



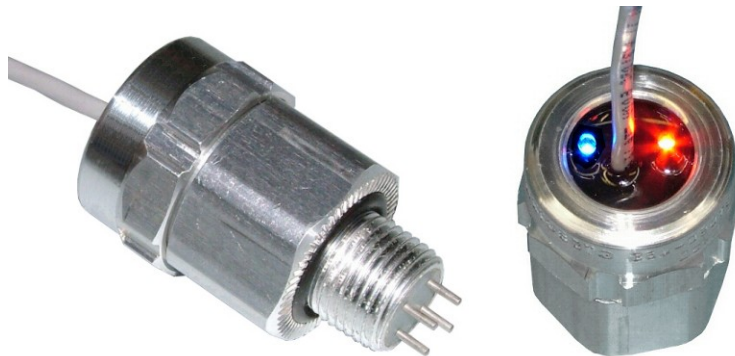
# ATI-5005T-RC

**Water Sensor with Relay Contact**

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## INSTRUCTIONS

**Installation and Maintenance of the  
ATI-5005T-RC Thread-mount Water Sensor**



### **IMPORTANT**

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

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ATI.MAN.5005T-RC

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## **1 – WARRANTY**

The ATI-5005T-RC Thread-Mount Water Sensor is 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><b>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.</b></p>
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## 2 – PRODUCT INFORMATION

**NOTE:** This page must be filled-in at site by client, contractor or installer and this manual returned to the owner or manager.

### 2.1 – WATER DETECTION SENSOR

Sensor Warranty Period .....	_____
Sensor Warranty Period .....	1 year
Power Supply Requirement .....	9 to 24 VDC @ 100 mA
Internal Relay Contact Ratings .....	SPST normally open, 0.3 Amp (300mA) @ 125 VAC, 1 Amp @ 24 VDC
Operating Temperature .....	0 to +75 °C (+32 to +167 °F)
Operating Pressure .....	Ambient atmospheric pressure. Up to 200 psi at sensing end.

**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-RC Water Sensor is primarily designed to detect the presence of water at a point location near the bottom of a pipe, tank or container. Mounts into a female 1/2" NPT hub. This sensor is designed to operate as a stand-alone unit without any need for a monitor, and features a built-in relay contact. It can also be easily interfaced to a PLC.

The ATI-5005T-RC Water Sensor features:

- Rugged aluminum alloy housing
- Single point location sensing
- Corrosion resistant stainless-steel water conductivity pins
- Instant response
- Built-in relay contact
- Intrinsically safe (when connected through an approved I.S. barrier)

#### 3.1.1 – SENSOR SPECIFICATIONS

DETECTABLE LIQUIDS	Water and other conductive liquids (as long as resistance is less than 500K ohms). Contact factory for more information if required.
SENSOR	Contact / immersion type conductivity sensor.
RESPONSE TIME	Instantaneous for water.
REPEATABILITY	Excellent even after repeated contact with or immersion in non-contaminating liquids.
POWER REQUIREMENT	9 to 24 VDC power supply or wall adapter, 100 mA minimum.
RELAY CONTACT	One internal SPST, Normally Open contact. Ratings: 0.3 Amp (300mA) @ 125 VAC, 1 Amp @ 24 VDC.
POWER INDICATOR	High intensity clear Blue LED.
ALARM INDICATOR	High intensity clear Red LED.
OPERATING TEMPERATURE	Water: 0 to +75 °C (+32 to +167 °F). Will also function with conductive liquids with freezing points below 0°C (32°F) as long as liquid does not thicken or 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-RC Water Sensor and associated fittings are easy to install in a conduit hub of a tank or pipeline (use a reducer if necessary). Refer to Figure 1 below.

First screw in a 1/2" NPT "T" fitting into the hub of the pipe or tank, next screw the sensor into the side facing hub, then screw in a drain valve into the bottom hub of the "T" fitting. Typical locations for mounting would be at the lowest point on a pipe or tank. The wiring end of the lead cable should connect in a nearby junction box to the power supply and an external alarm or device such as a PLC. The power and alarm LED indicators are clearly visible on the cable end of the sensor after installation.

The valve would allow easy drainage of any accumulated water.

**IMPORTANT:** Make sure you use a sealant, such as Loctite 565 PST Thread Sealant (or equivalent), on all threaded parts to prevent any leaks.

Since this sensor can operate independently, it can be powered by a 9V battery with a buzzer connected to the relay contact and be used as a portable, emergency water leak detector.

