RDI

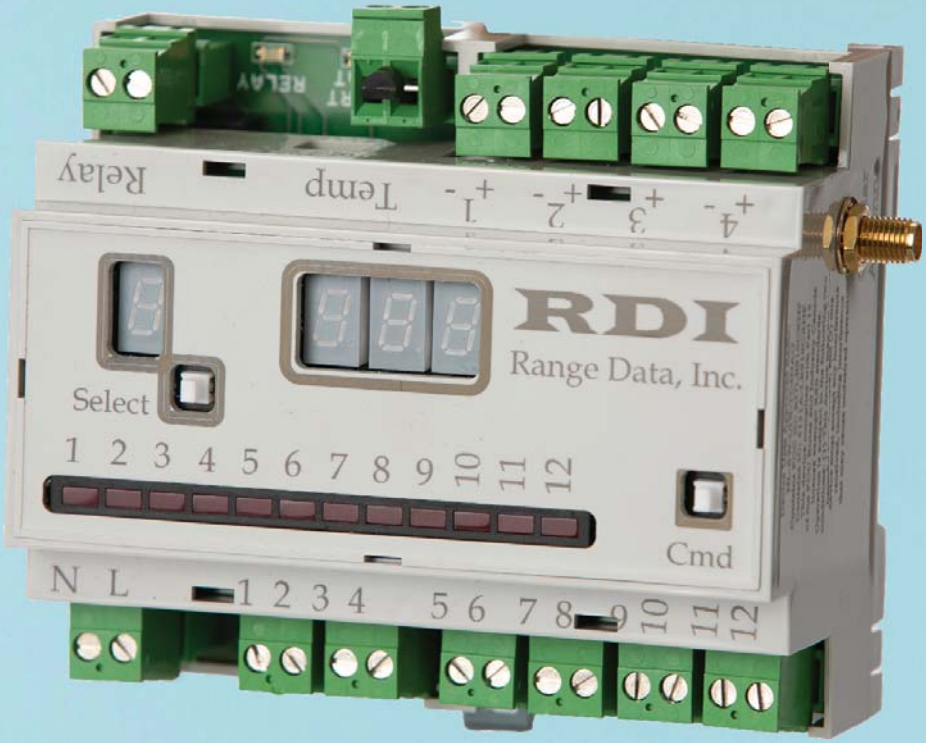
Range Data, Inc.

SCADA

Lift Stations

Water Towers

Your Cellular Alarm Monitoring Experts



TankVitals.com

Lifetime Warranty

Proudly Made in the USA

RDI

Range Data, Inc.

Congratulations on your new S2C device.

Proudly Made in USA by Veterans!

Welcome to the RDI *family!*

RDI's *S2C* is a mini SCADA (supervisory control and data acquisition) software that monitors your industrial processes and gathers data in real-time. This S2C reports all data alarms to you in Text/Email Messages and you can also print out the history reports in Excel or PDF reports.

S2C communicates with Wonderware SCADA.

RDI's S2C monitors up to 4 pumps and its selectable for the # of pumps you have!

Requires 120Vac
Up to 12 Input Ports *each timer removes 1 Input port
Up to 4 Run Timers Selectable
1 Relay to Control
Bluetooth Communication Connection
Operating temperature range is -40°F to 149°F (-40°C to 65°C)

Specifications

Power

UL approved AC Line Power Supply is a Regulated Converter
- Wide input range 85-305Vac
- Operating Temperature Range: -40°C to +85°C (-40°F to 185°F)
- Ultra-high efficiency over entire load range
- No external components necessary
- International EMC compliant
- 140% Peak load capability

Dimensions

- Size / Dimension: 4.183” L x 3.551” W (106.25mm x 90.20mm)
- Height: 3.540” (89.92mm)
- Design: Plastic, ABS/PC Blend
- Color: Gray
- Weight :1.11 lb (503.49g)

Temperature Sensor

- Measures Temperatures from -40°C to +85°C (-40°F to 185°F)
- ±0.5°C Accuracy from -10°C to +85°C

Cellular

- USA: Verizon Wireless,
- Canada: All Wireless systems
- Includes VPN (virtual private network) Protection
- Contains FCC ID:RI7CE910-DUAL This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interferences, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Inputs

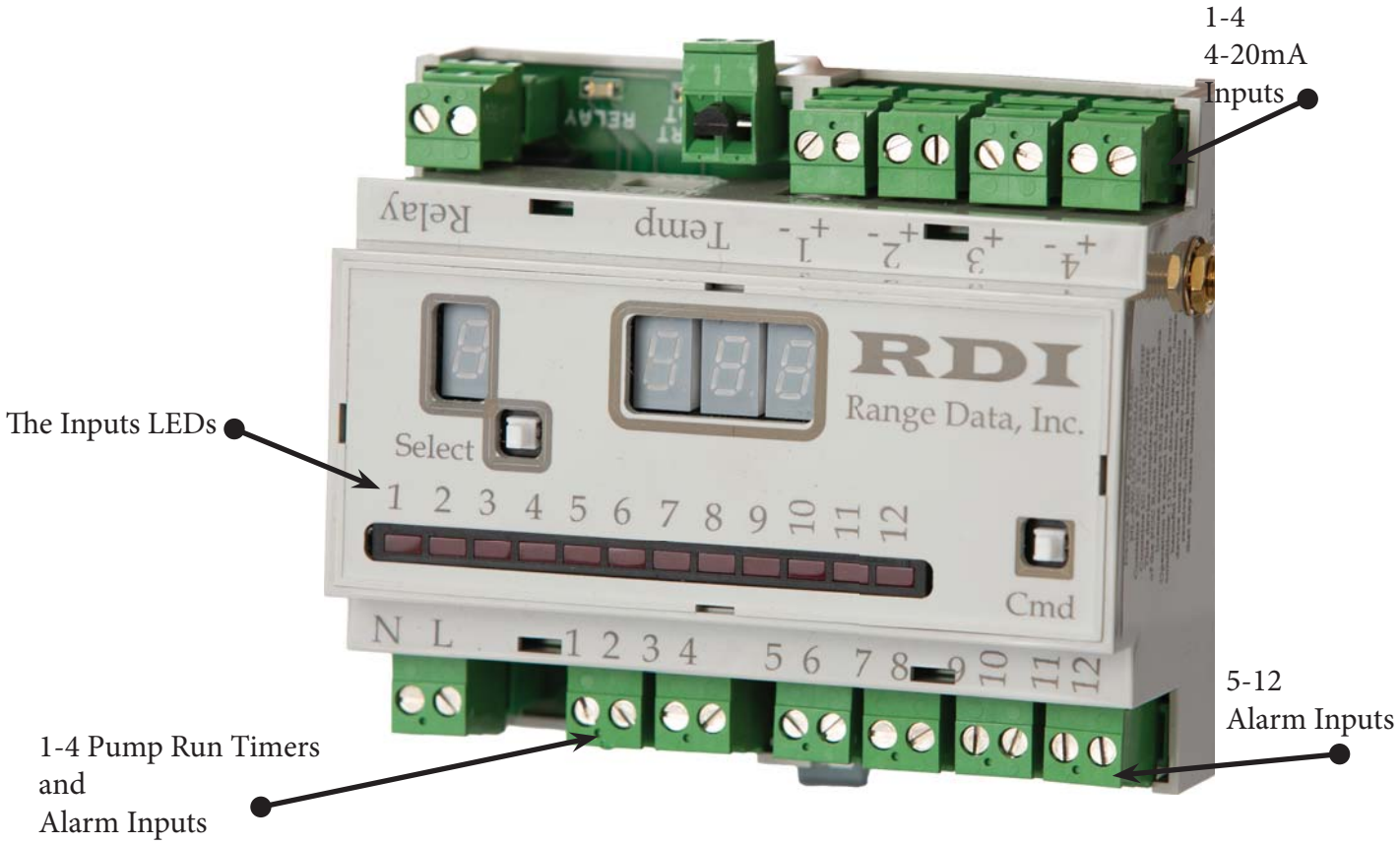
- Alarm Inputs 1-12 and Pump 1-2-3-4 Run Timers are 120Vac optically isolated inputs.

Note: Inputs completes a path to Neutral
- Circuits for safe protective separation against electrical shock according to safety class II (reinforced isolation): - for appl. Class I to IV at mains voltage ≤ 300 V - for appl. Class I to III at mains voltage ≤ 600 V

S2C 12-Inputs Alarm and Four Inputs of 4-20mA

4 Channels, Isolated Two-wire Operation, Power is obtained directly from the 4 to 20 mA loop (input impedance 10 ohms), with no need for separate power input.

Requires 120Vac
Input 4-20mA 4 Channels
Up to 12 Input Ports *each timer removes 1-Input port
Up to 4 Run Timers Selectable
1 Relay to Control
Bluetooth Communication Connection
Temperature Sensor -40°F to 149°F (-40°C to 65°C)



Models of S2C 4-20mA Model

S2C 4-20mA 4Channel Input Models: *(With or with out the Enclosure)*

1. (S2C-Din) Rail Mount. (No enclosure)
2. (S2C-4x) with Enclosure.

LED Display and Select Button Operation

1 button push gives the mA value of input 1 (Will display for 10 minutes)

2 button push gives the mA value of input 2 (Will display for 10 minutes)

3 button push gives the mA value of input 3 (Will display for 10 minutes)

4 button push gives the mA value of input 4 (Will display for 10 minutes)

5 button push gives the RSSI Value

6 button push gives the Real Time Clock in military time

7 button push gives the Temperature

8 button push gives Code Version

LED Display and Cmd Button Operation

1 Button Push Sends Data to Website(if modem is not registered it will display all zeros)

2 Reset

3 Relay ON

4 Relay OFF

5 Test LED Bar Lights

6 Get SIM number

7 IP Address

8 Status of Inputs 1-4 where 0 = pump run timer 1>= alarm input

9 Activate SIM (after 9 button presses unit will start counting down to zero, press Cmd key one time before zero count to enable SIM)"

10 Reset Blue Tooth Module

11 Program Name into Blue Tooth Module

12 De-Activate SIM (after 9 button presses, unit will start counting down to zero, press Cmd key one time before zero)

13 Program for MySiteVitals.com
14 Program for TankVitals.com

LED Display

AI Acknowledgement
F0 No Acknowledgement from Server
F8 Modem Failure
F9 Antenna Failure
84 Received Message from Server
PF- AC Power Failed (Will flash and all LED are lit



Power Up sequence
First 60 seconds it may display
Select Window: 1 2 3 4 5 6 7 8
Then Three LED Windows
Left LED: 0 1 2 3 4 5 6 7 8
Centrer LED: 0 1 2 3 4 5 6 7 8
Right LED: 0 1 2 3 4 5 6 7 8
Then the RED Alarm Input Bar will sequence from left to right.
Right LED: 9 8 7 6 5 4 3 2 1
Right LED: 0 1 2 3 4 5 6 7 8
Centrer LED: F9 (Checking Antenna Connection)
If* F9 *Flashes means no Antenna is connected or is damaged.
Centrer LED: -
Then from left to right it will sequence the - for 6 times
Then form left to right it will display 1 2 3 (Sending data to server)
If all is working it will display AI (Acknowledgement sever received data) else it will display F0 ***No Acknowledgement from Server (then call us***)

