FTI Air Cycle Counter

Assembly, Installation, & Operation Manual

P/N 109837

EU Declaration of Conformity

CE

FTI Air hereby declares that the following machine(s) fully comply with the applicable health and safety requirements as specified by the EU Directives listed. The complete product complies with the provisions of the EU Directive on machinery safety.

This declaration is valid provided that the devices are fully assembled and no modifications are made to these devices.

Type of Device:
FTI Air Cycle Counter

Model:
109805-1

EU Directives:
Low Voltage Directive (2014/35/EU)
Electromagnetic Compatibility (2014/30/EU)

Applied Harmonized Standards:
EN 61000-3-2, EN 61000-3-3
EN 61010-1
EN 61326-1

Manufacturer:
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Signed,

Corey D Bowers

President

17 May 2018

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Table of Contents

Description 4

Safety Precautions 4

Specifications 4

Installation 5-7

Operation 7

Remote Reset and Disabling Panel Reset 8

Part Numbers 9

Dimensions 10

Troubleshooting 10

Description

The FTI Air Cycle Counter is an electronic device that counts pump cycles by detecting the presence of the valve carrier. The carrier is detected by a sensor that can be factory mounted in all FTI Air air valve end caps. For metallic air valves it senses the presence of the aluminum valve carrier. For non-metallic air valves it senses the presence of a metallic pin installed in the end of the plastic valve carrier. The counter senses the presence of the carrier and counts one cycle when the carrier moves away from the sensor and to the original end of the air valve.

It continues counting for 100 million cycles. At 100 million cycles the counter automatically resets. The counter has the ability to be reset via the gray button below the display on the front of the enclosure or remotely. The panel reset can be disabled to prevent accidental reset.

When ordering pump model select letter “B” for metallic or “Q” for non-metallic for Air Valve Material. This will be a pump fitted with the required air valve components to use with the counter. Then order the counter with cord as a separate item.

Safety Precautions

⚠ **WARNING**: Not for use in hazardous environments.

⚠ **WARNING**: Consult pump manual before conducting maintenance on pump or counter. Pump should not be operating when counter maintenance is conducted.

⚠ **WARNING**: Power source to device should be disconnected before opening enclosure cover or conductive any counter maintenance.

⚠ **WARNING**: Do not alter enclosure or cover. This will negate the NEMA 4X/IP65 rating.

⚠ **WARNING**: Power cord or sensor cable from pump to counter can pose tripping hazard. Provide proper safe-guards or locate equipment to eliminate risk.

⚠ **WARNING**: Do not exceed maximum pressure stated on the pump serial number sticker.

⚠ **WARNING**: Pump exhaust may be loud and contain particles. Wear appropriate ear and eye protection. In the event of a diaphragm rupture material can be forced out of the air exhaust muffler.

Specifications

- Operating Environment Temperature Limits - 32°-122° F (0°-50° C)
- Operating Environment Humidity Limit - 85% RH Max Non-Condensing
- Weight - 0.9lbs (0.4kg)
- Enclosure Material - Polycarbonate
- Enclosure - 3-1/2” W x 4” T x 2-1/8” D (8.9 cm W x 10.2 cm T x 5.4 cm D)
- Enclosure rating - NEMA 4X/IP65
- 110V, 1-phase, 50/60 Hz or 230V, 2-phase, 50/60 HZ

Installation

The AODD pump requires a couple unique components to operate with the cycle counter. These can be ordered with the correct designations in the pump model number or separately allowing the counter to be used on an existing pump. For metallic air valves the counter requires a cap with sensor installed and for non-metallic air valves it requires a cap with sensor installed and carrier with metallic pin. The counter can be universally used on any existing FTI Air pump with the proper air valve components. If needed, the sensor cable can be extended up to a maximum 250 feet using optional cable extensions available in 25, 50 or 100 foot lengths.

