



# ATI-5008

**Vacuum Sensor**

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## INSTRUCTIONS

### Installation and Maintenance of the ATI-5008 Vacuum Sensor



### IMPORTANT

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

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ATI.MAN.5008

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# TABLE OF CONTENTS

Section Title	Page
<b>1 - WARRANTY</b> .....	<b>1</b>
1.1 - LIABILITY .....	1
1.2 - MODIFICATIONS AND SUBSTITUTIONS .....	1
1.3 - PRODUCT RETURN .....	1
<b>2 - PRODUCT INFORMATION</b> .....	<b>2</b>
2.1 - VACUUM SENSOR.....	2
<b>3 - PRODUCT DESCRIPTION</b> .....	<b>3</b>
3.1 - GENERAL DESCRIPTION.....	3
3.1.1 - SENSOR SPECIFICATIONS.....	3
<b>4 - INSTALLATION</b> .....	<b>4</b>
4.1- LOCATION AND MOUNTING.....	4
4.2- WIRING TO MONITOR.....	5
<b>5 - PREVENTIVE MAINTENANCE</b> .....	<b>6</b>
5.1 - SENSOR VERIFICATION.....	6
5.2 - TROUBLESHOOTING.....	6
5.2.1 - VACUUM SENSOR (Connected & Operational).....	6

## **1 - WARRANTY**

The ATI-5008 Vacuum 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 - VACUUM SENSOR

Sensor Serial Number .....	_____
Sensor Warranty Period .....	1 year
Operating Temperature .....	-20 to +60 °C (-4 to +140 °F)
Operating Pressure .....	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-5008 Vacuum Sensor detects the change in air pressure in the interstitial space of double-walled storage tanks. The principle of operation of the sensor involves a breach in the internal or external wall of the container or storage tank, where the change in pressure will switch the sensor and activate the alarm. The design allows for flexibility of installation and fast alarm response (depending on size and speed of leak). Provides efficient monitoring of integrity of the inner and outer walls of storage tanks.

The ATI-5008 Vacuum Sensor features:

- ◆ Reusable
- ◆ Instant response
- ◆ Intrinsically safe (when connected through an approved I.S. barrier, or to an ATI liquid monitor).

#### 3.1.1 - SENSOR SPECIFICATIONS

DETECTABLE CONDITION	Detects pressure changes in interstitial space of double-walled tanks (Contact factory for more information if required)
SENSOR	Vacuum sensing transducer
RESPONSE TIME	Fast response (dependant on severity of leak)
REPEATABILITY	Excellent even after repeated activations without adjustment
OPERATING TEMPERATURE	-20 to +60 °C (-4 to +140 °F)
STORAGE	10 YEARS @ -65 to +60 °C (-85 to +140 °F)

## 4 - INSTALLATION

Follow the guidelines in this section for proper locations and installation of the ATI-5008 Vacuum Sensor. Although different practices can be followed, the proper method of installation and use of approved mounting hardware and sealing fittings is highly recommended to ensure sound and durable installation.

### WARNING

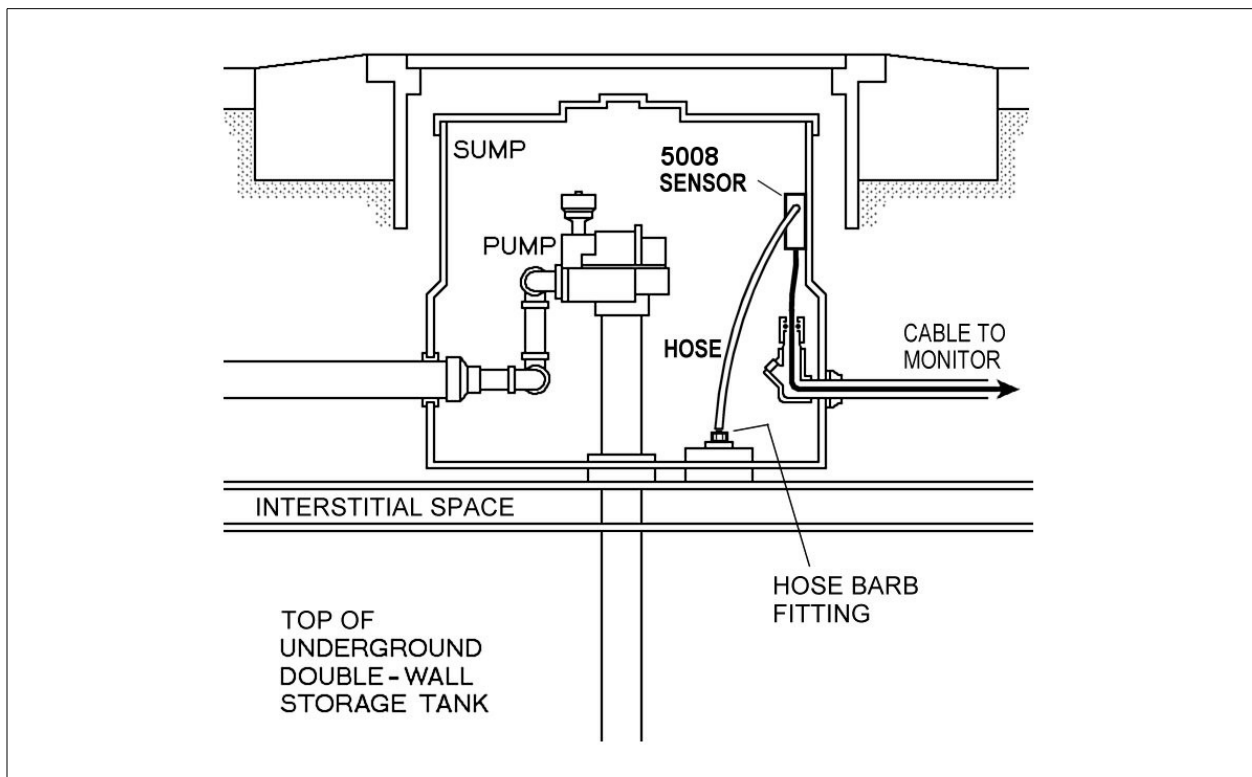
To comply with the local municipal, provincial, or federal electrical regulations and for safety reasons, **ALL** cables must pass through approved conduit seals installed between the hazardous and non-hazardous areas.

