MODEL 4062

Pump-Up Controller

- **4-20mA Input**
- **Scaleable 4-20mA Output**
- **Duplex Pump Alternation**
- **Hand-Off-Auto Controls**
- **Dual Run-time Meters**



DESCRIPTION

The Model 4062 Pump-Up Controller provides total control for duplex pumping systems. The Model 4062 monitors, controls and displays the liquid level in a tank or reservoir, up to a depth of 34.6 feet.

The input to the Model 4062 can be from any 2 or 3-wire transducer with a 4-20mA output that represents 0 to 34.6 feet. A 24VDC regulated probe supply is included. A Level Simulator is provided to aid in programming these five set points; Low Alarm, Level 2, Level 1, Pumps Off and High Alarm.

A universal zero to 30 second On Delay can be programmed to prevent outputs from closing due to input fluctuations caused by turbulent conditions. An additional 4-20mA output with zero and span controls is provided for a chart recorder or other external device.

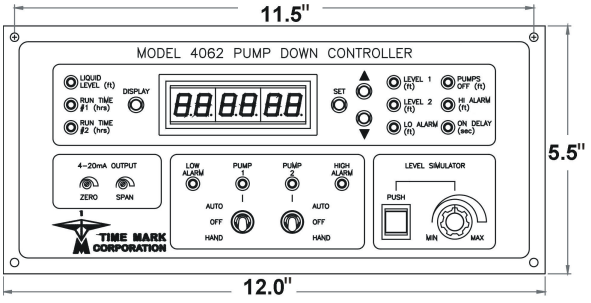
Four heavy-duty 10 amp, 240V contacts are provided for pump control and alarm activation. An auto-dialer or other emergency device can be activated with the SPDT power loss relay. This relay is held open when power is applied.

Pump outputs include duplex alternation as well as hand-off-auto switches. Pump run-time can be displayed for each pump with tenth of an hour resolution, up to 99,999.9 hours. The Model 4062 can be panel-mounted (11 1/8" x 4 5/8"), same as Time Mark Models 403, 404, 4042 and 4052, or surface-mounted using the optional surface-mounting kit, Model 4000.

SPECIFICATIONS

MODEL	4062
Input Voltage	120VAC ± 10% 50/60 Hz
Pwr Consumption	8 watts max.
Signal Input	4-20mA (optional 0-5V), 2 or 3 wire
Signal Input Load	250 ohms max.
Dead Band	1% of full scale
Repeat Accuracy	± 1% of scaled max. (fixed conditions)
Display Type	6 digit red LED display
Display Ranges	Level: 00.0 to 34.6 ft with 4-20mA input Runtime: zero to 99,999.9 hours Delay: zero to 30 seconds
Display Resolution	1 decimal place
Control Contacts	4 SPDT 10A at 120VAC resistive
Power Loss Relay	1 SPDT 5A at 120VAC resistive
Signal Output	Output is factory set to track the 4-20mA input. Zero and span adjustments are provided: as little as a 2mA change can cause a full swing of the output.
Signal Output Load	300 ohms max.
Probe Supply	24VDC regulated
Setpoints	3 levels, 2 alarms, all user-adjustable
Operating Temp	+14° to +122° F
Humidity Tolerance	0-97% w/o condensation
Enclosure Material	16 gauge steel
Termination	removable terminal strips
Dimensions	H: 5.5" W: 12.0" D: 4.75"
Weight	6.0 pounds

DIMENSIONS



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MODEL 4062 Pump Up Controller

