FarmHQ TC-3 Standalone Remote Pump Monitoring and Control System Instruction Manual

Contents

FarmHQ TC-3 Standalone Remote Pump Monitoring and Control System

Device Overview

TC-3 Applications

- Flow Rate Monitoring

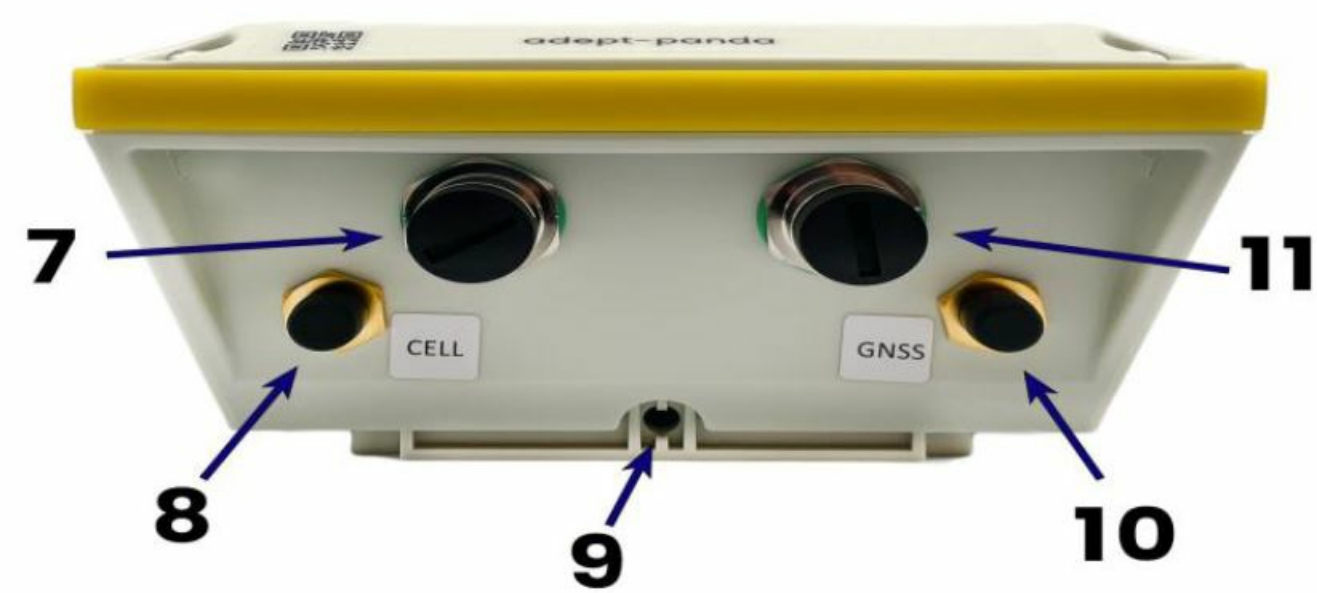
- Water Pressure Monitoring
- Speed Monitoring
- Remote Pump Control and Automation

