MyDro

150/850

Installation Manual

MISSION
COMMUNICATIONS

Welcome,

Thank you for choosing Mission Communications for your monitoring and alarm needs! Mission is committed to providing the highest quality in SCADA solutions. All of our products go through a strict testing regimen before leaving our facility to ensure a seamless "out of the box" installation experience.

The first chapters of this manual focus on pre-installation, and are intended to identify issues and recommend solutions to optimize your installation. Appendix A includes descriptions of terminology used throughout the manual. Please consider the steps in these sections and confirm that you have received all the necessary parts for a successful installation.

Each remote terminal unit (RTU) is packaged with an RTU Setup Form along with a User Guide, Terms & Guarantees, and an emergency notice label. New customers will also be given a New Customer Packet which includes Account and Notification Setup Forms, along with electronic key instructions. Prior to installation, please complete and send in all forms to Mission technical support in order to access your web portal with the login credentials you have provided.

Training webinars are available most Wednesdays at 2 p.m., Eastern. We also provide quarterly newsletters and training videos on our website. Additionally, documents can be remotely accessed through the web portal. We encourage you and your staff to take advantage of these resources. Visit 123mc.com to sign up for the webinar, find our training videos, and view the newsletter archive.

Our goal is to provide customers with the latest technology and designs while ensuring great value. Mission provides customers with 24-hour access to our technical support team. Our technical support staff is available at (877) 993-1911, option 2 for further assistance.

Thank you,
The Mission Team

WARNING: This symbol indicates there is caution or warning to avoid damage to your property or product.

WARNING: Follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes.

NOTE: This symbol indicates that there is something that requires your special attention.

This device complies with part 15 of the FFC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Contents

Mission offers a variety of related documents. Scan the QR code with your smartphone or visit 123mc.com/literature to view.

Chapter 1: Overview

M150/M850 at a Glance

Each RTU is packaged with everything needed for a standard installation.

NEMA 4

NEMA 1

Flatpak

Flatpak Retrofit

Enclosures

NEMA 1—indoor mounting
NEMA 4—outdoor mounting
FlatPak—control panel inner door mounting
FlatPak Retrofit—(Convert M110 or M800 to MyDro)

Hardware Included with RTUs:

- ☐ RTU (NEMA 1, NEMA 4, or FlatPak enclosure)
- ☐ RTU Installation Packet (RTU Form, User Guide, and Emergency notice label)
- ☐ Battery—12 V, 5 amp-hour
- ☐ Flying Lead Transformer (120 VAC to 12 VAC, 1.2 amp)
- ☐ Universal Mount Antenna Kit (11' RG58 cable with SMA-M connector, pole, or wall mount bracket, dual band antenna whip, (2) pole clamps, and (2) Metal oxide varistors (MOVs) rated for 120 V control circuits)
- ☐ Accessory Bag ((4)1000 Ohm long yellow EOL resistors, (8) 1000 Ohm EOL resistors,(2) load sensors, tie wraps, (4) wire nuts, (8) screws, and an interchangeable phillips/flathead screwdriver)

New customers will also be given a New Customer Packet which includes Account and Notification Setup Forms, (5) electronic keys with instructions, and our Managed SCADA document.

Note: If there are any missing parts, please contact us.

Recommended Tools (not included)

Mechanical

- ☐ Drill motor
- ☐ Step drill or 3/4" hole saw
- ☐ Hack/reciprocating saw
- ☐ Metal cutting blades
- ☐ Pliers
- ☐ 5/16" nut driver or tip
- ☐ Phillips-head screwdriver or tip
- ☐ Ladder (for antenna mounting if necessary)

Electrical

- ☐ Voltmeter/multimeter
- ☐ Wire cutters
- ☐ Wire strippers

Materials

- ☐ 18 or 22 gauge wire, 2, 4, or 8 conductor stranded and shielded
- ☐ 12–14 gauge green wire (follow NEC standards) for grounding the RTU
- ☐ 3/4" Flex conduit with straight and elbow fittings
- ☐ Unistrut rail and hardware for mounting
- ☐ Interposing relays and bases (if no dry contacts are available)
- ☐ Interposing relay (if output relays will be used)
- ☐ Sealant

Mission offers a variety of optional accessories. Scan the QR code with your smartphone or visit 123mc.com/hardware to view our accessories catalog.

Chapter 2: Site Survey & Connectivity Test

Prior to installation, please complete and submit the RTU Installation Form via fax ((770) 685-7913) or email (setupforms@123mc.com) so Mission can set up the new unit(s) on your web portal. New customers must also complete and submit both forms within the New Customer Packet. The web portal can be accessed with the login credentials you provided within the Account Setup Form. Once completed and entered by technical support, alarms can be enabled for your RTU(s) immediately after installation so you can perform end-to-end testing.

By powering the RTU and testing connectivity before mounting the hardware, you can optimize the signal strength for years of trouble-free communication. The test only takes a few minutes since the included battery can provide temporary power. Refer to Chapter 3 when positioning the antenna for details on best practices.

1. Remove the RTU from the box and place it on or near the control panel it will be monitoring. Remove the antenna cable and antenna whip from the package and hand-tighten the SMA-M connector to the radio SMA-F connection on the RTU (see Figure 1).

2. Screw the whip antenna onto the molded antenna base and place it outside as high as possible. Mount the antenna to the aluminum bracket.

   ⚠️ **Warning:** Hand-tighten the nut on the underside plus 1/4 turn with a wrench. Do not overtighten.

3. Power the RTU with the 12 VDC battery (see Figure 1). Connect the negative (black) lead to the battery and then connect the positive (red) lead. Once the sequence is completed, you will hear three beeps from the buzzer. This indicates the unit has connected to Mission servers. If the RTU does not connect after two attempts, refer to Appendix D: RTU Boot-up Sequence, Appendix E: Troubleshooting, or call technical support.