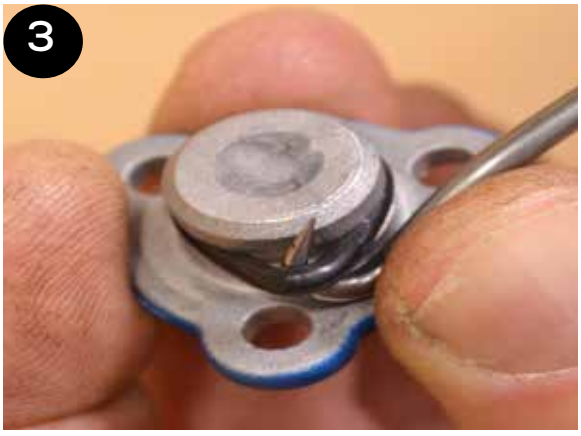
Pumps ordered with the cycle counter from the factory:

1. Thread the plug end of the sensor cable into the sensor mounted in the air valve cap installed on the pump. See picture 1a & 1b.
2. Plug the cycle counter into a nearby 110V or 230V, 1-phase outlet.
3. Cycle counter will automatically start when the pump is started.

Retrofitting existing pumps to be used with the cycle counter:

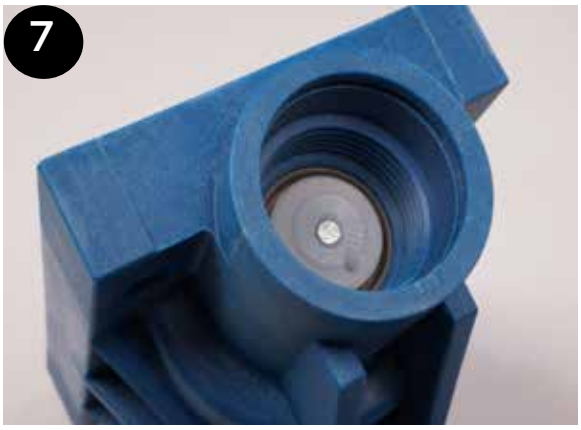
For Aluminum Air Valves:

1. To replace the valve cap (item 2), remove the (3) button head cap screws using a 3 or 5 mm hex wrench. See picture 2.
2. Remove the valve cap o-ring and install on the new valve cap with sensor. See picture 3.
3. Install the valve cap with o-ring sensor onto the air valve, tighten and torque the valve cap screws. See pump assembly, installation & operation manual for torque settings.

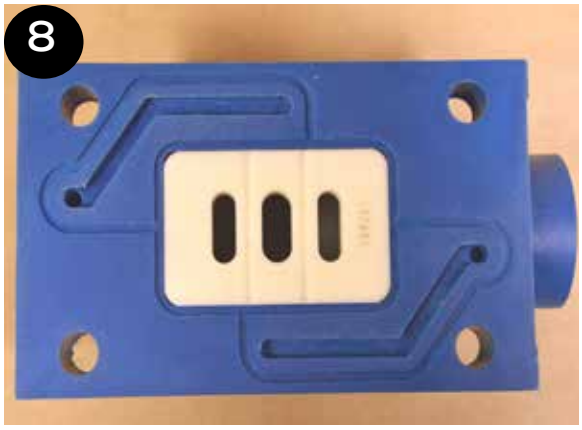


For Non-Metallic Air Valves:

1. To replace the valve cap and carrier (items 2 & 3) remove the air valve assembly (item 5) by removing the (4) socket head cap screws that attach the valve body to the muffler plate with a 5 or 6 mm hex wrench. Pull the valve body and gasket off the front of the center section and the muffler plate gasket, muffler plate and muffler off the back. See picture 4.
2. Remove the valve cap (item 2) from the air valve assembly (item 5) by removing the retaining ring with a snap ring pliers and then unthread the valve cap using an 8mm hex wrench. See picture 5. Remove the valve cap o-ring and install on the new valve cap with sensor. See picture 6.
3. Remove the valve carrier (item 3) from the air valve assembly (item 5) by removing the air valve gasket, white valve plate and black slide valve from the air valve assembly. Push the valve carrier out by hand.



