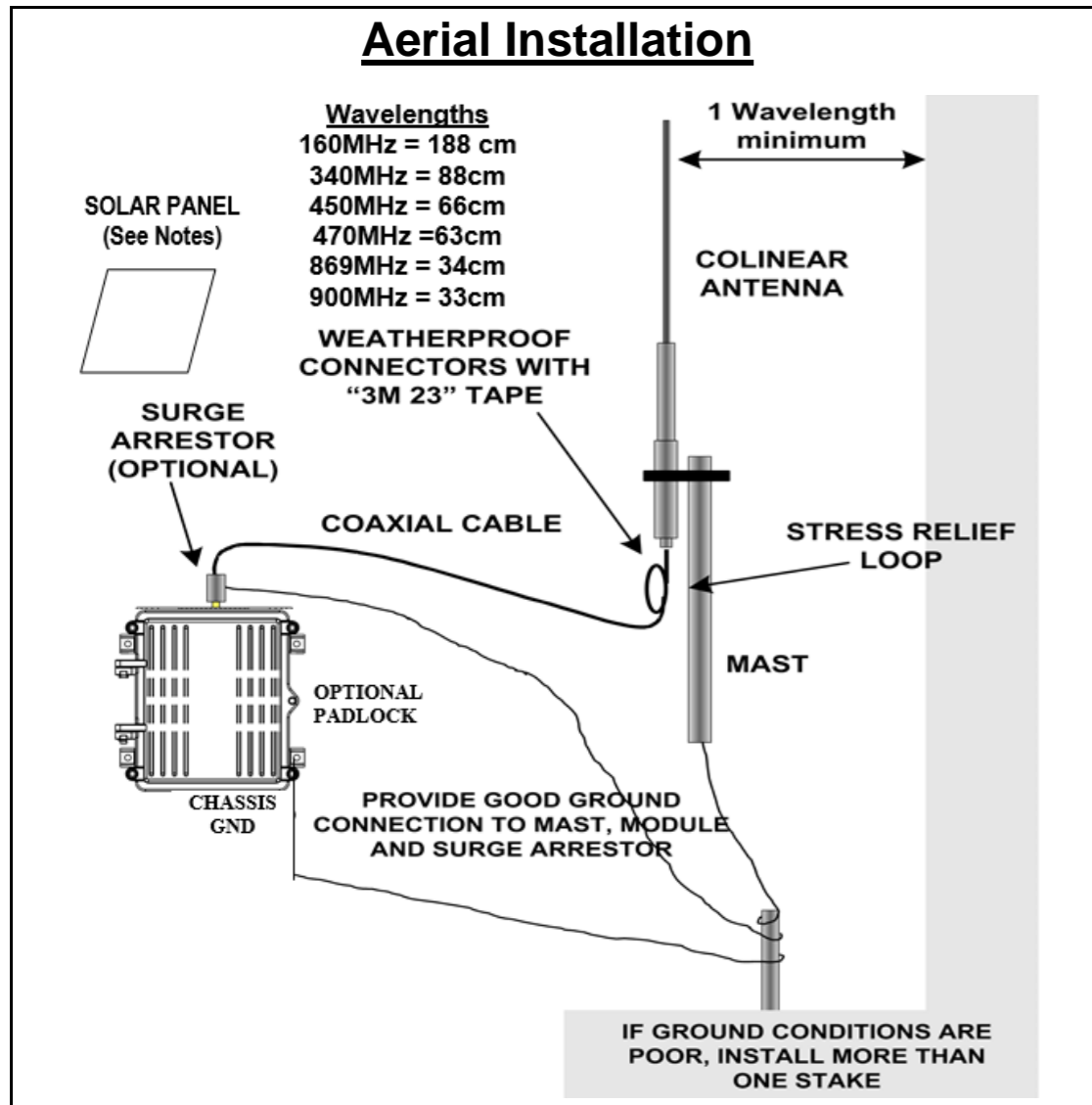


ERT-A2-M

Installation Guide Mil-Spec Connectors



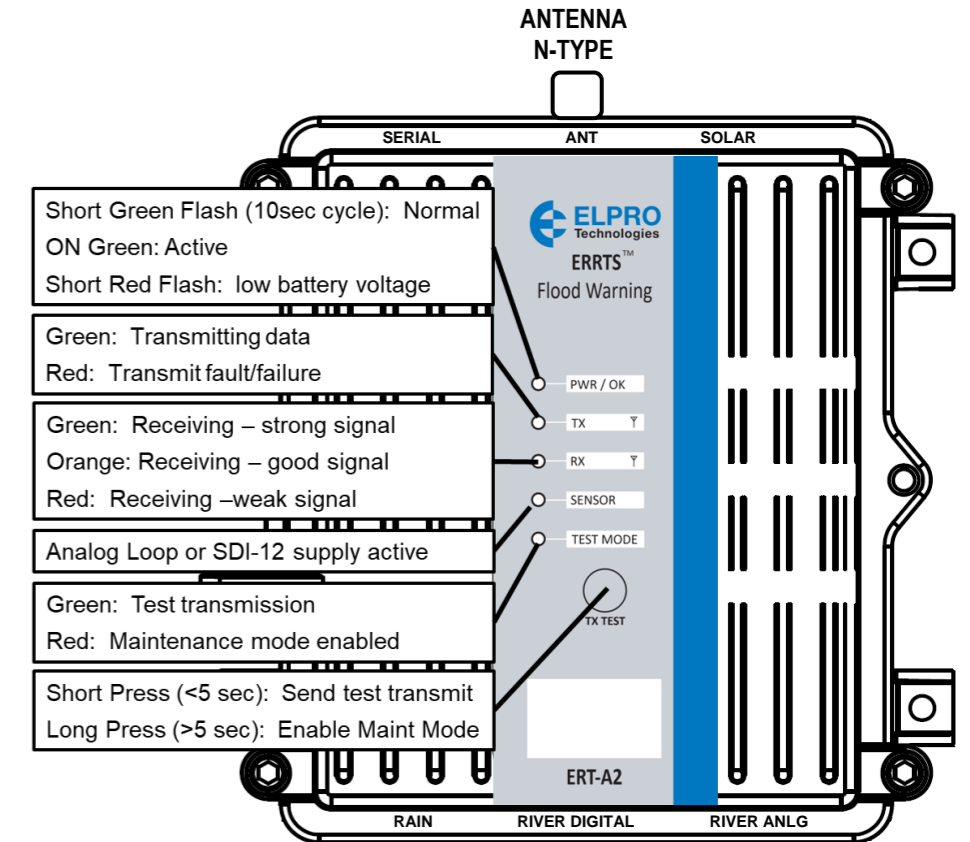
Internal Battery Connection:

If unit has internal battery option, the battery is not connected to unit during shipping. To connect the 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 (RS-232)	
PIN No	DESCRIPTION
A	RX DATA (DTE IN)
B	TX DATA (DTE OUT)
C	COMMON
D	SDI-12 +12V SUPPLY
E	SDI-12 DATA
F	COMMON

SOLAR	
PIN No	DESCRIPTION
A	SOLAR INPUT
B	COMMON
C	+12V BATTERY OUTPUT

RAIN GAUGE	
PIN No	DESCRIPTION
A	CONTACT INPUT (DIO3)
B	COMMON
C	N/C
D	COMMON
E	COMMON

SHAFT ENCODER (Incremental)	
PIN No	DESCRIPTION
A	DIGITAL (DIO1)
B	N/C
C	DIGITAL (DIO1)
D	COMMON
E	DIRN INDICATION (DIO2)

SHAFT ENCODER (Quadrature)	
PIN No	DESCRIPTION
A	N/C
B	N/C
C	DIGITAL (DIO1)
D	COMMON
E	DIGITAL (DIO2)

RIVER ANALOGUE	
PIN No	DESCRIPTION
A	LOOP SIGNAL +VE (AIN1+)
B	LOOP SIGNAL -VE (AIN1-)
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:
 - a) Engineer
 - b) Technician
- There are two levels of user access. To configure the unit you need to type 'a' to select Engineer access and enter the default password "Elproeng" and a configuration menu will appear.
- In the main menu start by selecting option 'a' and configure the station type.
- Flood warning applications go to "ALERT quick Setup" and follow prompts which will setup basic sensors of rain, river and battery voltage defaults for transmission.
- Update and transmission paralysis times can be setup to complete initial configuration. Its recommended to keep these settings at defaults or long for best battery life.

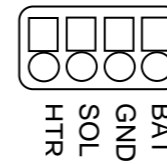
POWER SUPPLY

BAT (11 – 15Vdc): Internal battery if fitted or connect external battery.

SOL (15-30Vdc): 5-30W solar panel or external 24W power supply to power unit or charge internal/external battery.

GND: Power supply system ground

HTR (2A MAX): Low side switch to GND to allow for internal heater to warm battery. ON @ 0°C, OFF @ 2°C



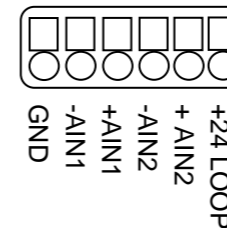
4-20mA ANALOG INPUTS

GND: Analog input ground

AIN1 +/-: Analog input 2/3 wire, source/sink loop powered

AIN2 +/-: Analog input 2/3 wire, source/sink loop powered

+24 LOOP: 4-20mA Loop power supply. Switched on for warmup plus sample period. 50mA MAX



SMART SENSOR

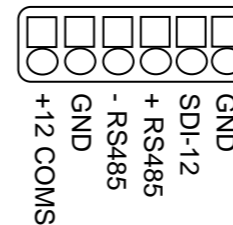
+12COMS: Power supply to SDI-12 sensor (500mA MAX). Switched to power sensor only for warmup time plus sample period.

GND: Smart sensor ground

RS485 +/-: ALERT2 data out for Base Station Receiver

SDI-12: Data IN/OUT for sensor

GND: Smart sensor ground



Notes:

- Battery Charger/Solar and external Power Supply:
- (A) 15-30Vdc Supply or internal battery charger input, 1.5A NEC Certified Class 2
 - (B) Solar panel to charge internal/external 12V battery (30W, charge current 2.0A MAX)
 - (C) 11-15Vdc battery supply input

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

All I/O connections must be SELV

Environmental Specification

Ingress Protection	IP66
Operating Temperature	-40 to 70°C (-40 to 158°F)
Altitude	2000m
Pollution Degree	4
Internal Humidity	Max 95% non-condensing

DISCRETE INPUTS

GND: Discrete inputs ground

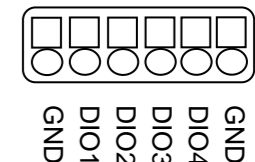
DIO1: ON/OFF, pulse or encoder with DIO2

DIO2: ON/OFF, pulse or encoder with DIO1

DIO3: Pulse or ON/OFF input

DIO4: ON/OFF input

Discrete input DRY contact close to ground
Encoder DIO1/DIO2 can be quadrature or incremental



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 are used on 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 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, serial 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, serial 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 module is not suitable for use in explosive environments without additional protection. The operates unlicensed radio frequencies and proprietary protocols to communicate over the radio. 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.

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.