



ATI-5005T Series

Thread-mount Water Sensors

INSTRUCTIONS

**Installation and Maintenance of the
ATI-5005T Series Water Sensors
(including the ATI-5005B)**



IMPORTANT

Please read these installation and operating instructions completely and carefully before starting. Failure to do so will void warranty.

filename:
ATI.MAN.5005T

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1 - WARRANTY

The ATI-5005T Series Thread-mount Water Sensors are warranted against defects in material and workmanship for a period of one (1) year from date of shipment. During the warranty period, *Armstrong Technologies Inc. (ATI)* will repair or replace components that prove to be defective in the opinion of ATI. ATI is not liable for auxiliary interfaced equipment, or consequential damage. This warranty shall not apply to any product, which has been modified in any way, which has been repaired by any other party other than a qualified technician or authorized ATI representative, or when such failure is due to misuse or conditions of use.

1.1 - LIABILITY

All ATI products must be installed and maintained according to instructions. Only qualified technicians should install and maintain the equipment. ATI shall have no liability arising from auxiliary interfaced equipment, for consequential damage, or the installation and operation of this equipment. ATI shall have no liability for labour or freight costs, or any other costs or charges in excess of the amount of the invoice for the products.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND SPECIFICALLY THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE THEREOF.

1.2 - MODIFICATIONS AND SUBSTITUTIONS

Due to an ongoing development program, ATI reserves the right to substitute components and change specifications at any time without incurring any obligations.

1.3 - PRODUCT RETURN

All products returned for warranty service will be by prepaid freight and they will only be accepted with an R.G.A. number issued by ATI. All products returned to the client will be freight collect.

WARNING

<p>USING ELECTRICALLY OPERATED EQUIPMENT NEAR GASOLINE OR OTHER COMBUSTIBLE VAPOURS MAY RESULT IN FIRE OR EXPLOSION, CAUSING PERSONAL INJURY AND PROPERTY DAMAGE. CHECK TO ASSURE THE WORKING AREA IS FREE FROM SUCH HAZARDS DURING INSTALLATION OR WHEN PERFORMING MAINTENANCE, AND USE PROPER PRECAUTIONS.</p>

2 - PRODUCT INFORMATION

NOTE: This manual must be returned to the owner or manager after installation of the sensor(s).

2.1 - WATER DETECTION SENSORS

Operating temperature range and maximum operating pressure are rated at the sensor's conductivity electrodes (contacts).

Sensor Warranty Period 1 year

ATI-5005B (Cast malleable iron housing):

Operating Temperature Range (at contacts) 0 to +100 °C (+32 to +212 °F)

Maximum Operating Pressure 200 psi

FDA Compliant **NO**

ATI-5005TN (Nylon housing):

Operating Temperature Range (at contacts) 0 to +100 °C (+32 to +212 °F)

Maximum Operating Pressure 60 psi

FDA Compliant **YES**

ATI-5005TS (Stainless-steel housing):

Operating Temperature Range (at contacts) 0 to +100 °C (+32 to +212 °F) standard.
0 to +120 °C (+32 to +248 °F) with
extended-temperature range cable.

Maximum Operating Pressure 400 psi

FDA Compliant **YES**

Note:

All *Armstrong Technologies Inc.* products must be installed and maintained according to instructions, to ensure proper operation. Only qualified technicians should install and maintain the equipment.

3 - PRODUCT DESCRIPTION

3.1 - GENERAL DESCRIPTION

The ATI-5005T Series Water Sensor is designed to detect the presence and accumulation of water at a point location in tanks, sumps, piping and any other location to detect the presence of water or conductive liquids. The sensor is designed to operate with any ATI monitor accepting Normally Open sensor inputs.

The ATI-5005T Series Water Sensor features:

- Reusable
- Instant response
- Single point location sensing
- 1/2" NPT male thread for mounting
- Intrinsically safe (when connected through an approved I.S. barrier, or to an ATI liquid monitor)
- Some sensors are FDA compliant (refer to section 2.1)

3.1.1 - SENSOR SPECIFICATIONS

DETECTABLE LIQUIDS	Water and other conductive liquids (as long as resistance is less than 4 Meg). Contact factory for more information if required.
SENSOR	Immersion type conductivity sensor.
RESPONSE TIME	Instantaneous for water.
REPEATABILITY	Excellent even after repeated immersions in non-contaminating liquids.
OPERATING TEMPERATURE	Refer to section 2.1. Will also function with conductive liquids with freezing points below 0°C (32°F) as long as liquid does not solidify (i.e.: water/glycol mix).
STORAGE	10 years @ -20 to +60 °C (-4 to +140 °F).

4 - INSTALLATION

4.1 - LOCATION AND MOUNTING

The ATI-5005T Series Water Sensor can be easily installed simply by screwing the sensor into a 1/2" NPT female conduit hub at the lowest point on the pipe or tank, at the selected location. The wiring end of the lead cable is then connected at a nearby junction box.

A more efficient installation would be to screw a "T" fitting into the hub of the pipe or tank, then screw the sensor and a drain valve into the other two hubs of the fitting. The valve would allow easy drainage of any accumulated water.

