INSTALLATION AND OPERATION MANUAL

HEAT-TIMER® CORPORATION

TRANSDUCERS

PRESSURE AND VACUUM TRANSDUCERS

TABLE OF CONTENTS

01 OVERVIEW 3

02 INSTALLATION INSTRUCTIONS 4
REQUIRED MATERIALS (NOT SUPPLIED) 4
MOUNTING TRANSDUCERS 4
MOUNTING THE 4-20MA SENSOR INTERFACE 5

03 CONNECTING THE WIRING 6
WIRING TO DIGI-ELITE 6
WIRING TO PLATINUM CONTROLS 6
WIRING TO SQ-ELITE 7
WIRING TO THE RINET/INTERNET NETWORK 7
WIRING THE SENSOR INTERFACE TO THE MSI HUB 7
WIRING THE TRANSDUCER TO THE SENSOR INTERFACE 8

04 TRANSDUCER TYPES AND SPECIFICATIONS 9

05 NOTES 10

06 WARRANTY 11

Heat-Timer pressure and vacuum, transducers are designed to connect to a variety of controls, including many Heat-Timer controls. The transducers use a 4-20mA signal and require a voltage source for the signal. All Heat-Timer controls provide the necessary voltage source.

Pressure transducers cover specific pressure ranges. When choosing a transducer for an application, choose a transducer that has a higher limit than the system maximum pressure. For example, a low-pressure steam system (15 psi) must use a 30 psi pressure transducer, while a high-pressure system (150 psi) must use a 200 psi pressure transducer. Most Heat-Timer controls support different types of sensors. When that is the case, the control's Sensor Type setting must match the transducer selected.

Heat-Timer pressure and vacuum transducers are designed to measure gas, vapor, or liquid mediums with great accuracy.

⚠ WARNING ⚠

Fluid hammer and surges can destroy any pressure transducer and must be avoided. Heat-Timer requires installation of an isolation tube (pigtail) to protect the transducer from extreme system temperatures and the damaging hammer effect caused by system valve or pump operation.

Pigtails must be ordered separately (Heat-Timer p/n 135020-00).

The installation process consists of the following basic steps:

1. Mounting the Transducers.
2. Mounting the 4-20mA Sensor Interface (used only for installations where the transducer will be monitored via the internet).
3. Connecting the wiring.

REQUIRED MATERIALS (NOT SUPPLIED)

The following materials/tools are required for installation, but are not supplied:

- General tool kit (screwdrivers, wire strippers, power drill, etc.)
- 18 AWG multi-conductor, shielded or twisted-pair cable (Heat-Timer p/n 703001-01 or equivalent #18/2 cable) – used for the 24Vac Sensor Interface to MSI Hub connection, and the transducer to Sensor Interface connection

MOUNTING TRANSDUCERS

The following installation requirements for the transducers must be met:

- The installer must thread the transducer onto a pigtail (isolation tube). The pigtail protects the transducer from the damaging effects of excessive system temperature and valve operation hammer.
- The transducer should be installed approximately 10 feet (3 meters) past the boiler/steam source on the supply main, but before any major takeoffs.
- Vacuum transducers should be installed approximately 10 feet (3 meters) past the vacuum pump.

MOUNTING THE 4-20MA SENSOR INTERFACE

NOTICE

These steps are only required for installations where the transducer will be monitored via the internet.

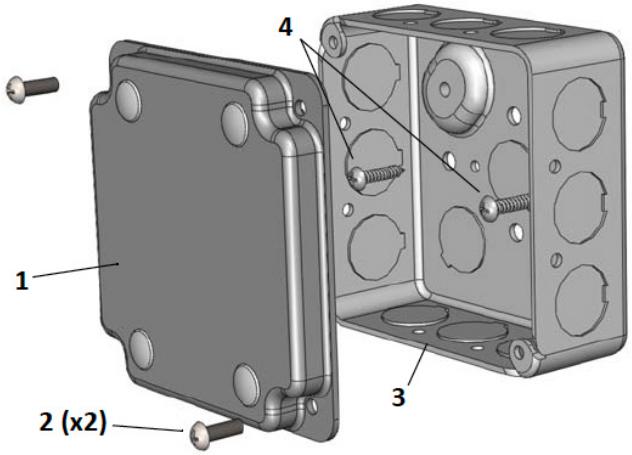
1 Select an appropriate location to mount the Sensor Interface. The location must meet the following minimum requirements:

- The mounting surface should be flat and sufficiently wide and strong enough to hold the weight of the device.
- DO NOT mount the device in a location where it will be exposed to extreme heat, cold, humidity, or moisture.

NOTICE

The Sensor Interface should be mounted in a location that does not exceed 120°F (48.9°C)

2 Remove the Sensor Interface Cover (1) by removing the two screws (2) holding it in place.



3 Position the Sensor Interface Enclosure (3) in the desired location, and then secure it in place using the at least two screws (4) through the mounting holes in the back of the Enclosure.

NOTICE

Do not replace the Sensor Interface cover until all wiring is completed.

Heat-Timer controls provide the transducer with the voltage required to use the 4-20mA signal. However, if the transducer is use with a non-Heat-Timer controls that do not provide power, an external power source (between 12Vdc and 30Vdc) must be used.

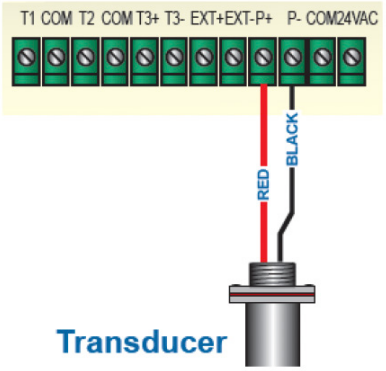
NOTICE

Use only the transducer's red (power) and black (signal) wires and cut the rest of the wires.

WIRING TO DIGI-ELITE

The Heat-Timer SPC, TSC, and MC Digi-Elite controls are capable of reading a variety of sensors. The Sensor Type selected from the control's Startup menu determines the terminals the control will use to read the system sensor.

1. Set the Digi-Elite Sensor Type to match the transducer selected.
2. Connect the transducer's red wire to the (P+) terminal, and the black wire to the (P-) terminal.



WIRING TO PLATINUM CONTROLS

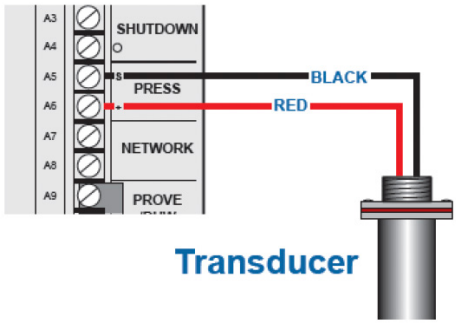
The Heat-Timer Multi-MOD and MPC-Q are only compatible in using the pressure transducer.

The Heat-Timer Multi-MOD Platinum control is capable of reading a variety of sensors. The Sensor Type selected from the control's Startup menu determines the terminals the control will use to read the system sensor.

NOTICE

The MPCQ Platinum is only compatible with a 30 psi transducers.

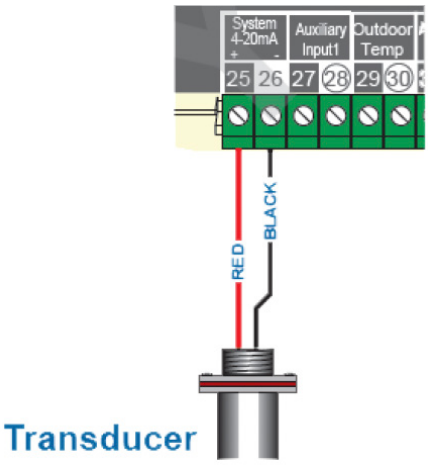
1. Set the Multi-MOD Sensor Type to match the transducer selected.
2. Connect the transducer's red wire to the (A6 PRESS (+)) terminal, and the black wire to the (A5 PRESS (-)) terminal



WIRING TO SQ-ELITE

The Heat-Timer SQ-Elite-8S control is capable of reading a variety of sensors.