Optional Components



Tamper Proof Cellular Antenna
Mounts to Metal Enclosure



Selectable Current Sensors 30,
60 or 100 Amp

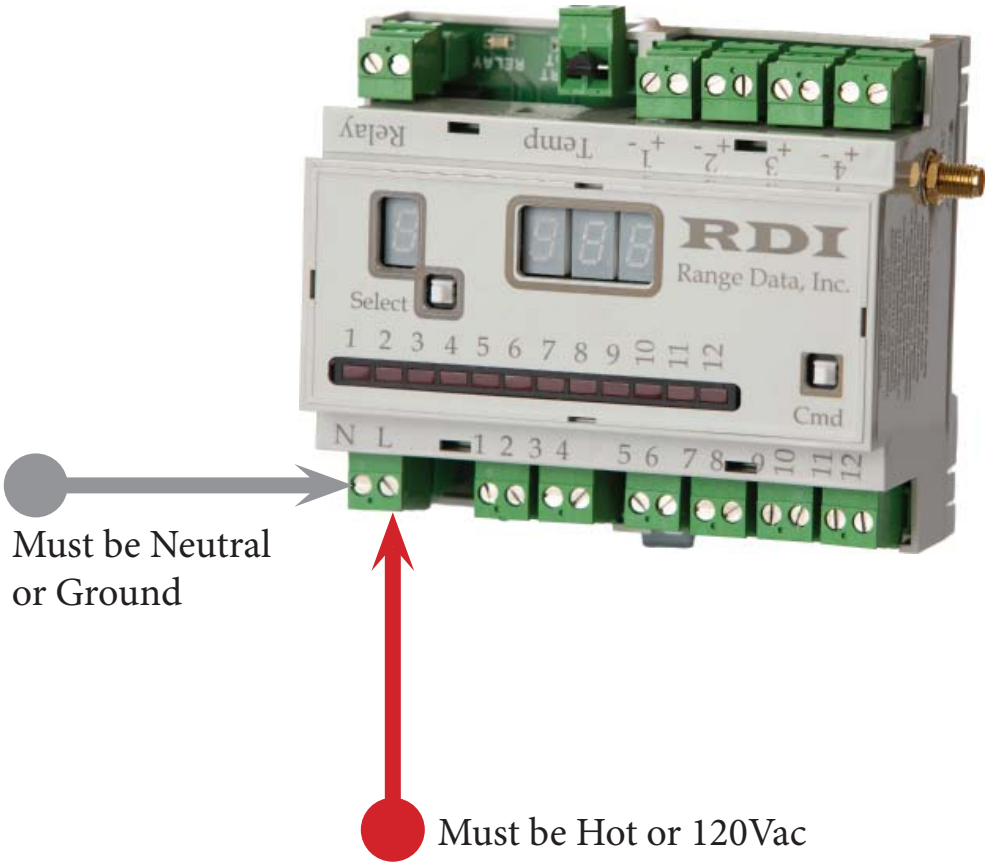


24Vdc Power Supply
AC/DC DIN RAIL
SUPPLY 24V 10W



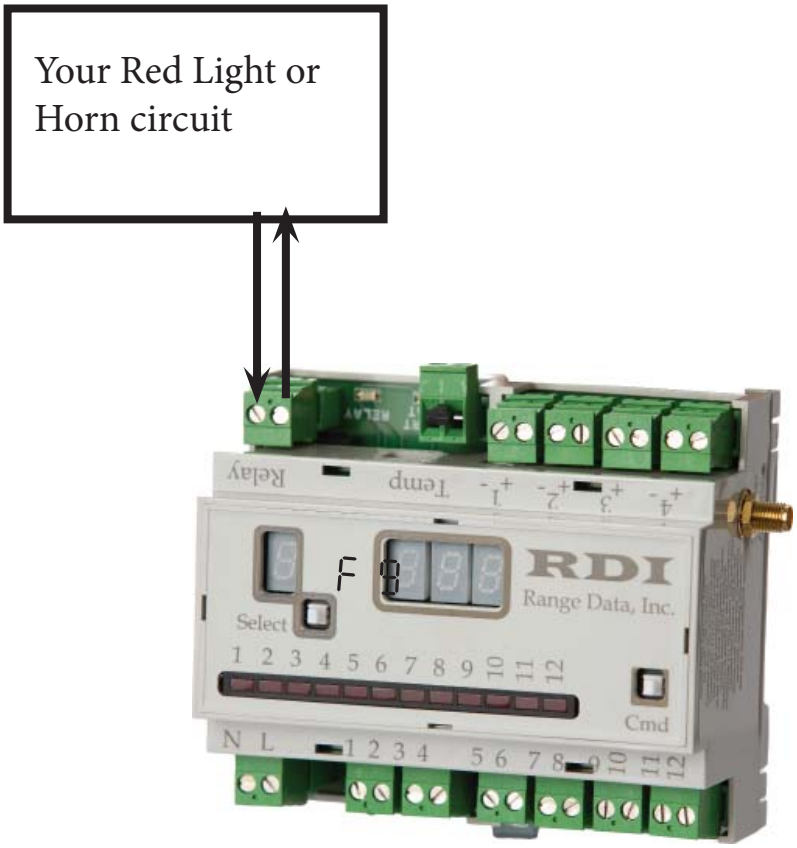
External Dimensions 12.60 x 10.60 x 5.22 in
Polycarbonate
NEMA Rating 1, 2, 3, 3R, 3RX, 3S, 3SX, 3X, 4, 4X, 5, 12, 13
Weight 4.95 lbs
Gasketed enclosure, latch, 4 mounting screws, and 4 cover screw hole plugs
Flame Rating UL94 5VA
UL & cUL File Number E352997

Power Connection



No Cellular Signal

If for some reason the Cellular signal is lost due to service provider or antenna problem you can select the option in Modem setup to RSSI Watchdog and this will activate the relay if cellular signal is lost.



Display showing F9 Antenna Failure

Input Connections

Alarm and Pump Input accept the Hot Line wire from each of your devices.
Note*: If your device is a relay contact then supply the other half with the AC Line (Hot) to complete the circuit.

AC Line → Your N.O. Relay Contact → Alarm Inputs 1-12 are Optical Coupled Contacts which finishes the circuit to AC Neutral.

AC Line → Your N.C. Relay Contact → Alarm Inputs 1-12 are Optical Coupled Contacts which finishes the circuit to AC Neutral.
Note* On the Web Site Select Edit Parameter tab and then in Input Module select Input N.O. / N.C. Tab and adjust which input it to be treated as N.C.



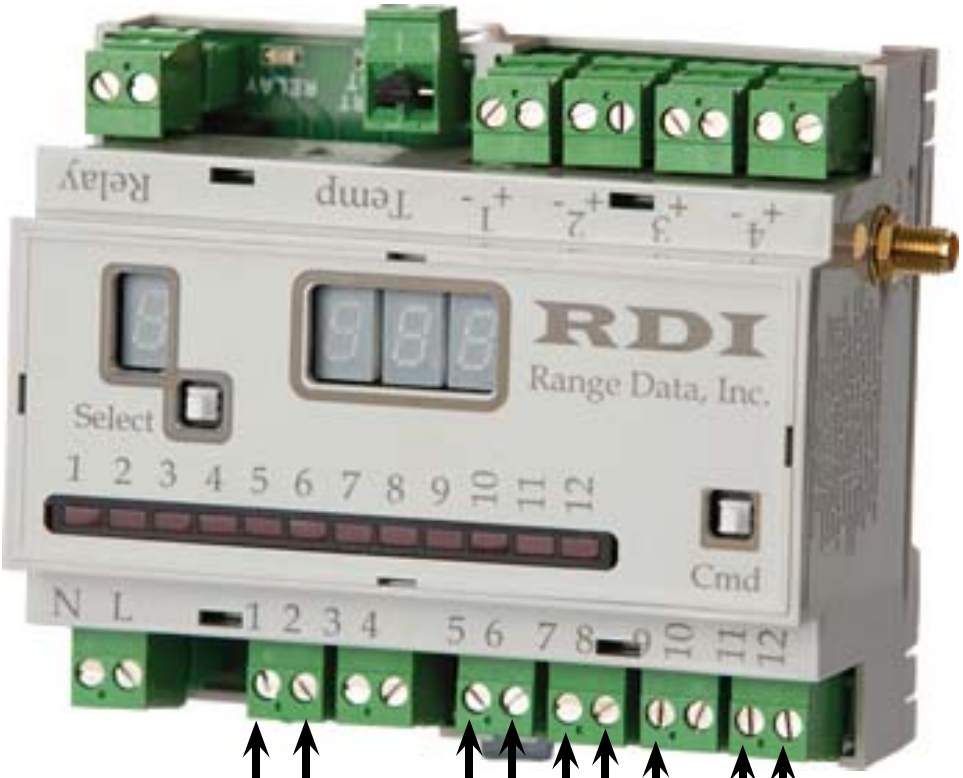


Typical Input connection to Input 12
If your test lamp lights up then our input 12 LED will also light up.

Input 1 connect to Pump 1 Motor Contactor or L1 of motor phase wire
Input 2 connect to Pump 2 Motor Contactor or L1 of motor phase wire
Input 3 connect to Pump 3 Motor Contactor or L1 of motor phase wire
Input 4 connect to Pump 4 Motor Contactor or L1 of motor phase wire

Input 5 to 12 Can be connected to other alarm monitoring points.
i.e. High Water Float, Low Water Float, Red Light/Horn, Pump Seal fails, Pump Overload Fail.

Input Connections



12-Pump2 Contactor OverLoad Fail

11-Pump1 Contactor OverLoad Fail

9-Red Light or Horn circuit (must be connectd be for the flasher device)

