Opti Active Control (Binary Control)
Hardware Operations & Maintenance Manual

Prepared by

OptiRTC, Inc.
98 North Washington St.
Suite 210
Boston, MA 02114

Last Updated: January 2025

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

TABLE OF CONTENTS

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ACRONYMS

mA Milliamp
NFPA National Fire Protection Association
OSHA Occupational Safety and Health Administration

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Safety Information

- Power must be turned off before servicing, modifying, or maintaining any equipment. Please refer to the de-energizing procedure.
- OptiRTC does not provide warranties for hardware beyond that of the vendor or manufacturer. It is the Owner's responsibility to verify hardware integrity prior to any on-site work.
- Only Qualified Personnel (according to OSHA 1910.332) should conduct electrical work on-site, and all work should conform to national and local electric codes (e.g. NFPA 70).
- Proper confined space entry procedures should be followed at all times when entering confined space outlet structures.

Contact Information

Contact Opti Support for online dashboard operation, site management, system operation questions, Opti services, and other support questions.

Email: support@optirtc.com
Phone: (844) 678-4782, Ext. 2

Necessary Tools

This is a list of tools routinely used for maintenance on Opti hardware.

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Field Service Kit for Inspections

Tools:

Item:	Description / Notes:
Multi Functional Wire Strippers	Cut / clean / strip wire ends
Screwdrivers - Phillips and Flat	Very small flat head required for terminal blocks (eg. 3/32”)
Multimeter (CAT III or IV)	**Must have current loop and continuity testing capabilities; must read DC voltage and amperage**
Adjustable wrench or SAE and metric deep well sockets / ratchet	Tighten any components that may be loose
Measuring tape / level rod	For measuring water depth, etc.
Ladder	Clean solar panels, rain gauge
Additional basic misc. tools	Hammer,needle nose pliers, utility knife, pry bar, etc. for general tasks
5 gallon bucket or similar	May be used for pressure sensor testing if pond is dry; will also need 1-3 gallons of water to test senor at two different water depths
Pruning tool(s) (not required at all sites)	Tool to trim branches, etc. that may be growing over rain gauge or solar panel

Consumables:

Item:	Description / Notes:
Coin Cell Battery	CR1220 battery for Thunder Panel
Towels / rags	For cleaning solar panel, rain gauge
Typical Misc. Supplies	Electrical tape, cable ties, wire nuts, etc.

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Introduction

This manual provides guidance for operating and maintaining the hardware for your Opti installation. Opti's active control integrates cloud-based technology, sensors and flow or volume controls in the field, with the weather forecast to reduce flooding, improve water quality, control combined sewer wet weather flow, and/or restore ecological flow rates in streams.

Each Opti installation is unique and may include hardware not described in this manual. Contact Opti Support for questions about custom hardware maintenance.

Figure 1: Opti active control installation

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Hardware Information

The basic Opti configuration includes a power source, a control panel and water level sensor. Most systems communicate a discharge command through a dry contact on a standalone PLC which controls a pump or valve. Many Opti installations have site-specific hardware, including other sensors and other types of discharge control. Refer to site drawings for information on your hardware installation and component locations.

Opti Control Panel

To open the Opti Control Panel, unlock the lock on the panel. Depending on the type of panel, you may need to unlatch latches on the side, turn knobs, or use a large flathead screwdriver to access the swing door and the interior (Figure 2). As a security feature, Opti logs when the panel is accessed by sensing when the door is open or closed. Be sure to close and lock the panel after all on-site maintenance.

Figure 2: Opti Control Panel cover, swing door, and interior (left to right).

Swing Door

The control panel swing door is shown in Figure 3. The swing door has two switches: one used for cycling power to the control panel, and one for enabling or disengaging Opti pump/valve control signals. Note that the “Control Power” switch does not act as a circuit breaker. In order to be in an automatic control mode, the “Control Power” switch is in the ON position, and the “Valve” switch is turned to AUTO.

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Figure 3: Opti Control Panel swing door controls

Control Panel Interior

An example control panel is shown in Figure 4. While there may be wiring differences between this example panel and the panel for your site, this image can guide you around the various parts that may be included in your panel. Before electrical maintenance, check the wiring and electrical diagrams prepared for your site.

