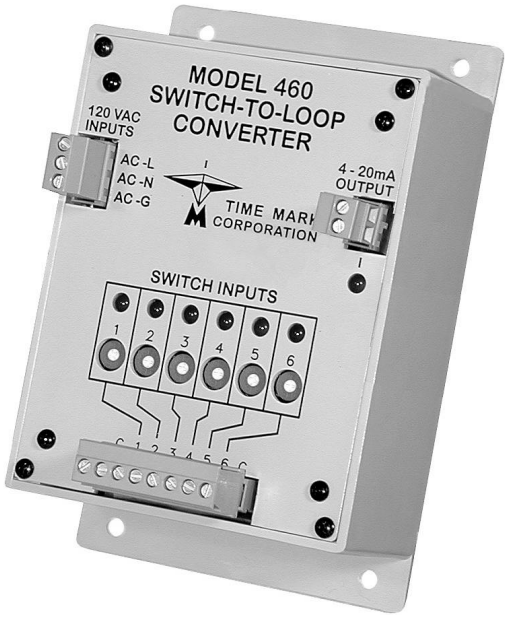
MODEL 460

Switch-to-Loop Converter



- **6 Inputs**
- **4 to 20mA Output**
- **50mA Minimum to External Switches**
- **LED Loop Output Indicator**

DESCRIPTION

Liquid level controllers generally require a 4-20mA loop current that represents zero to 34.6 feet. The loop current indicates the level of liquid in a tank or reservoir, and is usually generated by an expensive pressure transducer or ultrasonic sensor. If you already have a tank with float switches installed, the **Model 460 Switch-to-Loop Converter** allows you to take advantage of the latest liquid level control, without the added cost of a transducer.

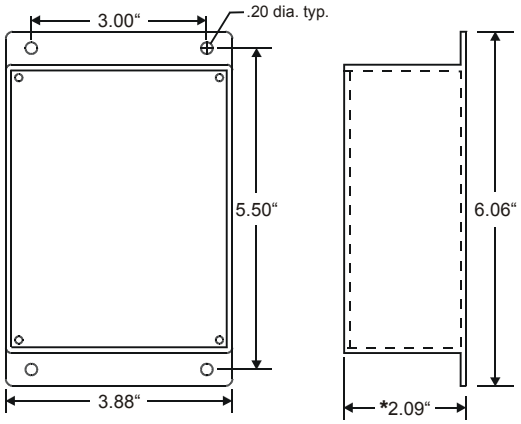
The Model 460 Converter outputs a specific current value as each of the six inputs are closed. Current values are individually adjustable between 4 and 20mA for each switch input. Up to six switches can be used as inputs to all liquid level devices accepting a 4-20mA input, such as Time Mark's Model 4052.

When an input switch is closed, the output changes to the corresponding current level. The highest of the 6 input switches (that is closed) determines the level of current at the output. If none of the switches are closed, the output is 4mA. Front panel LEDs indicate when input switches are closed. A high current power supply provides a minimum of 50mA to each external switch.

SPECIFICATIONS

Model	460
Nominal Voltage	120VAC ±10%
Frequency	50/60 Hz
Power Consumption	6W
Transient Protection	2500 VRMS for 10msec
Switch Current	50mA minimum
Switch Voltage	15VDC (all switches closed)
Loop Output	adjustable 4 to 20mA no switches closed = 4mA output
Operating Temperature	- 14º to +122º F
Humidity Tolerance	97% w/o condensation
Enclosure Material	ABS plastic

DIMENSIONS



*add max. of 1.0" to depth for terminal strips & connectors

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MODEL 460 Switch-to-Loop Converter

READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR SERVICING THIS DEVICE.
KEEP THIS DATA SHEET FOR FUTURE REFERENCE.

