TLS RF Wireless System
Quick Startup Guide

(iii) Making Electrical Connections

1. Connect Mag-Probe/Mag-Sump-sensor wires to the left connector and battery connections to the right connector.
2. Verify that green LED (Fig.12) flashes every 6 seconds followed by the adjacent red LED.
3. Make sure the LED closest to J3 connector in RCVR also flashes with an interval of 6 seconds or smaller. Make sure both the RS485 Transmit & Receive LEDs flash.
4. Close the lid.

⚠️ **Make sure the rubber gasket (O-ring) is properly placed on the inner lining of lid and on screws that secure lid. Overtightening lid screws may result in plastic damage resulting in water infiltration.**

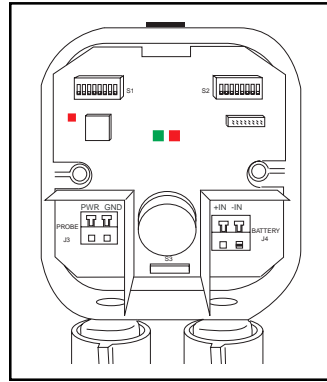5. Similarly install all other transmitters.

Fig. 12

F. Connect TLS to TLS-RF

1. In this example, device output 1 (Item 1 Fig. 13) is a Mag probe - Observe polarity.
2. In this example, device output 2 (Item 2) is a Mag Sump Sensor - Observe polarity.
3. 0.5 inch (12.7mm) i.p.s. conduit (Item 3) to TLS console.
4. Probe interface module (Item 4) in TLS console.
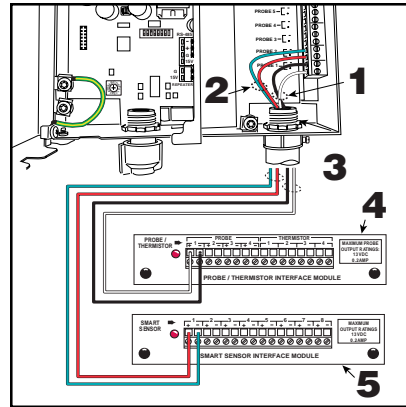5. Smart Sensor interface module (Item 5) in TLS console.

Fig. 13

G. Repeater Installation

Install repeater with clear line of sight to maximum number of transmitters as possible. You can give power to repeater (Item 1 Figs. 14/15) either:

• From Receiver (Item 2 Fig. 14), or
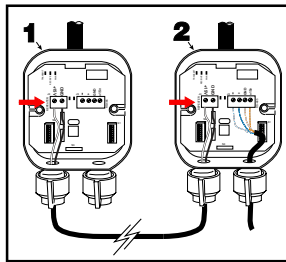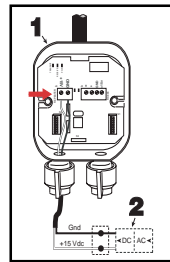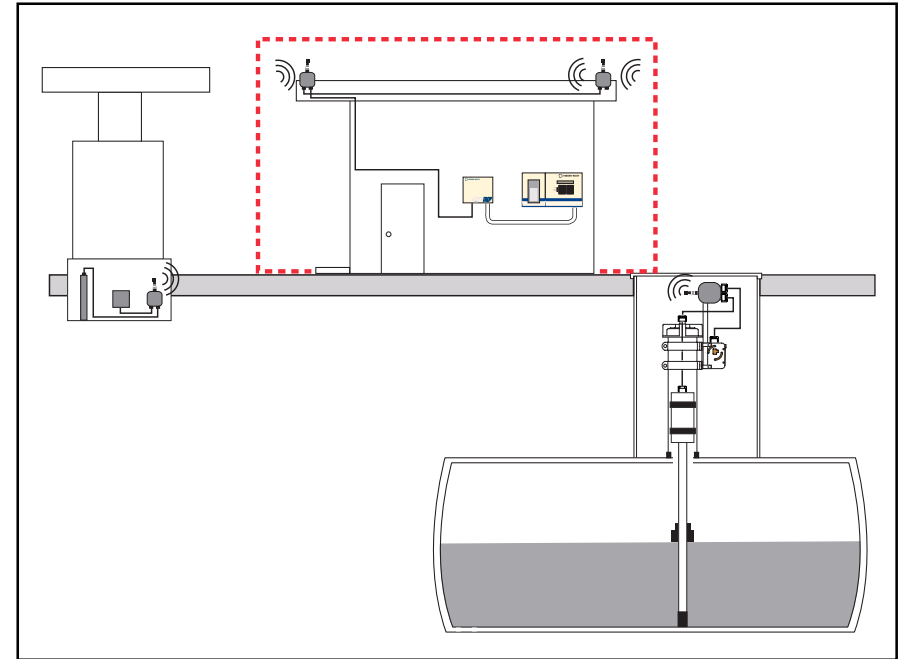• From a 15V/100mA power adapter (Item 2 Fig. 15)

Fig. 14   **Fig. 15**

H. Installation Verification

Select the Diagnostic Mode in the TLS Console and go to In-Tank Diagnostic Function. Verify that all Mag probe/Mag Sump Sensor serial numbers correctly match their installed locations.

