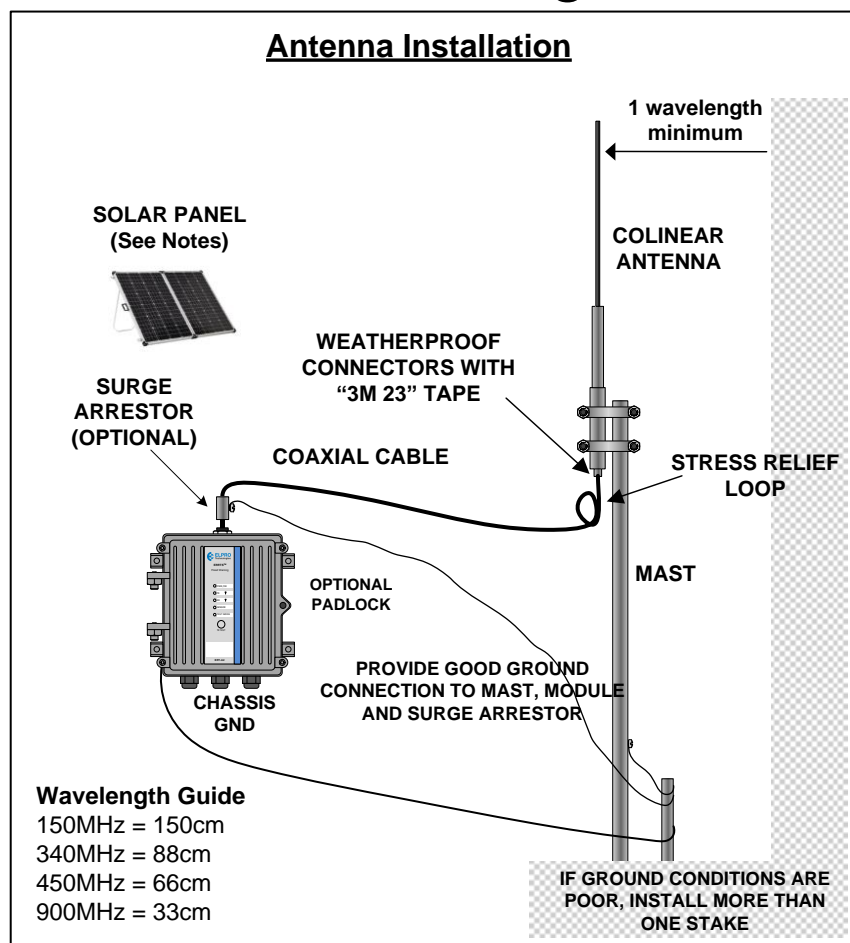


ERT-A2-MIL

Installation / Wiring Guide

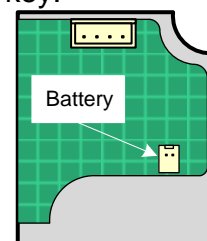


Internal Battery Connection:

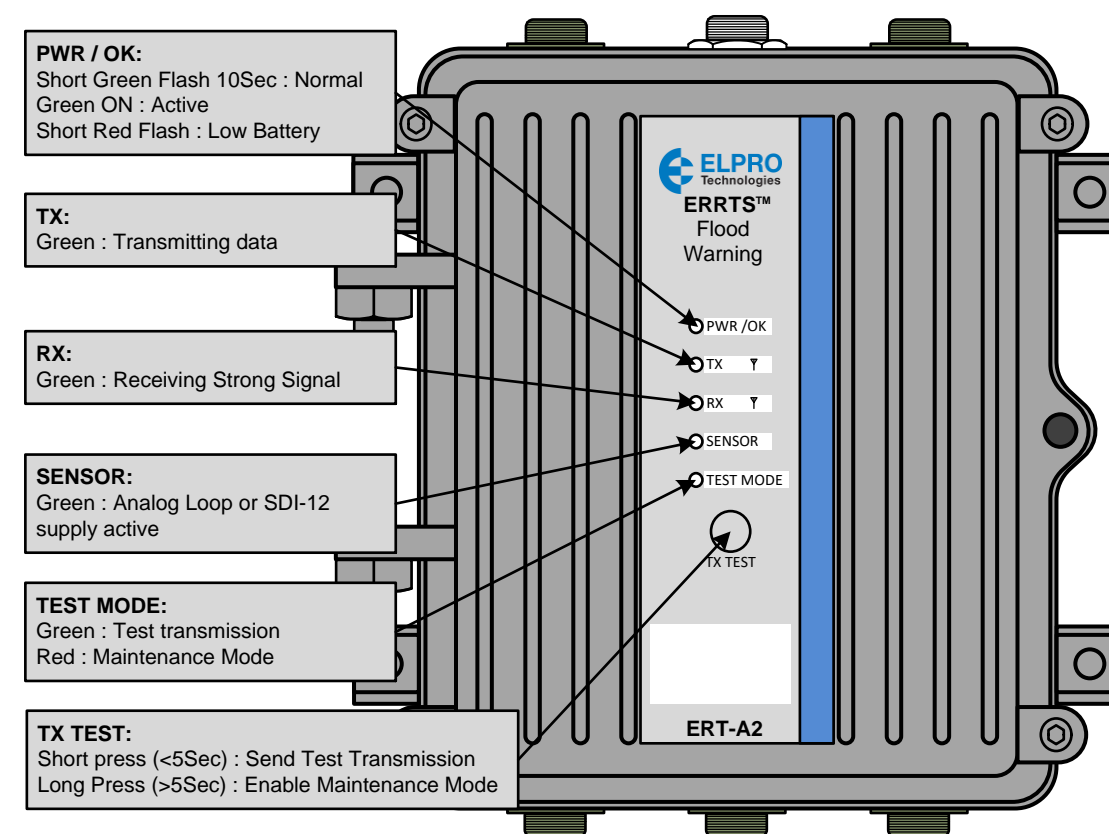
If unit has internal battery option, the battery is not connected to unit during shipping.

To connect the internal battery:

- Remove the battery holder by removing the two Philips screws and then remove the battery bracket.
- Locate the battery connector on the ERT-A2 circuit board at the top right of battery as shown in picture below.
- Plug the battery cable connector into the two pin connector on circuit board being careful to get the correct orientation for the connector key.



- Once battery is connected the unit will power ON and with the default configuration start transmitting a data packet.
- In normal operation you will see the PWR/OK Led flash every 10 seconds.



WARNING!
EXPLOSION HAZARD

DO NOT DISCONNECT WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS

Statutory Requirements

EC: Unlicensed operation limits the radio power. High gain aerials may only be used to compensate for cable losses.

SERIAL	
A	RX Data (DTE IN), Pin 3 DB9
B	TX Data (DTE OUT), Pin 2 DB9
C	Common
D	SDI-12 Data
E	SDI-12 +12 V supply
F	Common

SOLAR	
A	Solar Input
B	Common
C	+12V Battery Output

RAINGUAGE	
A	Contact Input (DIO3)
B	Common
C	N/C
D	Common
E	Common

SHAFT ENCODER	
Incremental	
A	Digital (DIO1)
B	N/C
C	Digital (DIO1)
D	Common
E	Direction (DIO2)
Quadrature	
A	N/C
B	N/C
C	Digital (DIO1)
D	Common
E	Digital (DIO2)

ANALOG	
A	AIN1+ Signal Loop
B	AIN1 - Signal Loop
C	Loop Supply (+24V)
D	Common

CONFIGURATION

- You will need a terminal program to configure the ERT-A2 unit. Putty or TerraTerm are free to download for this purpose.
- Once you have terminal program installed run it and connect the ERT-A2 unit to the laptop using a USB type A to type B cable (printer cable)
- Set the terminal serial data rate to 9600,n,8,1.
- Press enter and you should see a login as below:

- Engineer
- Technician

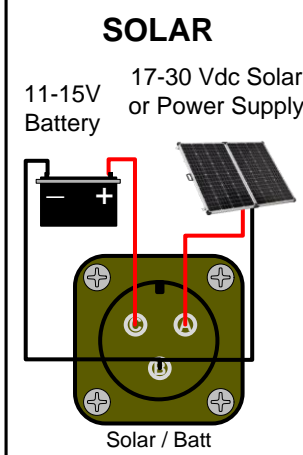
- There are two levels of user access. To configure the unit, select menu option 'a' to select Engineer access and enter the default password "Elproeng" and a configuration menu will appear.
- Begin configuration by selecting option 'a' in the menu and entering details as required.
- "Quick Setup" menu option provides a basic configuration with default sensor inputs and recommended update and paralysis to get started.
- Its recommended to use default settings through Quick Setup menu option where possible for best battery life.

Environmental Specification:

Ingress Protection	IP66 / IP67
Operating Temperature ext supply	-40 to 70°C (-40 to 158°F)
LFP rechargeable battery	-20 to 60°C (-4 to 140°F)
LiP non-rechargeable battery	-40 to 70°C (-40 to 158°F)
Altitude	2000m
Pollution Degree	4
Internal Humidity	Max 95% non-condensing

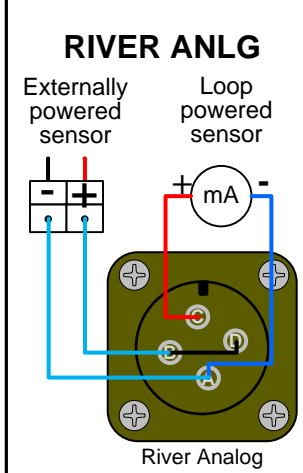
POWER SUPPLY

- A: SOL (17-30Vdc):** 5-30W solar panel (12V Panel) or external 17-30V power supply to power unit or charge internal/external battery (ONLY LFP or SLA).
- B: GND:** Power supply system ground
- C: BAT (11-15Vdc):** Internal battery if fitted or connect external battery with 5A fast blow fuse.



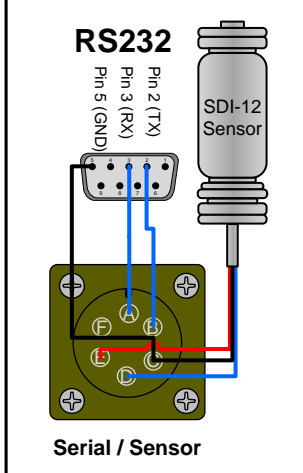
4-20mA ANALOG INPUTS

- A: AIN1 +:** Analog + input 2/3 wire, source/sink loop powered. 30Vdc max
- B: AIN1 -:** Analog - input 2/3 wire, source/sink loop powered. 30Vdc max
- C: +24 LOOP:** 4-20mA Loop power supply. Switched on for warmup plus sample period. 50mA MAX
- D: GND:** Analog input ground



SMART SENSOR

- A: RX Data (DTE In) Pin3, DB9:** ALERT Data to Base
- B: TX Data (DTE Out) Pin2, DB9:** ALERT Data to Base
- C: GND:** Common
- D: SDI-12:** Sensor Data IN/OUT
- E: SDI-12 Vsup:** SDI-12 Sensor Supply (500mA Max)
- F: GND:** Common