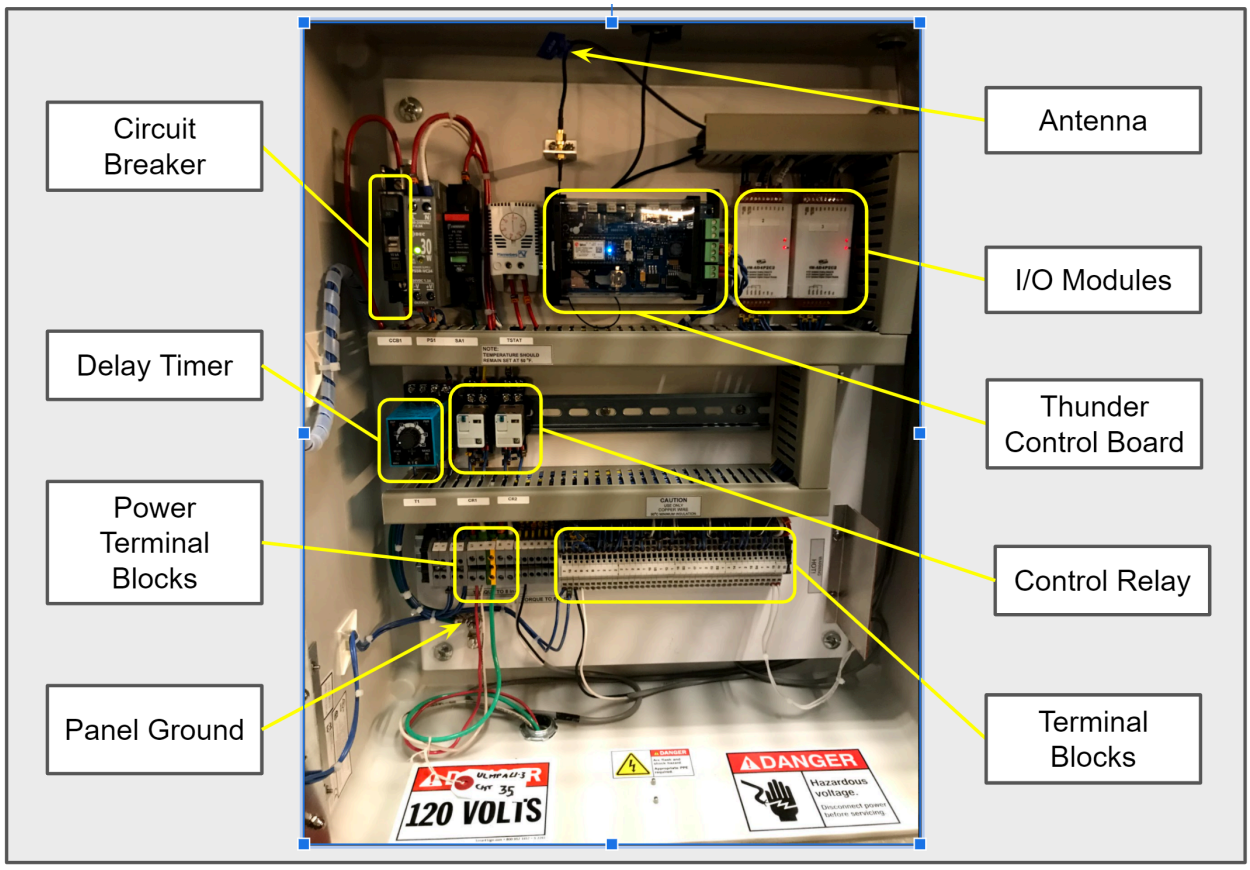


Figure 4: Opti control panel annotated with major components

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

OptiThunder Cellular Gateway

All electrical components in the control panel are controlled by the OptiThunder cellular gateway. OptiThunder is Opti's proprietary cellular gateway, which connects the panel to the Opti cloud platform. The OptiThunder cellular gateway receives, processes, and sends commands to and from all sources, and maintains failsafe behavior during long offline periods.

OptiThunder Indicator Lights

The OptiThunder cellular gateway processes all incoming sensor and battery information and connects as a gateway to the Opti cloud platform. When on site, the status indicator lights will provide the best indication of its behavior. During normal operation, the status light "breathes" cyan by fading in and out softly. Cycling power to the control panel will turn the OptiThunder cellular gateway off and on, and its indicator lights will provide information about its status as it changes (Table 1). There may also be a second, smaller LED that blinks red, which can be ignored.

If the OptiThunder cellular gateway is unable to establish a cloud connection after 5 minutes, power cycle the control panel using its circuit breaker to force OptiThunder to reconnect. If the issue persists contact Opti support staff for further assistance.

Table 1: Common status indicator light signals

Flashing Green	Connecting to cellular network
Flashing Cyan	Connecting to cloud
Breathing Cyan	Successfully connected to cloud
Blinking Blue	Check SIM card connection

I/O Modules

The I/O modules are used to manage signal inputs and outputs by converting sensor data signals to and from their various protocols. The OptiThunder cellular gateway communicates with the RS485 modbus communication protocol, and the I/O modules convert those signals to and from 4-20 mA and other sensor data signals.