1. Set the SQ-Elite-8S Sensor Type to match the transducer selected.
2. Connect the transducer's red wire to terminal 25 (System 4-20mA (+)), and the black wire to terminal 26 (System 4-20mA (-)).



WIRING TO THE RINET/INTERNET NETWORK

This section provides instructions for:

- Wiring the 4-20mA Sensor Interface to the MSI Hub
- Wiring the transducer to the 4-20mA Sensor Interface

NOTICE

The Sensor Interface receives power from the MSI Hub transformer and communicates with the network via the MSI Hub. Therefore, the MSI Hub must be properly installed prior to installation of the Sensor Interface. Refer to the Multi-Sensor Interface Hub Installation and Operation Manual (Heat-Timer p/n 059410-00) for information.

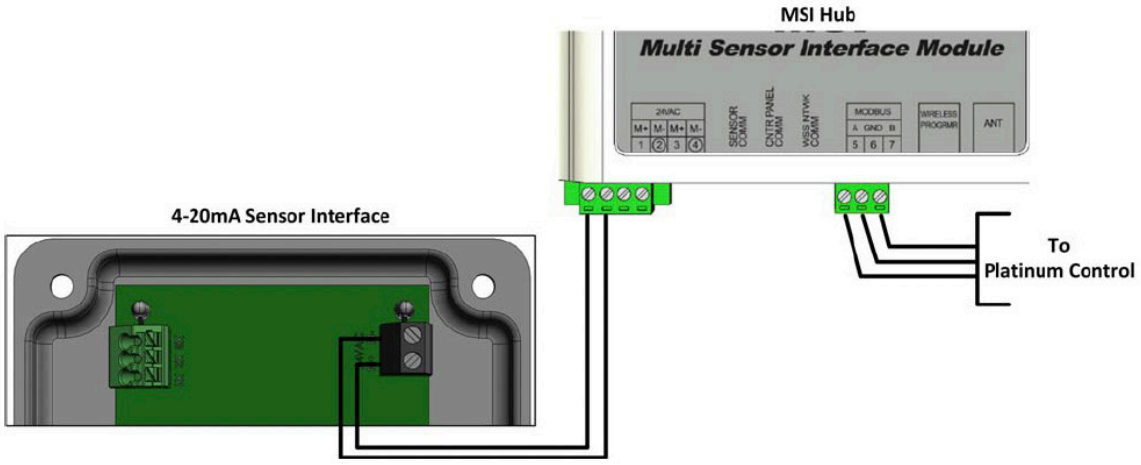
WIRING THE SENSOR INTERFACE TO THE MSI HUB

1. Run an 18 AWG multi-conductor, shielded or twisted-pair cable (Heat-Timer p/n 703001-01 or equivalent #18/2 cable) through a knockout on the Sensor Interface Enclosure to the MSI Hub.

NOTICE

The Sensor Interface must be powered by the same transformer used to power the MSI Hub.

