

Model 404/408D

Loop to Switch Converter

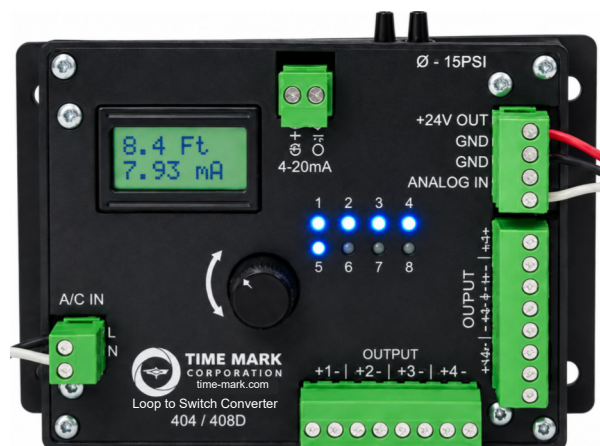
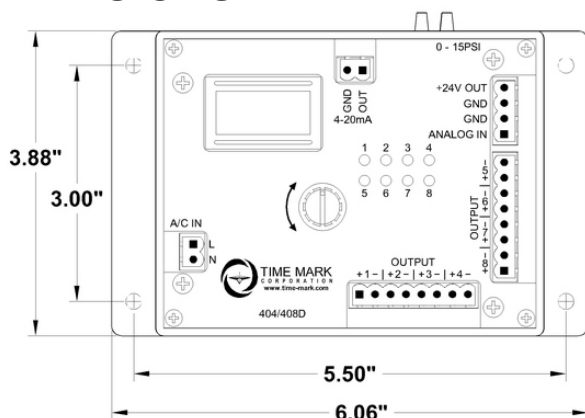
- Display liquid level (FEET) or current level (mA) or both
- Up to eight solid state optically isolated outputs
- 4-20mA 0-5Vdc input or 0-15 psi input
- 4-20mA output

DESCRIPTION

The **Model 404/408D** is the latest product development from Time Mark; it combines the original 404 and 408 into one compact unit with added features for increased functionality. The unit brings in a 0— 5Vdc, 4-20mA or the built-in pressure (input 0-15psi) and will convert / scale up to 8 solid state open-collector switch inputs.

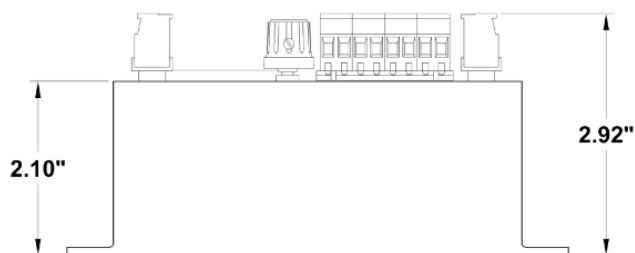
The Model 404/408D has eight open-collector optically isolated transistor outputs rated for 40Vdc, 20mA, maximum. Can be used as inputs for the Model 403/407 Liquid Level Controller or Model 448, or any application where it is useful to convert current or voltage signals to switch outputs.

DIMENSIONS



SPECIFICATIONS

Model	404/408D
Input Voltage	100-270Vac
Input Frequency	50/60Hz
Power Consumption	10 Watts Max.
Current Range	4-20mA / OFF
Voltage Range	0-5Vdc / OFF
Pressure Range	0-15psi / OFF
Calibration Accuracy	±1%
Repeat Accuracy	±1% (fixed condition)
Dead Band Switching Outputs	±2%
Air Pressure Input	0-15psi max.
Input Air Supply Fitting	3/16" I.D. Tubing
Maximum Liquid Level Dis-	34.6 (feet) ±2%
Operating Temperature	-20° to +140° F
Humidity Tolerance	0-97% without condensation
Storage Temperature	-40° to +158° F
Case Material	Noryl
Weight	1.0lb



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Model 404/408D

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 404/408D. ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING. DO NOT EXCEED THE OUTPUT OR INPUT RATINGS, AS STATED IN THE SPECIFICATIONS. PROTECT THE UNIT WITH PROPERLY RATED FUSES. DO NOT INSTALL IN DAMP OR MOIST AREAS.