Panel Circuit Breakers

The panel circuit breaker is labeled "CCB1". When performing electrical maintenance, make sure the circuit breaker is turned off. "CCB1" controls power to panel components and

sensors. There is a spare circuit breaker labeled "CCB2". It does not control power to any components, but can be used if "CCB1" were to be damaged. Using this circuit breaker would require rewiring from "CCB1".

Relays

Relays in the panel manage power to the sensors by cycling power off and on to hardware which is powered on regular intervals. Relays also send control signals for the discharge hardware connected to the Opti Control Panel.

Terminal Blocks

Opti uses both screw terminals and spring clamp terminals. To insert or remove wiring to a screw terminal, simply loosen the screw to make changes and tighten the screw after inserting a wire. To insert or remove wiring to a spring clamp terminal, insert a thin, flat screwdriver into the square hole next to the circular wire terminal. Push the spring clamp outward to open the terminal and insert or remove the wire. After inserting wires, make sure the connection is strong by gently tugging the wire.

Power Terminal Blocks

The power terminal blocks are standard terminal blocks that are rated for higher voltage and current loads. Connections at these terminals send power to all panel components.

DIN Rail

The DIN rail is a standard mounting bracket which many components can clip onto. To disconnect a component from the DIN rail, pull out on the component's mounting clip on the bottom rail, and gently lift it off the rail.

Panel Ground

The panel is electrically grounded at the panel ground to prevent dangerous voltage levels from building up if the panel is electrically damaged.

Level Sensor Bellows

The bellows are an optional panel feature. They are used as a port for some level sensors to measure atmospheric pressure.

Water Level Sensor

Water level sensors are used as feedback to adapt to changing site conditions. Water level is detected with a pressure transducer which converts pressure into an electrical signal. To

minimize error from waves and other disturbances, the pressure transducer is protected in a stilling well.

Power

Opti hardware can be powered by 120 V AC line power. If line powered, there will be a breaker nearby to disconnect power. If line powered, there will be a breaker nearby to disconnect power.

Maintenance Procedures

This section describes operation and maintenance procedures for Opti hardware. In addition to corrective maintenance, all components should be inspected for signs of wear or damage during every site visit or as needed based on site-specific conditions. Refer to Appendix A for an inspection and maintenance log with suggested routine maintenance procedures.

Routine Maintenance

Site and system component inspection should follow the procedures outlined below, as well as inspection for wear, vandalism, corrosion, or other damage (Table 2). Refer to the manual for each hardware component (provided as separate attachments) for a more complete description of maintenance.

Table 2: Recommended routine maintenance procedures

Opti Control Panel	Winterize and de-winterize if needed.	Annually
Coin Cell Battery	Replace coin cell battery on OptiThunder Battery type: CR1220s	Annually
Water Level Sensor	Winterize and de-winterize if needed. Visually inspect for obstructions and fouling. Replace desiccant cartridge if crystals have turned from blue to pink. Calibrate any time the sensor moves.	Biannually and during every site visit
Rain Gage	Inspect for debris, obstructions, and corrosion.	Biannually and during every site visit

Site Discharge Control Hardware (if applicable)	Inspect for debris and obstructions. Clean as needed.	Biannually and as needed based on email alerts
Trash Rack and Stilling Well (if applicable)	Inspect for debris and obstructions. Clean as needed.	Biannually and during every site visit

Control Panel De-Energizing Procedure

Whenever maintenance is required, the control panel and components must first be de-energized. The steps below outline the de-energizing procedure:

1. Unlock the control panel enclosure and access the swing panel.
2. Turn the “Control Power” switch to the OFF position.
3. Open the swing panel. Locate the panel circuit breaker, labeled CCB1 and turn it down to the OFF position.

All connected devices are now de-energized and maintenance can proceed. Note that this does not de-energize the input energy source in the site’s line power connection.

Discharge Control Override Procedures

There are three procedures to override the discharge control, which ensure reliability during software, connection, hardware, or power failures: online, control panel, and manual override. Generally, online override can be used for remote maintenance while the control panel override is used when on site. During a cellular connection failure, the system will be in a predetermined failsafe position. Overrides to the failsafe behavior should be dictated by directly controlling onsite hardware (i.e. through a central controller or pump PLC).

Online Override

A user with access permissions can override the discharge control online. Sign into the Opti web portal and navigate to the system control pod in the top left (Figure 6).

1. Change the Operation Mode to Manual Control. Confirm this change with the “Change” button.
2. Enter the desired state of discharge control. Confirm this change with the “Commit” button.
3. When finished, set Opti back into Automatic Control and confirm with the “Change” button.