4. Notice the Signal Strength reading on the LCD as shown in Figure 1. The goal is to mount the antenna where the signal is the strongest. A -75 dB signal is better than that of -100 dB. Temporarily position the antenna for about a minute in a few locations and take note of the signal strength.

Figure 1:
Main Printed Circuit Board Wired for Site Survey
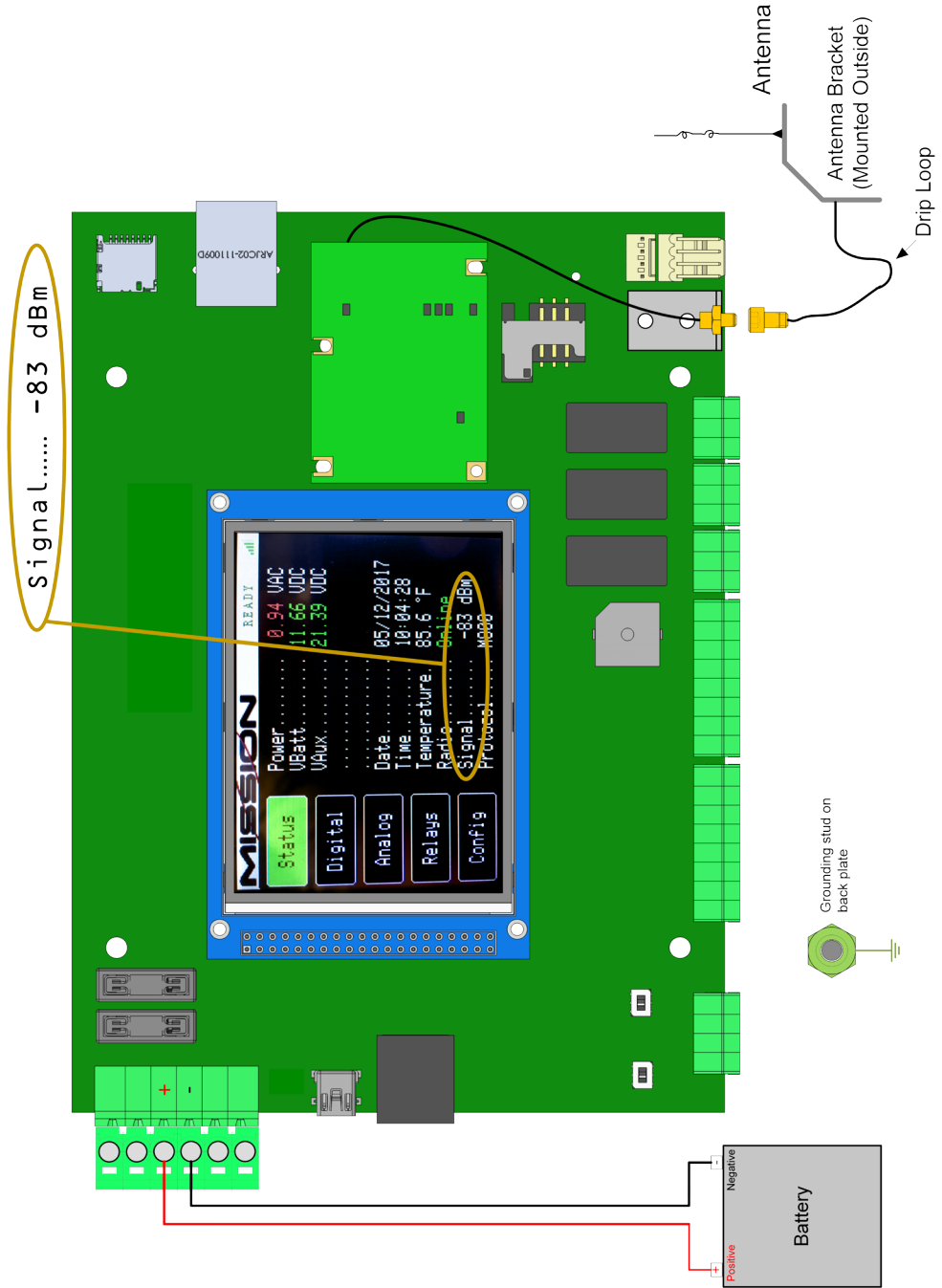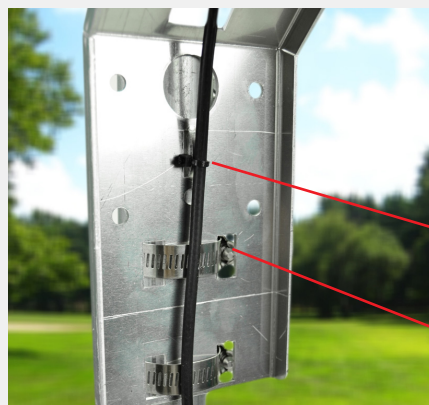
Chapter 3: Antenna Installation

Overview

The antenna should be mounted outdoors and above other objects. By optimizing the placement of the antenna, you increase the chances that the radio can communicate with more than one cell tower. The coaxial cable should reach the Mission RTU radio connection with no severe routing of the coaxial cable. Consider where the RTU will be mounted in relation to the location of the antenna.

1. Install the antenna cable and antenna whip. Connect the SMA-M cable connector to the SMA-F connector on the main board (see Figure 1). Unscrew the nut from the molded antenna base. Feed the molded antenna base through the square cut out on the bracket. Place the molded antenna base in the circle cutout.

> ⚠️ **Warning:** Secure the molded antenna base to the bracket with the nut. Hand-tighten the nut, plus ¼ turn with a wrench. Do not overtighten.

2. Install the mounting bracket. Mount the Universal Antenna Mount directly on the face of a flat surface or a metal pipe using the included pipe clamps (placing above any obstructions).