THIS DEVICE SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

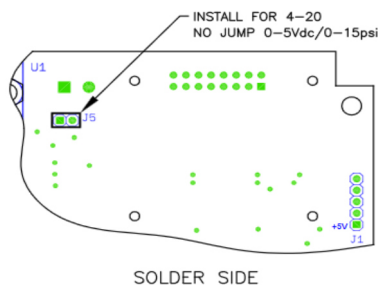
Installation Instructions

INSTALLATION

Mount the sensor in a suitable location. If a Model 448 Relay Module is being used, mount it in a suitable location near the sensor.

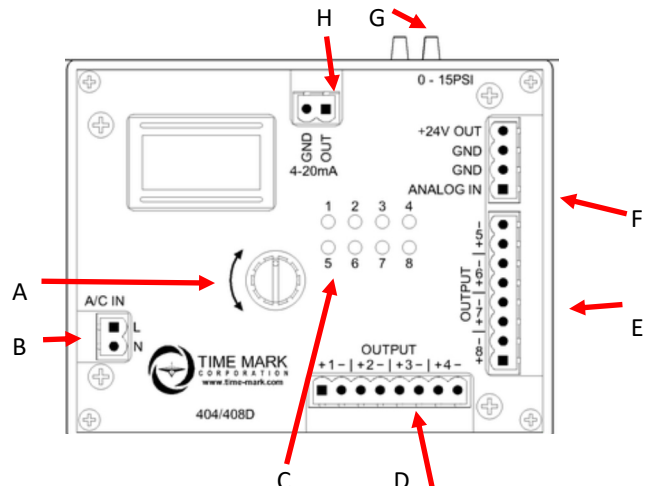
Referring to the terminal block decal on the controller and the illustration on this page, make the following connections.

1. Connect a chassis ground to the terminals marked CHS GND.
2. Connect operating power 100 - 277 Vac to the terminals marked for input voltage.
3. Observing polarity, connect the OUTPUT 1 of the 404/408D terminals to the LOW terminals on the 407.
4. Repeat step 3 for LEAD, LAG, LAG-LAG, and HIGH terminals.
5. The terminals marked LIQUID LEVEL are the 4-20 mA output. If used, connect these terminals to the appropriate control circuitry. Observe polarity.
6. Connect a 3/16" I.D. tubing to the air supply fitting on the top of the 404/408D.
7. Connect the other end of the tubing to the air compressor and the tank or well (Bubbler system).
8. Jumper installation (J5): Install shunt on J5 (solder side of board) for current input / no jumper for voltage or pressure (See diagram on this page.)



WARRANTY

The Model 404/408D Loop to Switch 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. Contact the Time Mark Sales department, Monday through Friday; 8a.m. to 5 p.m., CST, for further details.



Panel Layout

- A – Rotary encoder used to adjust settings
- B – Power in
- C - LED indicators (indicates the switch is closed)
- D – Outputs 1-4 (open collector/optically isolated)
- E - Outputs 5-8 (open collector/optically isolated)
- F – Analog in (4-20mA or 0-5Vdc) jumper select
- G – Pressure input (0-15psi)
- H – Auxiliary 4-20mA output

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Model 404/408D

Model 404/408D Panel

OPERATION

This section describes setup for general current or voltage input to switch conversion.

Power up the unit

Press and hold the switch / knob for five seconds

You will see -

DISPLAY

Ft? YES rotate for NO

Press to accept

PUMP

DOWN ? rotate for UP ?

Press to accept

INPUT ?

CURRENT

Rotate knob once and you will see

INPUT?

PRESSURE

Rotate knob again and you will see

INPUT?

VOLTAGE

For this example, choose

CURRENT by pressing the button

Next you will see -

LEVEL 1

OFF

For the first switch point adjust the current to the desired level that you want the switch to close and press set. For the second switch adjust the current to the desired level and press set. You can rotate the knob until it says OFF and this output channel will be disabled. Continue until all set points are adjusted for your application.

Note – if you press and hold the button it will jump to the exit menu

After the eighth setpoint you will see

OUT 4mA

4.0 mA

This allows you to create an offset for the 4-20mA output / once set to the desired value press the button and you will see

OUT 20mA

20.0 mA

This sets the offset for the upper side of the 4-20mA output.