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

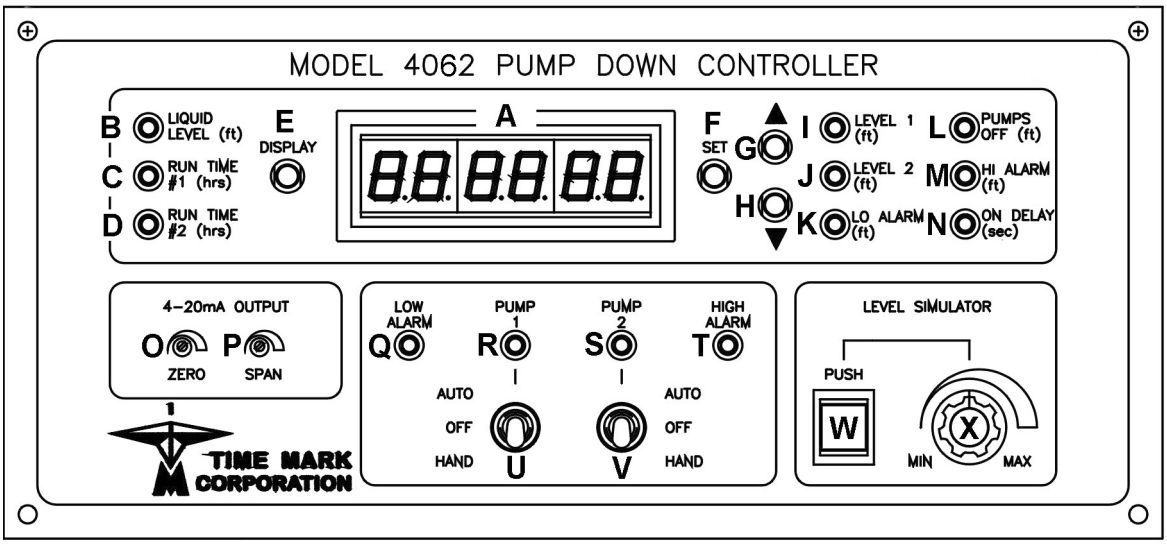
GENERAL SAFETY

POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODEL 4062.
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

figure 1. Front Panel Controls



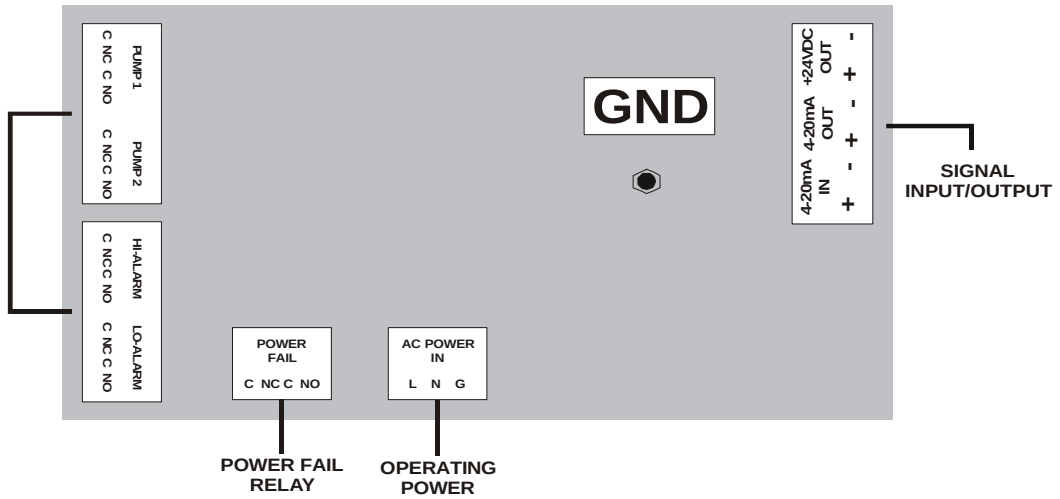
A	6 digit LED display	**M**	Indicates display is showing HIGH ALARM setting
B	Indicates display is showing LIQUID LEVEL	**N**	Indicates display is showing ON DELAY setting
C	Indicates display is showing PUMP #1 runtime	**O**	Controls ZERO setting for 4 to 20 mA output
D	Indicates display is showing PUMP #2 runtime	**P**	Controls SPAN setting for 4 to 20 mA output
E	Switches display between B, C and D	**Q**	Indicates LOW ALARM ACTIVE (low alarm relay-closed)
F	Push to enter SET mode	**R**	Indicates PUMP #1 RUNNING (pump #1 relay-closed)
G	Push to INCREASE setting	**S**	Indicates PUMP #2 RUNNING (pump #2 relay-closed)
H	Push to DECREASE setting	**T**	Indicates HIGH ALARM ACTIVE (high alarm relay-closed)
I	Indicates display is showing LEVEL 1 setting	**U**	3-position switch HAND-OFF-AUTO Pump #1
J	Indicates display is showing LEVEL 2 setting	**V**	3-position switch HAND-OFF-AUTO Pump #2
K	Indicates display is showing LOW ALARM setting	**W**	Momentary pushbutton engages LEVEL SIMULATOR
L	Indicates display is showing PUMPS OFF setting	**X**	Controls SIMULATED LEVEL (when SIMULATOR button is engaged)

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MODEL 4062 Pump Up Controller

figure 2.



