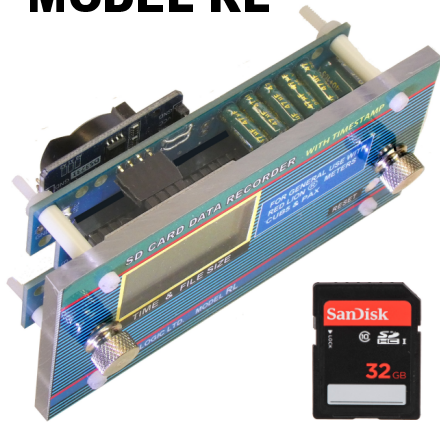


ADD-ON DATA LOGGER FOR RED LION™ METERS

MODEL RL

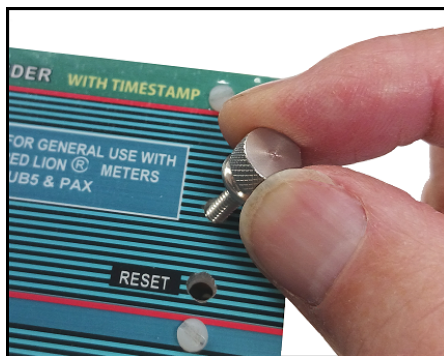
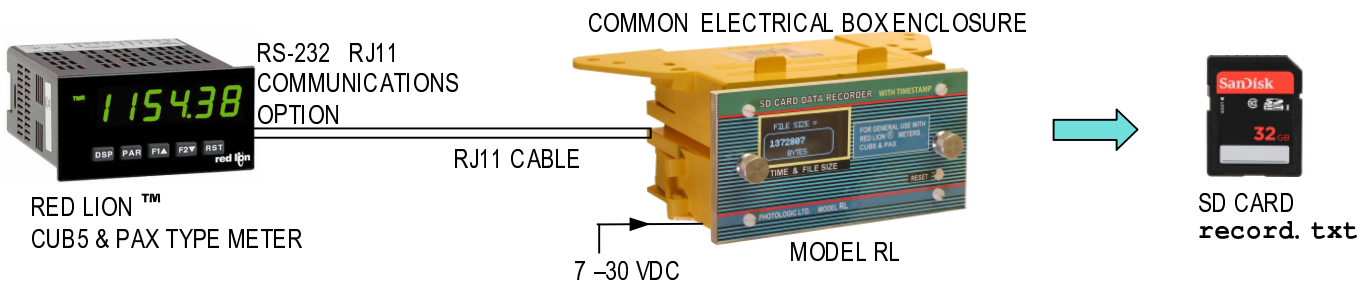


MODEL RL LOGGER



MODEL RL FASTENS INTO COMMON ELECTRICAL BOXES TO PROVIDE USER FLEXIBILITY IN MOUNTING METHODS.

- Turn a Red Lion™ meter (CUB5 & PAX) into a recording meter with time stamp.
- A simple, stand alone, independent system. No PC or PLC required
- Plugs into the optional serial communications card of the Red Lion™ meter.
- Compatible to many Red Lion meters: CUB5 and PAX .



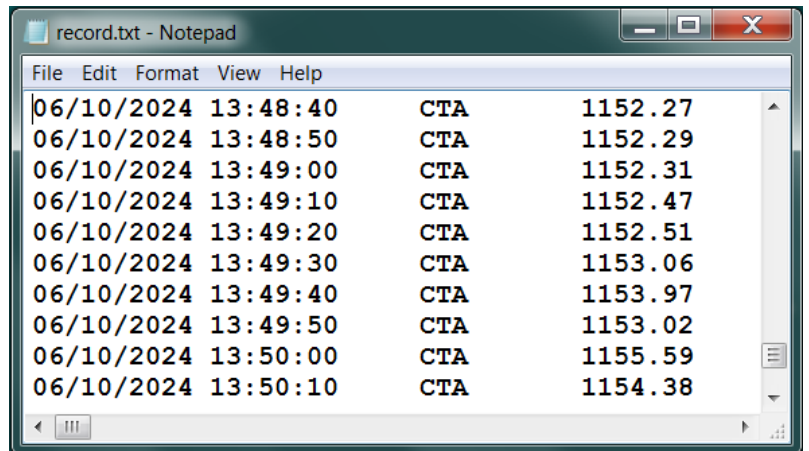
The SD Card is secured behind the front panel for protection.