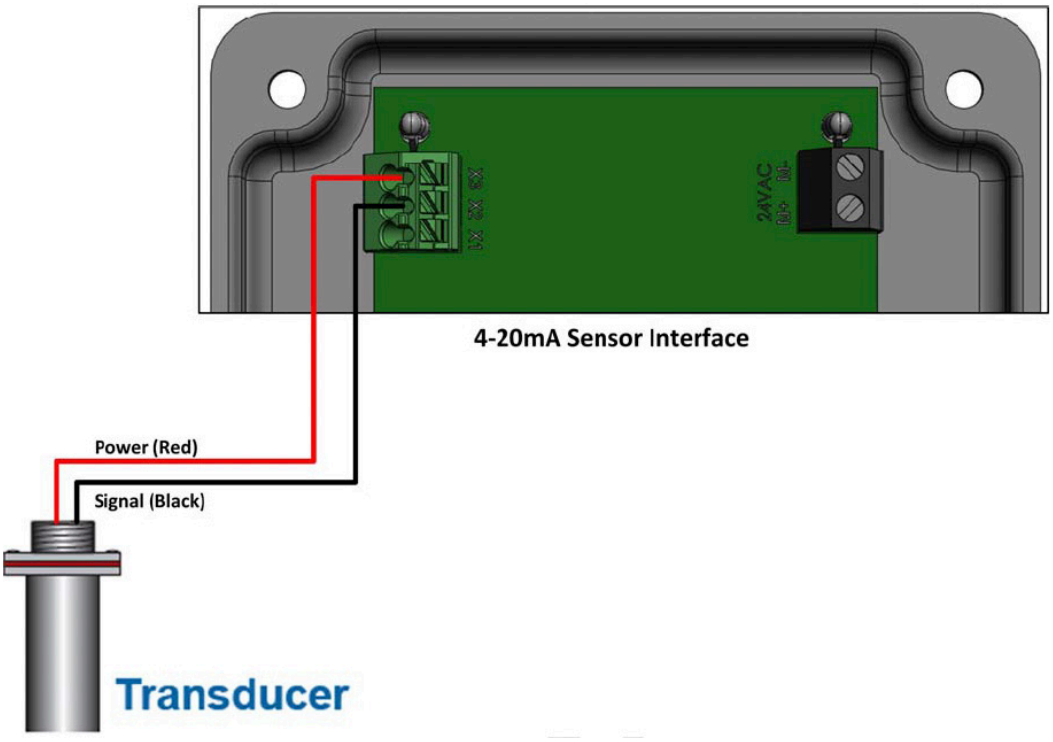
- Connect the Sensor Interface terminal M+ to the MSI Hub terminal M+ (1 and 3).
- Connect the Sensor Interface terminal M- to the MSI Hub terminal M- (2 and 4).



2 Continue with "Wiring the Transducer to the Sensor Interface".

WIRING THE TRANSDUCER TO THE SENSOR INTERFACE

1 1. Run the 18 AWG multi-conductor, shielded or twisted-pair cable (Heat-Timer p/n 703001-01 or equivalent #18/2 cable) from the transducer through a knockout on the Sensor Interface Enclosure. Connect the black (signal) wire to the X2 terminal and the red (power) wire to the X3 terminal. Press the tab on the terminal with a small screwdriver to insert the wire.



2 Position the Sensor Interface enclosure cover on the enclosure and secure it in place with two screws.

NAME	PART #	DESCRIPTION	TYPE
0-15 PSI Pressure Transducer	904316-00	For Multi-MOD SQ-Elite-8S, Digi Span	Pressure
0-30 PSI Pressure Transducer	904310-00	For Multi-MOD, MPCQ Platinum, SQ-Elite-8S, Digi Span	Pressure
0-100 PSI Pressure Transducer	904312-00	For Multi-MOD, SQ-Elite-8S, Digi Span	Pressure
0-200 PSI Pressure Transducer	904310-00	For Multi-MOD, SQ-Elite-8S, Digi Span	Pressure
0-300 PSI Pressure Transducer	904313-00	For Multi-MOD, SQ-Elite-8S, Digi Span	Pressure
0-30 Hg Vacuum Transducer	904317-00	For SQ-Elite-8S and Digi Span	Vacuum
4-20mA Network Interface	904184-00	For Platinum Network Connections	All Transducers
MSI Hub	904284-00	For Platinum Network Connections	All Transducers

SPECIFICATIONS

Sensitive Element	Ceramic Piezoresistance
Overpressure	3 Times the Full Scale
Accuracy	0.25%, 0.5%
Output	4-20mA DC
Supply Power	12-30Vdc
Load Resistance	350Ω (750Ω max.)
Operating Temperature	-40°F to 257°F (-40°C to 125°C)
Compensated Range	32°F to 158°F (0°C to 70°C)
Stability	<±0.2% F.S./Year
Suitable Media	Liquid, Gas, or Steam