Tie wraps

Hose clamp nut

Antenna Best Practices

Do	Don't
Mount the antenna outside as high as possible, preferably above the roof or other objects.	Mount the antenna underground, in a dry well, or inside a canned lift station.
Mount the antenna above all metal surfaces close to the installation.	Mount the antenna horizontally or bend the antenna whip.
Coil excess coax in circles of 5 to 7 inches in diameter. Pinching or tight bends in the coax can restrict the high frequency/low power radio signal path in much the same way water flow is restricted through a tight bend in a hose.	Mount the antenna inside a metal control cabinet. Even fiberglass cabinets degrade the signal.
Ensure that the weight of the cable does not damage the antenna base. There should be enough slack in the cable so it does not rest or touch the top surface of the mounting bracket.	Mount the antenna on the side of a metal cabinet or adjacent to a tank. Metal surfaces will reflect the radio signal, preventing it from traveling in all directions.
Incorporate a drip loop when installing the cable to prevent water from penetrating into the building or enclosure.	Cut, lengthen, or shorten the coaxial cable. Mission can supply antenna extension cables and connectors up to 50 feet. For lengths above this limit, another RTU mounting location should be considered.

Wiring Best Practices

- Signal cables should not run parallel with high voltage AC wires (load conductors).

- Where signal wires and load conductors must cross, do so at right angles.

- High voltage should not enter the Mission RTU. Mount the supplied transformer outside the Mission enclosure.

- Lay wires in wire trays with the excess near terminations. Replace wire race covers (follow NEC and your local/state electrical codes requirements).

- Cables used for digital and analog inputs should be 18 to 22 gauge, shielded, twisted pair wire with the shield connected to ground at the RTU and not on the other end of the cable (to prevent ground loop current).

- MOVs can be installed across AC contactor coil terminals to shunt voltage spikes away from the RTU inputs and other electronics in the panel. Voltage spikes can be caused by coils de-energizing. The included MOVs are rated for 120 V circuits and will suppress excess voltage above 150 V. These parts are application dependent. They have a finite lifespan and will need to be replaced over time.

Chapter 4: RTU Installation and Wiring

Locate the RTU as close as possible to the control cabinet while considering the antenna cable length.

⚠️ **Warning:** Turn off station power.

1. **Mount the enclosure.**

2. **Cut the conduit and wiring holes.** Drill and attach the conduit in the control cabinet and Mission RTU. Use sealant where appropriate.

3. **Pull the wires and cables.**

4. **Ground the RTU.** Use 12 to 14 gauge green wire to connect the grounding lug on the backplate in the RTU to the stations Earth ground (refer to Figure 1).

Enclosure Options

NEMA 4

Mount outdoors on unistrut or a wall. Allow clearance for hinge (left) and key reader (right).

Consider the NEMA 4 for indoor application where wash-downs occur.

Conduit connections can enter from bottom, but leave space for the included battery.

NEMA 1

Use indoors where no wash-downs occur.

Allow for space on bottom of the enclosure for the battery.

FlatPak

Mount inside the control cabinet.

Two large holes are provided for through-wires.

Place battery inside the control cabinet.

5. **Terminate digital inputs.** Refer to the wiring diagram on the M150/M850 cover/door and RTU Installation Form in the packing box. Record input names on the setup form and the diagram.

The default digital input (DX) connections are as follows:
   D1—pump 1 (M150 runtime accumulator, M850 status and runtime accumulator)
   D2—pump 2 (M150 runtime accumulator, M850 status and runtime accumulator)
   D3—pump 3 runtime or simultaneous pump (1 and 2) runtime accumulator*(M150)
   D4—high level float
   D5—pump 1 fail
   D6—pump 2 fail
   D7—phase fail
   D8—unassigned or multiple pump runtime accumulator*(M850)

MyDro Digital Inputs feature software selectable input characteristics including:
   • dry contacts with wire fault supervision (requires 1000 Ohm end-of-Line (EOL) resistors)
   • dry contacts no wire fault supervision (NF)
   • strap on load sensors (Mission PN OP499) with wire fault supervision
   • strap on load sensors (Mission PN OP499) without wire fault supervision

The MyDro does not directly support the Wet Well Module. See our technical document, Wet Well Module with MyDro, if replacing M110 or M800 with Wet Well Module to MyDro.

Warning: Digital inputs require dry contacts. This means that wires running to these inputs must not supply any voltage. Use an interposing relay if there are no dry contacts available.