MOUNTING & WIRING

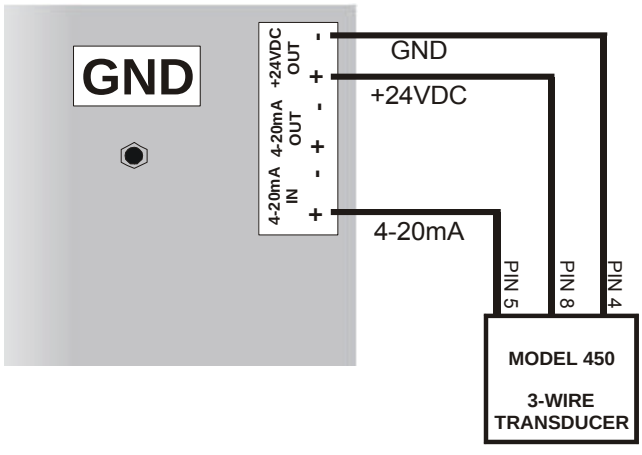
Mount the Model 4062 Pump-Up Controller in a panel or suitable enclosure (see Time Mark's **Model 4000 Surface Mount kit**).

Referring to the terminal block decals on the unit, and *Figure 2*, make the following connections:

SIGNAL INPUT

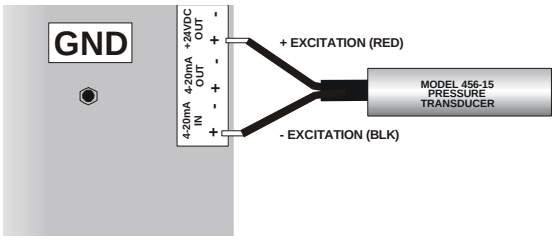
With a **3-wire** 4-20mA transducer (see Time Mark Model 450) remotely mounted, connect the +24VDC OUT terminal to the voltage input of the transducer (*figure 3*). Connect the 4-20mA IN terminals to the loop terminals of the transducer. OBSERVE POLARITY.

figure 3.



Connect a **2-wire** transducer (pressure, ultrasonic, etc.) as shown in *figure 4*. (see Time Mark Model 456-15)

figure 4.



SIGNAL OUTPUT

The 4-20mA output is proportional to the input signal. This allows for very accurate remote monitoring of level changes. The factory default is for the output to track the input; that is, a 4mA signal represents 00.0 feet, and a 20mA signal represents 34.6 feet. However, the output can be zeroed and spanned to a specific range, not necessarily the same as the reading on the LED display.

The 4-20mA OUT terminals may be connected to a remote display or other devices. Connect these terminals as required for your application. OBSERVE POLARITY of the connections.

RELAY OUTPUTS

SPDT contacts are provided for PUMP 1, PUMP 2, HI-ALARM, LO-ALARM and POWER FAIL relays. Make wiring connections as required.

OPERATING POWER

Connect a chassis ground to the lug marked **GND** and the terminal marked **G**.

Connect 120VAC operating power to the terminals marked **L** (line) and **N** (neutral).

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MODEL 4062 Pump Up Controller

PROGRAMMING - SET mode

The Model 4062 Controller has been factory tested and calibrated. Factory settings are as follows:

HIGH ALARM	10.0 ft
PUMPS OFF	8.0 ft
LEVEL 1	6.0 ft
LEVEL 2	4.0 ft
LOW ALARM	2.0 ft

NOTE: Both Hand-Off-Auto (H.O.A.) switches MUST be in the OFF position before entering the SET mode.

To enter the SET mode, push the button marked SET (*figure 1* **F**).

The display will now show the LOW ALARM setpoint. Change the LOW ALARM setpoint to the desired level, using the UP/DOWN arrows (*figure 1* **G**,**H**) to the right of the SET button. After setting the LOW ALARM setpoint, press the SET button again. The display now shows the LEVEL 2 setting.

Using this same procedure, set the LEVEL 2, LEVEL 1, PUMPS OFF, and HIGH ALARM settings (in that order).