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

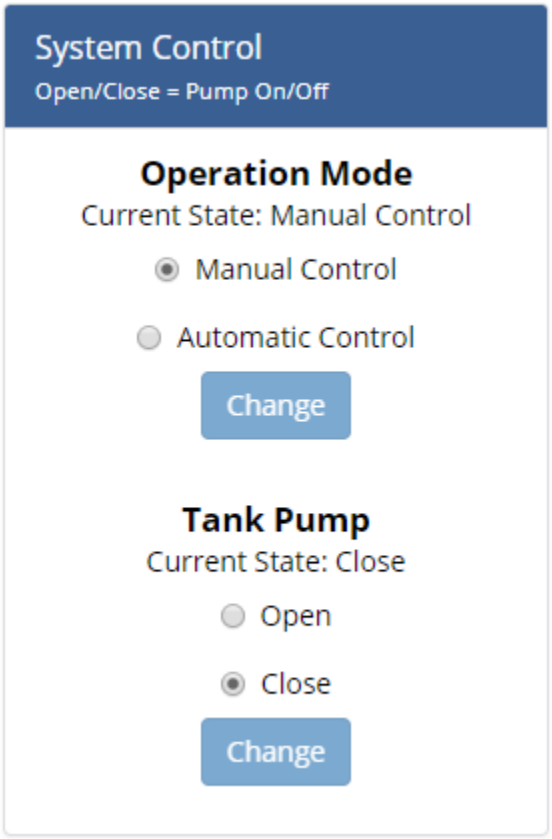


Figure 5: System Control pod

Control Panel Signal Interrupt

When on site, automatic control can be interrupted with the following procedure:

1. Locate the switch and knob on the left side of the swing door labeled “Control Power” (Figure 3).
2. Move the switch to OFF to interrupt or disconnect the Opti control signal. This will prevent a signal from being sent to the site’s PLC or hardware.
3. Move the switch to the ON position to resume Opti commands to the site’s PLC or hardware.

Control Panel Local Override

When on site, the discharge can be locally controlled by Opti’s control panel. This will override online (remote) automatic or manual control:

1. Locate the switch and knob on the right side of the swing door labeled “Valve” (Figure 3).
2. Move the “Valve” switch to either OPEN or CLOSE depending on what control action is desired. Leave the “Control Power” knob on the left as ON. This will override any commands sent from the cellular gateway.
3. Return the “Valve” switch to the AUTO position to resume Opti online commands to the site’s PLC or hardware.

Water Level Sensor Calibration

Water level sensors may need to be calibrated after: installation, de-winterization, re-location of sensors, or when data shown on the dashboard does not match observed values. All calibration is done through Opti software and requires no hardware changes. To take calibration measurements, follow this procedure:

1. Place the water level sensor in a bucket of water.
2. De-energize the Opti Panel using the power switch.
3. Measure the depth of the sensing element at the end of the pressure transducer.
4. Turn the Opti Monitoring Panel back on and wait until the status indicator light breathes cyan. This indicates that a pressure is being recorded and sent to Opti. Record both the time of the measurement and the depth of water.
5. Place the water level sensor in its final position in the body of water, and repeat steps 2-4 to record the sensor depth and time. Do not move the sensor afterwards.
6. Measure the distance between the water surface elevation and a known elevation such as an invert elevation, and record the time.
7. Contact Opti Support and send the three pairs of time and elevation measurements.

Winterization and De-winterization

Winterization may be necessary if a site encounters freezing temperatures during winter months. Winterization is done to avoid damage to sensors caused by expansion of freezing water. Sites may not need winterization if sensors are installed deep enough where water does not freeze. A typical winterization and de-winterization process follows the steps below.

Winterization

1. Follow the control panel discharge override procedure and set the outflow to your site’s failsafe position using the online portal’s manual control and leave it in that setting for the winter months.
2. Follow the control panel de-energizing procedure to make sure all electrical equipment is off and safe to disconnect.

3. Disconnect and remove all non-freezeproof sensors for the winterization period and store in a warm, dry location. Opti recommends removing pressure transducers, TSS sensors, and multiparameter sensors, which may be damaged by freezing water.
4. Notify Opti Support that the site is now in a winterization state.

De-winterization

1. Reconnect all removed sensors. Use the provided wiring guide to make sure all sensors are correctly wired to the sensor terminals.
2. Turn the power switch to the on position. OptiThunder will breathe cyan when connected to the internet.
3. Follow the procedure described in Water Level Sensor Calibration by recording two water level sensor depths and times, and a reference elevation.
4. Notify Opti Support that the site is now de-winterized. Include water level sensor calibration measurements.
5. Place the site from manual mode into auto mode on the online portal.
6. Monitor the site for one week or until the first rain event to ensure it is functioning correctly.