TC-3 Technical Specifications

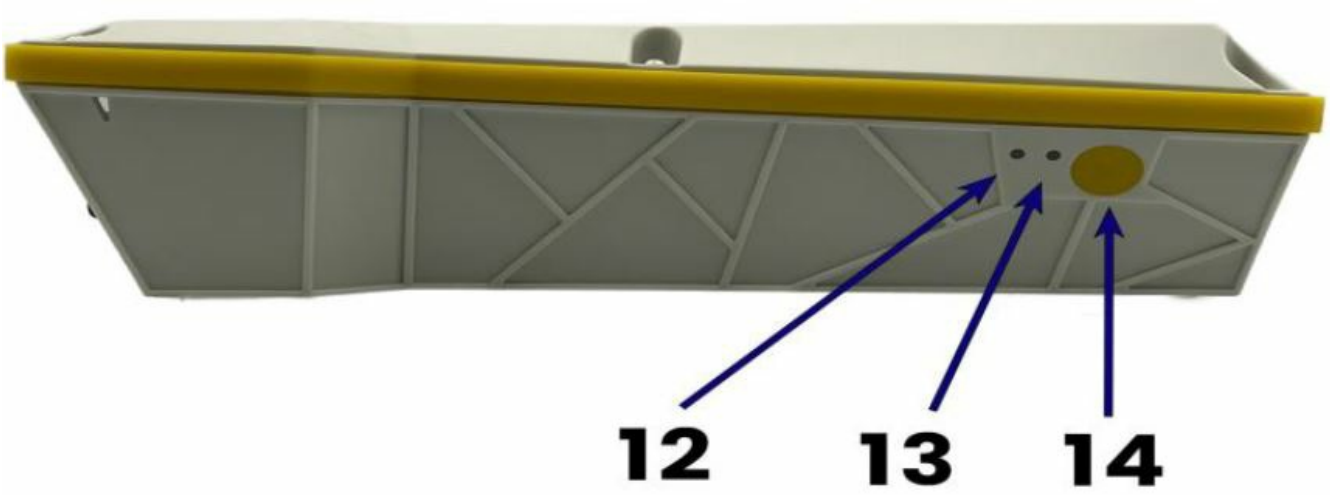
- Input voltage: DC30V
- Power Consumption Max: 10W
- Waterproofing: IP67
- 11800 mAh LiPo battery
- GPS
- Internal Relay

1. Device Magnetic Mounting Plate
2. Computer Status Light
3. Device Alias
4. Device Alias Barcode (Not Currently Used)

5. Magnetic Mounts
6. Device Nameplate



7. M12 Power and Sensor Port – 8 pin
8. Cellular Antenna Connector
9. M4 Setscrew
10. External GPS Antenna Connector*
11. M12 Switch Port – 3 pin * An internal hardware modification has to performed to use this connector.



12. Sensor LED
13. Relay LED
14. Power Button

Note – The status LEDs can be hard to see in the bright sunlight.

Magnetic Mounting Bracket

The back of the device is magnetic and is great for sticking to the side of your equipment. Feel free to use just the in high vibration environments as the magnets will hold your device in place. If you find yourself without a magnetic surface to mount to, detach the bracket from the back of the device and use the provided mounting hardware to mount the device.

Computer Status Light

- **Blinking GREEN:** The device is attempting to connect to the cellular network. No action necessary. Typically seen when a device is turing on or in an area of poor cellular reception.
- **Breathing LIGHT BLUE (default):** The device is connected to the cellular network andd operating normally. Normal operation.
- **Flashing MAGENTA:** The device is updating the device software. No action necessary.
- **Solid RED:** The device has experienced a software failure. Contact Coda Farm Technologies for assistance. email: **support@codafarmtech.com**, phone: 360-818-2632
- **Blinking DARK BLUE:** The device has experienced a software failure. Contact Coda Farm Technologies for assistance
- **email:** **support@codafarmtech.com**, phone: 360-818-2632
- **Note** – The status LEDs can be hard to see in the bright sunlight.

Device Alias

- This is how you identify the device. You will input this name into the app to claim the device once it is installed.

Device Alias Ba

- The barcode is linked to the device alias. Currently this feature is not used. You have to manually enter the alias into the app.

Device Namepl

- Look here for the serial number, model number, SKU, FCC ID and IC numbers.

M12 Power and Sensor Port – 8 pin

- This port exposes the device sensor ports and where power is input to the device. Connect the wireharness 4-

PH to this connector to connect to the sensor cables and power cable to the device. See the Wireharness-4PH section for more details.

External Antenna Connectors

- This device has two SMA (SubMiniature version A) for connecting an external cellular antenna and a cellular GPS antenna. The default configuration is for the cellular SMA to be connected but not the GPS SMA. To use the GPS SMA, the device needs to be opened and the antenna needs to be switched manually. See troubleshooting for details on this process.