4. Install the new valve carrier with metal pin into the air valve assembly making sure the metal pin faces the valve cap with sensor. See picture 7. Install the flat face of the black slide valve into the pocket of the valve carrier (item 3) so that the square cut out on the slide valve faces the smooth polished side of the white valve plate. See picture 8.
5. Insert the (4) cap screws & washers through the valve body and gasket and place onto the center section. Ensure the black slide valve and white valve plate are in place and the valve sits flat on the center section. See picture 9.
6. Place the muffler gasket over the (4) cap screws on the back side of the center section followed by the muffler plate and muffler. Tighten and torque the (4) cap screws into the muffler plate. See pump assembly, installation & operation manual for torque settings. See picture 10 & 11.

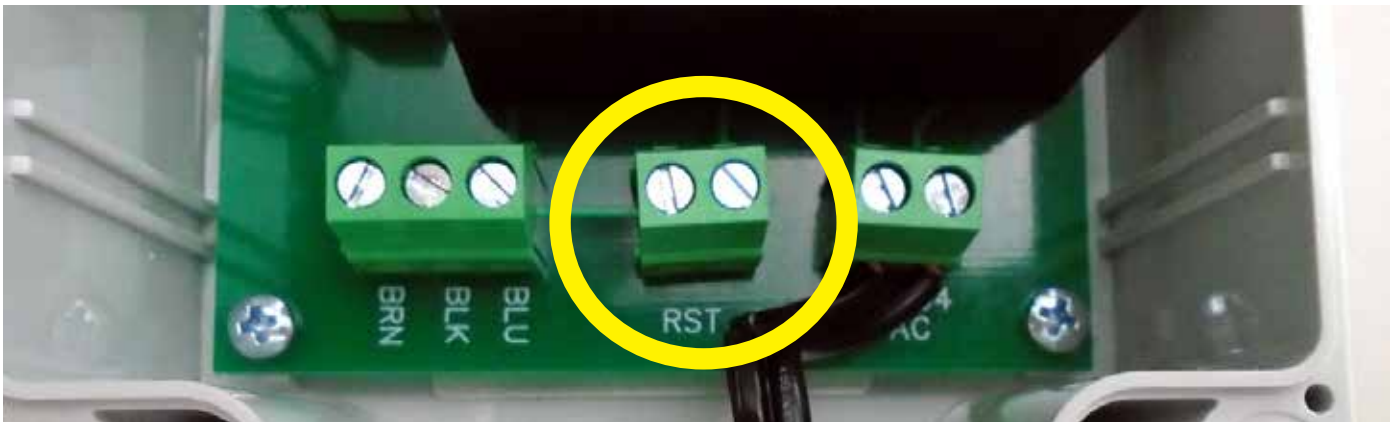


Operation

1. Open the air supply to the pump air valve and start the pump. Cycle counter will automatically start counting. Note: cycle counter will maintain the last cycle displayed when pump is turned off or if unplugged or power is lost.
2. The cycle counter can be reset by pressing the reset button located directly below the display on the front panel. See picture 12 & 13.

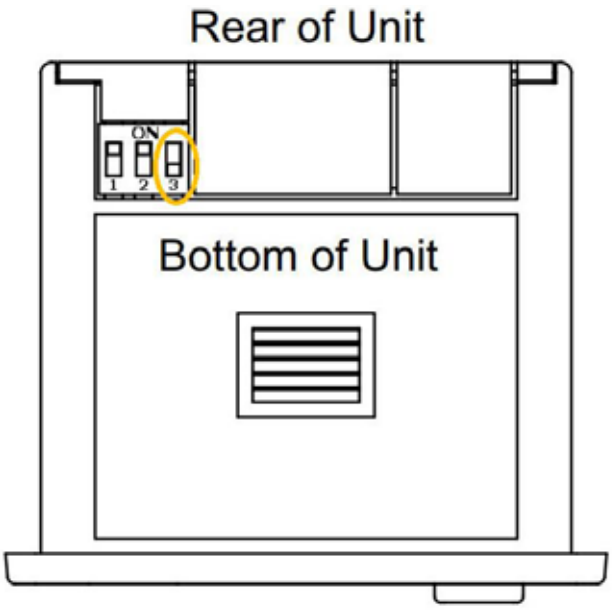
Remote Reset and Disabling Panel Reset

The remote reset can be used by placing momentary switch across the RST terminals. The RST terminal block can be accessed by removing the enclosure cover.