For this example, choose

VOLTAGE

Input 0 – 5Vdc

Adjust to the value you want for switch 1 to close (can be set to off)

Repeat for all 8 levels. After the eighth setpoint you will see

OUT 4mA

0.0 V

This allows you to create an offset for the 4-20mA output / once set to the desired value press the button and you will see

OUT 20mA

5.0 V

This sets the offset for the upper side of the 4-20mA output.

Press the button and you will see

EXIT

NO SAVE

Rotate once and you will see

EXIT

& SAVE

Rotate once and you will see

REPEAT

SETUP

Choose appropriately

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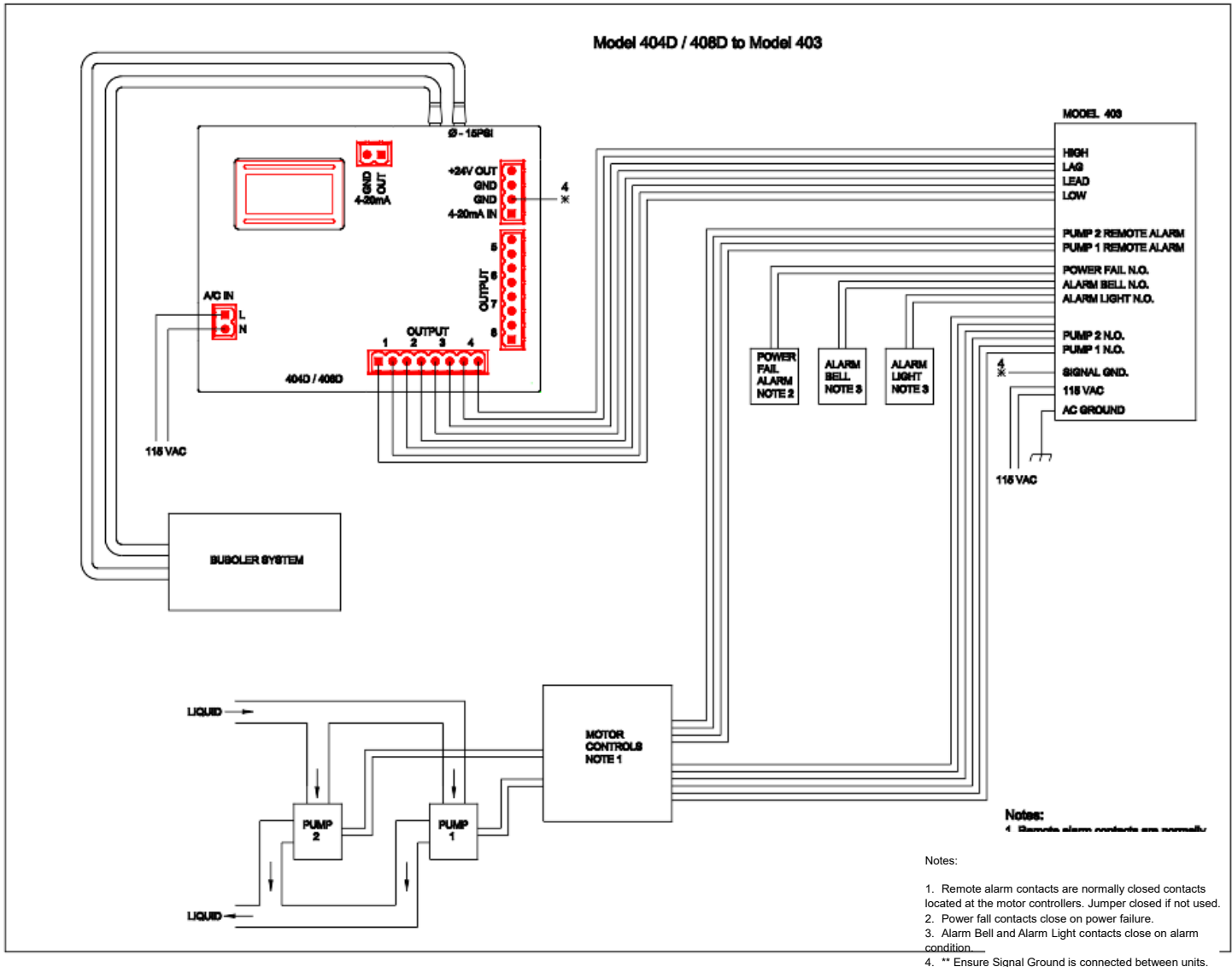
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Model 404/408D