Coin Cell Battery Replacement

The coin cell battery on the OptiThunder cellular gateway helps preserve information about the device's state and configuration during power outages to the device. We recommend replacing it once a year. Available at Home Depot or similar. See example at right.

In order to replace the battery, remove the plastic cover over the OptiThunder by pulling directly away from the device. The coin cell is located in the bottom-right corner. Carefully remove the existing battery and replace it with the new one. Ensure it is replaced in the same orientation (+ side facing out).

Troubleshooting

Troubleshooting involves identifying an issue and performing corrective maintenance on an unknown problem. Troubleshooting becomes much easier with a good understanding of dependencies within the Opti system and the correct tools to detect where failures may be occurring.

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Dependency Flow Diagram

The diagram shown in Figure 7 is a simplified view of the flow of information and power through various components. An arrow indicates a direct dependency, in which information or power may flow between components. This diagram can be used to help find, diagnose, and repair problems either remotely or on site.

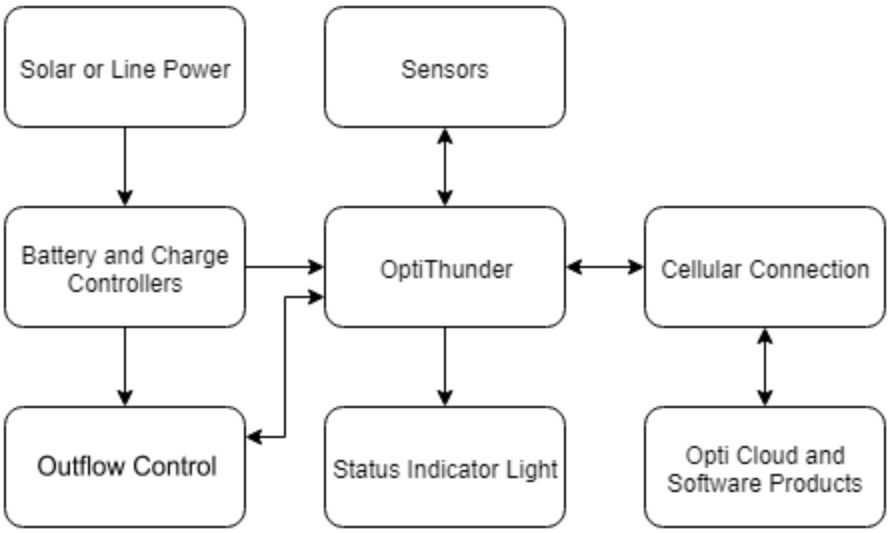


Figure 6: Dependency flow diagram

Triggers for Maintenance

By providing real-time data online on the Opti Dashboard, indicators of maintenance needs can be observed remotely. Please see below for some examples of unusual data patterns (observed on the Opti Dashboard) that indicate when maintenance is required: Outflow Clog, Pressure Transducer Electrical Failure, and I/O Module Disconnection.

Opti Dashboard Troubleshooting Examples

Valve clog

In this example, a valve was stuck at approximately 18% open and would not follow any further valve commands (Figure 8). This was caused by a clog which prevented the valve (blue) from opening to its target state. The valve flatlined, and didn't respond to further

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

commands. Once it was placed in online override mode and opened further, the valve opened and the clog was released. It was immediately returned to automatic mode and showed normal behavior during a drawdown period the next day.

If a valve's percentage open is more than 5% different from its target state, this is often due to a clog preventing further valve movement. Clogs are often resolved by placing the valve in manual mode and sending commands to fully open and close. These commands will send a larger amount of torque to the valve and likely clear any present clogs. If the issue persists, go on site and perform a Control Panel Override on site to clear the clog. If problems persist, contact Opti Support to help determine the cause.

Figure 7: Opti dashboard during a valve clog

Pressure Transducer Electrical Failure

In this example, the water level sensor PT3 (orange) frequently spikes to the high end of its range (Figure 9). Since the sensor outputs an electrical signal, it appears that electrical components may be short-circuited. This sensor shows this behavior intermittently and may be irreparably damaged. To troubleshoot water level sensor issues, follow routine maintenance procedures by checking all connections to the sensor, cleaning dirt and debris, and checking the desiccant. If the problem continues, replace the sensor.

