



# ATI-5025A

## Water Sensing Cable

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### INSTRUCTIONS

#### Installation and Maintenance of the ATI-5025A Water Sensing Cable



### IMPORTANT

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

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## **1 - WARRANTY**

The ATI-5025A Water Sensing Cable 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 manual must be returned to the owner or manager after installation of the sensor(s).

### 2.1 - WATER SENSING CABLE

Sensing Cable Part Number .....	_____
Sensing Cable Serial Number .....	_____
Sensor Warranty Period .....	1 year
Operating Temperature .....	Water: 0 to +100 °C (+32 to +212 °F) Other: -10 to +100 °C (+14 to +212 °F) as long as liquid does not thicken or solidify.
Operating Pressure .....	Wide range above & below normal atmospheric pressure

**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-5025A Water Sensing Cable detects the presence of water over large areas. The principle of operation of the sensor, is that when water covers part of the sensor, the water will create a short across the two conductors and activate the alarm. The unique design allows for flexibility of installation to cover large floor areas and immediate alarm response. Provides efficient monitoring for applications such as below-ground flooding detection and sewer backup, or other critical areas susceptible to flooding or spills.

The ATI-5025A Water Sensing Cable also features:

- Reusable
- Fast response
- Large area coverage
- Chemical resistant
- Designed for heavy-duty use
- Intrinsically safe (when connected through an approved I.S. barrier, or to an ATI liquid monitor).

#### 3.1.1 - SENSOR SPECIFICATIONS

DETECTABLE LIQUIDS	Water and other conductive liquids (as long as resistance of liquid is less than 4 Meg). Contact factory for more information if required.
SENSOR	Immersion type conductivity sensing cable.
RESPONSE TIME	Instantaneous for water.
REPEATABILITY	Excellent even after repeated immersions in non-contaminating liquids.
OPERATING TEMPERATURE	Water: 0 to +100 °C (+32 to +212°F). Other: -10 to +100 °C (+14 to +212 °F), as long as liquid does not thicken or solidify.
STORAGE	10 years @ -10 to +60 °C (+14 to +140°F).
SENSOR LENGTHS	1 to 100 ft standard, in 1 foot increments (for other lengths, contact factory).

## 4 - INSTALLATION

Follow the guidelines in this section for proper locations and installation of the ATI-5025A Water Sensing Cable. Although different practices can be followed, the proper method of installation and use of approved mounting hardware and sealing fittings (when used in hazardous areas) is highly recommended to ensure sound and durable installation.

### 4.1 - LOCATION AND MOUNTING

Refer to FIGURE 1 for the following.

Place the ATI-5025A sensing cable along and/or in the area you wish to monitor for flooding or spills. If the floor is not level, make sure the sensing cable is installed in the area where the liquid would tend to accumulate.

The sensing cable should be attached to the floor or along the base of a side wall using wire ties with heavy-duty self-adhesive pads, spaced approximately 2 feet apart. Attach the lead-in cable up the wall above the wiring end of the sensing cable. For a more permanent and secure installation, screw-on cable clamps can be used instead of the pads.

If cable clamps are used, be sure to select the correct size for the sensing cable (see below).

For applications under a sub-floor, such as a computer room, the cable should be laid out in a serpentine manner (back & forth) for full coverage.

Another application for the ATI-5025A is to monitor leaks in overhead water pipes. The sensing cable would be installed underneath the pipe, suspended loosely with wire ties or straps spaced approximately one foot apart.

#### **Approximate sensing cable size:**

ATI-5025A .... 3/16" (4.5mm) diameter.

### **WARNING**

- To comply with the local municipal, provincial state or federal electrical regulations and for safety reasons, **ALL** cables **MUST** pass through conduit seals installed between hazardous and non-hazardous areas.
- Do **NOT** install cable directly onto unsealed or unpainted concrete surfaces.
- Do **NOT** attach cable to any surface or in a area that may form condensation.
- Do **NOT** attach cable directly to any metal supports or structures.
- Maintain a distance of 8' (2.4 m) away from AHU supply fans and humidifiers.