WARRANTIES AND LIMITATIONS OF LIABILITY AND DAMAGE: Heat-Timer Corporation warrants that it will replace, or at its option, repair any Heat-Timer Corporation manufactured product or part thereof which is found to be defective in material workmanship within one year from the date of installation only if the warranty registration has been completed online within 30 days of the date of installation. Damages to the product or part thereof due to misuse, abuse, improper installation by others or caused by power failure, power surges, fire, flood or lightning are not covered by this warranty. Any service, repairs, modifications or alterations to the product not expressly authorized by Heat-Timer Corporation will invalidate the warranty. Batteries are not included in this warranty. This warranty applies only to the original user and is not assignable or transferable. Heat-Timer Corporation shall not be responsible for any maladjustments of any control installed by Heat-Timer Corporation. It is the user's responsibility to adjust the settings of the control to provide the proper amount of heat or cooling required in the premises and for proper operation of the heating or cooling system. Heat-Timer Corporation shall not be required to make any changes to any building systems, including but not limited to the heating system, boilers or electrical power system, that is required for proper operation of any controls or other equipment installed by Heat-Timer Corporation or any contractor. Third Party products and services are not covered by this Heat-Timer Corporation warranty and Heat-Timer Corporation makes no representations or warranties on behalf of such third parties. Any warranty on such products or services is from the supplier, manufacturer, or licensor of the product or service.

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED AND HEAT-TIMER CORPORATION SPECIFICALLY DISCLAIMS ANY AND ALL WARRANTIES OF MERCHANTABILITY FOR A PARTICULAR PURPOSE. UNDER NO CIRCUMSTANCES SHALL HEAT-TIMER CORPORATION, ITS AUTHORIZED REPRESENTATIVES, AFFILIATED OR SUBSIDIARY COMPANIES BE LIABLE FOR SPECIAL, CONSEQUENTIAL, PUNITIVE, INDIRECT OR INCIDENTAL DAMAGES, EXCEPT AS SPECIFICALLY STATED IN THESE TERMS AND CONDITIONS OF SALE. THE SOLE REMEDY WITH RESPECT TO ANY PRODUCT OR PART SOLD OR INSTALLED BY HEAT-TIMER CORPORATION SHALL BE LIMITED TO THE RIGHT TO REPLACEMENT OR REPAIR F.O.B. FAIRFIELD, NJ. HEAT-TIMER CORPORATION SHALL NOT BE LIABLE OR RESPONSIBLE FOR LOSS OR DAMAGE OF ANY KIND RESULTING FROM DELAY OR INABILITY TO DELIVER FOR ANY REASON, INCLUDING BUT NOT LIMITED TO FIRE, FLOOD, LIGHTNING, POWER FAILURE OR SURGES, UNAVAILABILITY OF PARTS, STRIKES OR LABOR DISPUTES, ACCIDENTS AND ACTS OF CIVIL OR MILITARY AUTHORITIES. HEAT-TIMER CORPORATION MAKES NO REPRESENTATIONS OR WARRANTIES THAT THE PRODUCTS ARE FREE OF RIGHTFUL CLAIMS OF ANY THIRD PARTY FOR INFRINGEMENT OF PROPRIETARY RIGHTS. HEAT-TIMER CORPORATION'S AGGREGATE LIABILITY UNDER THESE TERMS AND CONDITIONS OF SALE SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PRODUCT.

BuildingNet Internet Access Service and BuildingNet Data Service are not provided as part of the sale of any RINET control unless specifically included on the invoice. These services must be purchased separately. The Internet Access provider may retain ownership of any modems provided as part of Internet Access Service. Such modems shall be returned to the Internet provider at the time of termination of such Internet Access Service, otherwise the Purchaser may be charged for the price of such modem.

Rev. 100114

HEAT-TIMER® CORPORATION

20 NEW DUTCH LANE,
FAIRFIELD, NJ 07004

PHONE: **973-575-4004**

FAX: **973-575-4052**

HEAT-TIMER.COM