Refer to Figure 1.

IMPORTANT: Make sure you use a sealant, such as Teflon tape or LocTite compound, on all threaded parts to prevent any leaks.

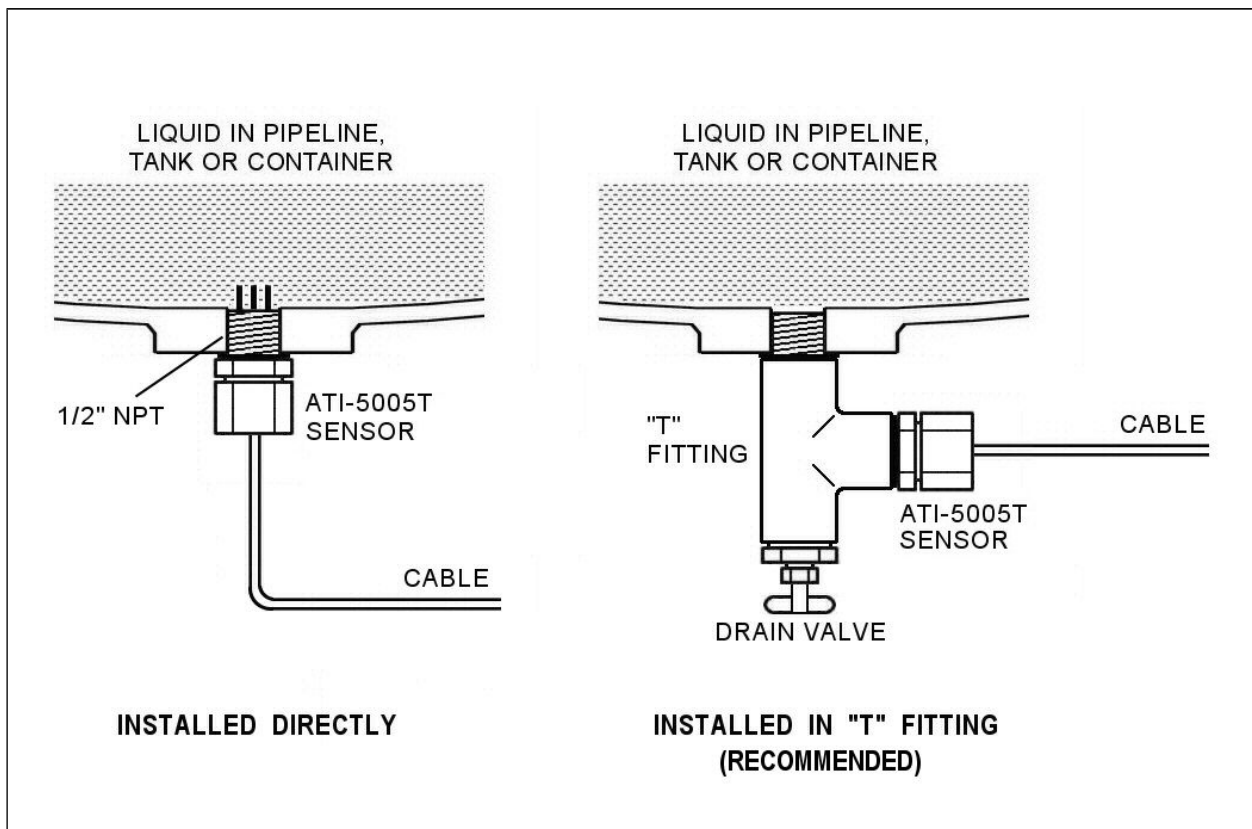


FIGURE 1: Typical installations for the ATI-5005T Series sensor.

4.2 - WIRING TO MONITOR

The ATI-5005T Series Water Sensor is a 2-wire device that may be wired to an ATI monitor that accepts Normally Open sensor inputs. Each sensor should be on a separate cable but more than one cable can be run through the same conduit. For hazardous locations, the cabling must be installed through conduit and conduit sealing fittings.

On the monitor's liquid circuit, each ATI-5005T Series sensor connects to the terminals of one channel (zone). Connect the BLACK sensor lead to the sensor input Ground (-) terminal, and the RED sensor lead to the Positive (+) terminal of one channel.

A water sensor (Normally Open) and a petroleum sensor (Normally Closed) **MUST NOT** be connected to the terminals on the same channel. For more details on liquid sensor wiring and programming, please refer to the instruction manuals for the monitor used.

NOTE: Make sure the pipeline, storage tank or container is empty and turn off the power supply before removing or replacing a sensor.