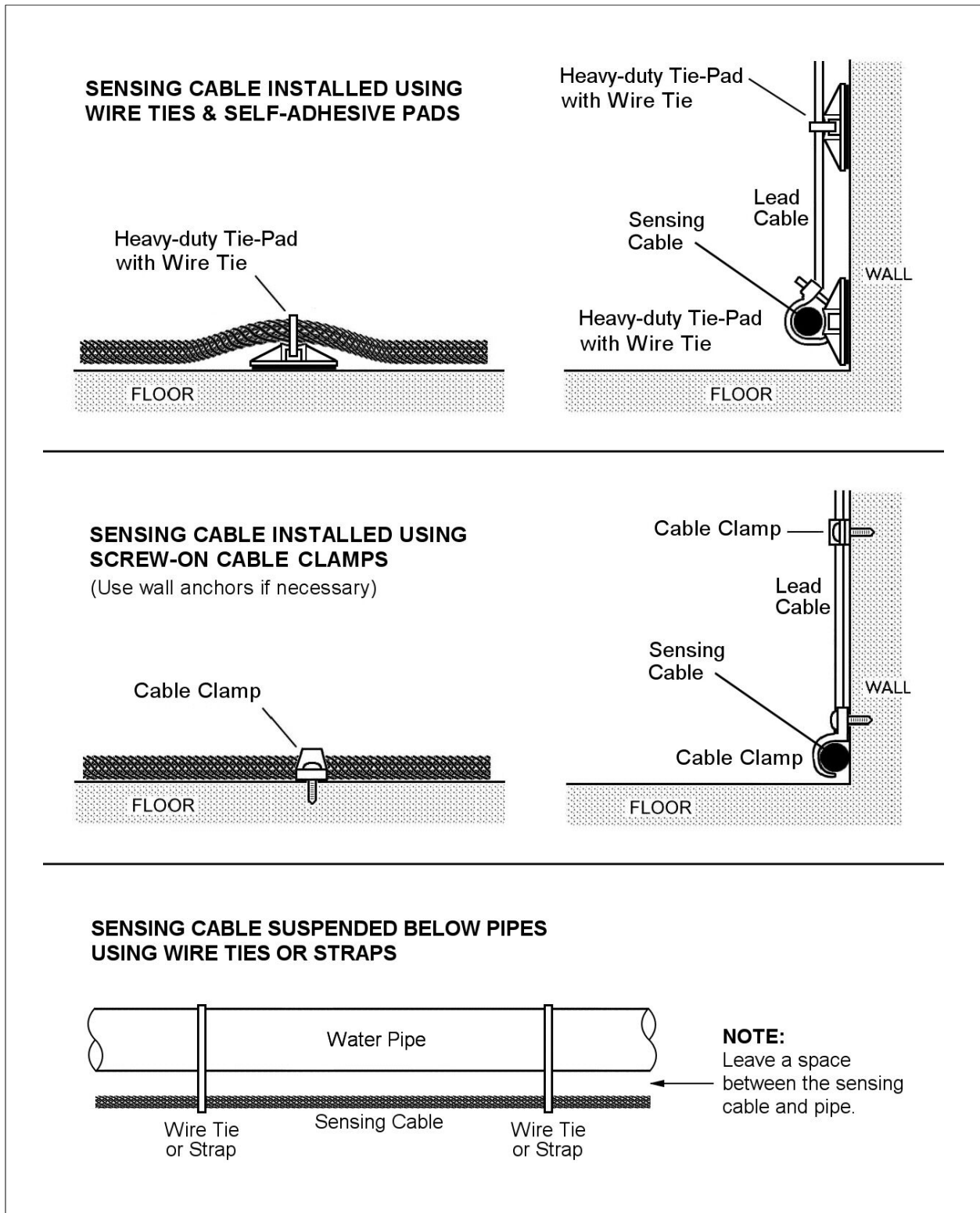


FIGURE 1: Typical installations of ATI-5025A water sensing cable.