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

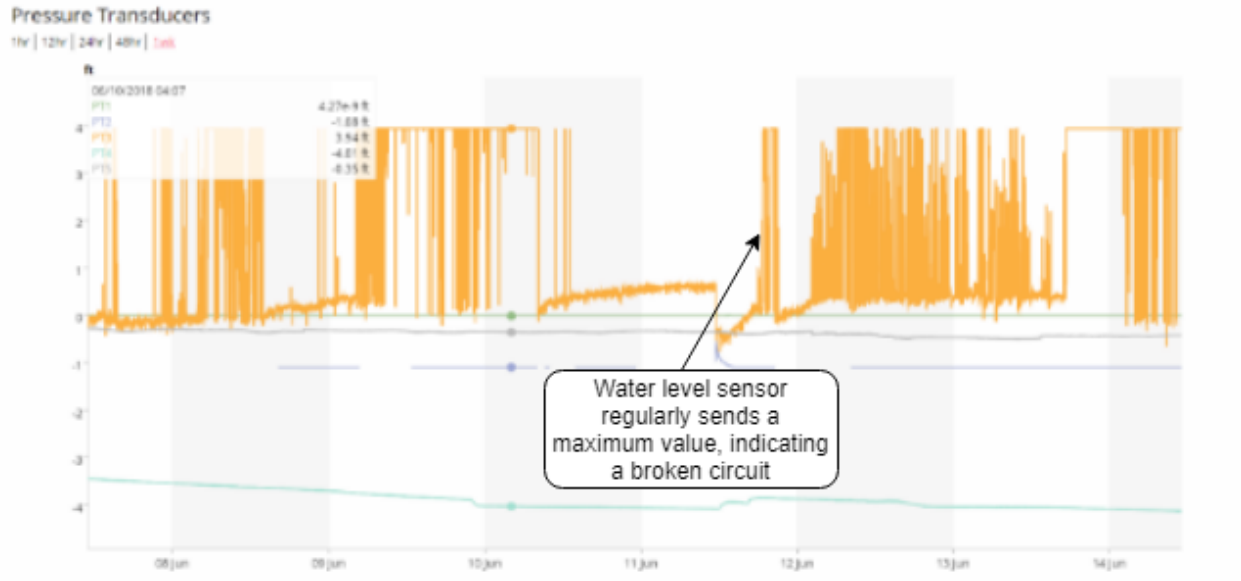


Figure 8: Faulty pressure transducer readings

I/O Module disconnection

In this example, all of one site's pressure transducers showed a loss of connection at the same time on August 10 (Figure 10). However, the internet connection remained online. This failure happened due to a disconnection from one of the I/O modules. Since the wire terminal on one side of the I/O module does not screw in to protect it from coming loose, it may disconnect if the wiring is too tight and pulls it away. Wiring may disconnect across many panel components; to ensure reliable wiring, gently tug all wire and terminal connections when installing and changing connections.

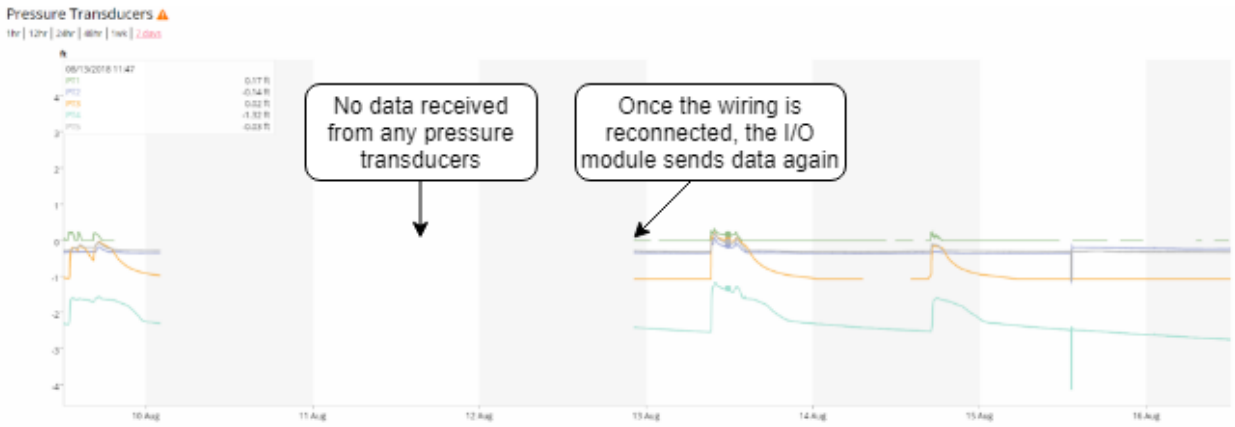


Figure 9: Sensor datastream failure during I/O module disconnection

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Recurring Overnight Offline Periods

Batteries will degrade over time and eventually require replacement. In this example, a site experiences recurring offline periods overnight. Batteries will be disconnected when their voltage drops below 22.8V and will reconnect once they have been charged such that the voltage exceeds 25.2V. During the daytime hours the solar panel generates enough energy to operate the Opti system; as the sun sets the batteries rapidly lose charge and the site goes offline (Figure 11). The system needs to be energized and de-energized in a specific order to safely replace the batteries and protect system components, described below.