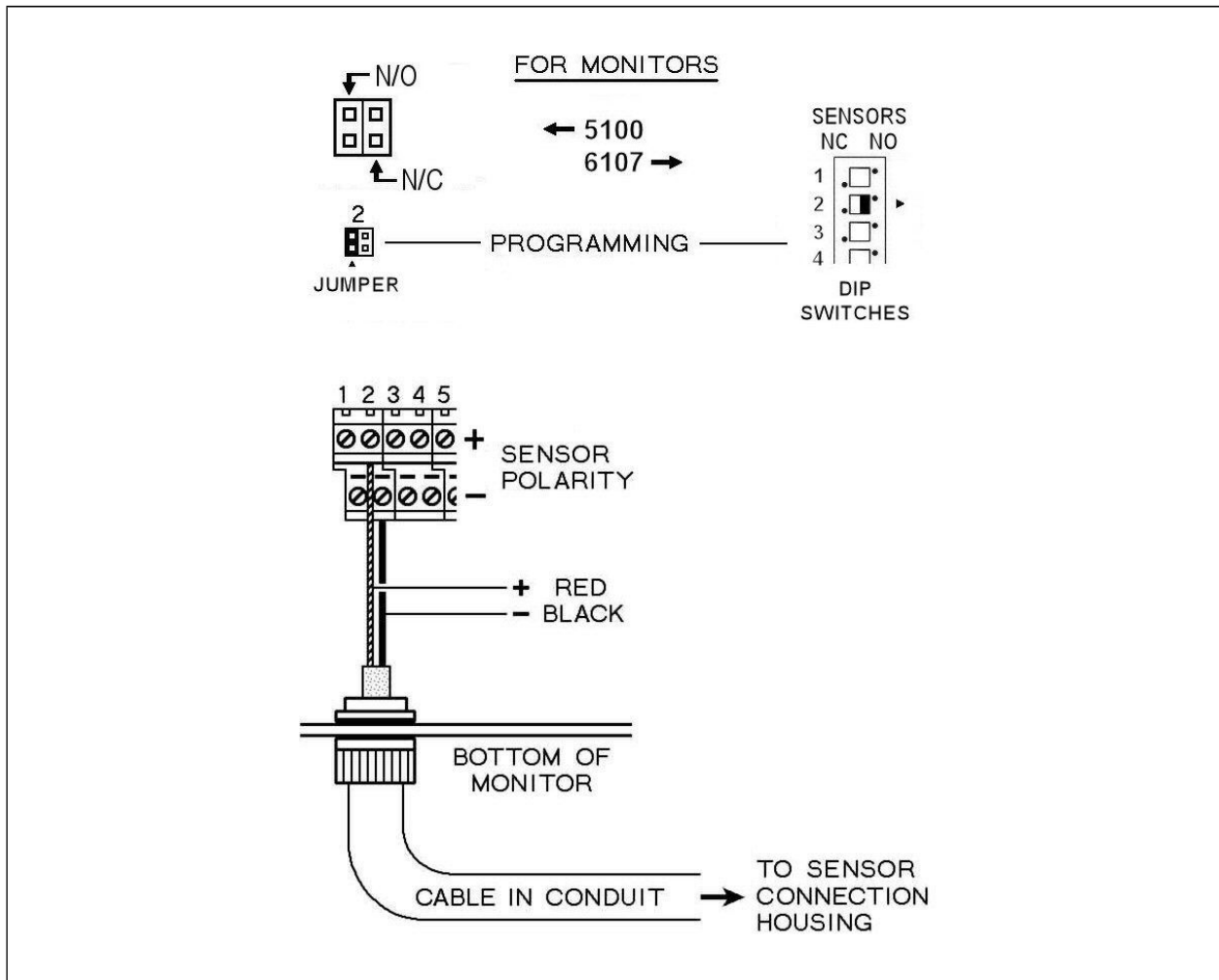


Figure 2: Sensor wiring to monitor.

5 - PREVENTIVE MAINTENANCE

5.1 - SENSOR VERIFICATION

For verifying the liquid sensor, connect an **analog multimeter** (see note) to the BLACK and RED wires and set it for resistance (Rx1K or Rx10K). The resistance should read as an open circuit. Next, immerse the sensor's contact pins into water and observe the meter reading — it should drop to a low resistance (tap water is less than 100K ohms).

NOTE: The use of an **ANALOG multimeter** is recommended to read the resistance of the liquid, since most digital multimeters cannot maintain the reading.

MAKE SURE TO VERIFY THE INTEGRITY OF EACH SENSOR DURING INSTALLATION.

5.2 - CLEANING THE SENSOR

If the contact pins of the sensor become dirty or oxidized (especially the ATI-5005B), the pins can be easily cleaned by scrubbing with a small stiff brush (or tooth brush) and any of the products listed below. Rinse and dry the contact pins before re-using the sensor.

- Automotive rubbing compound
- Metal polish (Silvo or equivalent)
- Tooth paste (cream or foaming type)
- Hydrogen Peroxide

5.3 - TROUBLESHOOTING

If any unusual multimeter readings are obtained (other than those described in the Sensor Verification section), some wires may be shorted or the sensor may have been damaged during installation. **Remember to use caution when installing each ATI-5005T Series water sensor.**

When verifying each sensor with an analog multimeter, make sure the readings obtained agree with the following sensor data.

5.3.1 - WATER SENSOR DATA

Normal Status: Circuit open (N/O)

Alarm ON status: Circuit closed (N/C)
 Low resistance < 1M Ohms (tap water is less than 100K ohms)