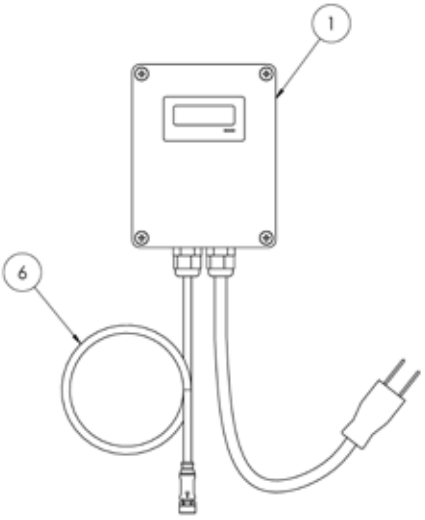
To disable the panel reset:

1. Loosen 4 screws in the enclosure cover.
2. Lift cover and set aside. The display mounted in the cover will remain connected to the circuit board. Take care to not damage those wires.
3. Find the three dip switches on the bottom of the display. Push dip switch #3 away from the “ON” position.

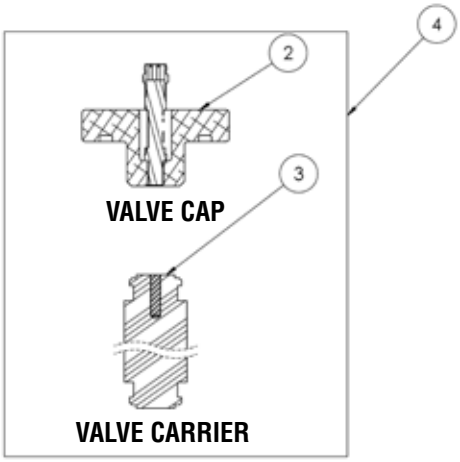


4. Replace cover and screws.

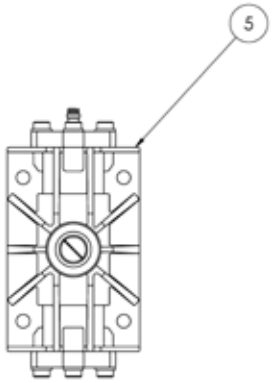
Note that the remote reset can still be used when the panel reset is disabled.