After setting the HIGH ALARM, press the SET button, to display the factory setting for the ON DELAY timer. Use the UP/DOWN buttons (*figure 1* **G**,**H**) to set the ON DELAY to the desired setting (0 to 30 seconds).

After setting the ON DELAY time period, press the SET button again to enter the setting into memory.

Review all settings by cycling through the setpoints before proceeding to the DISPLAY mode. Finally, press the DISPLAY button, to enter all settings into memory.

OPERATION - DISPLAY mode

While in DISPLAY mode, the LIQUID LEVEL is shown on the LED display. Pushing the DISPLAY button, while in the DISPLAY mode will change the LED display from LIQUID LEVEL to RUN TIME #1 to RUN TIME #2, and back to LIQUID LEVEL.

If the DISPLAY button is not pushed for 60 seconds, the LED display will automatically return to the LIQUID LEVEL setting.

NOTE: *The LOW ALARM, LEVEL 2, LEVEL 1 and PUMPS OFF settings must move up in value from LOW ALARM to PUMPS OFF, to be properly set.*

The Model 4062 will not enter the DISPLAY mode if these settings are improper. When trying to move to the DISPLAY mode with improper settings, the LED display will automatically return to the SET mode. Adjust the improper setpoint, then continue.

The LOW ALARM setpoint can be set anywhere within the scale.

VERIFYING SETTINGS

Before entering automatic operation, the program setting should be reviewed and verified using the following procedure.

While in the DISPLAY mode (with H.O.A. switched in the OFF position), the LEVEL SIMULATOR can be engaged.

Push the LEVEL SIMULATOR momentary push-button (*fig. 1* **W**), and hold it down. The input to the external transducer will be disabled and internal level simulator will take its place.

Turning the potentiometer (*figure 1* **X**), will simulate changes to the liquid level being monitored.

In this mode, simulated changes in liquid level will cause the alarm relays to open and close, the liquid level to change on the numeric display, and all LEDs to operate (PUMP 1 and PUMP 2 LEDs will flash).

NOTES: *RETURN THE SIMULATOR KNOB TO THE* ***MINIMUM*** *SETTING BEFORE RELEASING THE SIMULATOR BUTTON. The PUMP 1 and PUMP 2 relays will not energize in the LEVEL SIMULATOR mode.*

AUTOMATIC OPERATION

For fully automatic operation, set the display to monitor the liquid level, and move the HAND-OFF-AUTO switches to the AUTO position.

MANUAL OPERATION

To manually operate either of the pumps, push the momentary HAND-OFF-AUTO toggle switch for the appropriate pump down to the HAND position, and hold.

WARRANTY

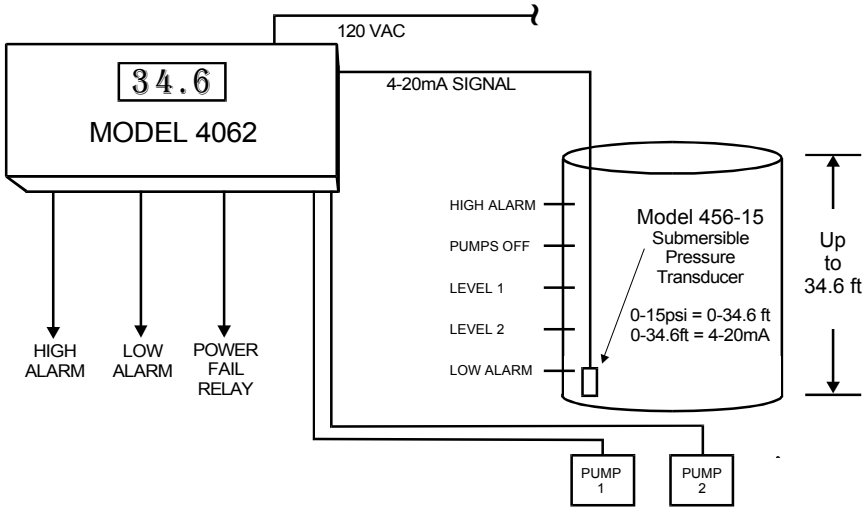
The **Model 4062 Pump-Up Controller** is warranted to be free from defects in materials and workmanship for one year. Should this device fail to operate, we will repair or replace it for one year from the date of purchase. For complete warranty details, see the *Terms and Conditions of Sales* page in the front section of the Time Mark catalog.