#### 4.1- LOCATION AND MOUNTING

Refer to FIGURE 1.

The ATI-5008 sensor is supplied with a sufficient length of lead-in cable for installing in the sump/manway of a tank or container.

After the vacuum sensor has been installed (mounted to the side wall of the sump), the interstitial space of the tank should be de-pressurized to meet local standards (i.e.: 0 to 10 psi).



**FIGURE 1: Sensor installed in sump/manway.**

## 4.2- WIRING TO MONITOR

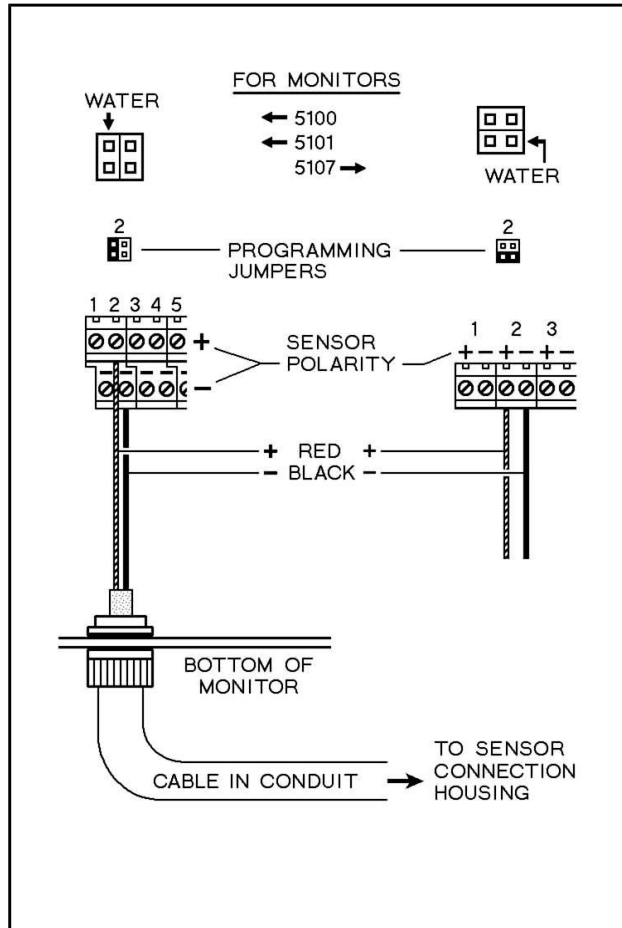
### CAUTION

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.

Each sensor should be on a separate cable but more than one cable can be run through the same conduit. The cabling of the liquid sensors must be installed through conduit sealing fittings and conduit.

A vacuum sensor (or Normally Open) sensor and a petroleum sensor **MUST NOT** be connected to the same terminals.

A typical wiring layout and jumper programming is shown at right. For more details on sensor wiring and programming, please refer to the instruction manuals for the monitors listed.



**FIGURE 2: Sensor wiring and jumper programming.**

## 5 - PREVENTIVE MAINTENANCE

### 5.1 - SENSOR VERIFICATION

For verifying the vapour sensor, connect a digital multimeter (set for resistance) to the BLACK and RED wires. While observing the reading on the multimeter, apply suction to the hose fitting on the side of the sensor, then release the suction. The reading should change between Normally Closed (low resistance less than 100 ohms) and Normally Open. The contact state of the sensor when inactive and unconnected is Normally Closed.

**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. **Remember to use caution when installing each ATI-5008 vacuum sensor.**

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

#### 5.2.1 - VACUUM SENSOR (Connected & Operational)

Normal status:	Circuit open (N/O)
Alarm ON status:	Circuit closed (N/C) Low resistance <100 Ohms