VEEDER-ROOT

A. Install TLS-RF:

1. Mount TLS-RF unit indoors on 4 holes separated vertically by 5.7 inches/ 145 mm and horizontally by 6.7 inches/170mm and using screws up to 0.187 inch/4.7mm diameter (dimensions shown in Fig. 1 are maximums).
2. Install 0.5 inch/12.7mm metal conduit on upper knockout on TLS-RF and 15A circuit breaker in power panel, or a 5A switched fuse spur with neon indication.
3. Turn off all the 8 DIP switches inside TLS-RF.
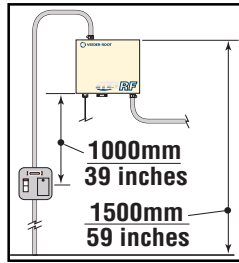⚠ 4. **Make arrow in rotary switch point to "1".**

**1000mm
39 inches
1500mm
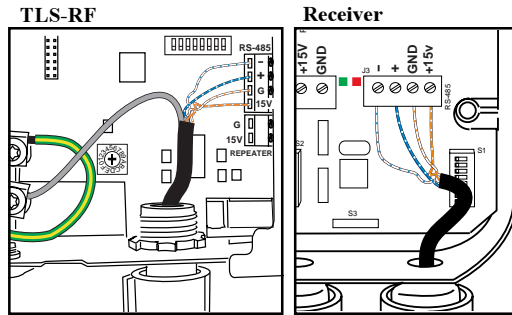59 inches**

Fig. 1

B. Install RCVR

Fig. 2

Fig. 3

1. In TLS-RF connect 1 end of the RS-485 cable (Belden #3107A or equiv.) to RS-485 connectors - one twisted pair connects to terminals (- & +) and the second twisted pair connects to terminals (+15 & G).
2. Connect the shield of the RS-485 cable to the ground lug.
3. Run the RS-485 cable to Receiver, maximum length 250 feet/76 m.
4. In Receiver, turn off all 16 DIP switches marked as S1 & S2.
5. Connect 2nd end of RS-485 cable to RS-485 connectors as shown.

C. Connect Power to TLS-RF, check PWR LED inside RCVR

1. From an independent 24 hour power supply at the distribution panel, run three 2.5 mm2 (minimum) standard color coded wires (item 1 in Fig. 4); two for ac power and one for earth to the fused spur.
2. Run one #12AWG (4 mm2) barrier ground wire (color coded green/ yellow) from the earth bus bar at the distribution panel direct to the console location. Leave at least 1 meter of free cable for connection to the console.
3. Turn on power.
4. Near the left-lower corner inside TLS-RF, verify that POWER LED is on and RX-485 TX LED is flashing at a fast rate (10 times a second).
5. Near the top-central part inside Receiver, verify that PWR LED is ON and RECEIVE LED is also flashing at the same rate. Else check RS-485 wire connection.
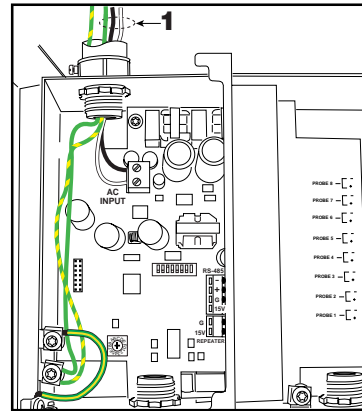

Fig. 4

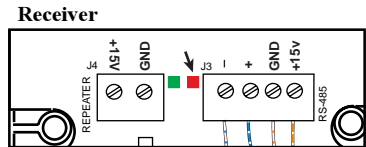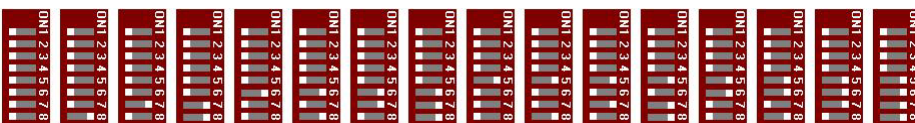## D. Set Station ID Inside Receiver

Fig. 5

Watch red LED, D8, between the 2 connectors, J4 & J3, for more than 2 minutes, it should not flash (even once). If it does, meaning it is receiving packets from nearby station, change to another station ID on S2 DIP switches (see example settings below). Note down Station ID for use in transmitter set-up.

