

INSTALLATION/OPERATING INSTRUCTIONS

MULTIPLE INPUT GATEWAY

The Multiple Input Gateway (MIG) is used with a Heat-Timer Remote Communication network. The MIG simplifies the wiring and reduces the cost of individual sensors. The network can terminate in any of the following panels which have been equipped with the Remote Communications package: MPC, MPCQ, HWR, HWRQ, or SRC.

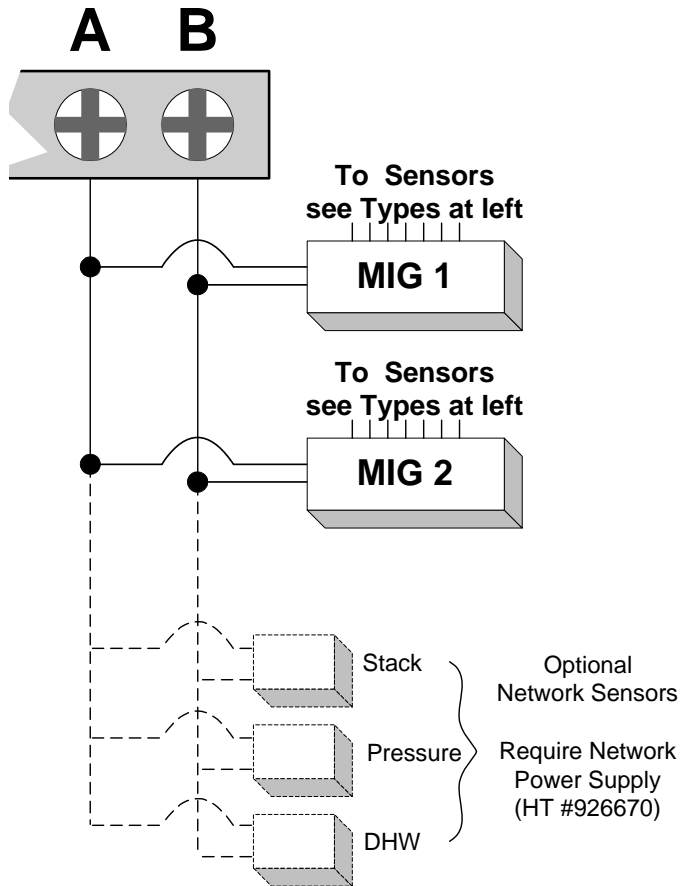
The MIG can accept all of the following types of inputs:

- Immersion Sensor* (HT #904024) to be inserted in a 3/8" ID well (HT #904011 or equivalent)
- Room Space Sensor* (HT #904001) in plastic enclosure to be wall mounted
- Brass Tube Sensor* (HT #904015) 3/8" diameter by 1.56" long
- Brass Tube Sensor* (HT #904023) 1/2" diameter by 1 9/16" long
- UV, Corrosion, and Moisture Resistant Sensor* (HT #904022)
- Stainless Steel Sensor *(HT #904012) 1/4" diameter by 6" long
- Dry Contact Closure - any point which can be either open or shorted can be monitored and be used to send out an alarm
- Float (Sump Pit) Assembly - provides dry contact closure (HT #904060)

The MIG comes equipped to accept up to 14 inputs. A total of two additional input boards can be added. Each Input Board (HT #900093) allows the MIG to accept up to 7 more inputs. Therefore, a single MIG can be configured to accept up to 28 inputs.

* The temperature sensor range is -30°F to 250°F.