M12 Switch Port – 3 pin

- Inside the device there is a relay or dry contact. This port is what exposes the three terminals of the relay, Normally-Open (NO), Normally-Closed (NC) and Common (COM). This relay is configurable and controllable from the app.

Sensor LED

- If your device is configured as a reel this LED will turn on when a magnet is in front of the magnetic sensor. If your device is configured as a pump this LED will turn on when the water pressure is above the low pressure set point. High and low setpoints can be changed in the app.
- **Note** – The status LEDs can be hard to see in the bright sunlight.

Relay LED

- This LED will turn on when the relay is energized.
- **Note** – The status LEDs can be hard to see in the bright sunlight.

Power Button

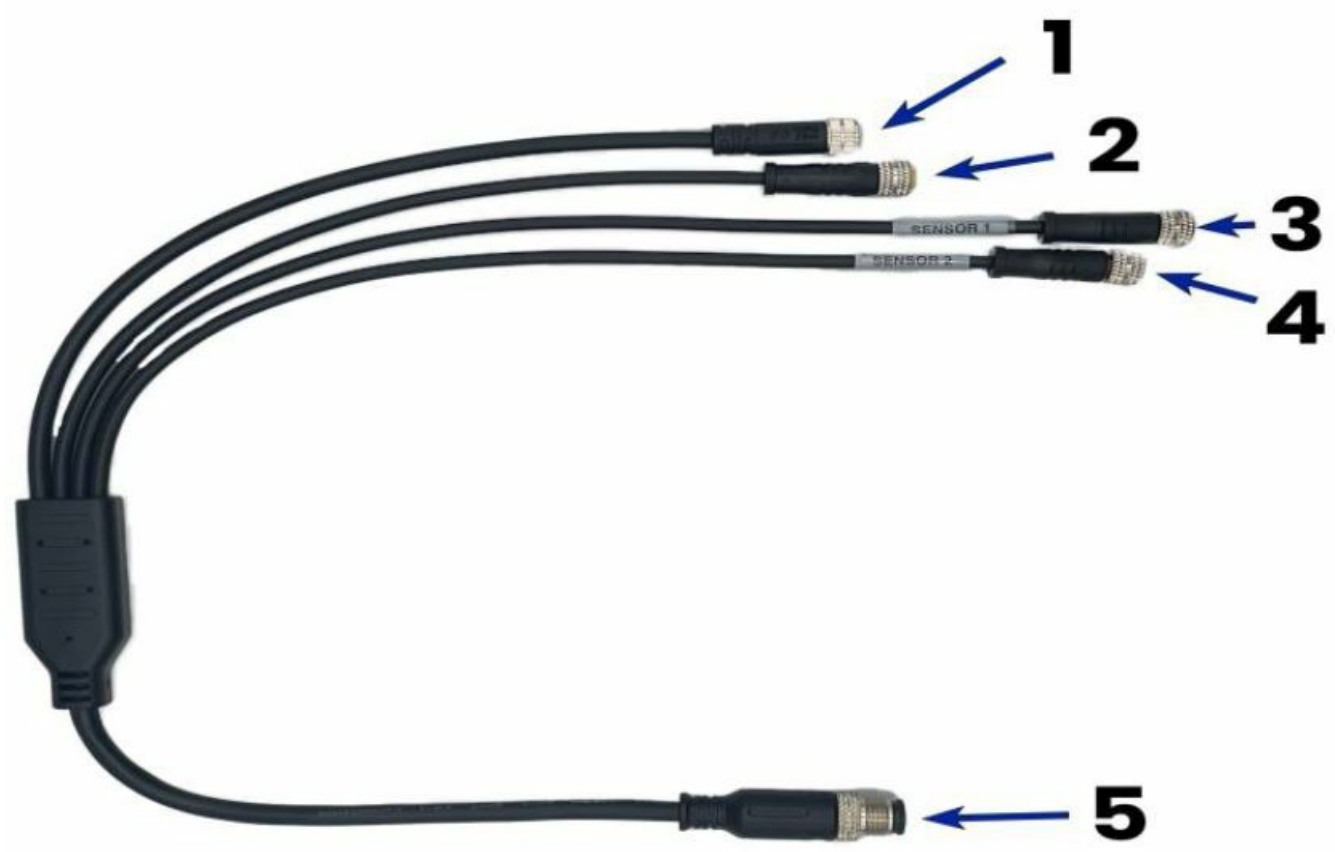
- The power button has two modes of operation, to turn turn the device off and to reset the device.
- Turning the device off – Press and hold.
- Resetting the device – Press and release.