8-Pump2 Seal Fail

7-Pump1 Seal Fail

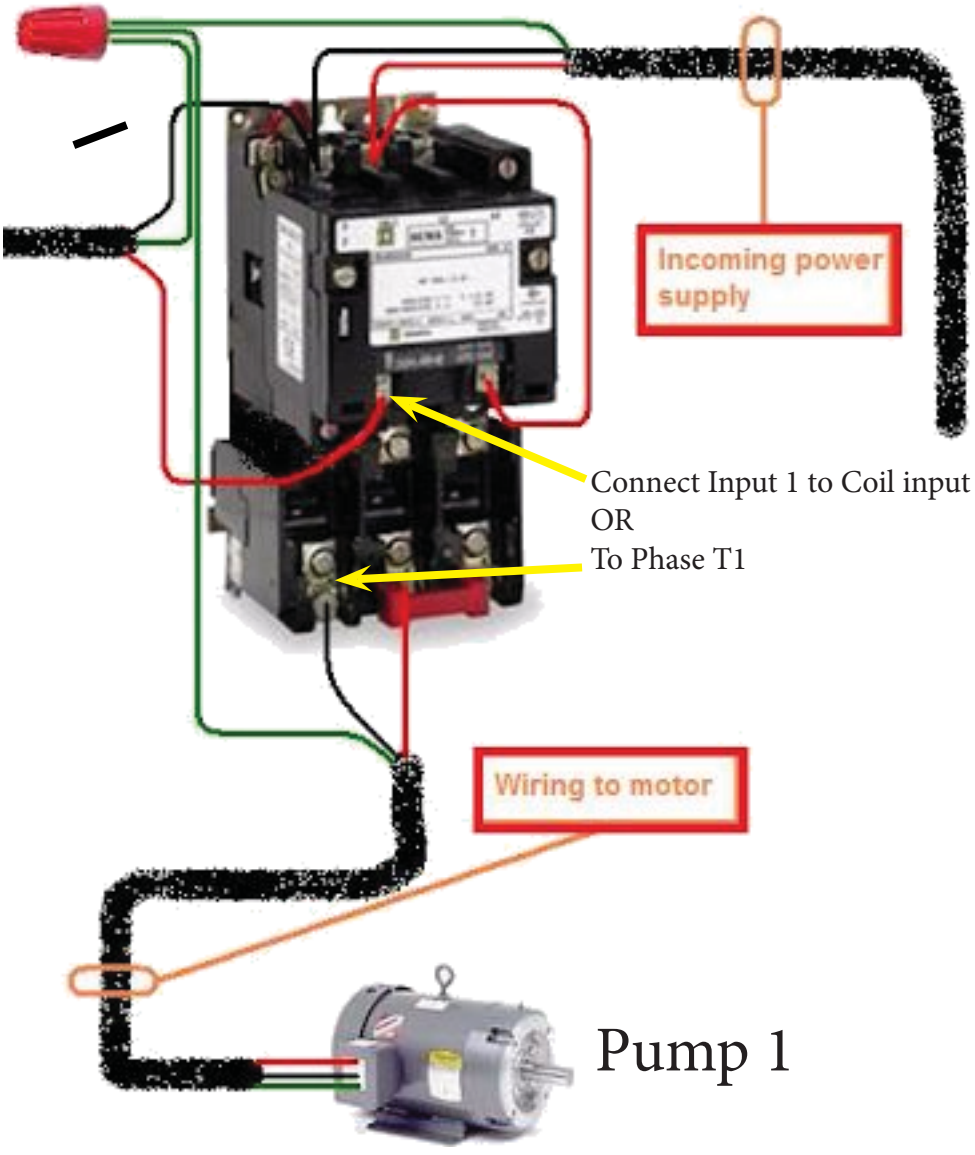
6-LowWater Float

5-High Water Float

2-Pump 2 Contactor Phase T1 or Contactor 2 Coil
See Page 2

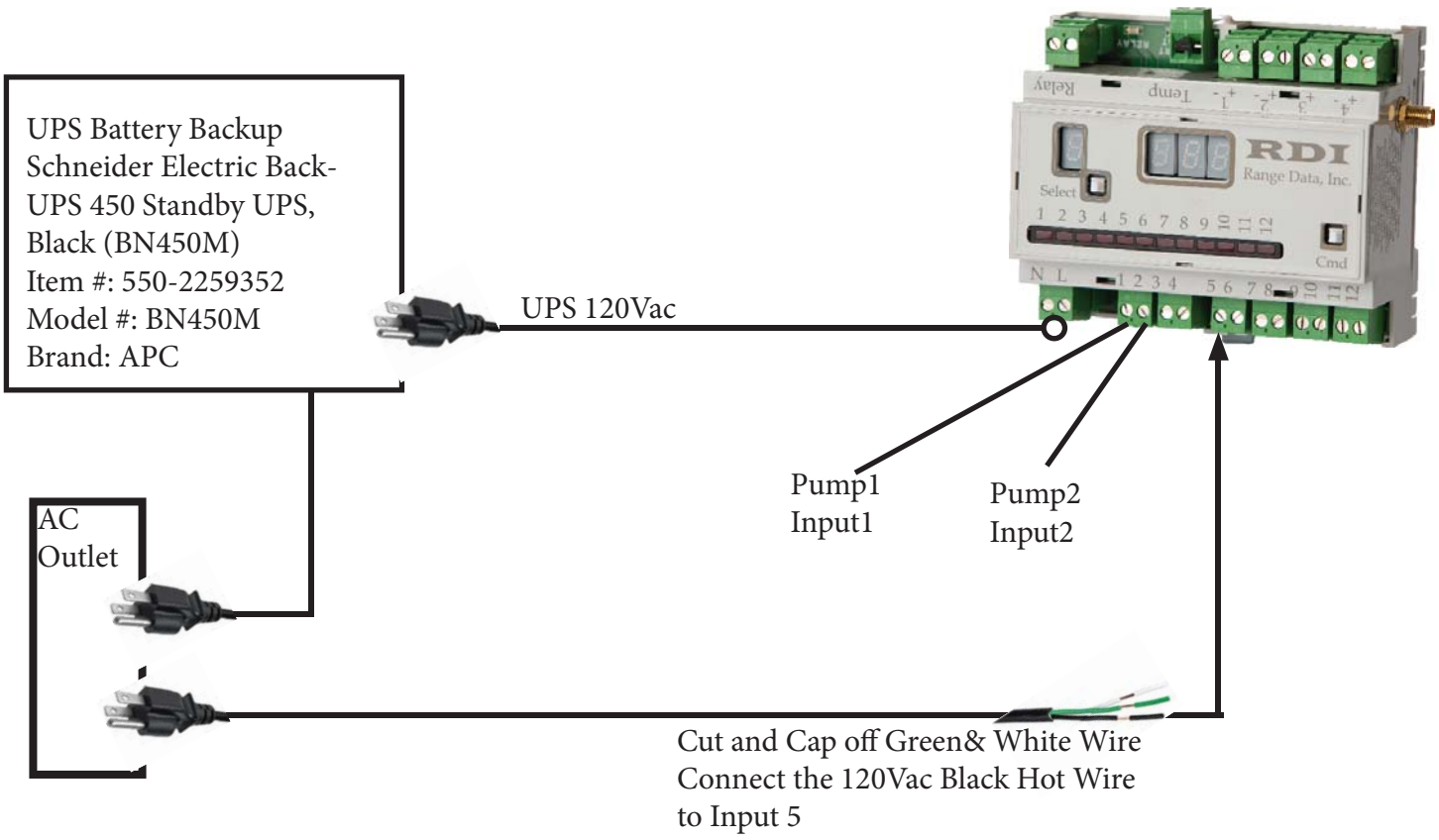
1-Pump 1 Contactor Phase T1 or Contactor 1 Coil
See Page 2

Pump Run Timer Input Connections



UPS Backup Connections

There are no batteries to replace. The unit uses a capacitor to send one alert when the power goes out. If your system has a UPS, connect the unit to the UPS's AC power so it can still send a power-off alarm.

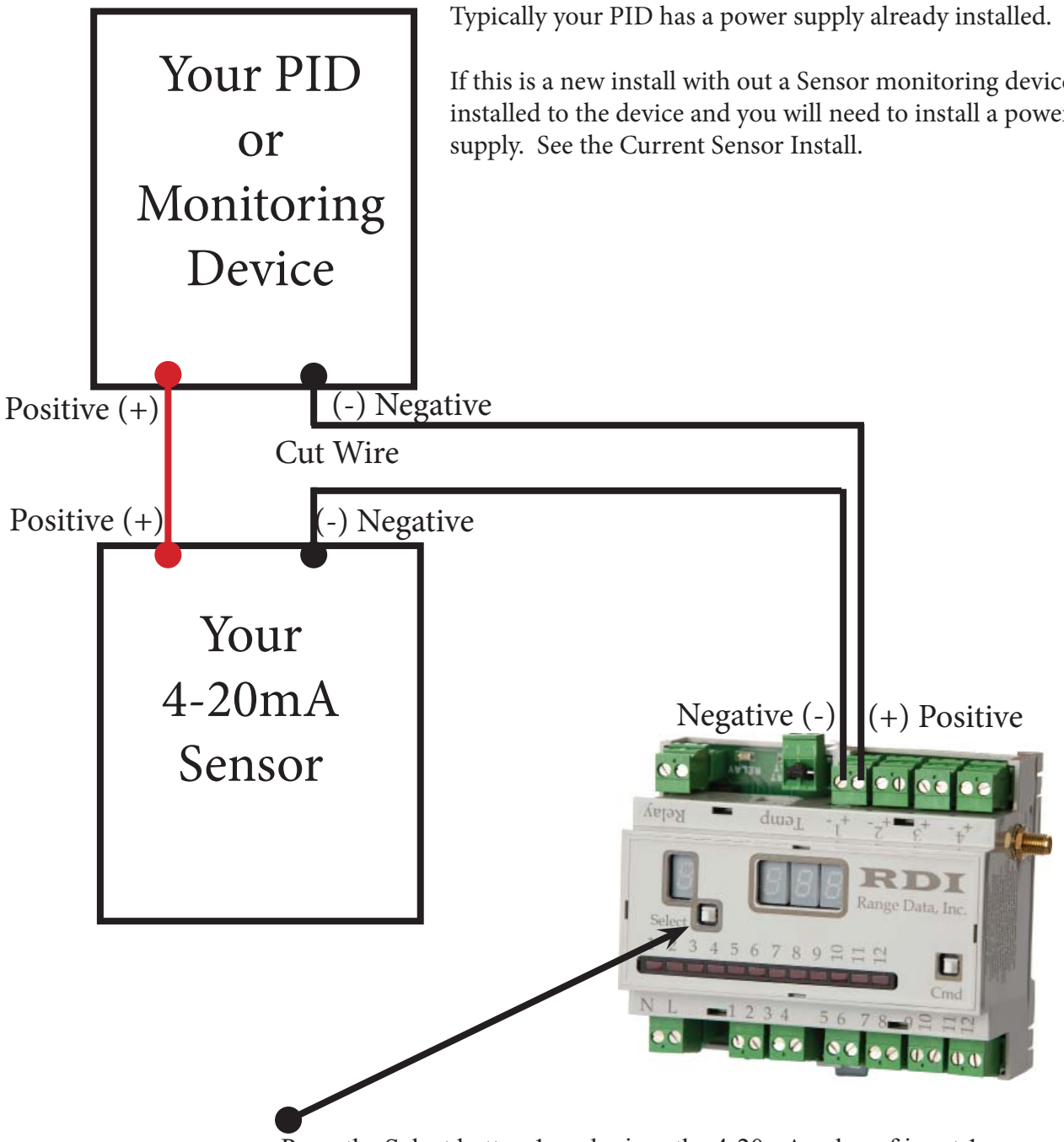


Select Input 5 to N.C. to invert the Power Fail alarm in the Software Input Module setup.
When Power fails an alarm is sent via Your selection (Phone, Text, Email)

4-20mA Connections to Monitor a Device

Typically your PID has a power supply already installed.

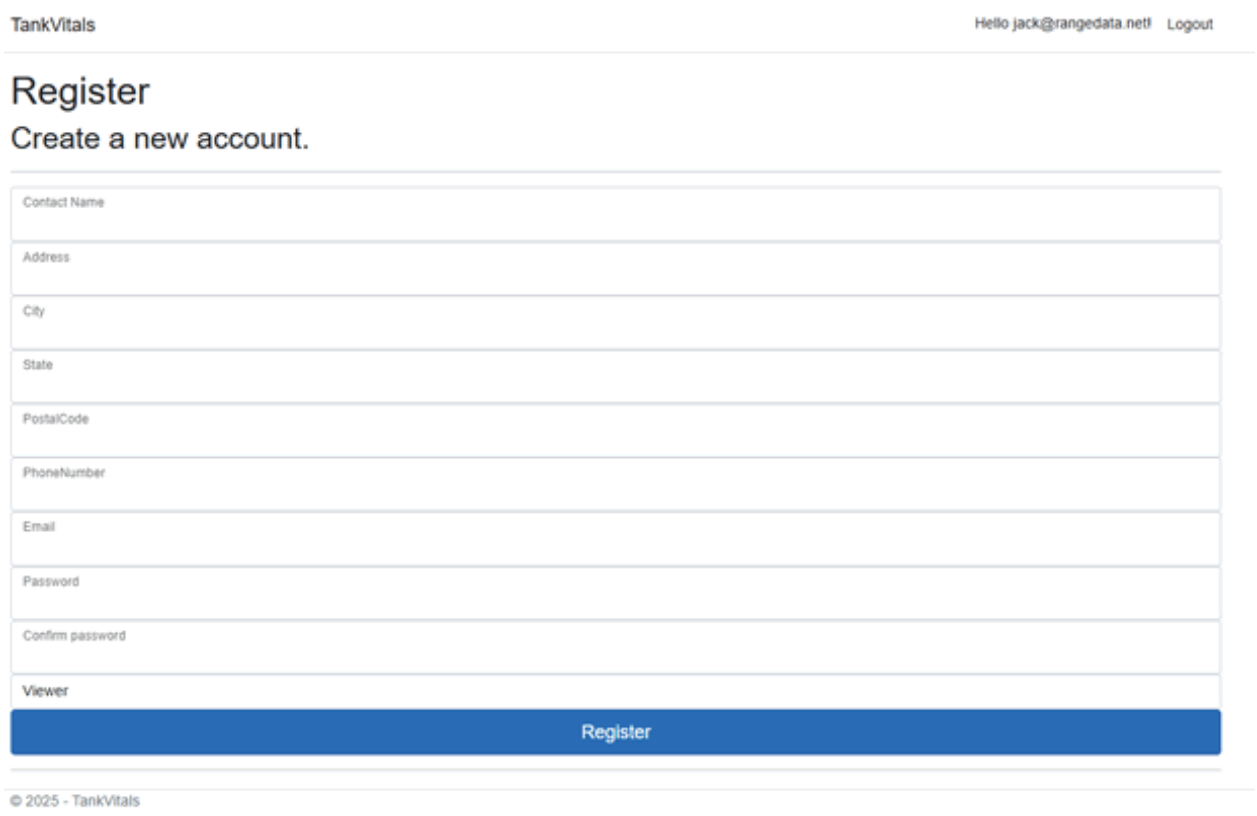
If this is a new install with out a Sensor monitoring device installed to the device and you will need to install a power supply. See the Current Sensor Install.