MPC, MPCQ, HWR,
HWRQ, or SRC
Panel Terminals



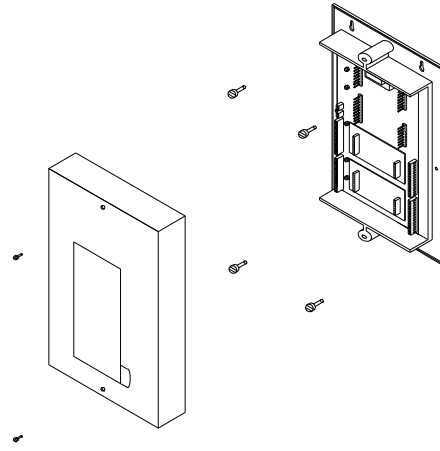
LIMITED ONE YEAR WARRANTY

This Heat-Timer device was thoroughly tested for defects and workmanship before leaving our factory. We do warrant the equipment to be free of defects under normal use for a period of one year from the date of installation. Transportation charges for factory repairs must be prepaid. Damage to the Heat-Timer device or any of its components due to misuse, abuse, improper installation, or caused by power failures, fire, flood, or lightning are not covered by this warranty. The company assumes no liability for indirect or consequential damages of any nature. This Heat-Timer warranty applies only to the original purchaser/user, is not assignable or transferable, and does not cover damage to the device occurring in shipment. Any service, repairs, modifications or alterations to the unit not expressly authorized by the company will invalidate the warranty. This warranty is in lieu of all other warranties expressed or implied.

HEAT-TIMER
CORPORATION
20 New Dutch Lane, Fairfield, NJ 07004
973-575-4004 Fax 973-575-4052
<http://www.heat-timer.com>

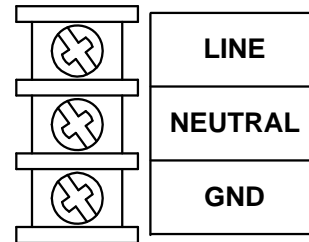
MOUNT THE PANEL

- Remove the plastic panel cover from the MIG by loosening the two screws to reveal the four mounting holes.
- Locate the MIG in any convenient location away from steam or moisture, where the temperature will not exceed 130°F.
- The surface must be flat, smooth, and strong enough to hold the weight of the MIG.
- Leave the panel cover off until the installation is complete.



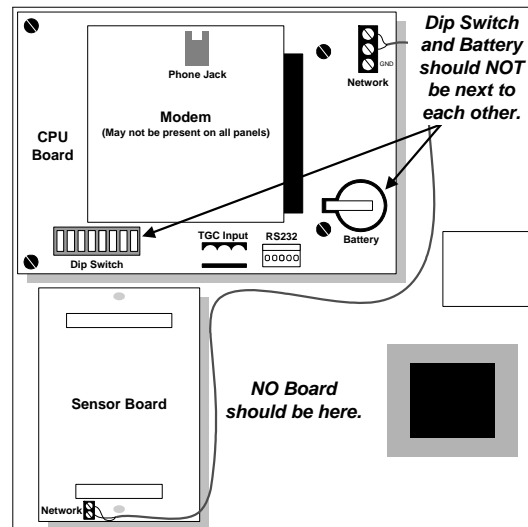
POWER INPUTS

- Bring the power wires through the upper KO of the enclosure.
- Use Class 1 copper wire only.
- Attach 120V 60 Hz to terminals LINE, and NEUTRAL.
- The GND terminal must be connected to earth ground.



CHECK THE HEAT-TIMER CPU (HWR, HWRQ, MPC, MPCQ, or SRC)

- Remove the three screws which hold the panel in the yellow enclosure.
- Tilt the panel out and check the configuration of the boards on the back. The boards should appear as shown to the right.
- If the Dip Switch and the Battery are next to each other the CPU board must be upgraded before the MIG can be installed. Contact the factory.
- Also, if a modem board is located below the CPU board, the CPU must be upgraded.