The digital inputs are set as normally open (N/O) by default. You must use N/O contacts on pump runtime inputs. You may use either N/O or normally closed N/C contacts on digital inputs 4 through 8. Notify Mission technical support (or indicate on RTU setup form) to change the default settings (refer to Figure 2).Connect the shields of digital input wires to the grounding lug located inside the RTU.
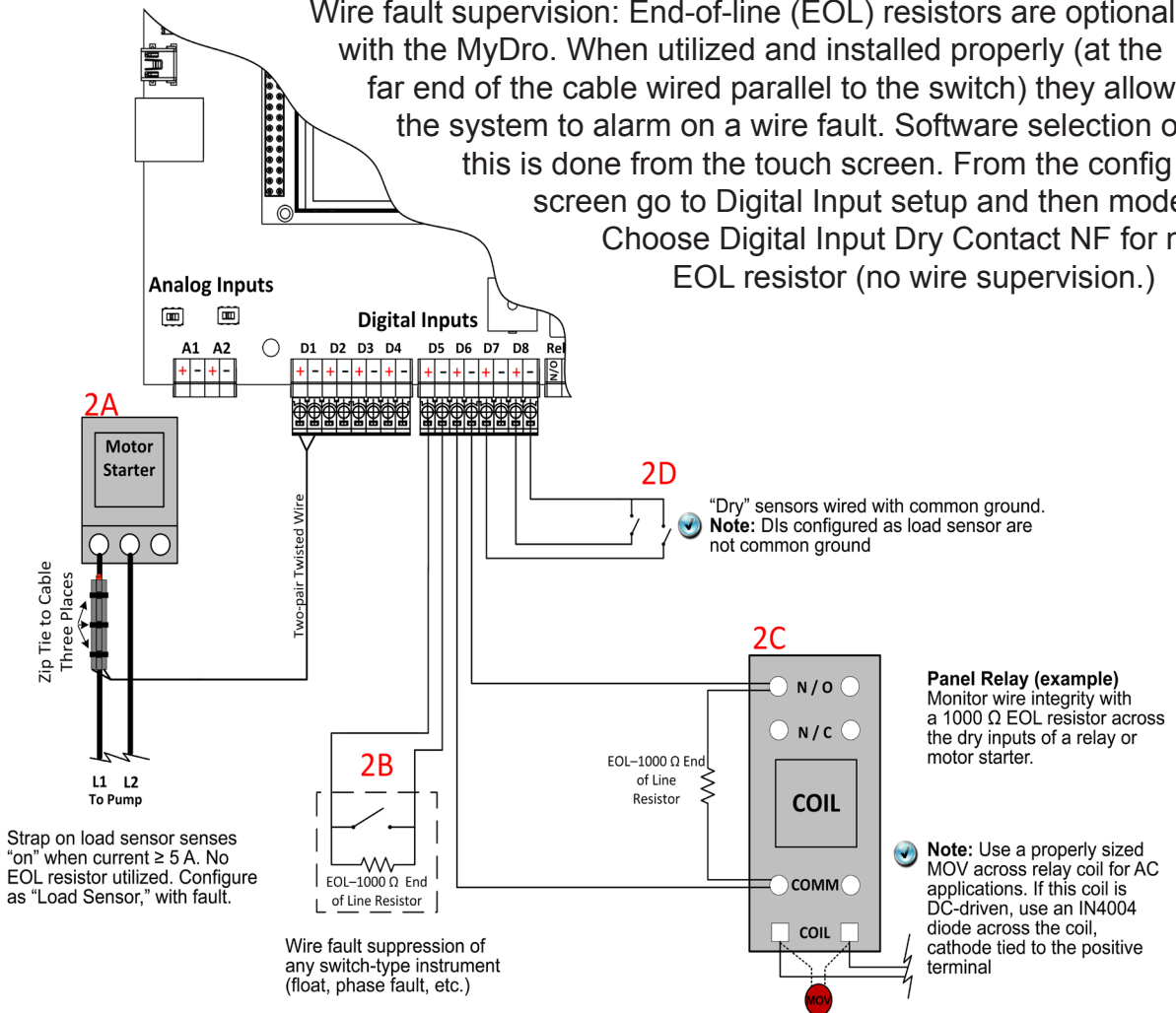
Pump Runtime Inputs: On M150 RTUs, only inputs D1–D3 can be configured for pump runtimes. However, they can also be set as alarm inputs. D4–D8 on an M150 can only be configured as alarm inputs. D3* can be used for simultaneous runtimes by configuring digital input on touch screen.

On M850 RTUs, D1–D8 (on the main board) can be configured as pump runtime, pump runtime with alarm, or alarm inputs. As an option, the system can report multiple pump runtimes on M850 RTUs on D8**.**

Figure 2:
Digital Inputs—Load Sensor, Supervision, and Surge Suppression

Wire fault supervision: End-of-line (EOL) resistors are optional with the MyDro. When utilized and installed properly (at the far end of the cable wired parallel to the switch) they allow the system to alarm on a wire fault. Software selection of this is done from the touch screen. From the config screen go to Digital Input setup and then mode. Choose Digital Input Dry Contact NF for no EOL resistor (no wire supervision.)

2A

Strap on load sensor senses "on" when current ≥ 5 A. No EOL resistor utilized. Configure as "Load Sensor," with fault.

2B

Wire fault suppression of any switch-type instrument (float, phase fault, etc.)

2D

"Dry" sensors wired with common ground. **Note:** DIs configured as load sensor are not common ground

2C

Panel Relay (example)
Monitor wire integrity with a 1000 Ω EOL resistor across the dry inputs of a relay or motor starter.

Note: Use a properly sized MOV across relay coil for AC applications. If this coil is DC-driven, use an IN4004 diode across the coil, cathode tied to the positive terminal

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6. **Terminate analog inputs.** Two isolated analog inputs are available on the main board (refer to figure 3). These inputs can accept a 4–20 mA or 0–5 V signal. Position analog channel signal selector* to the left for a 4–20 mA signal and to the right for a 0–5 V signal.

> ⚠ **Warning:** Take precautions when wiring the analog inputs. Reverse polarity may damage the main board or the sensor.

The auxiliary output on the main board can be used to power the transducer as seen in Case 1 (250 mA maximum). When using the auxiliary output, be aware of the voltage drop in the 4–20 mA loop when wiring to the analog inputs. The aux output supply voltage is software configurable for 12 or 24 VDC.

7. **Wire the output relays.** The output relays are single pole, double throw and rated up to 30 VDC or 120 VAC at 5 amp maximum. They are used for remote control applications such as Tank and Well, and digital intertie. You can wire the relay normally open (default) or normally closed (refer to Appendix B).

> ⚠ **Warning:** Relay behavior on communication failure is configurable under the Config. Menu/Relay Comm Fail Setup as Deenergize or No Change.

