

PUMP & ALARM CONTROLLER



MODEL CA-A100

FEATURES

- Pump-Up control for a Single Pump or Valve
- The Controller Integrates/Averages the Process Input thus not Responding to Surges
- Integrating/Surge Damping Timers for all Setpoints
- Relay Outputs:
 - Pump Control
 - Low Alarm
 - High Alarm
 - System Monitor

Contegra's CA-A100 pressure responsive controller operates one pump or valve and/or alarms in water and process fluid applications. The CA-A100 reliably and accurately averages the surging pressures and provides stable operation in response to system demands.

The CA-A100 level/pressure controller is an On/Off type of automatic, pump-up (i.e. tank filling) controller that responds to pressure excursions past multiple sets of On/Off setpoints. The CA-A100 provides four relay outputs: System Monitor, High Level Alarm, Pump/Valve Control, and Low Level Alarm.

The CA-A100 provides a highly stable pressure switch with unusual performance characteristics. It incorporates digital signal processing so that its control action is in response to variations in the averaged pressure excursion over a selected timer period. The controller time-integrates the analog input with a clocked Up/Down timing system that makes the On/Off control operation respond to excursions in the averaged level/pressure.

Contegra's CA-A100R contains multiple sets of START and STOP integrating timers that are associated with the alarm and pump/valve control outputs.

As the system pressure drops (e.g. due to a high usage), the sensed level/pressure falls below the Pump ON setpoint and the CA-A100 begins a counting process to integrate the sensed level/pressure. When the level/pressure is below the Pump ON setpoint the CA-A100 increments the START counter. When the level/pressure is above the Pump ON setpoint the CA-A100 decrements the START counter. The pump/valve control output is activated when the START counter reaches its maximum count.

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When the pump starts, it generates an elevated pressure that is concentrated at the pump discharge. (Control systems that directly respond to system pressure may incorrectly stop the pump, assuming that the system level/pressure requirement has been satisfied. Rather than acting directly in response to the sensed system pressure the CA-A100 responds to the time-averaged level/pressure.) As the system flow increases, the pressure near the pump's discharge causes the water to move through the pipe and into the distant tank. When sufficient flow is produced the pressure fluctuations diminish and the pressure simply increases as the remote tank's level increases.

When the level/pressure rises above the Pump OFF setpoint the CA-A100 increments the Pump STOP counter. Should the pressure fluctuate around the setpoint, the respective START or STOP counter averages the time above/below the respective setpoint and acts upon that averaged signal. When a timer completes its timing function, that SETPOINT is acted upon.

In a similar manner, the High Alarm output activates when the level/pressure exceeds the High Alarm ON Setpoint and following the completion of the High Alarm START counter's counting function. The High Alarm output deactivates when the level/pressure falls below the High Alarm OFF setpoint and the STOP counter completes its counting function.

Additionally, the Low Alarm output activates when the level/pressure falls below the Low Alarm ON Setpoint and the Low Alarm START counter completes its counting function. The Low Alarm output deactivates when the level/pressure rises above the Low Alarm OFF setpoint and the STOP counter completes its counting function.

The START/STOP counter's maximum count is fixed at 200 cycles. However, the rate at which the counter increments/decrements is under the user's control. The minimum timing period is 00:00 seconds (i.e. limited by the controller's internal scan time—typically about 0.01 seconds/cycle or a 2-second delay). The maximum timing period is 05:00 seconds (i.e. approximately 17 minutes [5X200=1000 seconds]).

Specifications

Power: 24 VDC (20.4 - 28.8 VDC) reverse polarity protection. The 24 VDC can also power the level transducer.

Display: LCD (Liquid Crystal Display) 4 lines by 12 characters

Inputs: Eight, +VDC (input power), non-isolated

Analog: One — 0-10 VDC
The controller is provided with a 470Ω resistor for a 4-20 mA process level input.

Digital: Seven

Off Voltage: < 5 VDC

On Voltage: > 8 VDC

Relays: 4 independent, normally open, isolated, rated 10A @ 120/240 VAC (resistive), 3A @ 120/240 (inductive)

Dimensions: 2.8" x 3.5" x 2.2" (WxHxD) DIN rail mounted

[The optional CD-PS24 Power Supply (120/24 VDC) adds 1" to the width of the unit.]

Weight: 0.4 pounds (approx.)

Ratings: UL 508

Options: 120 VAC-24 VDC power supply, DIN Rail mounted.

Contegra is the registered trademark of Contegra Inc. Specifications subject to change without notice.

Ordering Information

Model	Control Span	Accessories
CA-A100	XX (Note 1)	CD-PS24 – 24VDC Power Supply, DIN Mtd.

Notes:

- 1) The controller is calibrated 0-XX over the 4-20 mA from the associated sensor. The Control Span is the engineering unit represented by a 20 mA input from the sensor.



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