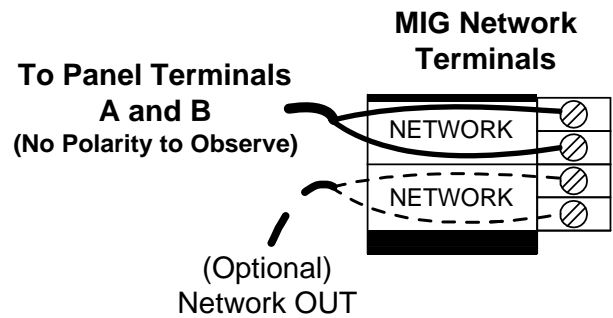
CAUTION: If the configuration and parts of the rear boards do not match the picture at right, contact the factory before proceeding.

NETWORK WIRING

- Use 2-wire **unshielded twisted pair** (see specification on right).
- There is no polarity to observe. Either network wire from the MIG can be attached to panel terminal A or B.
- The wires can be run in virtually any configuration. They can be wired sensor to sensor (daisy chained as shown on front page). They can be wired in a star configuration, with each MIG (or network sensor) pair brought back to the panel. Finally, there can be any combination of the two.
- Do not run network wire in conduit with line voltage.

Wire	Belden 8471	Belden 85102
Type	Unshielded Twisted Pair	Unshielded Twisted Pair
Gauge	16AWG	16AWG
Maximum Length (ft)	1200	1500
Maximum Temp (°F)	140	185

- The MIG comes equipped with two pairs of *NETWORK* terminals. Either or both may be used.
- Wire the network twisted pair into one set of terminals marked *NETWORK*.
- If you want to extend the network beyond the MIG, you can wire 2-wire unshielded twisted pair out of the other set of *NETWORK* terminals.

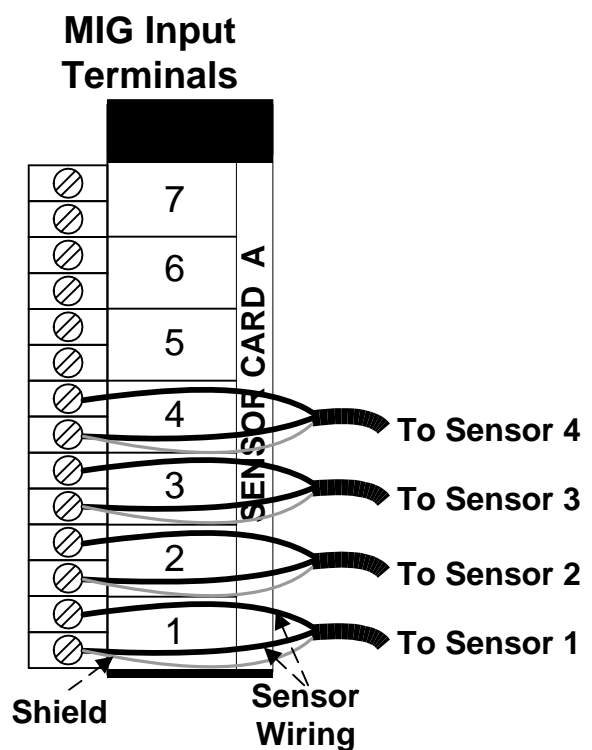


INSTALLING THE SENSORS

- Check the front page for the sensor types the MIG can accept.
- The sensors can be located up to 500' from the MIG panel.
- The sensor wire can be extended using shielded 2 conductor cable (Belden #8760 or equivalent).
- Do not run sensor wires in conduit with line voltage.

CONNECTING SENSOR WIRING TO THE MIG

- See next page for installing additional input boards if more than 14 sensors are required.
- The two factory installed input boards are marked *SENSOR CARD A* (terminal pairs 1 through 7), and *SENSOR CARD B* (terminal pairs 8 through 14).
- Additional boards are *SENSOR CARD C* and *SENSOR CARD D*.
- Each sensor will have two wires and a shield.
- Wire each sensor directly into a pair of terminals. For example, the first sensor would wire directly into the 2 screws marked *SENSOR CARD A* terminal 1.
- Connect the shield to the lower terminal as shown.