Figure 3: Analog Input Wiring

Case 1:
Power to Analog transducer supplied by Mission Auxiliary Out. (Selectable 12 or 24 VDC via Touch LCD).
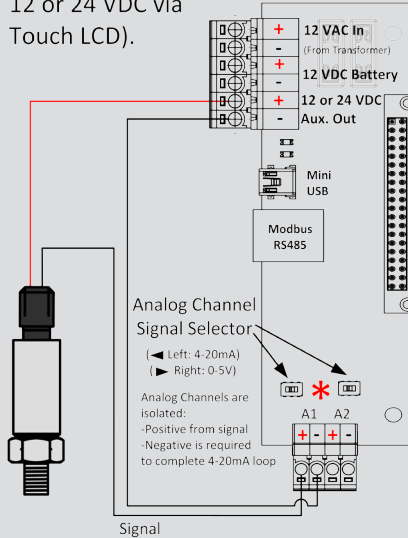
Case 2:
Power to Analog transducer supplied by external power source.

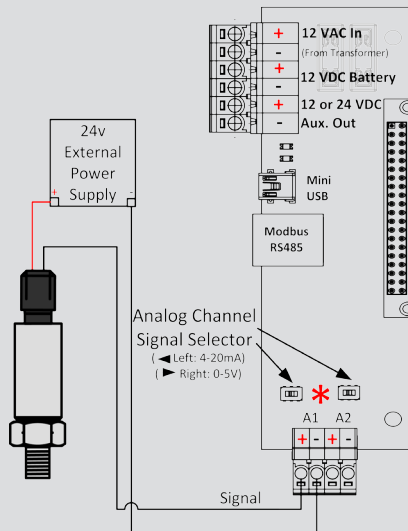**Warning:** If power to output relays is supplied by Mission aux power port it is software configurable as 12 or 24 VDC. Specify coil voltage of interposing relays appropriately.

Note: Many items should be considered with remote control applications. Refer to our *Best Practices for Remote Control Applications* document.

Wire the auxiliary output to common on the output relay. Wire the coil positive terminal on the interposing relay to normally open or normally closed on the output relay. Wire the negative coil terminal to Aux (-).

8. **Install the 120 VAC transformer and wire AC power.** Mount the transformer in the control panel (not the Mission RTU).

   It is very important to only provide 12–16 VAC to the Mission main board AC input. Hooking up the transformer backwards will apply 1200 VAC to the mainboard and cause permanent damage. Do not install transformer in the RTU. Install it in the control cabinet.

Warning: Connect AC power to the primary input (black wires). Connect the secondary output (red wires) to the main board input. The transformer steps the power down from 120 VAC to 12 VAC. Do not turn on station AC power at this time.

Figure 4:
Transformer Wiring

Mission Main Board

12 VAC *

~ 12 VAC In
(From Transformer)

~

+
12 VDC Battery
−

+
12 or 24
VDC Aux.
Out
−

From 120 VAC In Panel

*12 VDC is acceptable when using solar.
(This terminal is polarity sensitive.)
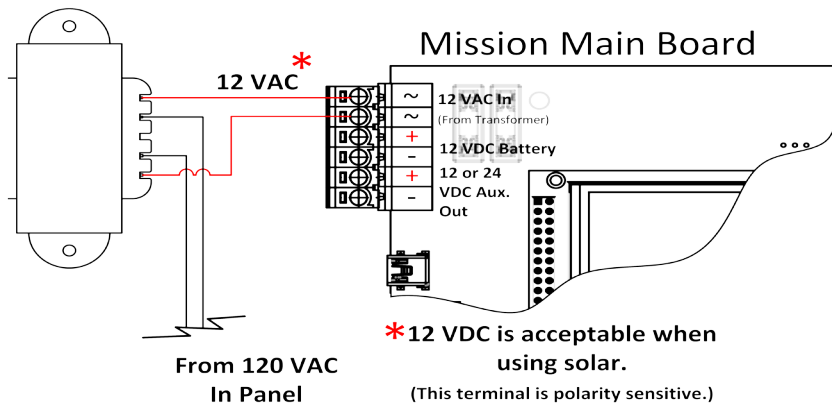
Chapter 5: RTU Startup

1. Power the Mission RTU with the 12 VDC battery only. Connect the black lead first, then the red lead. The LCD will illuminate start up screen. Once the radio sequence is complete, you will hear three beeps from the buzzer. This indicates the unit has connected to Mission servers. Allow the unit two minutes to perform its power-up sequence and synchronization to the network. If the RTU does not connect after two attempts, refer to appendices D and E, or contact technical support.

2. Check the wiring connections before powering the pump station. If the wiring is correct, power the pump station, and immediately focus on the main board. Check to ensure the Mission RTU is still operating. If a wiring mistake has been made, it will be evident. If there appears to be a mistake, immediately remove power. If power is OK, proceed to testing the RTU.
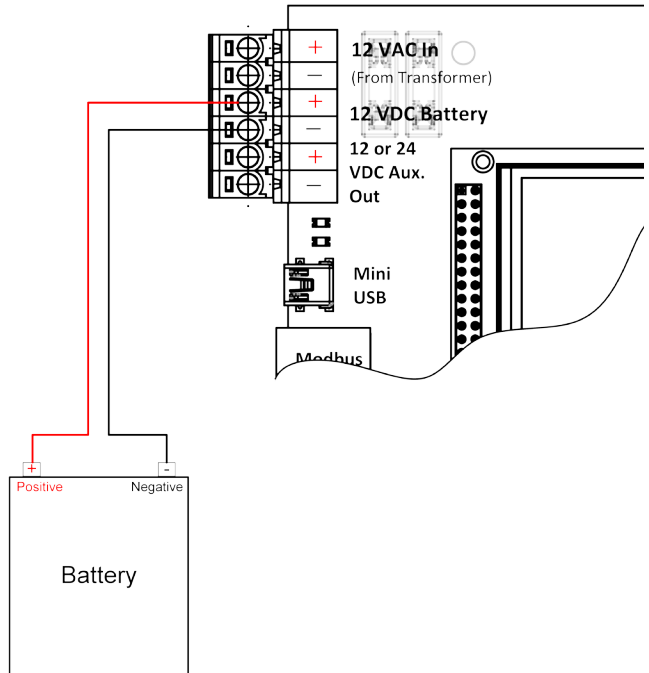