The front panel can be released without a screwdriver using a thumbscrew.

RESET:

The thumbscrew can conveniently activate the recessed Reset Button when a new configuration is to be set.

EXAMPLE RESULT: record.txt



MODEL RL TIMESTAMP

METER REGISTER

METER VALUE

FEATURES:

User Configurable Sample Rate:

Sample meter value every 10 seconds to every 50,000 seconds. Use **config.txt** resident on the SD Card. This provides the user with choice of the most appropriate recording frequency.

Set config.txt To Retrieve Multiple Meter Registers:

In addition to logging the meter Input value, the user can also record other registers that the Red Lion™ meter may support. Typical registers in the meter may include:
Input, Total, Max/Min Input, Setpoints, Count A, Count B, Rate.

Time Stamp Each Meter Value:

Each sample that is received from the meter is Date-Time Stamped by the RL Unit. This is an extraordinarily necessary function for the user to be able to later analyse logged measurement data.

Front Panel Display:

Offers constant user feedback of recorder status by displaying:

- 1.) Time progressing in seconds shows meter is powered and operating.
- 2.) File size of **record.txt** increasing with data received is updated every sample.
- 3.) SD Card Error displayed. SD Card is checked after every sample Write.

The display offers user assurance of successful logging.

User Choice of Various Enclosures:

Model RL fits into a common, inexpensive electrical outlet.

- This enclosure style limits access to the SD Card by requiring Thumbscrew unfastening of the RL Unit. The card is protected, but can be accessed without a screwdriver.
- User may choose a specific outlet style to satisfy mounting methods such as fastening at top, bottom, side or back.
- Use the enclosure punch-outs and break-offs to obtain enclosure mounting flexibility.
- A cutout can be made in the bottom of the enclosure by the user to give direct access to the SD Card without removing the thumbscrews.
- Some outlets offer waterproof/dustproof or locking features with transparent door access.

32 GB SD Card Capacity:

The user can record meter values for weeks, months, and years.