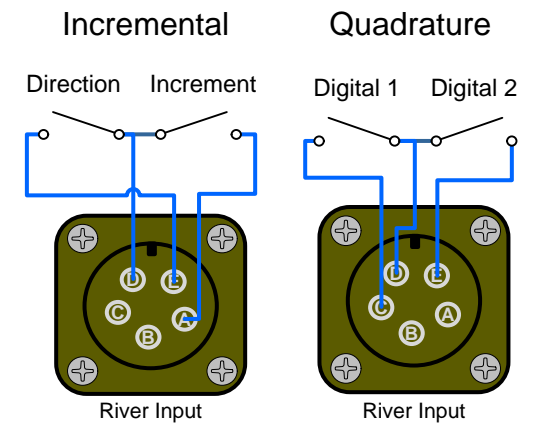
SHAFT ENCODER

Incremental

- E: GND:** Common
- A: DIO1:** Incremental input
- E: DIO2:** Direction

Quadrature

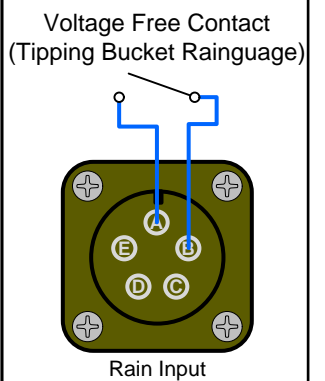
- D: GND:** Common
- C: DIO1:** Digital input
- E: DIO2:** Digital input



RAIN INPUTS

- A: DIO3:** Pulse Rain Input (TBRG)
- B: GND:** Common ground
- C: N/C:** Not Connected
- D: GND:** Common
- E: GND:** Common

RAIN



NOTES:

All I/O connections must be SELV Solar and external power supply/ battery charger:

- 17-30Vdc Supply or internal battery charger input, 2A NEC Certified Class 2
- Solar panel to charge internal/external 12V battery (30W, charge current 2.0A MAX)
- 11-15Vdc battery supply input

WARNING: DO NOT connect external supply to BAT input with internal battery option connected.

WARNING: Solar input is suitable for solar panels rated as 12V nominal only. 24V solar panel can produce open circuit voltages in excess of 44Vdc which will exceed the rated input of the solar regulator and cause damage.

Important Notices

ELPRO products are designed to be used in industrial environments by experienced industrial engineering personnel with adequate knowledge of safety design considerations. ELPRO radio products can be used unprotected license-free radio bands with radio noise and interference. The products are designed to operate in the presence of noise and interference, but in an extreme case radio noise and interference can cause product operation delays or operation failure. Like all industrial electronic products, ELPRO products can fail in a variety of modes due to misuse, age, or malfunction. We recommend that users and designers design systems using design techniques intended to prevent personal injury or damage during product operation and provide failure tolerant systems to prevent personal injury or damage in the event of product failure. Designers must warn users of the equipment or systems if adequate protection against failure has not been included in the system design. Designers must include this Important Notice in operating procedures and system manuals. These products should not be used in non-industrial applications, or life-support systems, without consulting ELPRO first. A radio license is not required in some countries, provided the module is installed using the aerial and equipment configuration described in the Installation Guide. Check with your local distributor for additional information on regulations. Operation of unlicensed equipment is authorized by the radio frequency regulatory authority in your country on a non-protection basis. Although all care is taken in the design of these units, there is no responsibility taken for sources of external interference. Systems should be designed to be tolerant of these operational delays. To avoid the risk of electrocution, the aerial, aerial cable, data/IO cables and all terminals of the module should be electrically protected. To provide maximum surge and lightning protection, the module should be connected to a suitable ground and the aerial, aerial cable, IO, data cables and the module should be installed as recommended in the Installation Guide. To avoid accidents during maintenance or adjustment of remotely controlled equipment, all equipment should be first disconnected from the module during these adjustments. Equipment should carry clear markings to indicate remote or automatic operation. For example: "This equipment is remotely controlled and may start without warning. Isolate at the switchboard before attempting adjustments." The equipment operates unlicensed radio frequencies, proprietary protocols to communicate over the radio, cyber security features and encryption. Nevertheless, if your system is not adequately secured, third parties may be able to gain access to your data or gain control of your equipment via the radio link. Before deploying a system, make sure that you have carefully considered the security aspects of your installation and read the user documentation.

Proper Use

Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment. Any such unauthorized modifications: (1) constitute "misuse" and/or "negligence" within the meaning of the product warranty, thereby excluding warranty coverage for any resulting damage; and (2) invalidate product certifications or listings.