CYCLE MONITOR



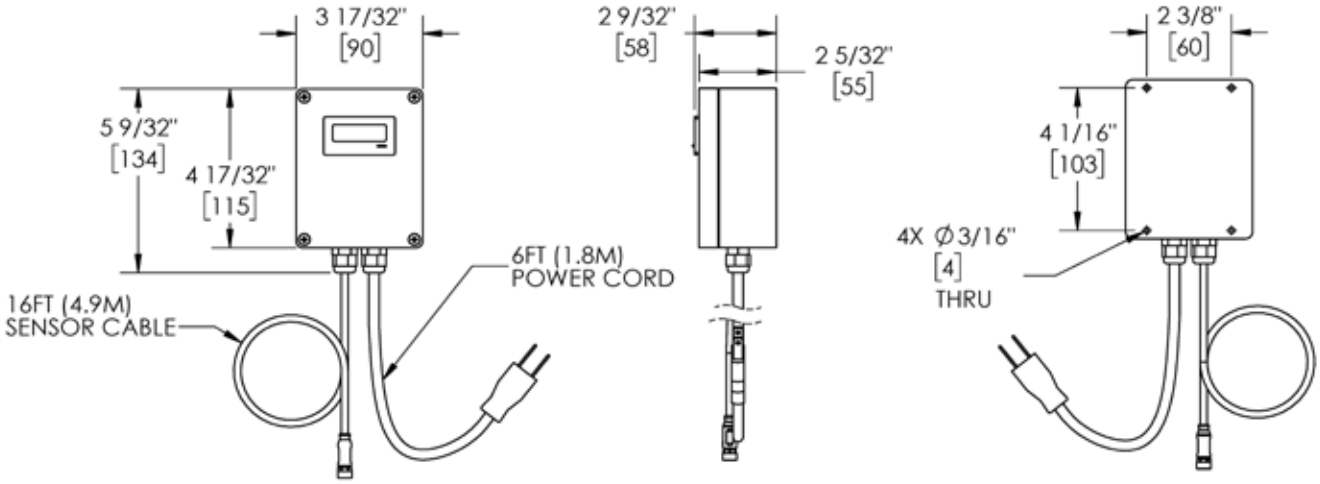
VALVE CAP & VALVE CARRIER



COMPLETE AIR VALVE ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION
1	109805	AODD CYCLE MONITOR, IEC TYPE A PLUG (115V, 1-phase, 50/60 Hz)
	109805-1	AODD CYCLE MONITOR, IEC TYPE C PLUG (230V, 1-phase, 50/60 Hz)
2	109798	VALVE CAP, FT05 ALUMINUM W/ SENSOR
	109798-1	VALVE CAP, FT10 ALUMINUM W/ SENSOR
	109798-2	VALVE CAP, FT15/20/30 ALUMINUM W/ SENSOR
	109798-3	VALVE CAP, FT05 PLASTIC W/ SENSOR
	109798-4	VALVE CAP, FT10 PLASTIC W/ SENSOR
	109798-5	VALVE CAP, FT15/20/30 PLASTIC W/ SENSOR
3*	109808	VALVE CARRIER, FT05 PLASTIC FOR COUNTER/BATCH
	109808-1	VALVE CARRIER, FT10 PLASTIC FOR COUNTER/BATCH
	109808-2	VALVE CARRIER, FT15/20/30 PLASTIC FOR COUNTER/BATCH
	109808-3	VALVE CARRIER, FT025 PLASTIC FOR COUNTER/BATCH
4*	109809	VALVE CAP AND CARRIER, FT05 PLASTIC FOR COUNTER/BATCH
	109809-1	VALVE CAP AND CARRIER, FT10 PLASTIC FOR COUNTER/BATCH
	109809-2	VALVE CAP AND CARRIER, FT15/20/30 PLASTIC FOR COUNTER/BATCH
	109809-3	VALVE CAP AND CARRIER, FT025 PLASTIC FOR COUNTER/BATCH
5	109838	AIR VALVE W/ SENSOR, FT05 ALUMINUM
	109838-1	AIR VALVE W/ SENSOR, FT10 ALUMINUM
	109838-2	AIR VALVE W/ SENSOR, FT15/20/30 ALUMINUM
	109838-3	AIR VALVE W/ SENSOR, FT05 PLASTIC
	109838-4	AIR VALVE W/ SENSOR, FT10 PLASTIC
	109838-5	AIR VALVE W/ SENSOR, FT15/20/30 PLASTIC
	109838-6	AIR VALVE W/ SENSOR, FT025 PLASTIC
6	109847	CABLE, SENSOR
* FOR NON-METALLIC VALVES ONLY, METALLIC VALVES USE STANDARD CARRIERS.		

Dimensions



Troubleshooting

1. Pump is running but counter is not counting -
   - Ensure power supply to unit is 85-264VAC. Check connection on board by removing cover to access the input power terminal block.
   - Ensure sensor is wired properly to the BRN - Brown, BLK - Black, and BLU - Blue terminals.
   - For plastic air valves only:
     - Check metal pin in carrier. Ensure the end with the pin faces the cap with sensor.
     - Ensure pin has not become damaged and is flush with the end of the carrier.
   - Ensure sensor cable has not become loose or damaged. The face of the sensor must be flush to .020" (0.5mm) maximum from face of end cap.
   - Replace battery in display by removing the back cover of the display unit.
2. Pump is not running -
   - Consult pump assembly, installation, and operation manual.