread the pulser cable through the cable seal connector.
- Thread the pulser cable through the tie wrap.
- Connect the 3 cables with the gel splices.
 - Do not strip the insulation from the wires.
 - Insert the wire pair (red and red, black and black, white and white) to be connected into a gel splice; push all the way forward.
 - Close the gel splice by squeezing the gel splice with pliers.
 - Repeat for the 3 pairs of wires



Connect the Pulsar to the IMU

- Make sure the 3 gel splices are to the right of the cable tie.
- Tighten the cable tie. This provides extra strain relief for the cable.
- Trim the cable tie.
- Leave 1" of cable slack inside the IMU, and pull the rest of the cable out of the cable seal connector.
- Tighten the cable seal connector.





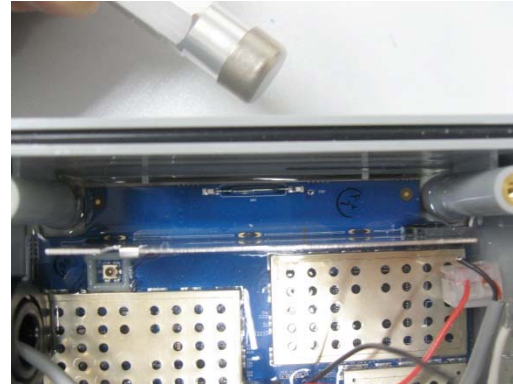
Connect the Battery Cable Connector

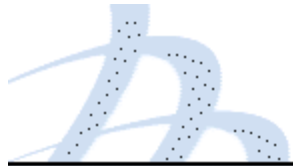
- Connect the battery cable to the IMU cable. The connectors are keyed; you will not need to force them together.
- Put the battery inside the battery compartment as shown.
 - The connector fits underneath the battery.
 - The flat part of the battery should be next to the inside wall.



Program the IMU for Field Use

- Slowly pass the service magnet once (for 2 to 5 seconds) over the top of the IMU.
- Watch for the light-emitting diode (LED) to flash on the lower left corner of the IMU circuit board
 - If you don't see the LED flash, make sure the battery cable connections are made.
 - If you still don't see the LED flash after checking that all the battery connections are made and re-swiping the magnet, return the IMU to your supervisor. **Insert photo**
- Configure the IMU with the programming tool. (Field Configuration is a separate document).





Inspect the Gasket and Fasten the Cover

- Re-inspect the gasket to ensure it seals the area between the enclosure and cover. **Insert photo**
- Fasten the cover to the enclosure with the 4 cover screws.
 - The Silver Spring logo faces up
 - Torque the cover screws to xxx
- Use a nut driver to push two tamper seals into the openings on the IMU cover.



Attach the IMU Enclosure to the Mounting Plate

- Determine where you want to install the IMU. This will determine if the plate should attach to the pipe horizontally or vertically.

The photos here show a vertical attachment.

- Attach the IMU enclosure to the mounting plate with the 2 screws and 2 flanged nuts.
 - Torque the screws to...



Attach the IMU and Mounting Plate to the Pipe

- Guide the metal clamp through the slot in the mounting plate.
- Wrap the metal clamp around the pipe.
- Tighten the metal clamp around the pipe by torquing the screw to 12-20 in lb.