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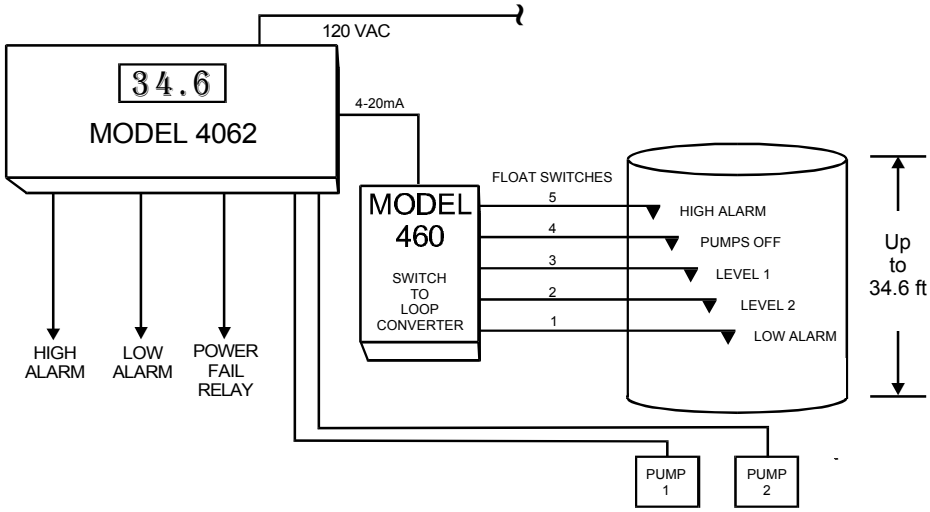
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MODEL 4062 Pump Up Controller

TYPICAL APPLICATION - Transducer



TYPICAL APPLICATION - Float Switches



INSTALLATION WORKSHEET

JOB NAME:			DATE:
SETPOINTS	**FACTORY SETTING**	**SET AT LEVEL:**	**NOTES**
High Alarm	10 ft		
Pumps Off	8 ft		
Level 1	6 ft		
Level 2	4 ft		
Low Alarm	2 ft		

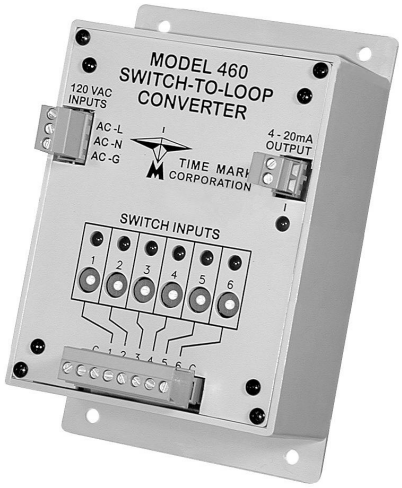
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MODEL 460

Switch-to-Loop Converter

- **For Float Switch Applications**
- **Six Level Inputs**
- **4 to 20 mA Output**



The **Model 460 Switch-to-Loop Converter** is designed to output a specific loop current when each input switch is closed. Up to six switches can be used as inputs to liquid level control devices, such as the Time Mark Model 4062.

These liquid level control devices 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, you can now afford to take advantage of the latest liquid level controls, without the added cost of a transducer.

Each of the six inputs can be set to output from 4mA to 20mA when closed. When an input switch is closed, the output changes to the corresponding current level. The highest of the six input switches (that is closed) determines the level of current at the output. If none of the switches are closed, the output is 4mA.

For complete information and specifications on the Model 460 Switch-to-Loop Converter, see the technical data sheet in the Time Mark standard products catalog.

MODEL 4000

Surface-Mount Kit

- **20 Ga. CRS Enclosure**
- **Removable Access Panel**
- **Mounting Hardware**



The optional **Model 4000 Surface-Mount Kit** makes it easy to install Time Mark Models **403**, **404, 4042**, **4052, 4062, or 408** Liquid Level Controllers.

This 20 gauge steel enclosure features a removable top panel for easy access to wiring connections. The mounting kit comes complete with everything you need, including steel support brackets. This model is designed specifically for applications that require surface-mounting these Time Mark Liquid Level Controllers.

For more information, see the full data sheet in the Time Mark standard products catalog.

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