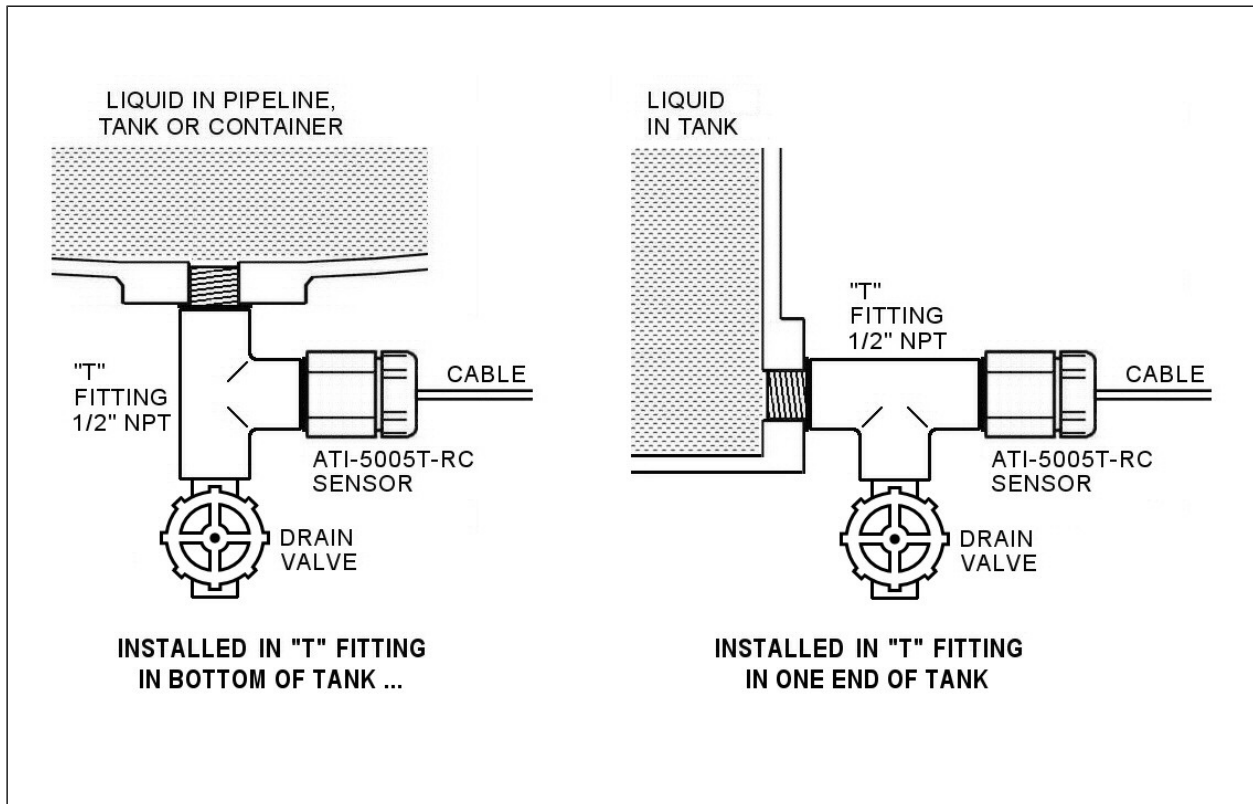


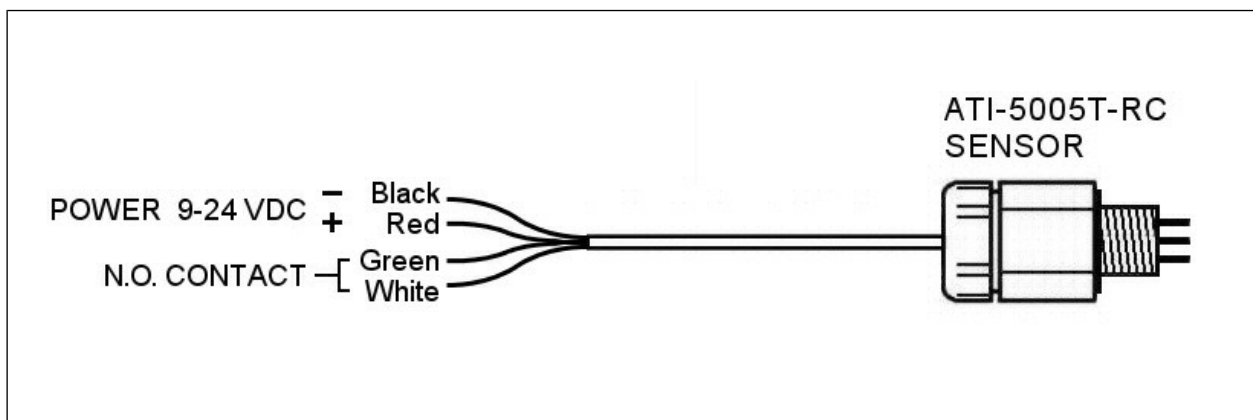
FIGURE 1: Typical installations for the ATI-5005T-RC sensor.