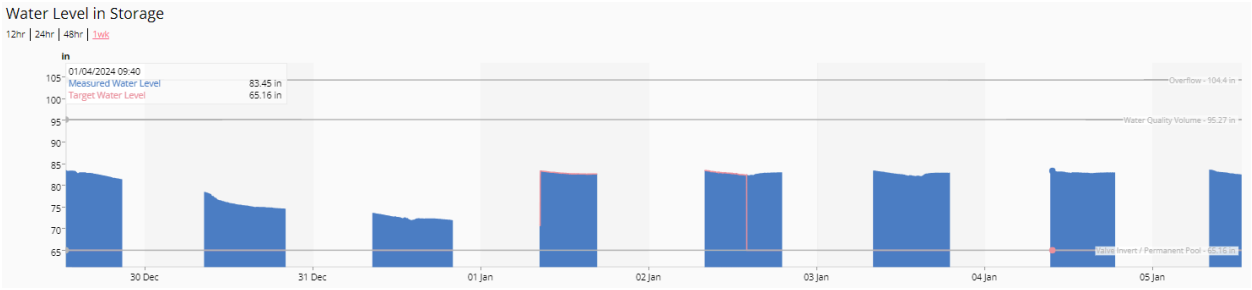
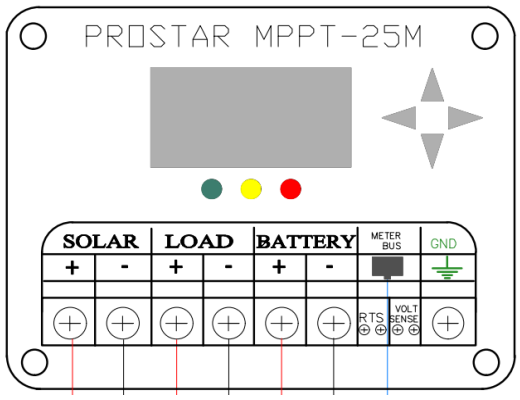


Figure 10: Recurring offline periods during overnight hours

To replace Solar Kit batteries:

De-energize the system:

- Open solar kit box and identify three breakers in line with the charge controller: Solar, Load, Battery

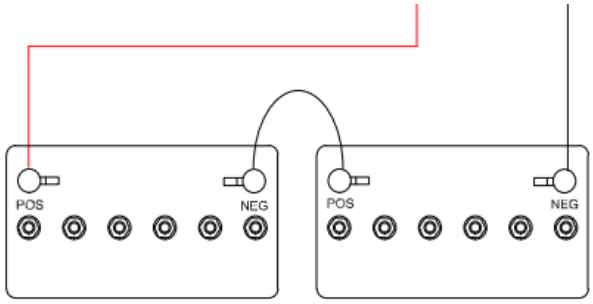


- Trace the wires from the charge controller to each breaker to confirm each breaker's purpose
- Turn the breakers to the OFF position in the following order
    - Solar breaker off first
    - Load breaker off second
    - Battery breaker off last

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

The system is now de-energized and the battery can be replaced. Please note the battery will remain charged and a sunlit solar panel will still produce energy; continue to work with caution.

- Remove battery cables from batteries, then remove batteries from box
- Install new batteries (terminal protectant grease is recommended but not required)
    - Connect positive and negative terminals of one battery to the other to join them in series
    - Connect the remaining positive cable to one battery and the remaining negative cable to the other battery
    - Check that nuts securing battery leads are torqued tight enough to prevent slipping as any movement due to heat expansion, etc could cause a short.



The battery replacement is now complete and the system is ready to be re-energized. While the breakers are still in the OFF position, check connections for tightness and polarity.

Re-energize the system:

- Turn the battery breaker ON first
    - Verify voltages to the battery
- Turn the solar breaker ON second
    - Verify charging amps
- Proceed to turn the load breaker ON

The system is now re-energized and should be operating normally. To verify your Opti system is online, open the control panel and check the OptiThunder status indicator lights. When the status indicator light is breathing cyan your Opti system is connected to the cloud. Additionally, please verify on your site's dashboard that Opti Thunder is able to read data from the solar charge controller. If something looks off or this data is not available on your dashboard, please contact Opti Support.