GENERAL SAFETY

POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODEL 460. ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING. THIS DEVICE SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

Installation Instructions

INSTALLATION

Mount the Model 460 Converter in a panel or suitable enclosure. Referring to the markings on the unit and the provided drawings, make the following connections:

SIGNAL INPUT

Make the appropriate connections from the external switches to the SWITCH INPUTS terminal on the Model 460. Two common connections are provided for convenience. **IMPORTANT: Make sure that the float switches are connected in the correct order (lowest float switch to lowest numbered input).**

SIGNAL OUTPUT

Connect the 4-20mA OUTPUT to the 4-20mA input on the device that the Model 460 will be controlling. OBSERVE POLARITY. ***See SIGNAL OUTPUT drawings.***

OPERATING POWER

Connect the 120VAC to the terminal marked **L** (line), **N** (neutral), **G** (ground).

CALIBRATION

Apply power to the Model 460 Converter.

Close switch #1 (or simulate the switch closure by placing a jumper between switch #1 and common). The LED indicator for SWITCH INPUT #1 should light.

Adjust the switch #1 potentiometer until the display on the liquid level controller reads the appropriate liquid level associated with lowest float switch in the tank.

Repeat this procedure for the remaining switch inputs.
NOTE: All switch inputs do not have to be used. The highest switch closed (#1 through #6) will determine the output value.

Each input will supply a minimum of 50mA at a maximum of 20VDC to the input switches.

WARRANTY

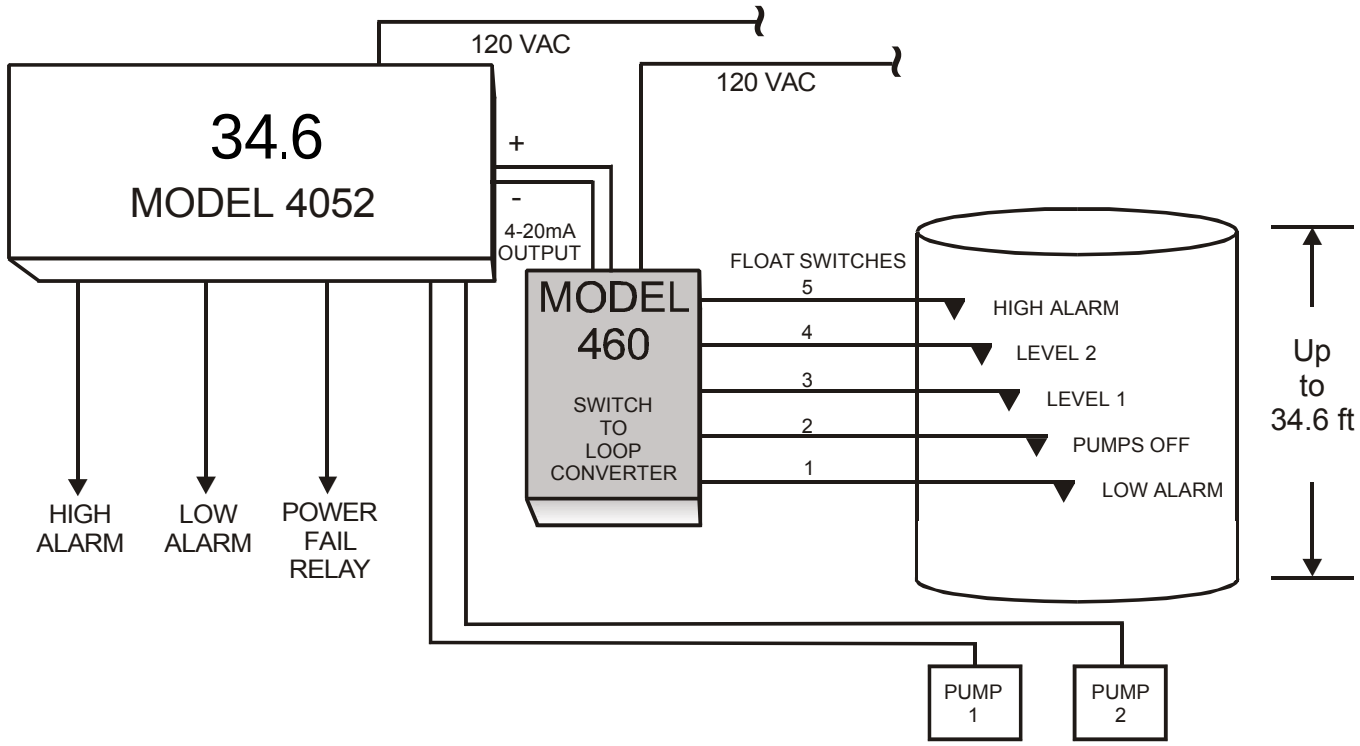
The **Model 460 Switch-to-Loop Converter** is warranted to be free from defects in materials and workmanship for one year. Should this device fail to operate, we will repair or replace it for one year from the date of purchase. For complete warranty details, see the *Terms and Conditions of Sales* page in the front section of the Time Mark catalog.