Typical Applications

Model 404/408D to Model 403 Liquid Level Controller



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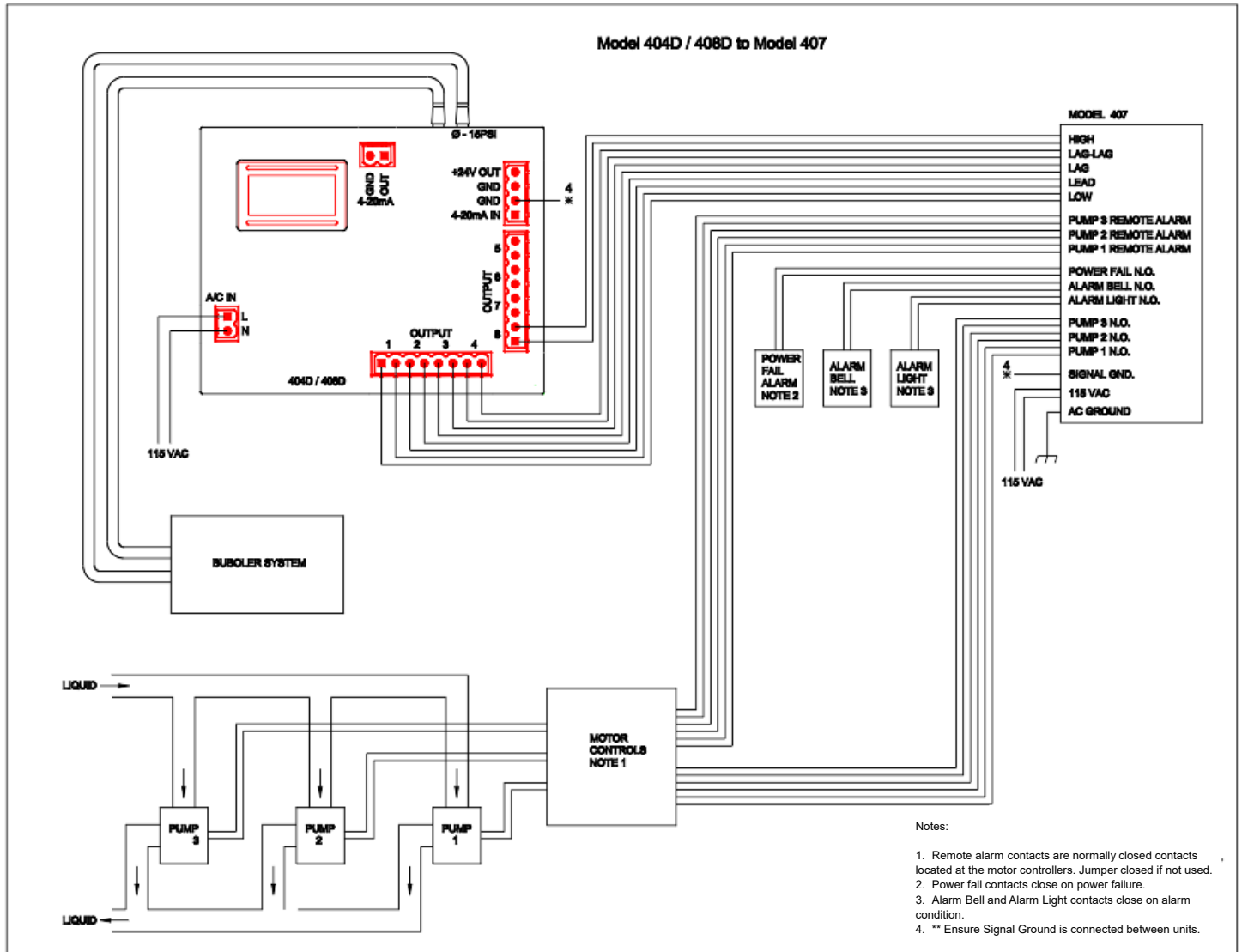
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