Figure 5: Battery Wiring

Figure 6:
Main Board Connections

Removable mini Fuses: (2 Amp)

SD Card

For Future Use

Radio Module (Built in SIM)

Secondary SIM Holder

Key Reader

Antenna Connection (SMA-F)

Battery

AC

Touch LCD

Sounder

Relays (1 - 3)
Max 5A @ 30VDC, 120 VAC

N/C
Com
N/O

N/C
Com
N/O

N/C
Com
N/O

Digital Inputs (5 - 8)

Digital Inputs (1 - 4)

Software Selectable:
-Dry Contact, (requires 1k EOL resistor)
-Dry Contact- NF, (no fault/ no EOL resistor)
-Load Sensor, Mission PN: OP499 (requires EOL resistor)
-Load Sensor- NF, (no EOL resistor)
⚠ Do not connect to ground

12V AC in ①

12V Battery

Auxiliary Out (0, 12 or 24 VDC) Software Selectable

Mini USB (For Factory Use)

RS485 to ② ADAM Module(s)

Analog Channel Signal Selector
← Left: 4-20mA || Right: 0-5V →
Analog config menu must also be configured as voltage or current

Channel 1   Channel 2

Analog Channel (1, 2)

Analog Channels are isolated:
-Positive from signal
-Negative is required to complete 4-20Ma loop

NOTES:
1. 12 VAC via transformer or 12 VDC via solar (polarity sensitive)
2. RJ45 for RS485 via Mission supplied cable (PN: CP500). Pins: 4, 5, 7, 8 for Data -, Data +, Power, GND respectively

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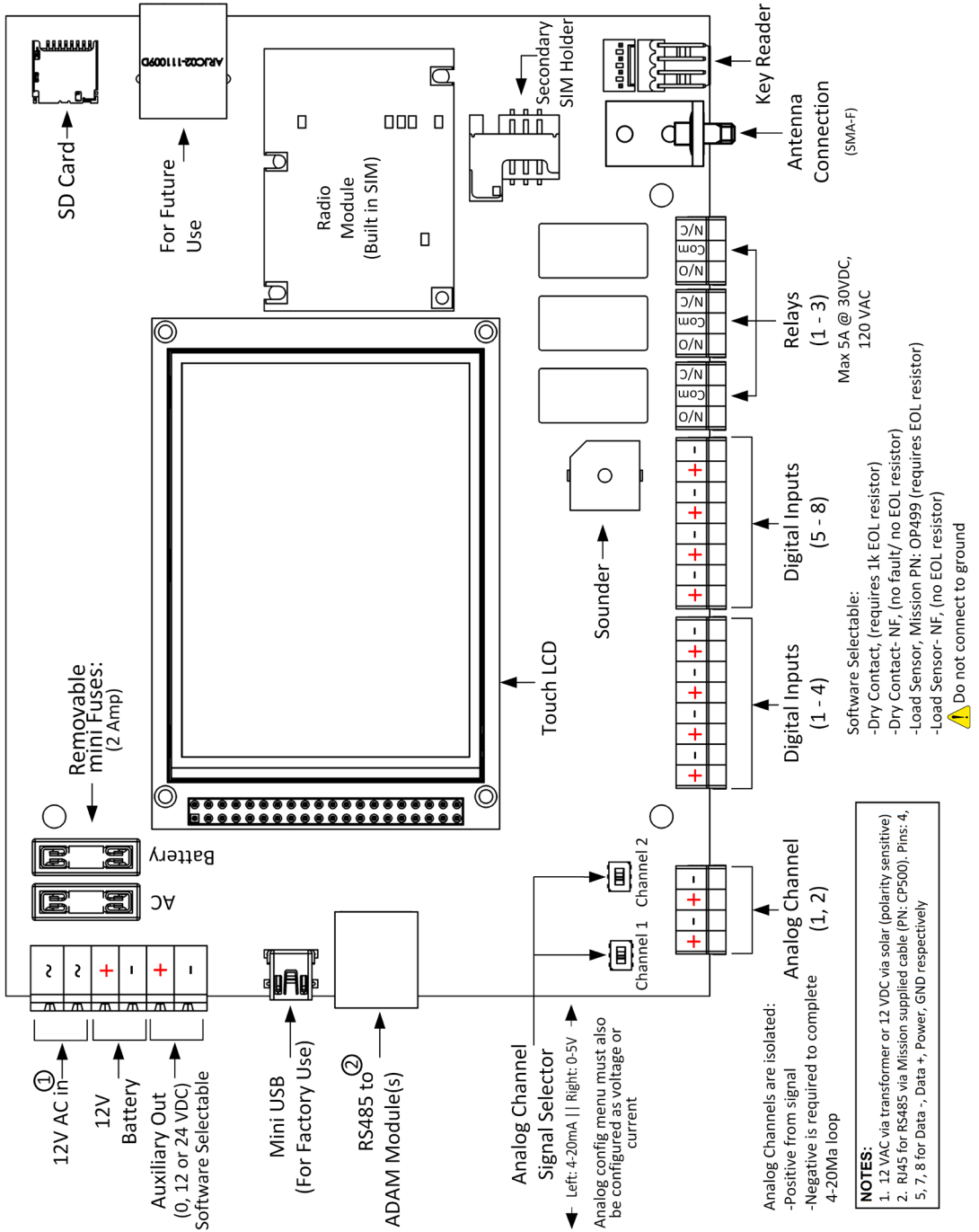
Chapter 6: Test the Installation

It is imperative that alarm points are tested and that alarm notifications are received so they can be acknowledged by the customer or end-user once the unit is put into production. This includes phone numbers, text messages, email addresses, fax numbers, and pager numbers.