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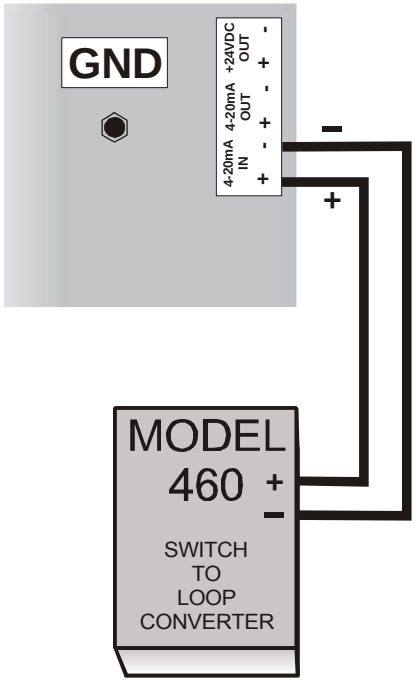
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MODEL 460 Switch-to-Loop Converter

TYPICAL APPLICATION - Model 4052



SIGNAL OUTPUT to MODEL MODEL 4062



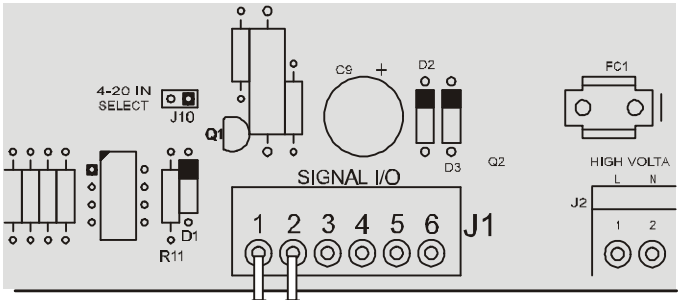
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MODEL 460 Switch-to-Loop Converter

SIGNAL OUTPUT to MODEL 4042

MODEL 4042



MODEL 460 + −

SWITCH TO LOOP CONVERTER

\+ −

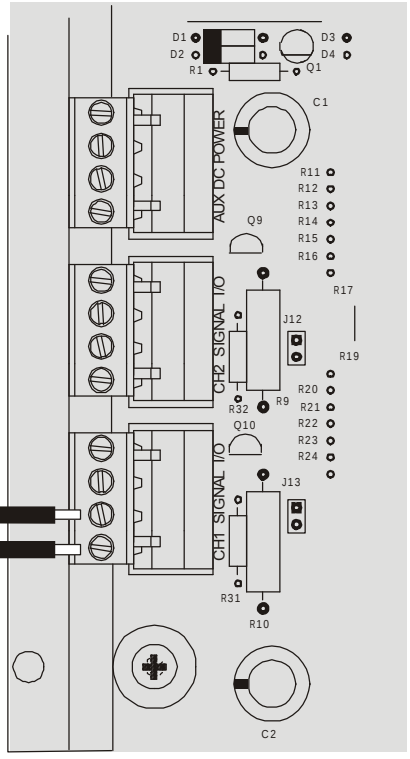
to Terminal J1, Pins 1 & 2

MODEL 4082

SIGNAL OUTPUT to MODEL 4082

MODEL 460 + −

SWITCH TO LOOP CONVERTER



− +

to Terminal J3 Pins 3 & 4

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