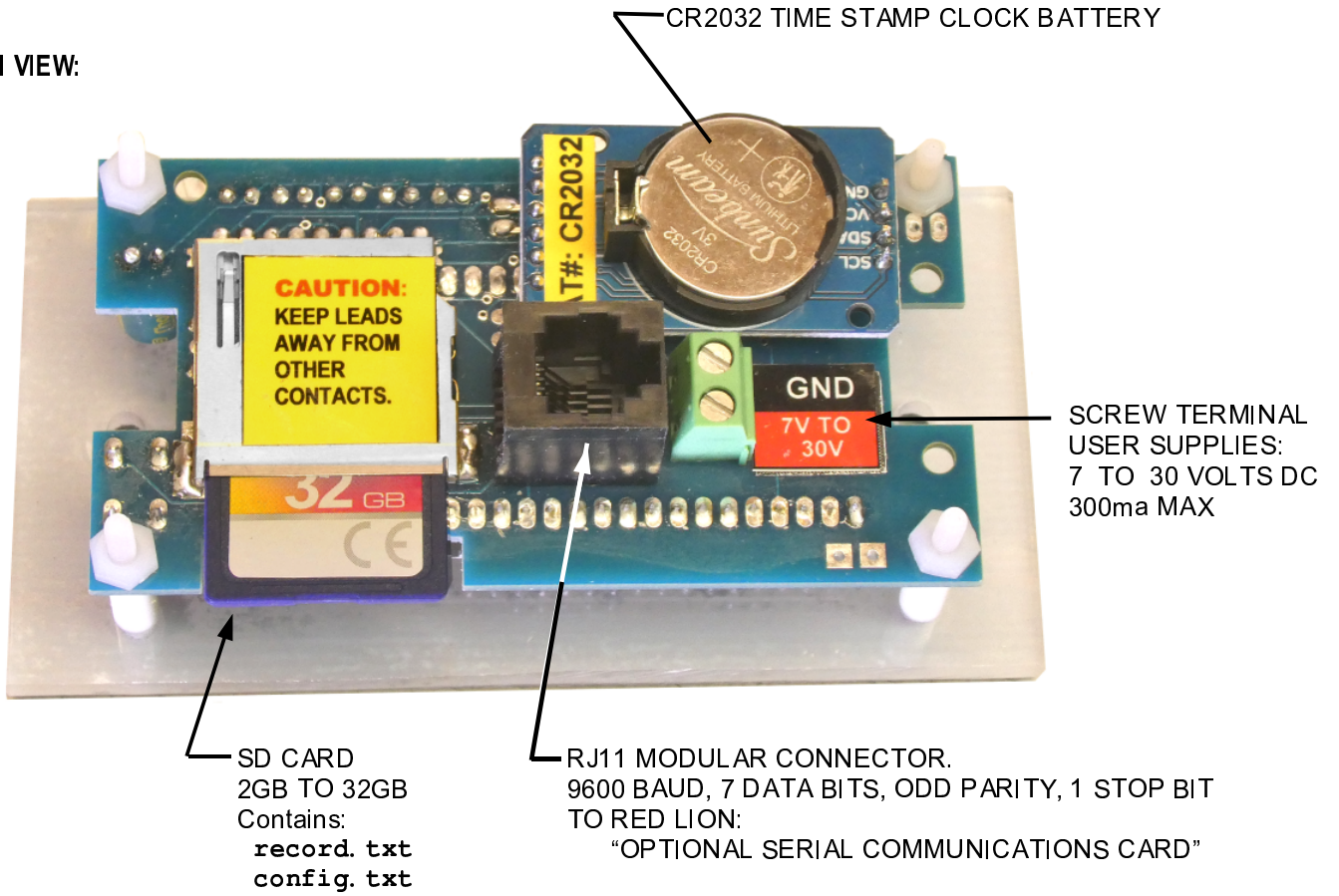
- Storage capacity of 32 GB equates to approximately 32,000,000,000 characters or $32\text{GB} / 60 \text{ characters/meter reading} = 500 \text{ million readings}$.
- If a meter reading is recorded every 10 seconds, then the maximum logging period would be: $500 \text{ million readings} / 10 \text{ sec} = 50 \text{ million seconds} = 578 \text{ days}$

Easy Connectivity To Red Lion™ Meter:

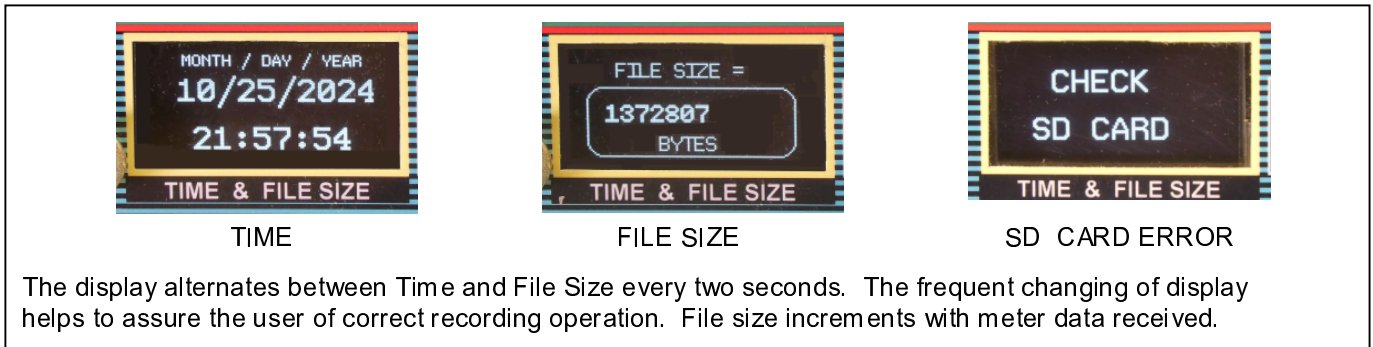
The meter must have "SERIAL COMMUNICATIONS PLUG-IN OPTION CARD" installed.