## 4.2 - WIRING TO MONITORS

### CAUTION

All cable entry must be through the bottom of the monitor enclosure only. Other entry locations will allow foreign materials to enter the enclosure, possibly causing damage to the internal components.

Mount the sensing cables (as shown in FIGURE 1) in the desired locations for the detection of water and/or conductive liquids.

Each sensor should be on a separate cable but more than one cable can be run through the same conduit. The cabling of the water sensors must be installed through conduit. If the sensors are in hazardous areas, sealing fittings must also be used.

On the liquid circuit, an unlimited number of ATI-5025A floor water sensing cables can be connected **in parallel** to the terminals of one zone (channel). A water sensor (Normally Open circuit) and a petroleum sensor (Normally Closed circuit) **MUST NOT** be connected to the same terminals of the monitor.

A typical ATI-5025A sensor wiring layout and programming is shown in FIGURE 2 at right.

For more details on liquid sensor wiring and programming, please refer to the instruction manuals for the monitors listed.

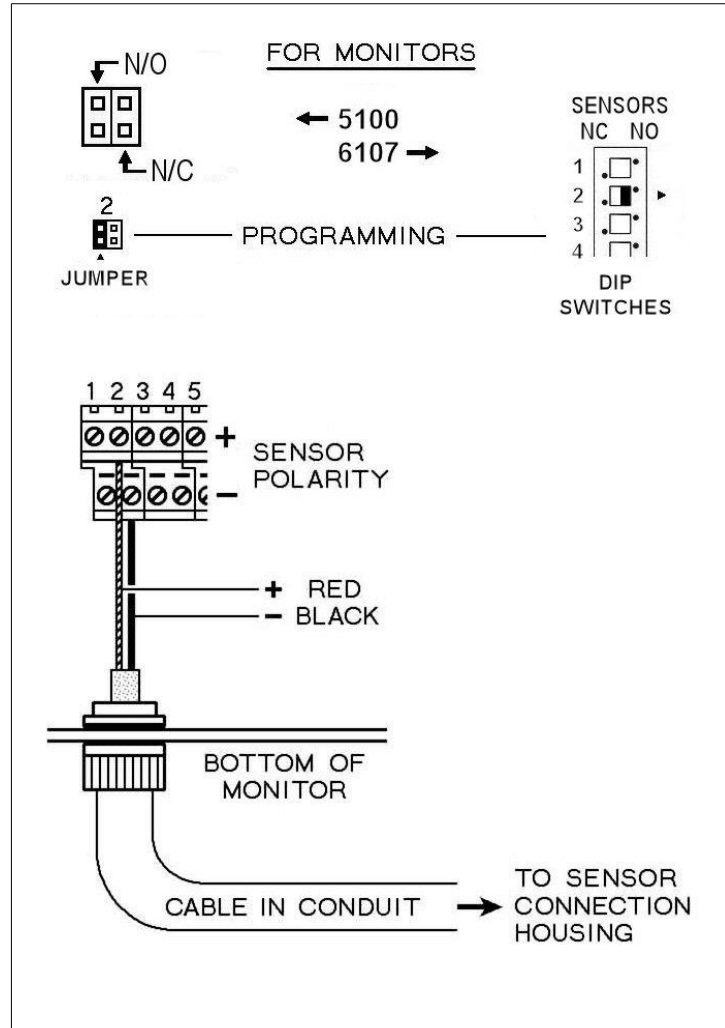


FIGURE 2: Sensor wiring to monitor.



## 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, pour water through the sensing cable to short out the sensor conductivity elements together and observe the reading — it should drop to a very 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 measure resistance of liquids.

**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 the Sensor Verification section), some wires may be shorted or the sensor may have been damaged during installation. **Use caution when installing each ATI-5025A water sensing cable.**

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

#### 5.2.1 - WATER SENSING CABLE 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)