Press the Select button 1 push gives the 4-20mA value of input 1
(Will display for 10 minutes) If this is below 4mA then its an alarm

Change/Add Users





When entering the Phone number do not use dashes (-) just the number, for the zip code use the 5 digits .

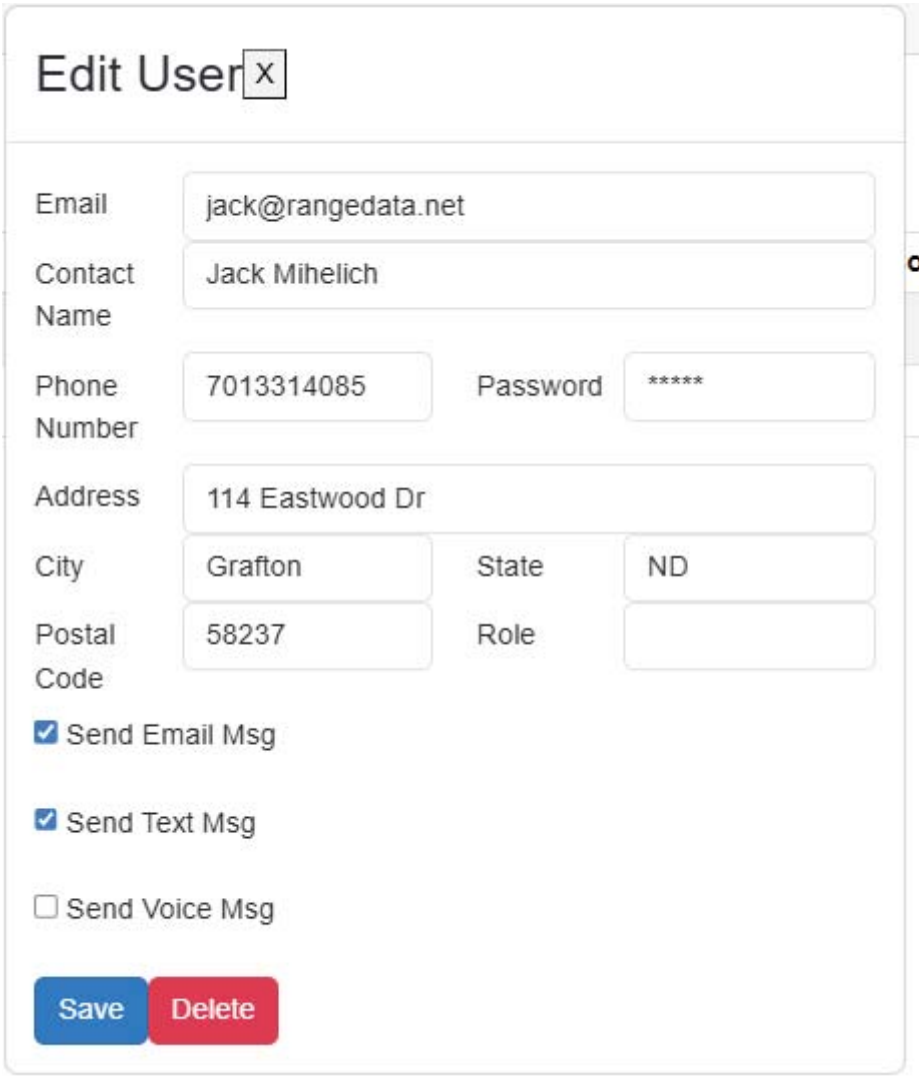
Use View for users to view the information and Manager for those that need to make changes to the site.

FYI: This information is never shared or released to anyone.

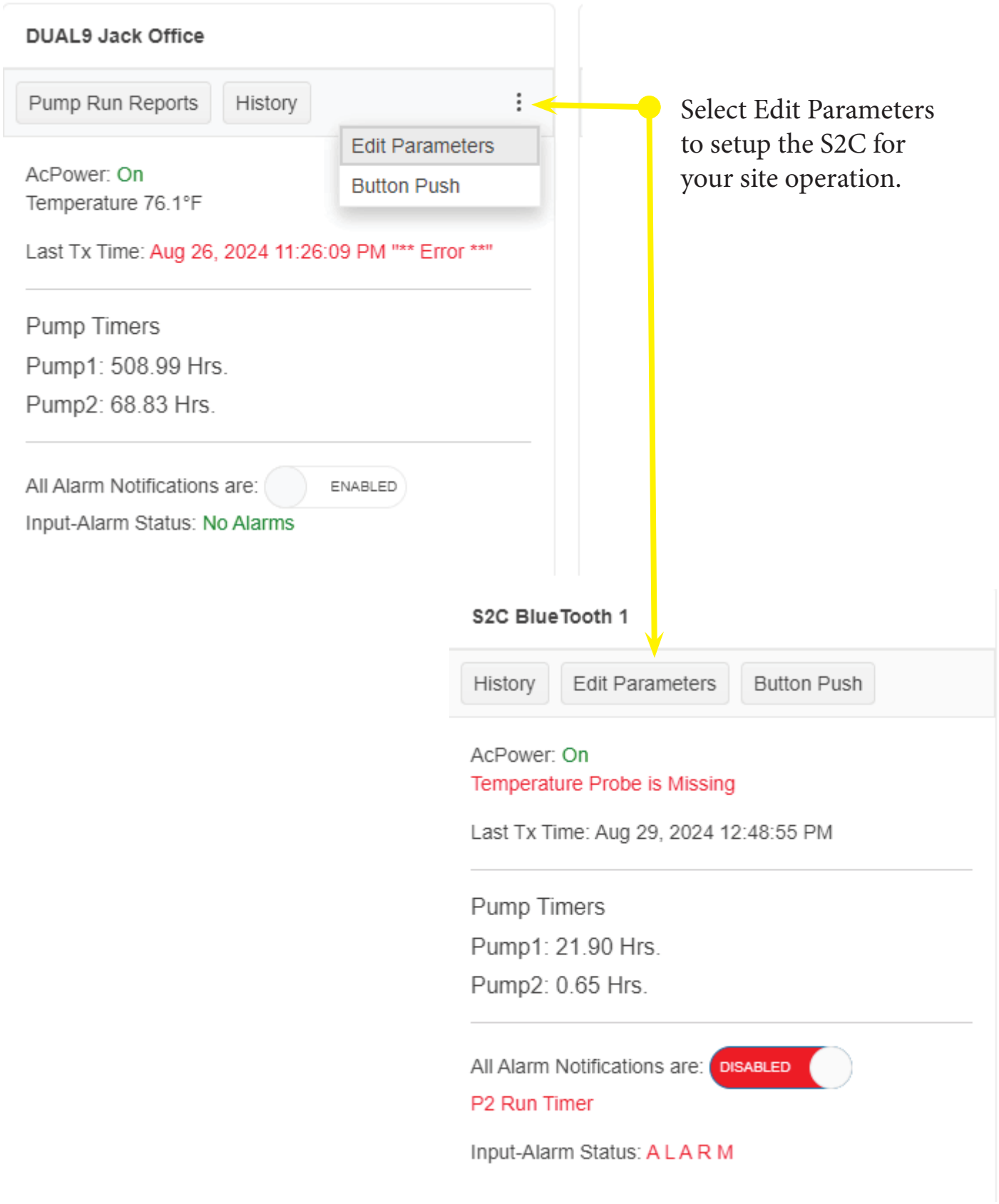
Change/Add Users

Edit User windows is used to modify the user information.

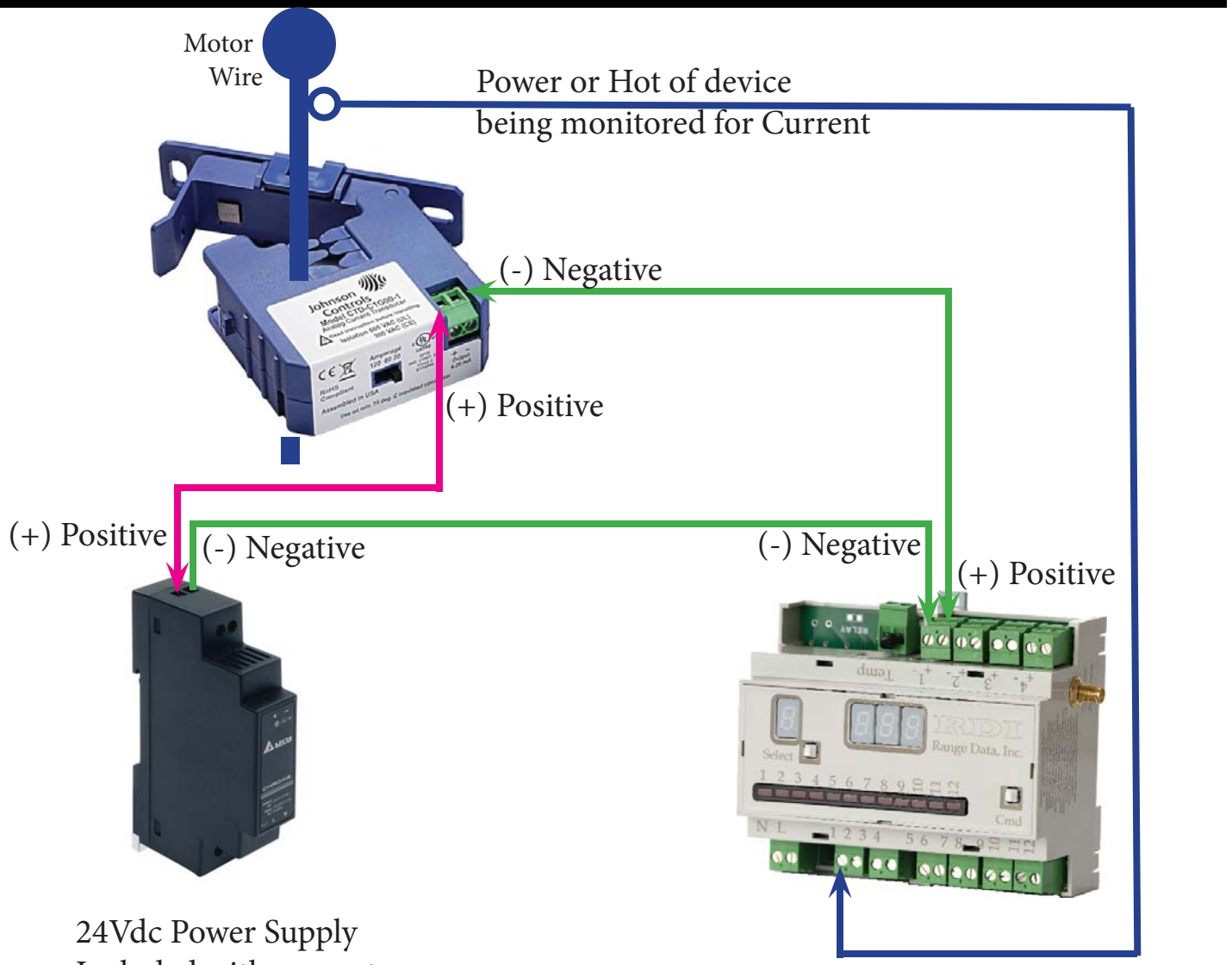
Here you can turn on or off the messages to be sent.