## 4.2 – WIRING THE SENSOR

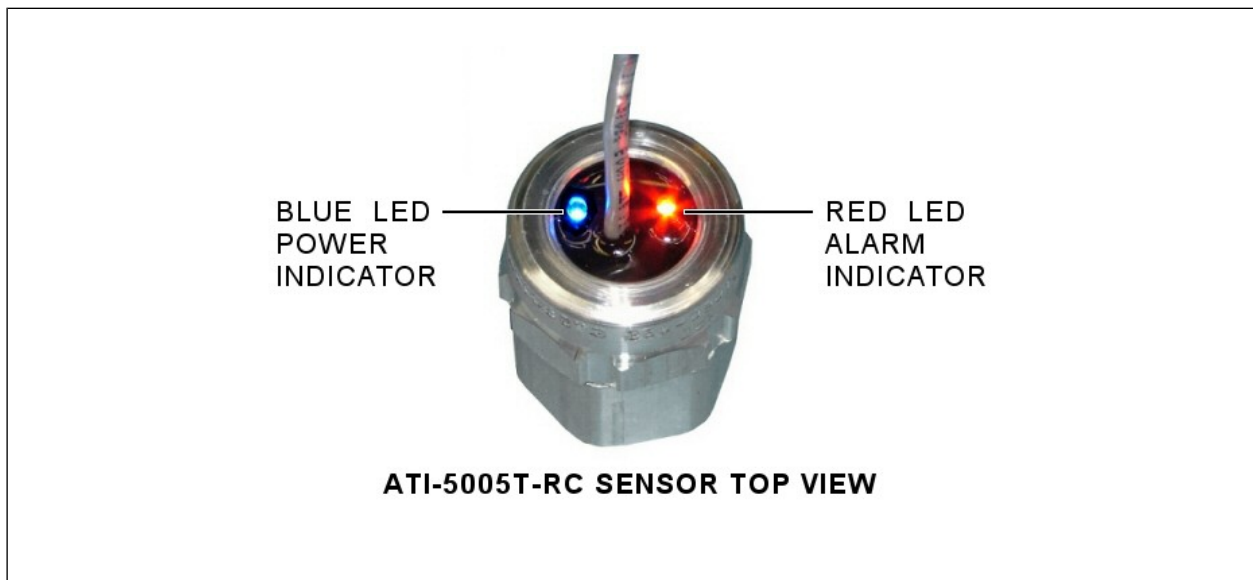
The ATI-5005T-RC Water Sensor is a 4-wire device. A cable size of 18 to 22 AWG is recommended for wiring the sensor. For hazardous locations, the cabling must be installed through conduit and conduit sealing fittings.

**POWER SUPPLY** The sensor operates on 9 to 28 VDC @ 100 mA. The power supply connects to the Black (-) and Red (+) leads. When power is ON, the Blue LED is lit.

**RELAY CONTACT** There is an internal SPST relay which activates when water touches any 2 adjacent conductivity pins. The contact is rated for 0.3 Amp (300mA) @ 125VAC or 1 Amp @ 24VDC. External device connects to the Green and White leads.



**FIGURE 2: Field wiring diagram for the ATI-5005T-RC sensor.**



**FIGURE 3: Power and alarm LED indicators.**

## 5 – PREVENTIVE MAINTENANCE

### 5.1 – SENSOR VERIFICATION

For verifying the liquid sensor, first connect a 9 to 24 VDC power supply to the BLACK (-) and RED (+) wires. The Blue LED should light. Next, connect a multimeter to the GREEN and WHITE wires and set it for resistance. The resistance should read as an open circuit. Then, immerse the sensor's contact pins into water and observe the meter reading — it should drop to zero or a very low resistance, and the Red LED should light.

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

### 5.2 – TROUBLESHOOTING

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

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

#### 5.2.1 – WATER SENSOR DATA

Normal Status: Relay contact circuit open (N/O).  
Red LED is OFF.

Alarm ON status: Relay contact circuit closed (N/C).  
Resistance at or near Zero ohms.  
Red LED is ON.