- This option card may be one of three Red Lion™ versions:
 - 1.) RJ11 Connector
 - 2.) Screw Terminal Block
 - 3.) DB9 9 Pin Female ReceptacleModel RL is available with versions to support any of the above.
- For RJ11 connection, just plug in cable.
- RJ11 modular cable is run from the RL unit to the meter. The user may extend the modular cable from 2 feet to at least 50 feet.
- Model RL does not draw any power from the meter as the RL Unit has it's own separate independent power input of 7 to 30 volts DC supplied by the user.

BOTTOM VIEW:



DISPLAY



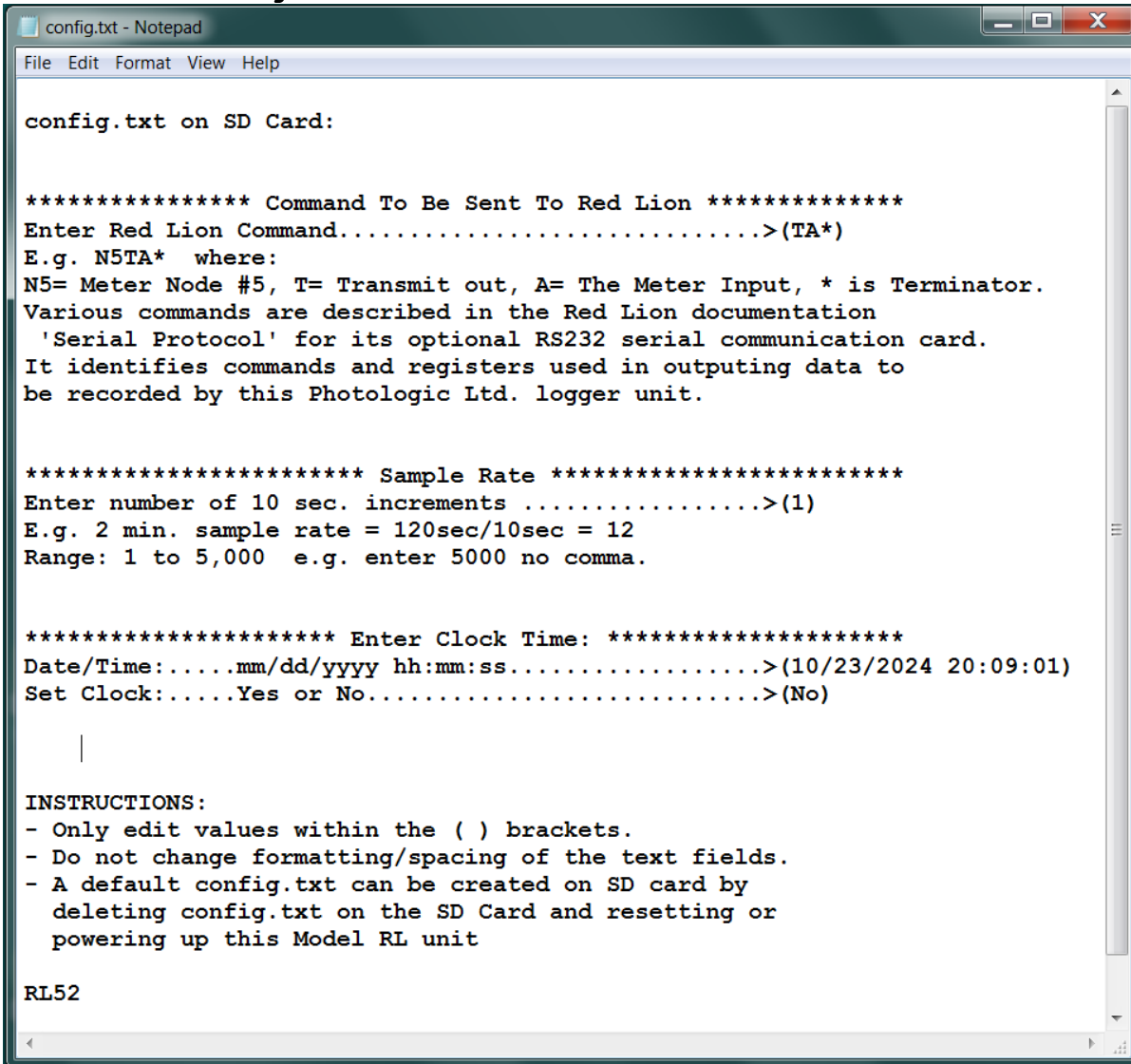
MOUNT RL UNIT INTO VARIOUS COMMON ELECTRICAL BOXES:



Model RL fits into common, inexpensive boxes to provide easy mounting options. Use the knock out holes and break-off tabs to suit your need. Some boxes are available for outdoor use.

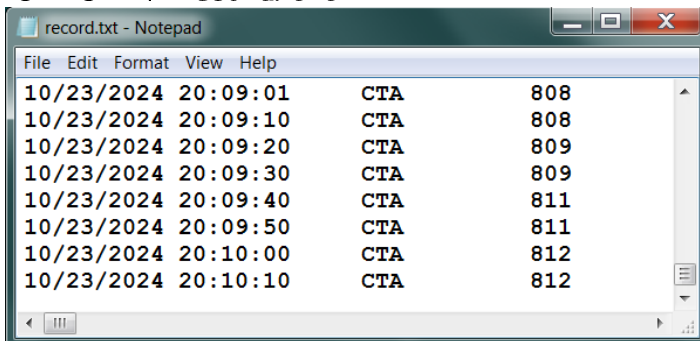
CONFIGURATION FILE:

SD CARD > config.txt



In sample above the character string: **TA*** is sent to the Red Lion™ meter every 10 seconds. The meter then transmits the meter display value (e.g. volts, count, etc.) from meter register **A**. The RL Unit appends the response to record.txt with a timestamp.

LOGGING RESULT: record.txt



↑
RL UNIT TIMESTAMP

↑
COUNTER A REGISTER

↑
VALUE

COMMANDS FOR YOUR METER:

See the Red Lion™
Serial Communications Protocol
(Sending Commands)

BASIC OPERATION:

After configuration is set in `config.txt` file, the logger automatically transmits a command to the Red Lion meter, (e.g. every 10 sec.). For each transmission, the meter returns the measurement data. The logger appends the measurement data to SD Card `record.txt` file. The measurement data is time stamped by the logger.

COMMANDS FOR YOUR METER:

In the Red Lion™ user guide for your specific model of meter, locate the section: **Serial Communications Protocol** (Sending Commands)

Charts exist such as this example below for a Model PAX meter:

Command Chart

Command	Description	Notes
N	Node Address Specifier	Address a specific meter. Must be followed by one or two digit node address. Not required when node address = 0.
T	Transmit Value (read)	Read a register from the meter. Must be followed by register ID character.
V	Value change (write)	Write to register of the meter. Must be followed by register ID character and numeric data.
R	Reset	Reset a register or output. Must be followed by register ID character.
P	Block Print Request (read)	Initiates a block print output. Registers are defined in programming.

Register Identification Chart

ID	Value Description	Register ID	Applicable Commands/Comments
A	Input	INP	T, P, R (Reset command [Ver2.5+] zeroes the input ["REL" or Tare])
B	Total	TOT	T, P, R (Reset command resets total to zero)
C	Max Input	MAX	T, P, R (Reset command resets MAX to current reading)
D	Min Input	MIN	T, P, R (Reset command resets MIN to current reading)
E	Setpoint 1	SP1	T, P, V, R (Reset command resets the setpoint output).

Above charts are example only.

Not all commands or registers apply to the nature of use with Model RL.

Example: **R** Reset (write) command would not be desired as RL Unit would send the command every 10 seconds being of no benefit, and disrupting existing meter operation.

► Mainly use **T** Transmit Value (read) command for register ID "A" Input.

Thus, enter **TA*** in RL Unit `config.txt` (command to send to Red Lion™ meter).

This causes the meter to return the display value, (Input).