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Appendix A: Inspection/Maintenance Log

Opti Facility	
Inspected By:	
Date and Time:	
Weather:	

Recommended: bring the list of tools found in Inspections_Tool_Kit.pdf to perform maintenance and repairs as needed. **Contact Opti Support (support@optirtc.com or 1-844-678-4782 ext. 2) during inspection as indicated below** or if major repairs are necessary. Component and site photos are required for a complete inspection.

Weather Forecast check for the day of the inspection:
Check if any rainfall is expected and report on safety concerns.

Control Panel:

Checklist Item	Result
Inspect interior of Opti Control Panel for water intrusion or pest infestation	
Inspect all exposed conduit for damage or loose connections. Repair if necessary.	
Replace Thunder coin cell battery - ***plus side out***. Battery type: CR1220s (found at Home Depot). Example: 	

Comments / Notes:

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Water Level Sensor:

Note: if the site is dry during the maintenance visit, you will need a bucket of water to conduct the Pressure test

Checklist Item	Result
Winterization / de-winterization?	Yes / No
Clean sensor and stilling well	
Water level measurement	Water level (in): Time of measurement: Reference datum description:
Pressure test **(Use a Bucket of Water if the site is dry during the visit)**	Make sure the bucket is level. Measure the depth of water in the bucket. Place the sensor in a bucket for 10 minutes. Measurement 1 - Depth: Measurement 1 Start - Date / Time: Measurement 1 Finish - Date / Time: Add or remove water from the bucket. Record the depth of the water in the bucket, and place the sensor back in the bucket for another 10 minutes. Measurement 2 - Depth: Measurement 2 Start - Date / Time: Measurement 2 Finish - Date / Time:
Junction box watertight / dry?	Y / N
Bellows dry?	Y / N

Comments / Notes:

Valve / Actuator:

Contact Opti Support (support@optirtc.com or 1-844-678-4782) during inspection

Checklist Item	Result
Clear trash rack of debris	
Calibration check: Set to 0% and 100% open from Opti Panel; **verify with Opti support**	Valve closed position (from screen): Valve open position (from screen):
Close Limits set on Actuator	
Fail Safe set on Actuator	
Torque set on Actuator	
If line power: Cut power to actuator (battery backup testing)	Valve position:

Comments / Notes:

If actuator is for a gate, replace valve / actuator with the following:

Gate / Actuator:

Contact Opti Support (support@optirtc.com or 1-844-678-4782) during inspection

Checklist Item	Result
Clear trash rack of debris	
Calibration check: Set to 0% and 50% open from Opti Panel**; verify with Opti support**	Valve closed position (from screen): Valve open position (from screen):

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

If line power: Cut power to actuator (battery backup testing)	Valve position:
Inspect gate stem (If yes on any, contact support@optirtc.com)	Signs of misalignment? Y / N Bronze dust / shavings? Y / N Signs of damage? Y / N
Lubricate valve stem	
Clean valve stem (**DO NOT USE** steel bristles or hand grinder)	

Comments / Notes:

Rain Gauge (if applicable)**:**

Contact Opti Support (support@optirtc.com or 1-844-678-4782) during inspection

Inspect rain gauge for debris, obstructions, and corrosion. Clear debris and obstructions as needed.	
Inspect the wire that runs from rain gauge to control panel	
Ensure rain gauge wires are connected to the right terminals in the control panel Davis 16: Red 20: Green Texas Electronics: 16: Red 20: White	

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Call Opti Support and test if the rain gauge is working as expected by simulating a precipitation event by pouring small amounts of water into the rain gauge to see if this is reflected on the dashboard.	
Davis Rain Gauge : Open funnel by twisting anticlockwise and ensure there is no algae build up on the exit at the bottom of the rain gauge	

Comments/ Notes:

Solar Kit (if applicable)**:**

Checklist Item	Result
Wipe solar panels with cotton cloth	
Check battery charge with multimeter (should be equal)	Battery 1 Voltage: Battery 2 Voltage:
Remove any vegetation directly blocking the solar panel. Note tree canopy coverage and inform Opti/Site if significant blockage shading solar panels.	
Confirm DIP Switch position on charge controller	Expected: 1-7 DOWN, 8 UP Actual:

Comments / Notes:

98 North Washington St
Suite 210
Boston, MA 02114
1-844-OPTIRTC
www.optirtc.com

Inspection Completion Checklist:

The following procedures should be completed prior to leaving the site. Where they are not completed, please explain what conditions were preventing them from being accomplished.

Checklist Item	Result
Leave the actuator and control panel in remote control mode.	
Ensure all breakers are in the "ON" position.	
Close all panel doors and junction boxes, double checking seals where necessary.	
Photo documentation of hardware and general field conditions taken	*Submit to Opti*

Completed By: _____ Signature:_____Date:_____