Edit Parameters Tab

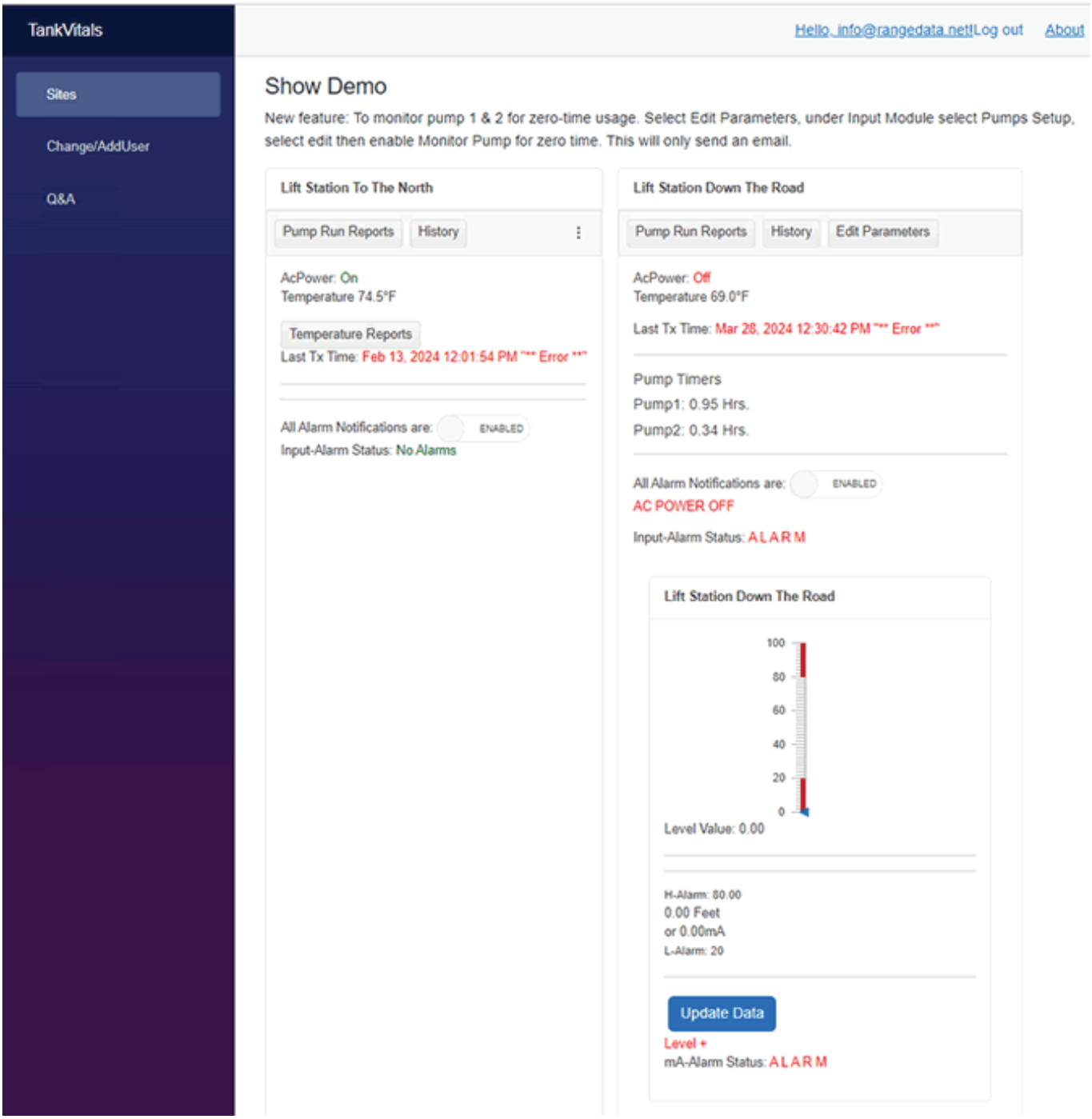


4-20mA Connections for Current Sensor Install



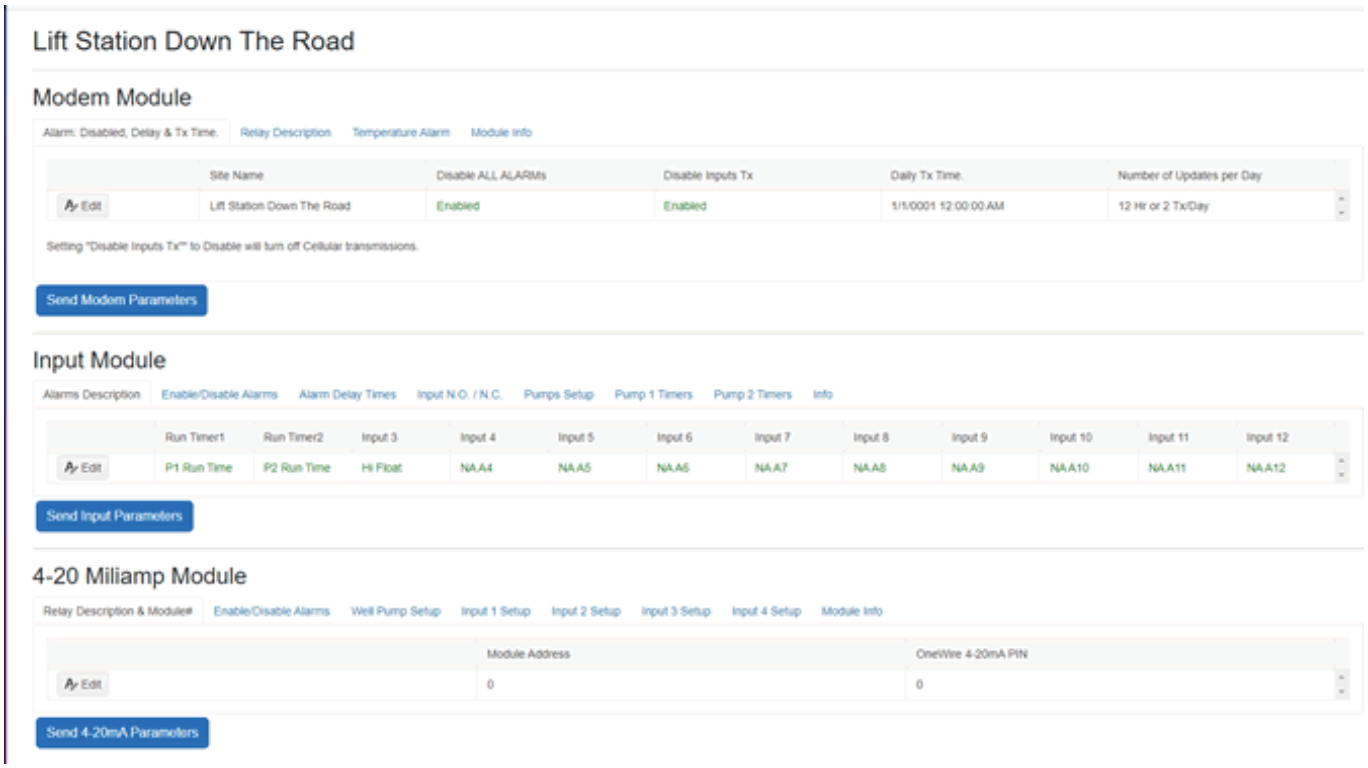
Press the Select button 1 push this gives the mA value of Input 1 (Will display for 10 minutes)

Sites Main Page

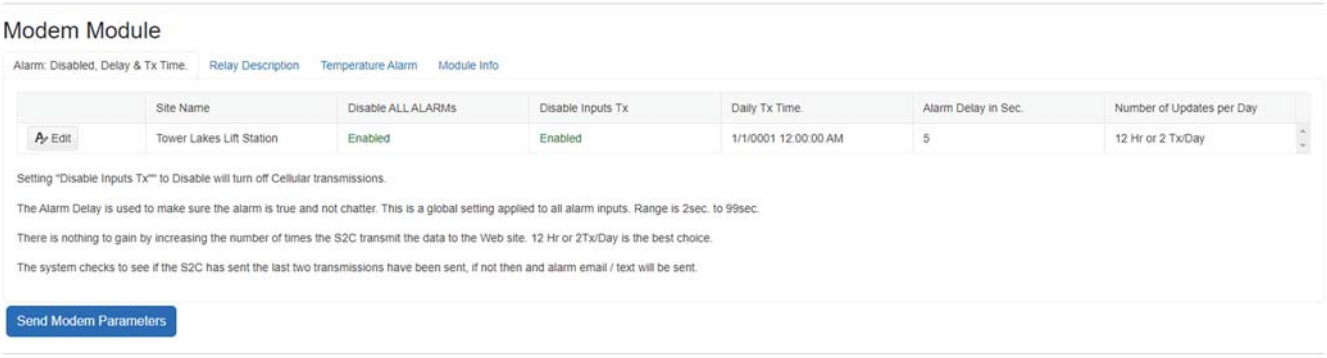


Module Operation Main Screen

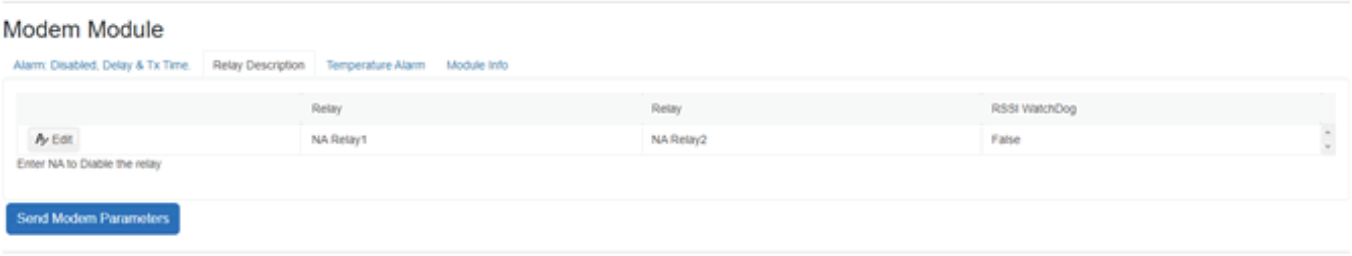
The Main Parameter Screen where you can adjust the behaviour of the S2C device.
The three main parts are
Modem, **Input**, and the **4-20mA** modules.