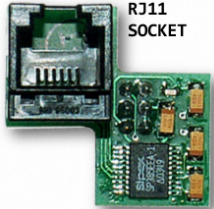

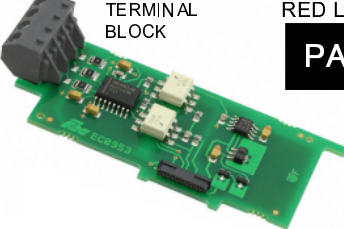

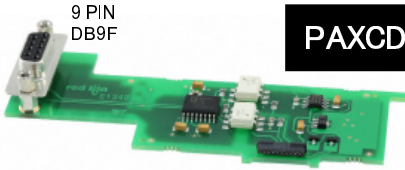

STATEMENT ON CONNECTION COMPATIBILITY

The meter should have one of the Red Lion™ serial communication card options installed:

AFFECTED SERIES:

USER SUPPLIED:

PHOTOLOGIC LTD. SUPPLIED:

<p>CUB5 Meter Series:</p> <p>RS232 Serial Communications Card</p> <ul style="list-style-type: none"> Utilizes RJ11 Modular Connector 6-6 	<p>RJ11 SOCKET</p>  <p>RED LION PART#</p> <p>CUB5COM</p>	<p>PHOTOLOGIC KIT PART# RL - A</p> 
<p>PAX Meter Series:</p> <p>RS232 Serial Communications Card</p> <ul style="list-style-type: none"> Utilizes 4 Postion Screw Terminal Block 	<p>TERMINAL BLOCK</p>  <p>RED LION PART#</p> <p>PAXCDC20</p>	<p>PHOTOLOGIC KIT PART# RL - B</p> 
<p>PAX Meter Series:</p> <p>RS232 Serial Communications Card</p> <ul style="list-style-type: none"> Utilizes 9 Pin D Connector Female 	<p>9 PIN DB9F</p>  <p>RED LION PART#</p> <p>PAXCDC2C</p>	<p>PHOTOLOGIC KIT PART# RL - C</p> 

Model RL Unit does not support Red Lion™ RS485 Communication Cards

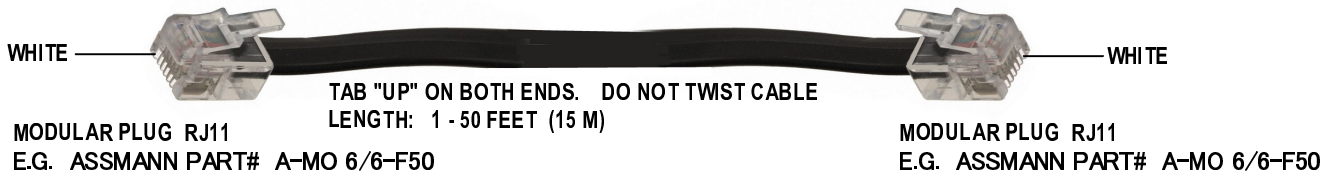
MODULAR CABLE

• MOST POPULAR CONNECTION TO RED LION METER

A

ATTACH TO RED LION METER
SERIAL COMMUNICATIONS CARD

ATTACH TO MODEL RL LOGGER



TAB "UP" ON BOTH ENDS. DO NOT TWIST CABLE
LENGTH: 1 - 50 FEET (15 M)

