

MODEL 663

Pump Down Control

- Automatic Reset
- Two Adjustable Trip Points
- 5-Year Unconditional Warranty

DESCRIPTION

The **Model 663 Pump Down Control**, part of the **600 series** line of instrumentation controls, is designed to monitor and maintain liquid levels. A user-provided 4-20mA current loop represents the liquid level.

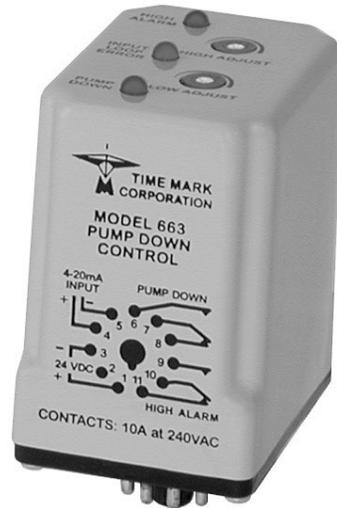
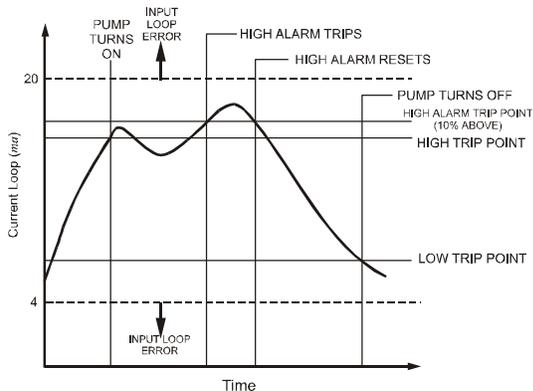
The HIGH ADJUST setpoint, and the LOW ADJUST setpoint, are field adjustable. If the input rises above the high setpoint, the PUMP DOWN relay energizes, and remains that way until the input falls below the low setpoint.

Top-mounted LEDs on the Model 663 show system status. The PUMP DOWN LED turns ON when the input is above the high setpoint, and goes OFF when the input is below the low setpoint. The HIGH ALARM condition indicator turns ON if the input rises to 10% above the high setpoint. The HIGH ALARM condition then resets when the input is again less than 10% above the high setpoint.

For proper operation, the high setpoint must always be set above the low setpoint. An INPUT LOOP ERROR LED turns ON if the input is outside the 4-20mA range.

A Time Mark Model 650 Loop Power Supply (or equivalent) is required to provide the 24VDC operating voltage. Also, a Time Mark Model 672-15 Pressure Transducer (or equivalent) is required to provide the input signal.

OPERATION DIAGRAM

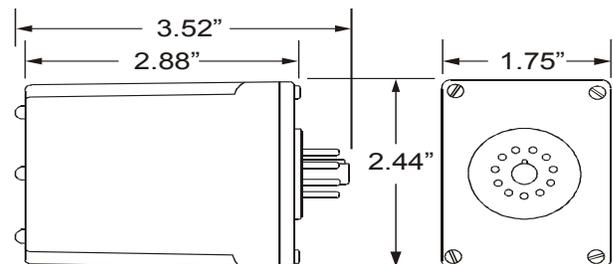


SPECIFICATIONS

Model	663
Operating Voltage	24VDC \pm 5%
Supply Current	30mA maximum
Input Signal	4-20mA
Input Resistance	50 Ω
Input Loop Error	High: 23-25mA Low: 2-3mA
Adjustments	4-20mA
Low Alarm Trip Point	10% below low trip point
Contact Rating	SPDT 10 amps at 240VAC
Operating Temp	-13° to +122° F
Expected Relay Life	Mech: 10 million operations Elec: 100,000 at rated load
Humidity Tolerance	0-97% w/o condensation
Enclosure Material	ABS plastic
Weight	6 oz.
Mounting	11-pin socket (*order separately)

* Order 11-pin socket number **51X016**

DIMENSIONS



(dimensions have tolerance of \pm 0.06)