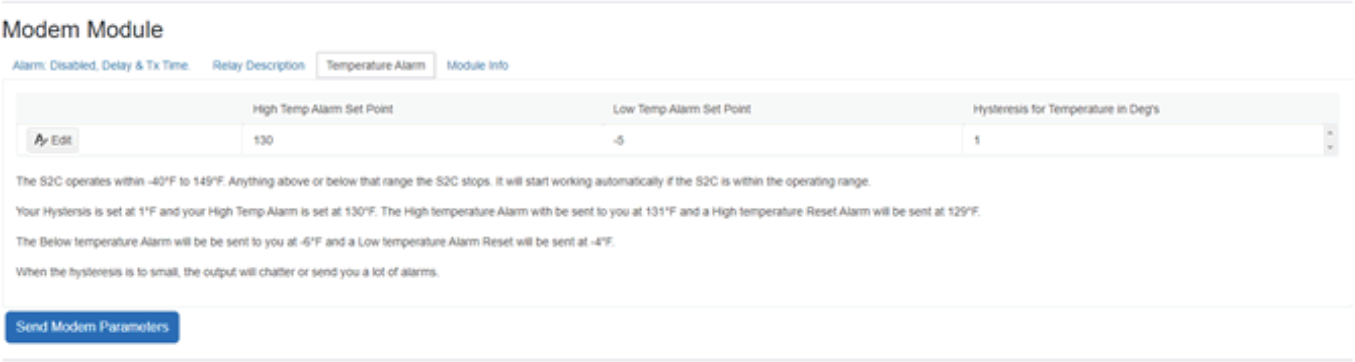
Modem Module Operation



Disable all alarms will stop all alarms to be sent out. Use this when unit is being serviced. Disable Inputs will prevent Alarm Inputs 1-12 to stop sending out alarms.

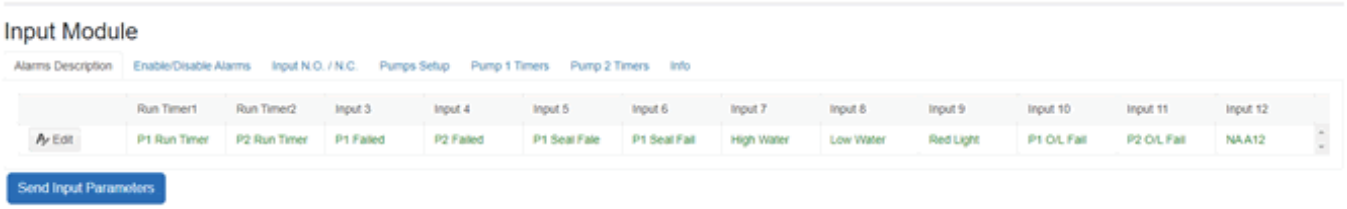


RSSI Watchdog will close the relay if cellular signal is lost

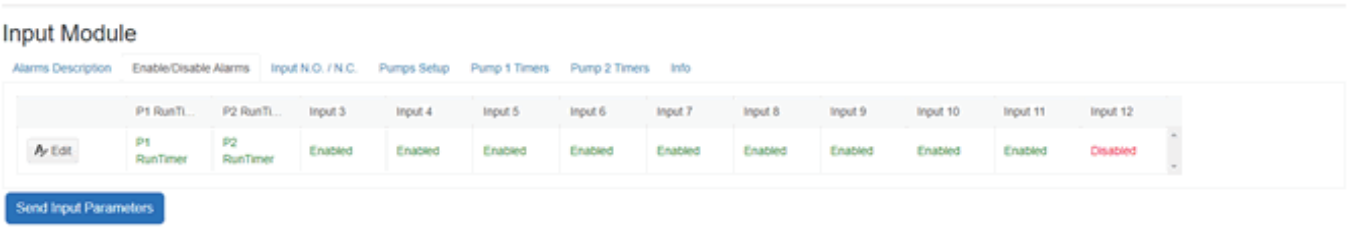




Input Module Operation



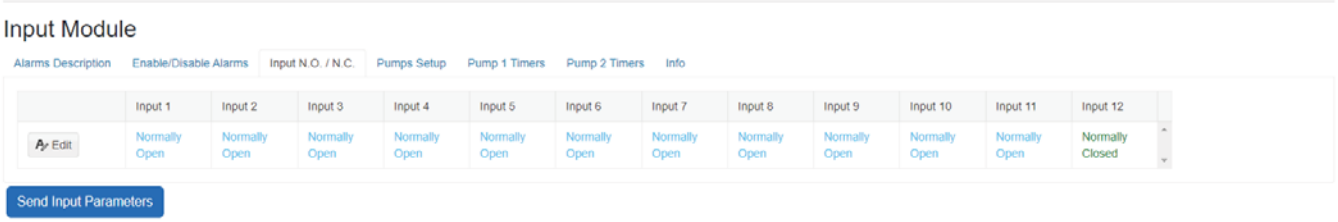
Set up your naming of the Inputs assigned to the S2C



If the input is over active or problem with the assigned alarm device you can prevent the alarm being sent out unit you have time to resolve the issues.

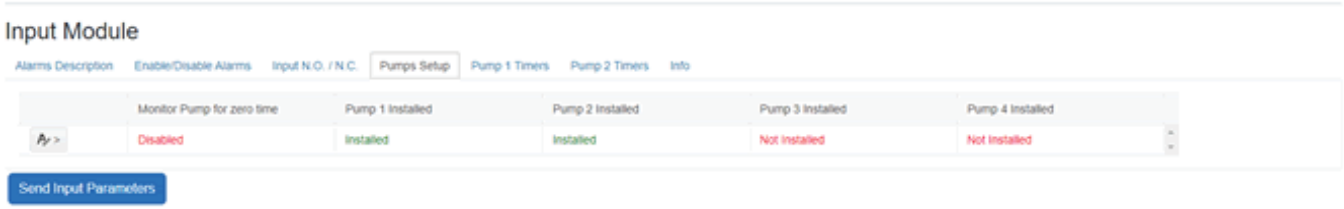


Zero (0) is used for pump run timers. One (1) or greater is used for delay time in seconds before sending out an alarm. 2 seconds is the default. If you have a chatty float set the time until the float has a true alarm.

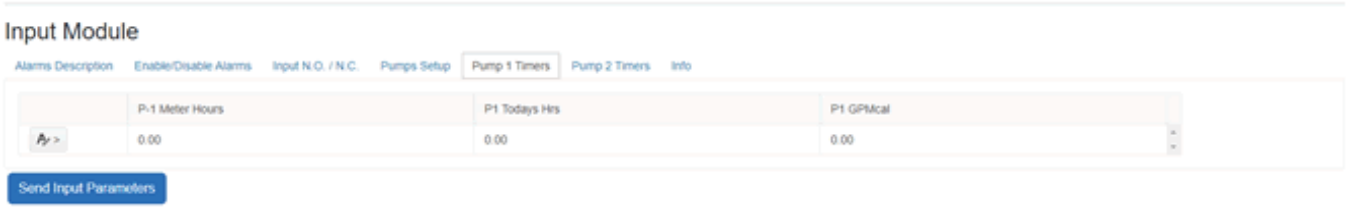


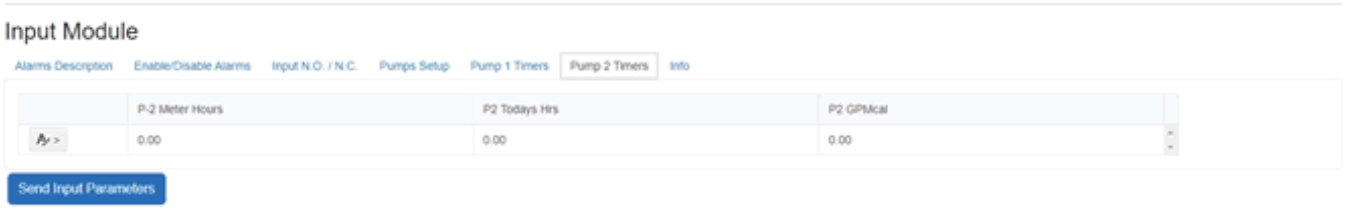
Match your device operation if the relay is Normally Open (N.O.) or Normally Closed (N.C.)

Input Module Operation



Monitor Pump for zero time is used to watch for sequencing error If pump 1 or pump 2 has no run time for the day an email is sent out. “Pump # reported zero hours usage”

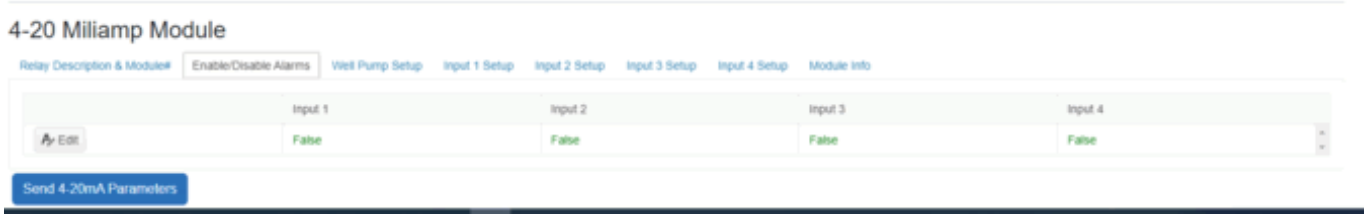




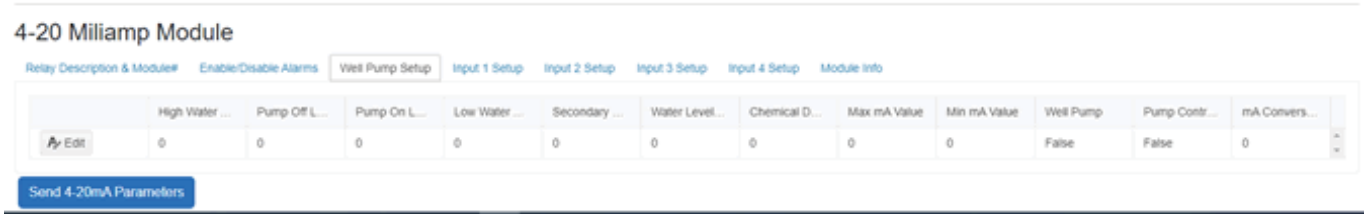
Adjust the meter hours to match what on the sites hour meters.
If know the pipe output calibration.

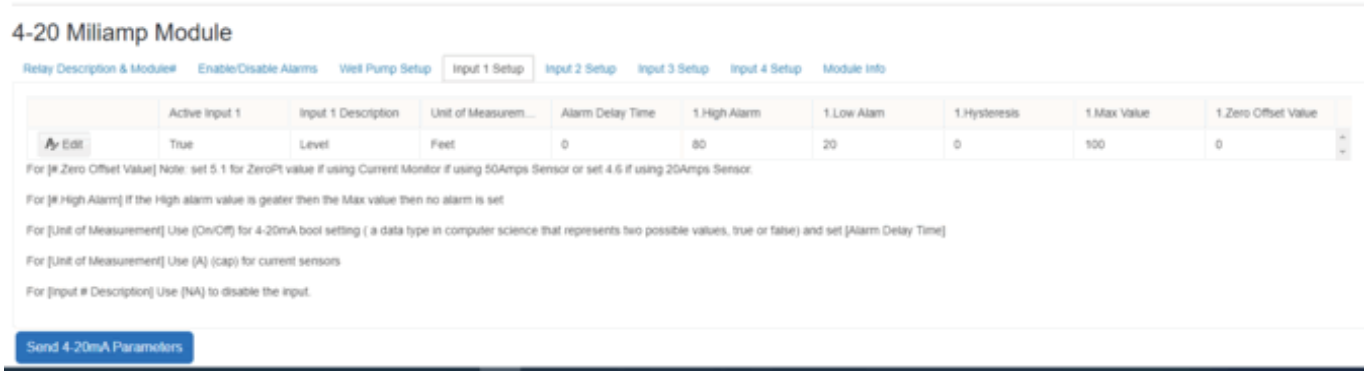
You can also enter the GPMcal for monthly reports if you enter the P# GPMcal value

4-20mA Module Operation



Enable or disable inputs alarms when trouble shouting problems.