UNFINISHED 6 CONDUCTOR MODULAR CABLE
E.G. ASSMANN PART#: _____

FINISHED ASSEMBLED CABLE (WITH PLUGS):
E.G. PHOTOLOGIC PART#: RL-CAB-A 2 FEET
E.G. ASSMANN PART#: AT-S-26-6/6/B-7 7 FEET

FLYING LEADS CABLE

• USE IF CONNECTING TO RED LION™ SCREW TERMINAL STRIP OPTION

B

ATTACH TO RED LION METER

ATTACH TO MODEL RL LOGGER



9 PIN D CONNECTOR CABLE

• PLUGS INTO RED LION™ PAXCDC2C SERIAL COMMUNICATIONS OPTION CARD

C

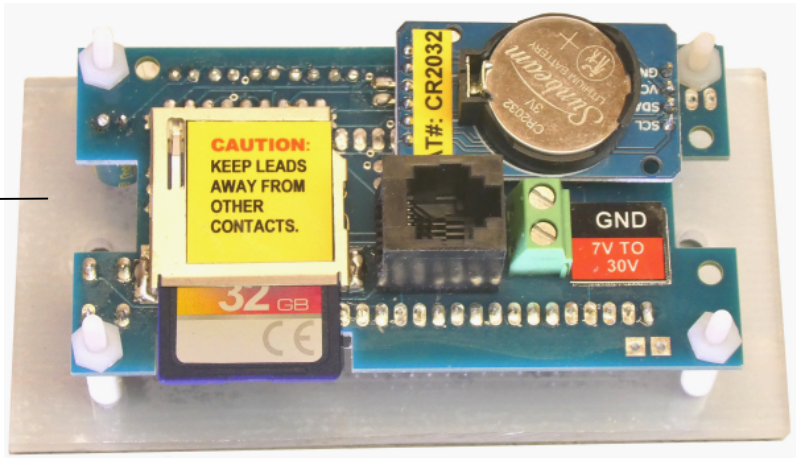
ATTACH TO RED LION METER

ATTACH TO MODEL RL LOGGER

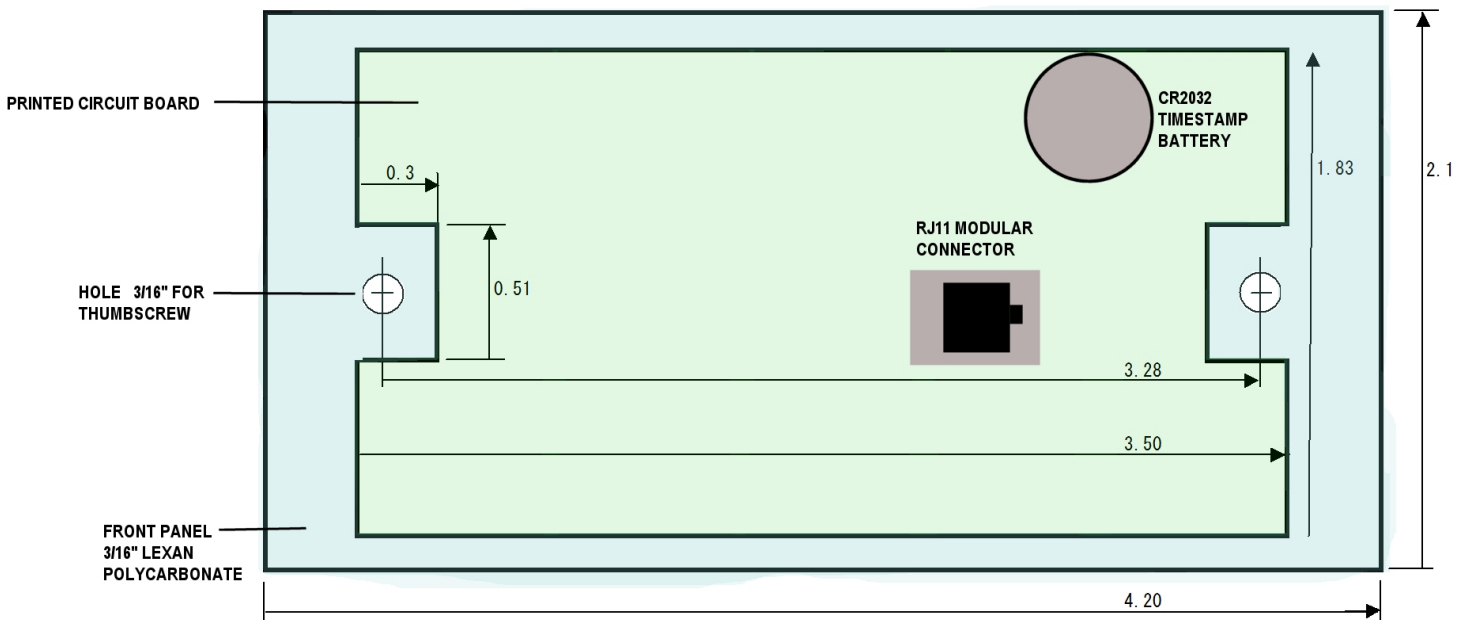


BOTTOM VIEW:

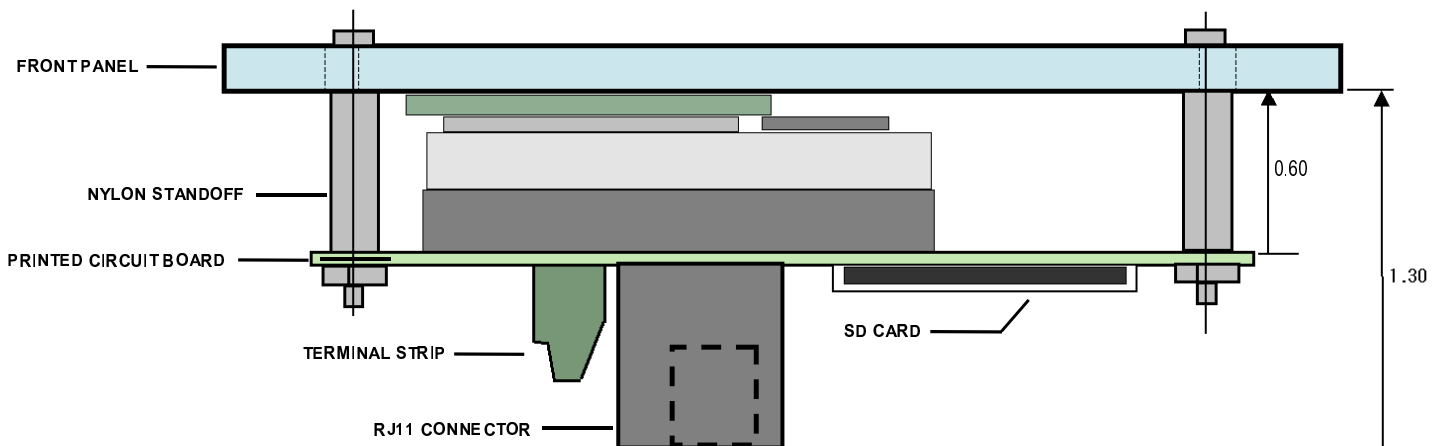
FRONT PANEL
LEXAN POLYCARBONATE
FLAME RESISTANT



DIMENSIONS IN INCHES



SIDE VIEW:



DIMENSIONS IN INCHES

SPECIFICATIONS:

Logger Compatibility:	Red Lion™ meters CUB5™ and PAX™ that support communications card option. The Red Lion meter must support Red Lion <i>Serial Communications Protocol</i> (Sending Commands to meter)
Logger Capacity:	300 million samples with 32 GB SD Card, (30 GB / 100 characters/sample)
Recording Duration:	(300 million samples x 10 sec./sample) = 833 Thousand Hours = 34,722 days or an alternate setting at 60 sec./sample: (300 million samples x 60 sec./sample) = 5 Million Hours = 208,333 days
Logger Input:	RS-232 interface data from Red Lion™ meter
Input Connector:	RJ11 6/6 Modular Connector
Logger Output	Data appends to SD Card file named: record.txt
Logger Timestamp:	Each measurement returned by meter is date/timestamped by logger.
Logging Sample Rate:	Settable in 10 sec. increments from every 10 seconds to every 50,000 seconds
Configuration Settings:	Settable in SD Card config.txt
Display:	Helps confirm operation: displays time and record.txt file size, or SD Card error.
SD Card:	“SD” or “SDHC” 8GB to 32GB (Not MicroSD, Not MiniSD)
Software:	No software required. Single command sent to meter is specified in config.txt
Power:	7 – 30 Volts DC, 300ma Connection: Screw Terminal Strip
Clock Power:	CR2032 Coin Cell
Physical:	4.2in x 2.1in x 1.6in (10.67cm x 5.33cm x 4.06cm) Weight: 0.22 lbs (100g)

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