Additionally, it is recommended that the customer or end-user test all alarm points every six months to ensure all electrical components and alarm parameters are still functioning as desired and that alarms are being received and acknowledged by recipients. Refer to our *Spring Cleaning/Fall Fix-It* document for testing procedures.

Complete the following tests prior to leaving the job site:

1. **Confirm AC power.** Use a voltmeter across the AC terminal to verify ~12–14 VAC is present.

2. **Test the battery.** Remove the AC fuse and confirm the RTU stays online. Replace the AC fuse.

3. **Test the radio connection.** Check the radio status on the LCD screen. It should read "connected." If not, call technical support at (877) 993-1911, option 2.

4. **Inspect the status on the LCD.** Analog, digitals, etc.

5. **Test the digital alarm inputs.** Put each digital input into an alarm state. From the touch screen press digital and confirm inputs respond as expected. Mission technical support is available to confirm that data is being properly transmitted and received on your web portal. A smartphone can be used otherwise.

6. Test the pump runtime inputs. Turn on pump 1. Mission D1 should respond on the touch screen. If not, check the wiring and/or end-of-line resistors. Repeat step for pump 2 and 3, if used.

7. Test the high level alarm. Open the wet well. Pull the high-level float up and put it into alarm condition by tipping it. Ensure that the digital input four respond. If not, check the wiring and the high level float itself.

Verify alarm notifications are received from the tests. Log on to your web portal with the credentials specified on the Notification Setup form. Go to the Alarms page. You should see a list of alarm events with event time and the result.

Call Mission technical support after testing the installation to enable the device for alarm call-outs. A technician will verify proper operation of equipment.

Chapter 7: Site Commissioning

Enable the RTU for alarm call-outs by calling technical support.

Setup Forms
Ensure setup forms have been submitted to Mission technical support. Verify proper labeling on your web portal and the wiring diagram on the Mission RTU. Users with administrator credentials have the ability to make changes to the web portal, if necessary.

Documentation and Help Guides
It is recommended that you review the online manuals for detailed operation of your RTU and web portals. This can be found on your menu selection in the Download folder under Documents.

The Operators Guide that came with the RTU should be distributed to your operators as a how-to document to get operators started with the Mission system. It covers the basics of the system capabilities, monitoring and alarming, and helpful resources.

Training Resources
Mission hosts weekly webinars nearly every Wednesday at 2 p.m., Eastern. The revolving series covers the basics, advanced web portal options, and everything in between. We want to help you get the most out of your system, so please join us and feel free to ask questions.

We also offer short video tutorials and quarterly newsletters with timeless information. Registration and archives can be found on our website.

Your unit is now ready for use. Visit 123mc.com and log in with your credentials to view your web portal.
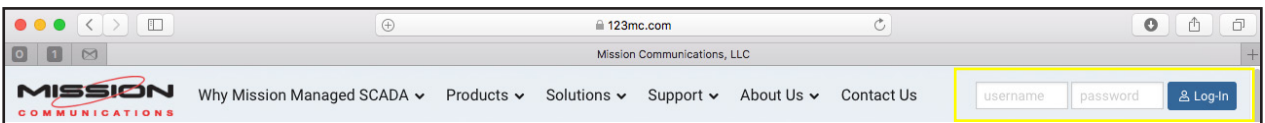
Appendix A: Terminology

Alarm Inputs
A digital or analog input that is configured to dispatch a notification when the alarm state or threshold is reached.

Analog Inputs
Two analog inputs on M150 and M850 series RTUs can be used to report pressure, level, chlorine pH, or any other dynamic readings by way of a 4–20 mA or 0–5 V transducer. High and low analog alarm thresholds as well as high and low restore set points can be set from the web portal. The M850 can be expanded to 6 analog inputs via expansion modules.

Digital Inputs
Eight inputs are available for sensing items like pump run, float status, or pump fail. They can be electrically configured (via LCD/Config/Digital Input) for dry inputs or the strap on current sensor where greater than ~5 amps indicates run. They can be logically configured as alarm, or accumulators for hourly pump run time and starts reporting. The M150 supports up to three pump run time accumulators, the M850 supports up to eight. Also see end-of-line resistor.

Digital Outputs
Three relay outputs can be remotely controlled to turn on pumps, wells, valves, or security lights. Multiple M850s can be linked so an event at one station causes a relay change at another. Mission's Tank and Well Control option and Intertie rely on this feature. Consult *Best Practices for Remote Control Digital Intertie* for more information (123mc.com/literature).

Electronic Key Reader
The included key reader allows on-site personnel to log a site visit, acknowledge, and suspend alarms while service is performed at the station. Management can track the key entries for productivity and regulatory reporting purposes. The functionality of the key can be configured at the web portal.

End-of-Line Resistor
A resistor of known value (1000 Ohm) that is used to terminate protective loops, and provide wire supervision. Wire the EOL in parallel to a switch instrument.

The requirement for an end-of-line resistor is software configurable for fault (requires resistor) or no fault.

M150 vs. M850
Generally, the M850 is more appropriate where analog sensors are present, at master lift stations, and for remote control applications. Both RTUs provide real-time alarms. The M150 accumulates pump starts each hour whereas the M850 reports real-time pump state changes. The M850 reports analog values every two minutes or sooner (>5% change) for trending purposes. The M150 supports up to three pump runtime inputs whereas the M850 supports up to eight.

Metal Oxide Varistor (MOV)
The included MOVs are used to protect circuits against high transient voltage spikes, often caused when relay coils de-energize. They are rated for 150 V. Voltage above 150 V will be dissipated. The MOVs are non-conductive during normal operation. Consult your electrician before installing the MOVs.

Power and Backup Power
The M150 and M850 RTUs operate on 12 VAC via the supplied transformer. The 120 to 12 VAC transformer mounts outside the RTU to minimize the chances of induced voltages. A five amp-hour battery with a charging circuit powers the RTU for 18–50 hours (M850 and M150) during a power failure. AC power fail alarm will be dispatched. A low battery alert will be dispatched in the morning if the battery voltage fell below 11.5 V anytime the previous day.