If the optional current sensor is used an offset value is needed for liner correction.
Enter 5.2 for 50Amp or 4.6 for 20Amp sensors.
If the High alarm values is greater the Max value then no alarm is set.
For Unit of Measurement enter On/Off for bool setting and set alarm delay time to 1or greater.
For current sensors use letter A (cap) in the description.
Use NA to disable the input.

4-20mA Module Operation Modes



Click on the drop down errow

The Drop Down Choices

Description
Amps
Pressure
#'s
Feet
PPM
Float Level
On/Off
Flow1

4-20mA Module For Pressure

Setting Up ***Pressure***:

Typical Water Tower setup

Max value is the current level reading in mA.

So if you have a level reading of 24.25 and a mA value at 11.9 then we can use this to set the Max Value

Given:
24.25 X 16= 388
11.9 -4 = 7.9 mA
388/7.9 = 49.11

49.11 is the Max. Value to enter into our system [1.Max Value].

4-20mA Module for Amps

(Where # is the input channel number)
Input#: Set to True or Checked marked. This will display the device on the web site.
Input#: Description: Give it the name you like to identify our pump or device name.
Unit of Measurement#: Select Amp.
#.High Alarm: Set this to the alarm when the current excess the maximum value.
#.Low Alarm: Set this to the alarm when the current is blow the minimum value.
#.Hysteresis: Level at zero.
#.Max Value: Set this to the switch value on the current sensor 30, 60 or 100.
#.Zero Offset Value: Level this at zero (0).
#. Alarm Delay: Set this from 2 seconds to 60 seconds for how ever long it takes to get a good alarm. Do not use 0 seconds (*this will disable the alarm*)

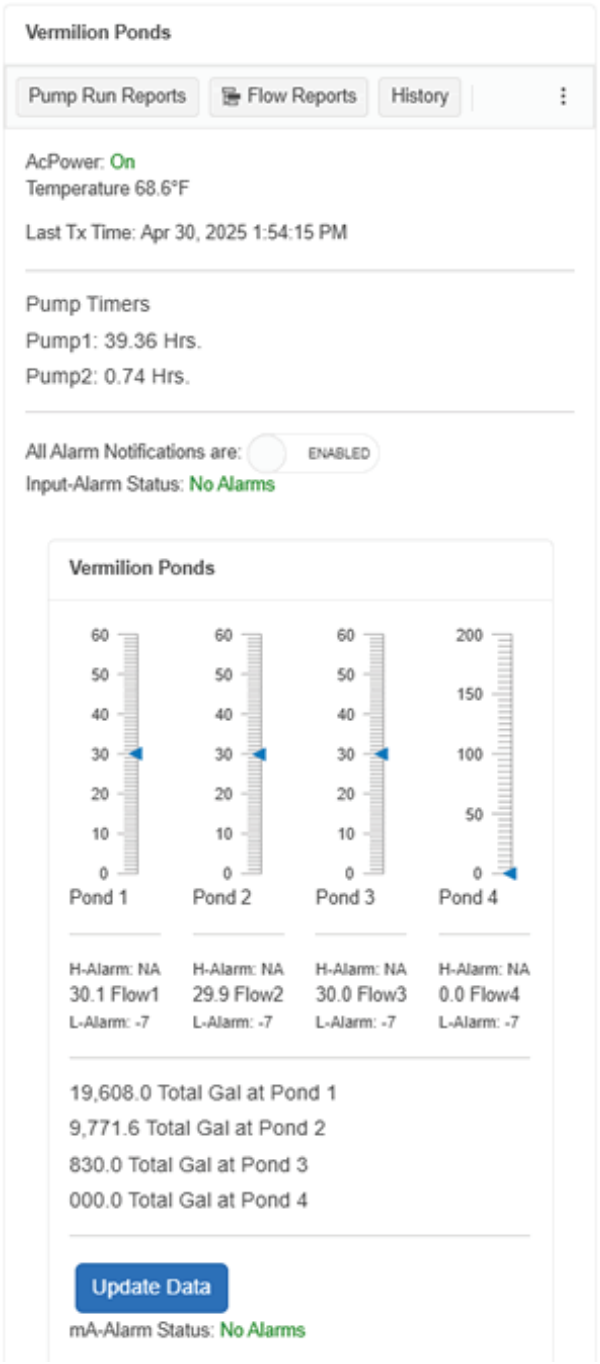
4-20mA Module for # (Pounds)

(Where # is the input channel number)
Input#: Set to True or Checked marked. This will display the device on the web site.
Input#: Description: Give it the name you like to identify our scale or device name.
Unit of Measurement#: Select #'s.
#.High Alarm: Set this to the alarm when the current excess the maximum value.
#.Low Alarm: Set this to the alarm when the current is blow the minimum value.
#.Hysteresis: Level at 5. This is a good starting point.
#.Max Value: Set this to the maximum value of your scale.
#.Zero Offset Value: Level this at zero (0).
#. Alarm Delay: Set this from 2 seconds to 999 seconds for how ever long it takes to get a good alarm. Do not use 0 seconds (*this will disable the alarm*)

4-20mA Module for # (On/Off)

(Where # is the input channel number)
Input#: Set to True or Checked marked. This will display the device on the web site.
Input#: Description: Telemetry Fail Alarm or Give it the name you like to identify the device name.
Unit of Measurement#: Select On/Off.
#.High Alarm: Set this value to 1.
#.Low Alarm: Set this value to 0.
#.Hysteresis: Level at 0.
#.Max Value: Set this value to 1.
#.Zero Offset value: set this to zero (0).
#. Alarm Delay: Set this from 90 seconds or however long it takes to get a good alarm. Do not use 0 seconds (*this will disable the alarm*)

4-20mA Module Flow Rate



Total Gal is the current value since the Last Tx Time: located below the AcPower: and Temperature.

By default we automatically send up the data twice a day.

The last reading of the day is programmed in the Modem setup Daily Tx Time field.

4-20mA Module Flow Rate Setup



Input 1 Setup

Set the [1.Max Value] to match your meter.

Active Input 1: Needs to be check marked to show up on web page.

Input 1 Description: Pond 1 (this can be set to your flow site name).

Unit of Measurement: Set to Flow1.

High Alarm is automatically set to 10 plus the 1.Max Value field.

Low Alarm is automatically set to -7.
Note: Alarms are not used for flow monitoring.

1.Zero Offset is automatically set to 0.

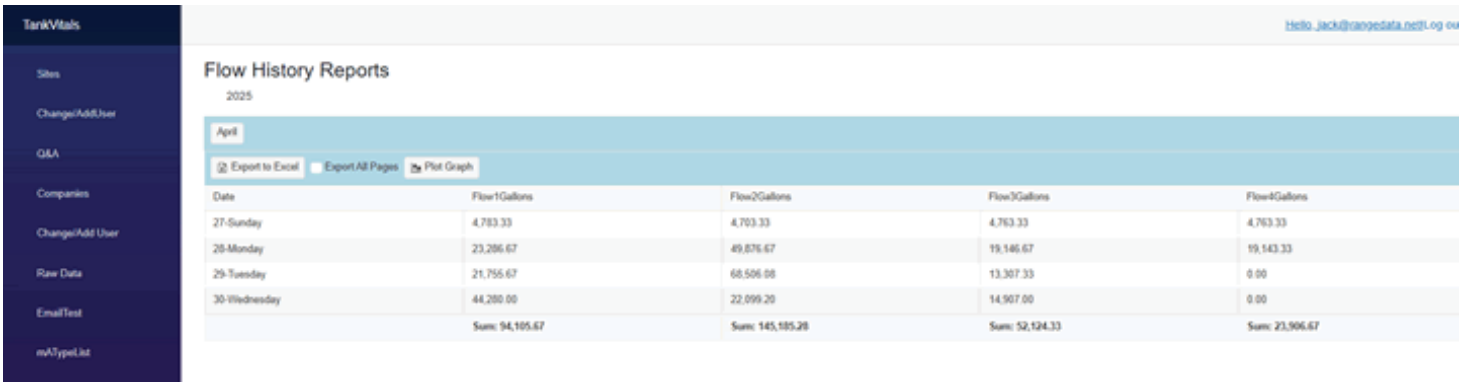
1.Alarm Delay is not used

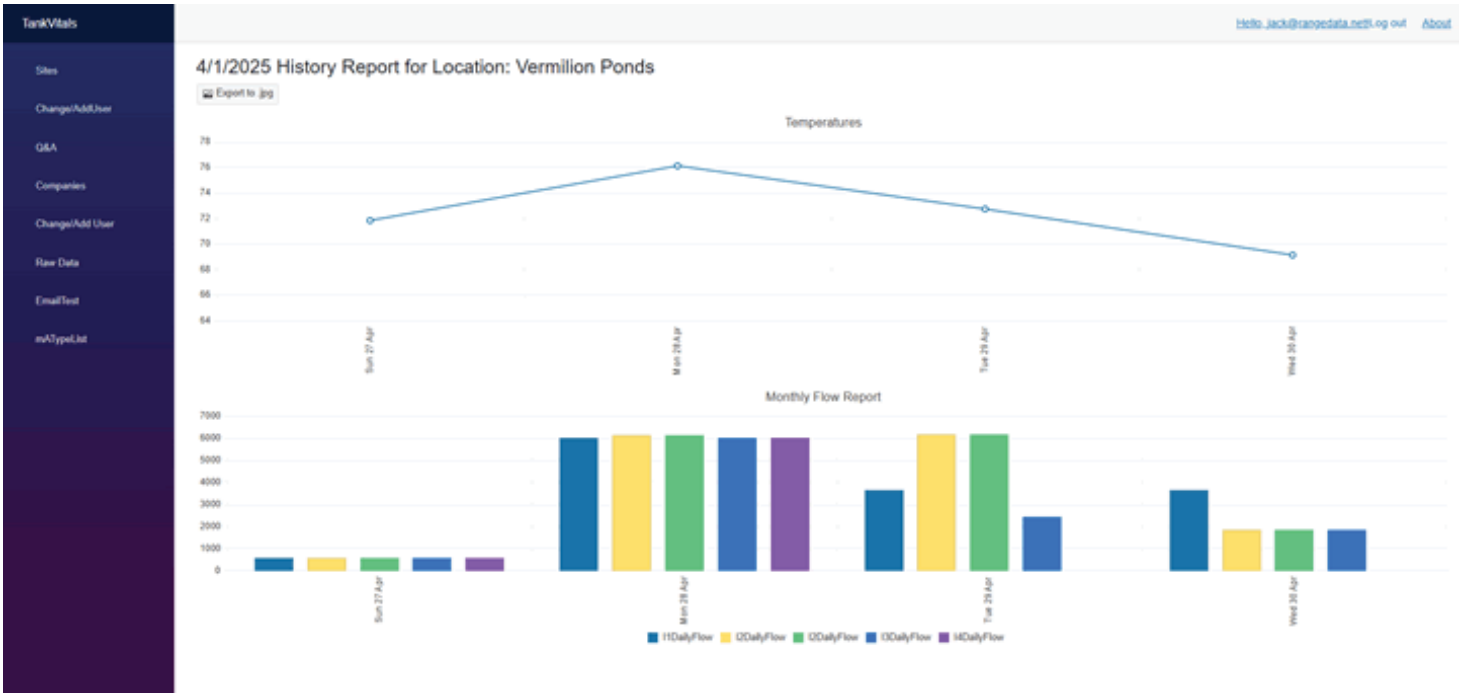
Total Gallons can be changed to match the meter on site.