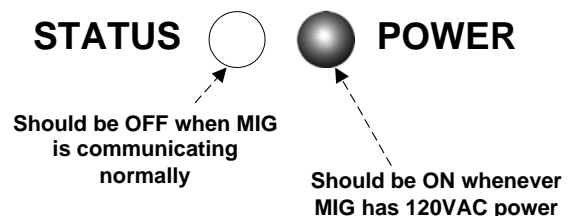


IDENTIFYING THE SENSORS

- Do label the location of each sensor at the MIG terminals.
- Maintain a list of sensor locations and the MIG terminals to which they are attached. Keep a copy of this list in a safe place.

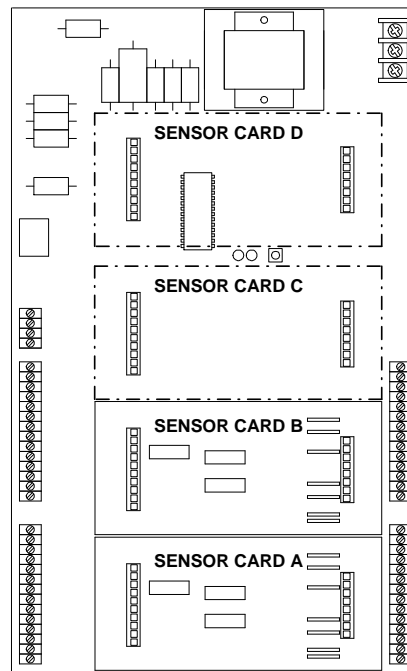
POWER AND STATUS LIGHTS

- The *POWER* light should be on whenever the unit is receiving 120VAC.
- The *STATUS* light may blink quickly when 120VAC is applied. Otherwise, it should never light. If it blinks or is constantly on during operation, the MIG is not able to communicate with the Heat-Timer panel. See the *TROUBLESHOOTING* section.



INSTALLING ADDITIONAL INPUT BOARDS

- Order additional input boards using HT #900093. Each MIG can accept up to 4 input boards for a total of 28 inputs.
- Remove power to the MIG.
- Align the new input board over the pins as shown at right.
- Holding the edges of the input board gently rock the new input board down over the pins.
- **DO NOT** touch the components on the input board.
- **STOP** pressing the board down as soon as the pins are visible through the connector.
- Power the MIG back up.



TROUBLESHOOTING

MIG Status light is blinking

- Check the wiring between the Heat-Timer panel and the MIG. Make sure the wires are continuous and have not been shorted together.
- Check the wires meet the specification on pg. 2.

MIG registering *Disconnected*

- Check the wiring between the Heat-Timer panel and the MIG. Make sure the wires are continuous and have not been shorted together.
- Check the wires meet the specification on pg. 2.

Dry Contact Closures registering ERROR

- This would occur if the contact resistance was between 150Ω and 25kΩs.
- Remove the contact closure wires from the MIG terminals.
- Use an ohm meter to read the contact resistance.

Temperature Sensor reads OPEN

- The MIG does not see a sensor connected. Check the wires from the sensor to the MIG are continuous. Then follow the procedure for Incorrect Temperature Display.

Temperature Sensor reads SHORT

- The MIG sees a short across the sensor terminals. If you remove the sensor wires from the MIG terminals, the display should change to read OPEN. If the display does not change to OPEN, the MIG input card may be damaged.

Temperature Sensor reads incorrectly

- Remove the sensor wires from the MIG terminals. The display should change to read OPEN. If it doesn't, the MIG input card may be damaged. Take an ohm reading across the detached sensor wires. The ohm reading should correspond to the chart on the right. If the ohm reading is significantly different, the sensor may be damaged.

TEMPERATURE (in degrees F)	VALUE (in Ohms)
-10	59075
0	42683
10	31215
20	23089
30	17264
40	13040
50	9944
60	7653
70	5941
80	4649
90	3667
100	2914
110	2332
120	1879
130	1524
140	1243
150	1021
160	842
170	699
180	583
190	489
200	412
210	349
220	297
230	253