Pulse Inputs Options
Two pulse inputs can be used to report data such as flow, water meter, or rainfall totals. If no rainfall data is monitored at the site, Mission's web site presents data from the closest National Weather Service reporting station. Pulse inputs are available with expansion modules.
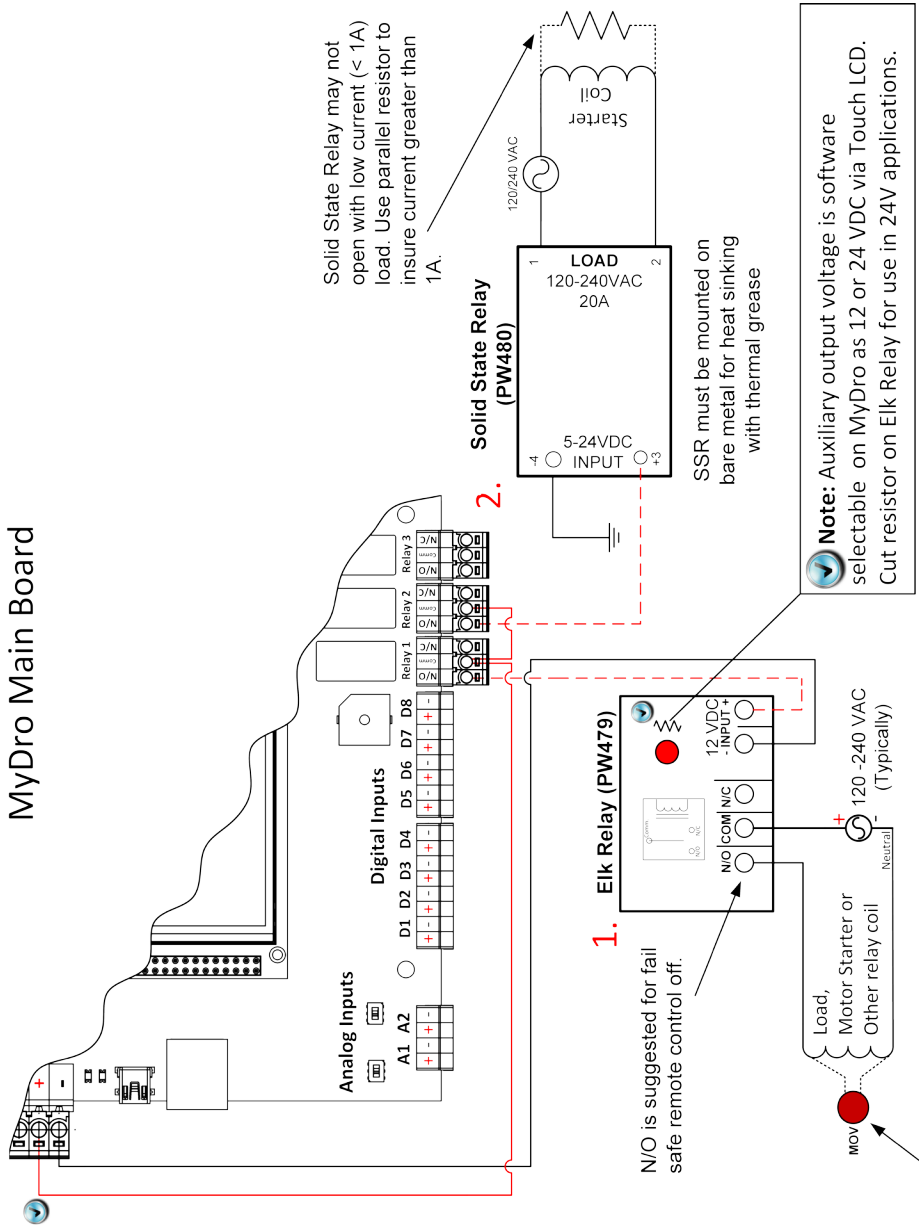
Runtime Inputs
A digital input that is configured to calculate for runtime minutes. Alarm notifications are generally not enabled.

SIM (Subscriber Identity Module)
This card carries an identification number that contains the billing credentials for certain cellular radio. Not required for Verizon (CDMA) services. Removal of card will disable operation.

Appendix B: Output Relay Diagram

MyDro Main Board

Analog Inputs

A1 A2

Digital Inputs

D1 D2 D3 D4 D5 D6 D7 D8

Relay 1 Relay 2 Relay 3

N/C COM N/O

Solid State Relay (PW480)

Solid State Relay may not open with low current (< 1A) load. Use parallel resistor to insure current greater than 1A.

Starter Coil

120/240 VAC

LOAD
120-240VAC
20A

5-24VDC
INPUT

SSR must be mounted on bare metal for heat sinking with thermal grease

2.

Note: Auxiliary output voltage is software selectable on MyDro as 12 or 24 VDC via Touch LCD. Cut resistor on Elk Relay for use in 24V applications.

Elk Relay (PW479)

1.

N/O is suggested for fail safe remote control off.

12 VDC
+ INPUT
-

N/O COM N/C

120 -240 VAC
(Typically)

Neutral

Load,
Motor Starter or
Other relay coil

MOV

To suppress spikes during turn-Voff of inductive loads, use a properly sized MOV (12, 24, 120 VAC, etc. rated) across relay coil. If this load is DC-driven, use a 1N4004 (max rating 240V) diode across the load, cathode tied to the positive terminal.

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Installation Notes

Installation Notes

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MISSION

COMMUNICATIONS

Web
123mc.com

Technical Support
(877) 993-1911 option 2
techsupport@123mc.com,
setupforms@123mc.com

Sales
sales@123mc.com
(877) 993-1911 option 4

M1M8IM-0618