4-20mA Module Flow Rate Data

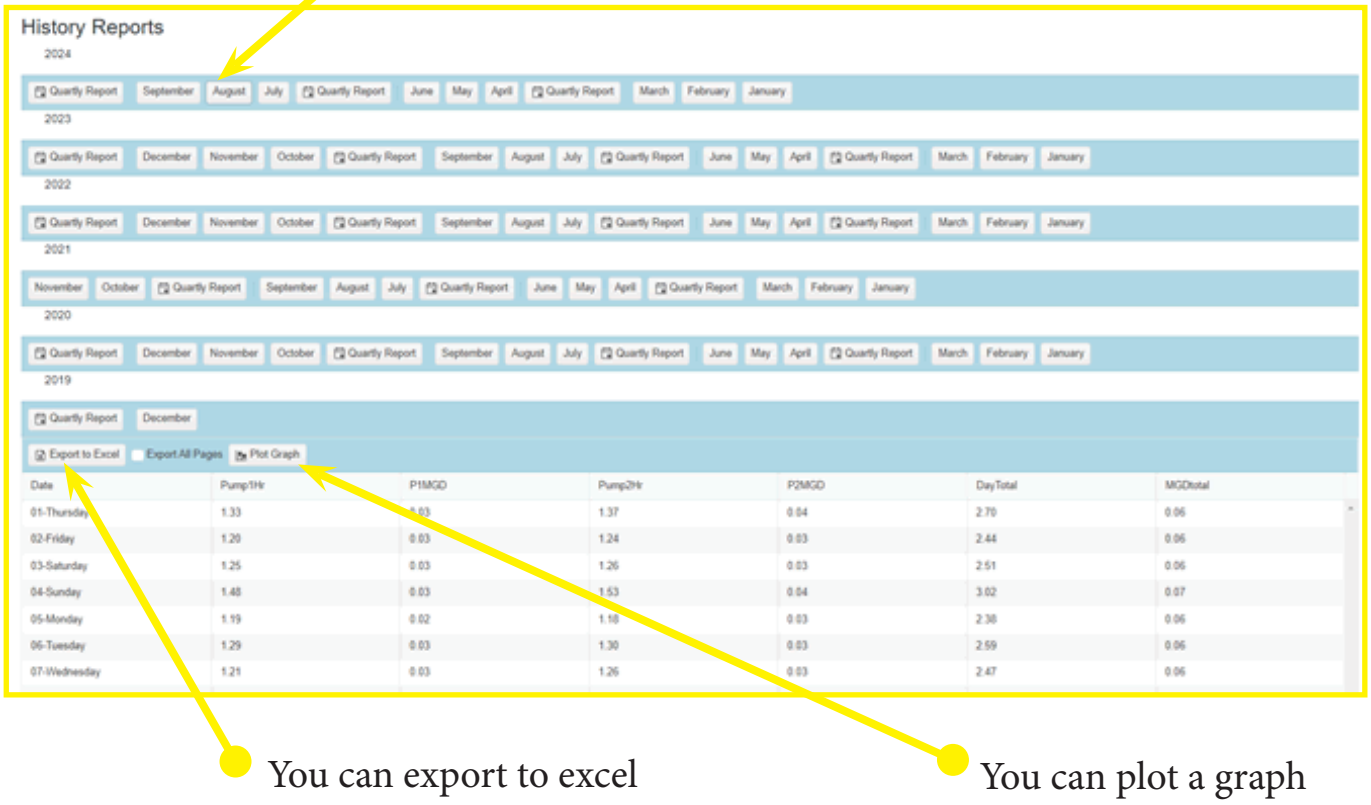
Click on Flow Reports Button

Select the month this will display the data.
Then select Plot Graph.

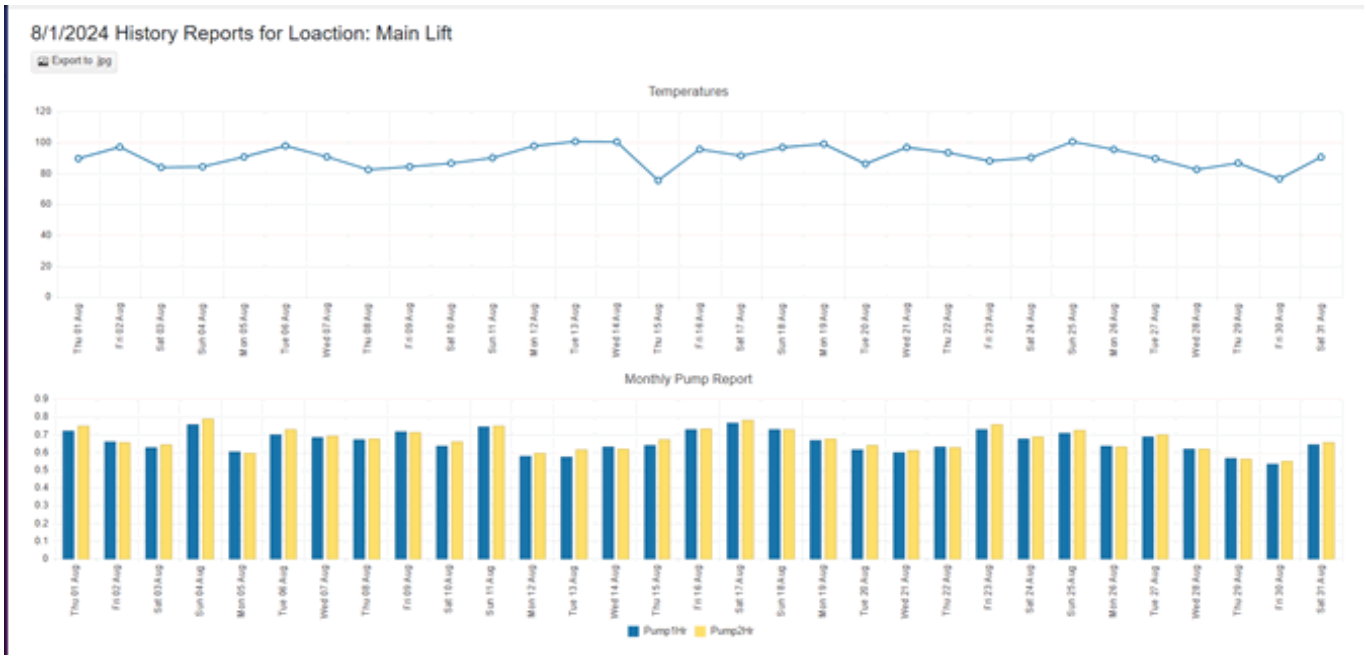




Pump Run Reports



Pumps Run Times and Temperature and Reports



Excel Report

G34

	A	B	C	D	E	F	G
1	Date	Pump1Hr	P1MGD	Pump2Hr	P2MGD	DayTotal	MGDtotal
2	08/01/2024 12:32:25 AM	1.33	0.03	1.37	0.04	2.70	0.06
3	08/02/2024 12:32:15 AM	1.20	0.03	1.24	0.03	2.44	0.06
4	08/03/2024 12:32:02 AM	1.25	0.03	1.26	0.03	2.51	0.06
5	08/04/2024 12:31:42 AM	1.48	0.03	1.53	0.04	3.02	0.07
6	08/05/2024 12:31:28 AM	1.19	0.02	1.18	0.03	2.38	0.06
7	08/06/2024 12:31:09 AM	1.29	0.03	1.30	0.03	2.59	0.06
8	08/07/2024 12:30:51 AM	1.21	0.03	1.26	0.03	2.47	0.06
9	08/08/2024 12:30:31 AM	1.20	0.03	1.20	0.03	2.40	0.06
10	08/09/2024 12:30:11 AM	1.41	0.03	1.43	0.04	2.84	0.07
11	08/10/2024 12:29:53 AM	1.17	0.02	1.19	0.03	2.36	0.06
12	08/11/2024 12:29:31 AM	1.26	0.03	1.27	0.03	2.53	0.06
13	08/12/2024 12:29:15 AM	1.09	0.02	1.11	0.03	2.19	0.05
14	08/13/2024 12:29:05 AM	1.13	0.02	1.18	0.03	2.31	0.05
15	08/14/2024 12:28:54 AM	1.16	0.02	1.13	0.03	2.29	0.05
16	08/15/2024 12:28:43 AM	1.25	0.03	1.27	0.03	2.52	0.06
17	08/16/2024 12:28:31 AM	1.29	0.03	1.34	0.04	2.63	0.06
18	08/17/2024 12:28:30 AM	1.45	0.03	1.46	0.04	2.91	0.07
19	08/18/2024 12:28:26 AM	1.30	0.03	1.30	0.03	2.60	0.06
20	08/19/2024 12:28:16 AM	1.27	0.03	1.29	0.03	2.57	0.06
21	08/20/2024 12:28:03 AM	1.23	0.03	1.28	0.03	2.50	0.06
22	08/21/2024 12:27:40 AM	1.18	0.02	1.20	0.03	2.37	0.06
23	08/22/2024 12:27:29 AM	1.20	0.03	1.19	0.03	2.39	0.06
24	08/23/2024 12:27:14 AM	1.29	0.03	1.33	0.04	2.62	0.06
25	08/24/2024 12:27:03 AM	1.25	0.03	1.29	0.03	2.54	0.06
26	08/25/2024 12:26:58 AM	1.41	0.03	1.43	0.04	2.85	0.07
27	08/26/2024 12:26:55 AM	1.27	0.03	1.25	0.03	2.52	0.06
28	08/27/2024 12:26:51 AM	1.29	0.03	1.32	0.03	2.61	0.06
29	08/28/2024 12:26:45 AM	1.20	0.03	1.20	0.03	2.40	0.06
30	08/29/2024 12:26:28 AM	1.09	0.02	1.08	0.03	2.17	0.05
31	08/30/2024 12:26:14 AM	1.05	0.02	1.07	0.03	2.12	0.05
32	08/31/2024 12:26:00 AM	1.18	0.02	1.19	0.03	2.38	0.06
33		Sum: 38.57	Sum: 0.81	Sum: 39.15	Sum: 1.036	Sum: 77.72	Sum: 1.84
34							

S2C Alarm Input Identification Model/Schematic #

Alarm Input Channel

1: _____or Pump 1 Run Timer

2:_____ or Pump 2 Run Timer

3: _____or Pump 3 Run Timer

4: _____or Pump 4 Run Timer

5: _____

6: _____

7: _____

8: _____

9: _____

10: _____

11: _____

12: _____

4-20mA-1: _____

4-20mA-2: _____

4-20mA-3: _____

4-20mA-4: _____

Billing Info

We need the Master Designated person information.
Email and Cellular number is used for alarm notification. Also need a shipping to address in case we need to ship repair equipment and the Yearly Billing Address

Purchase Order number: _____

Company Name: _____

Email Address: _____

Cell Phone #: _____ (i.e.. 701-352-4696)

Billing Address: _____ (Yearly Fee)

Shipping Address: _____

City: _____ State:_____

Zip Code: _____-_____

Data Information for this S2C device SIM:

8914800000_____ IP: 10.73.13___.___

FYI: This information is never shared or released to anyone. Thanks!

Send this information to Billing@RangeData.net

Your Cellular Alarm Monitoring Experts

Output Custom APIs Alarms to Wonderware (push method) SCADA system
Easy Installation
Includes VPN (Virtual Private Network)
Internally DIN mount or Externally NEAM-4x

Simpler, Faster and Smarter Cellular System for your Location



Lifetime Warranty
Proudly Made in the USA