ID:0   1   2   3   4   5   6   7   8   9   10   11   12   13   14   15

E. Install XMTR

1. Set the station ID, same as in receiver, on S2 DIP switches inside transmitter. Make sure switches 1 through 4 are turned off unless you want to use non-standard mode (refer site-prep manual).
2. Set unique Device ID for every transmitter on S1 DIP switches (4-8) inside transmitter (see below):
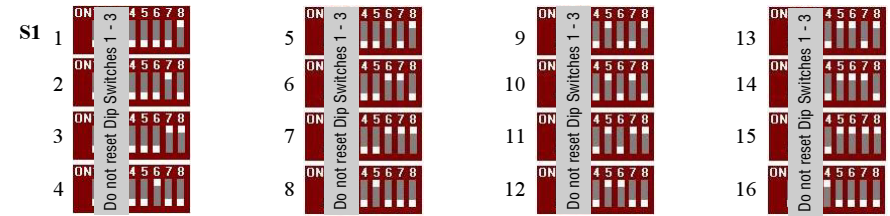
3. Mount transmitter & battery pack.

⚠ **Antenna is a sensitive part, please don't try to rotate, unscrew or bend it and handle carefully. For best communication quality, transmitter antenna should be horizontal and point in the direction of receiver.**

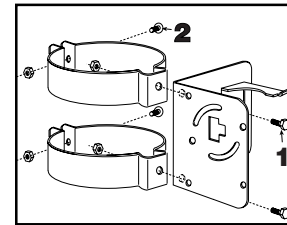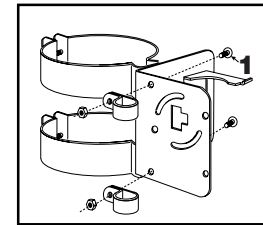**(i). Installing Transmitter on Mag Probe Riser**
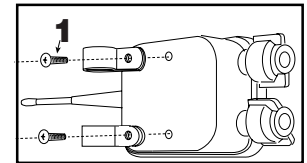

Fig. 6

Fig. 7

Fig. 8

1. Bolt appropriate size hangers to Battery pack support bracket as shown using 1/4 x 20 x 0.5" (13 mm) hex head bolt/nuts (Item 1 Fig 6) - 2 places.
2. Loosely attach conduit hanger tightening bolts using 1/4 x 20 x 1.25 inch (32 mm) hex head bolt/nuts (Item 2 Fig. 6) – 1 each hanger.
3. Attach 2 small clamps to bracket as shown using two #10 x 0.5 inch (M5x0.8 x 12.7) screws and nuts (Item 1 Fig. 7).
4. Attach 2 small clamps to back of transmitter as shown using #10 x 0.5 inch (M5x0.8 x 12.7) taptite screw (Item 1 Fig. 8) - 2 places. (Go to iii).
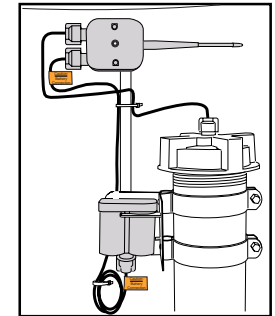

Fig. 9

(ii). Installing Transmitter in Dispenser Sump

1. Transmitter (Item 1 Fig. 10) attaches to battery support bracket using 2-#10 x 0.5 inch (M5x0.8 x 12.7) taptite screws (Item 2 Fig. 10).
2. Get 1x 6 inch (25 x 152mm) slotted flat bar and two 0.25 x 3 inch (13 x 76mm) bolts (Item 1 Fig. 11) from kit and clamp battery support bracket to square tubing support. (Go to iii).
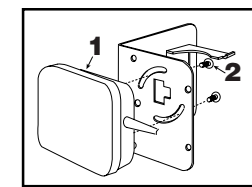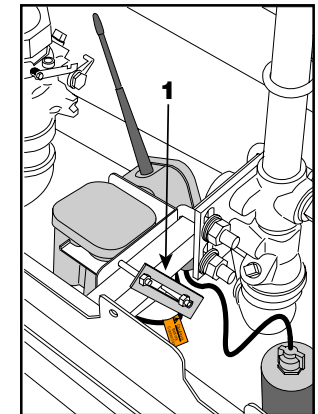

Fig. 10

Fig. 11