Internal Battery

- **Battery Capacity:** 11800 mAh LiPo battery
- **Max Operation Temp:** 104F (40C)
- **Max Charging Temp:** 95F (35C)
- **Max Charging Rate:** 5W Max Charging Time: 15hrs
- **Note:** product can works within limited time when only powered by battery.

Device Cabling

Wireharness – 4PH



Wireharness 4PH with with Sensor 1 and Sensor 2 labeled.

The wireharness threads onto the M12 – 8pin connector. The wireharness has 4 downstream connections:

1. Power – Connect the power cable here.
2. CAN Bus – Currently there are no offerings to connect this port.
3. Sensor Port 1 – Currently there are no offerings to connect this port.
4. Sensor Port 2 – Currently there are no offerings to connect this port.
5. M12 – 8 pin – Threads into the TC-3

Device Antenna

This radio transmitter [IC: 20127-CODA] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

External Cellular Antenna

FDD 2: US(1850 -1910)	Peak Gain 0.69dBi
FDD 4: US (T-Mobile)(1710-1755MHz)	Peak Gain 1.26dBi
FDD 5: US(824-849)	Peak Gain -0.17dBi
FDD 12: US(699-716MHz)	Peak Gain -3.26dBi
FDD 13: US (Verizon)(777-787MHz)	Peak Gain -3.26dBi

Connect the antenna to the cellular SMA connector. Use the magnetic base on the antenna to mount to any iron surface. Try to get the antenna up as high as possible as it will get better reception.

Keeping Your Device On

Your device should remain powered on for as long as the pump or reel is in use. Save yourself time and energy and leave your devices on, as they draw very little power. With a full internal battery your device can live for 96 hours with now input power. With consistent watering we have found almost all devices can be left on for the duration of the irrigation season.

Checking the Magnetic Sensor

- You can check that your TC-3 is able to detect the reel's motion by waving a magnet in front of the magnetic sensor. If the sensor is connected and the TC-3 is correctly configured, you will see the red Sensor LED turn on when the magnet is in front of the sensor.

Storage

- We recommend storing the device in a heated or covered location when you are done irrigating for the season.
- Your device should not be allowed to freeze, this can cause damage to the internal battery.

FCC STATEMENT

Federal Communication Commission Interference Statement

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 interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Industry Canada statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. this device may not cause interference, and
2. this device must accept any interference, including interference that may cause undesired operation of the device.

- This Class B digital apparatus complies with Canadian ICES-003.

- This device complies with RSS-310 of Industry Canada. Operation is subject to the condition that this device does not cause harmful interference.
- This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter, except tested built-in radios.
- The County Code Selection feature is disabled for products marketed in the US/ Canada.

Radiation Exposure Statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Documents / Resources

	FarmHQ TC-3 Standalone Remote Pump Monitoring and Control System [pdf] Instruction Manual 2AEMI-CODA, 2AEMICODA, TC-3 Standalone Remote Pump Monitoring and Control System, TC-3, Standalone Remote Pump Monitoring and Control System, Remote Pump Monitoring and Control System, Pump Monitoring and Control System, Monitoring and Control System