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01/2012
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MODEL 663 Pump Down Control

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

GENERAL SAFETY

THE MODEL 663 PUMP DOWN CONTROL IS NOT TO BE USED WITH INPUT VOLTAGES OTHER THAN 24VDC. ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING. THIS DEVICE AND WIRING SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

Installation Instructions

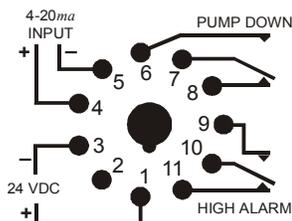
INSTALLATION

Connect 24 VDC power to pins 1 and 3 on the 11-pin socket.

Connect the 4-20mA input signal to pins 4 and 5, and the other pins to the appropriate units in your loop system, following the base diagram shown on the Model 663 unit (and on this data sheet). When using separate supplies for 4-20mA and 24VDC you must connect pins 3 and 5 together. **Pay careful attention to polarity.**

NOTE: When installing the Model 663 in areas of high humidity or contamination, it is recommended that the base area and all exposed metal parts of the socket be coated liberally with a good quality silicon grease, such as Dow Corning DC-4 or DC-4X. Insert the unit into the socket and wipe off excess grease around the base. This will prevent the entrance of moisture and other contaminants into the base and socket areas.

PIN DIAGRAM



ADJUSTMENT PROCEDURE

The Model 663 Pump Down Control relays are normally de-energized. If the input rises above the HIGH TRIP POINT, the pump relay energizes, and the PUMP DOWN LED is lit.

If the input rises above the HIGH ALARM trip point (10% above the HIGH TRIP POINT), the high alarm relay energizes and the HIGH ALARM LED illuminates.

If the input returns to a level below the HIGH ALARM trip point, the high alarm relay de-energizes, but the pump relay remains energized until the input falls below the LOW TRIP

POINT (see Operation Diagram). The PUMP DOWN and HIGH ALARM LEDs may be used to indicate the tripped condition in the following adjustments.

Before Adjustment: For each application, you must select the setpoints for the HIGH TRIP (the level at which you want the pump to start pumping) and the LOW TRIP (the level below which you do not want the pump to operate). These two setpoints, in mA, are used to adjust the Model 663. The HIGH ALARM trip is an internal function of the device which is set approximately 10% above the HIGH TRIP.

To Begin: Turn both the HIGH ADJUST and the LOW ADJUST fully counter-clockwise, to their highest settings. Both PUMP DOWN and HIGH ALARM LEDs should be out.

To adjust the HIGH TRIP: With the Model 680 4-20mA Simulator (or other adjustable, known signal source), apply the current level for the HIGH TRIP. Turn the LOW ADJUST pot fully counter-clockwise. Then, slowly turn the HIGH ADJUST pot counter-clockwise, until the PUMP DOWN LED illuminates.

To Adjust the LOW TRIP: With the Model 680 4-20mA Simulator (or other adjustable, known signal source), apply the current level for the LOW TRIP. Turn the LOW ADJUST pot slowly clockwise until the PUMP DOWN LED goes out.

Check Setpoints: With the Model 680 4-20mA Simulator (or other adjustable, known signal source), check the high and low trip points and the HIGH ALARM setpoint by applying current levels above and below the chosen setpoints, noting the current values shown when the LEDs come on or go out.

Input Loop Error: Check the INPUT LOOP ERROR function by applying current levels above and below the 4-20mA range. The INPUT LOOP ERROR LED should illuminate when current is above 20mA or below 4 mA.

WARRANTY

This product is warranted to be free from defects in materials and workmanship, and is covered by our exclusive **5-year Unconditional Warranty**. Should this device fail to operate for any reason, we will repair it for five years from the date of manufacture. For complete warranty details, see the Terms and Conditions of Sales page in the front section of the Time Mark catalog or contact Time Mark at 1-800-862-2875.

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