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# TRIPLEX / REDUNDANT CONTROLLER

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## MODEL CD-3R

### FEATURES

- Cost-effective redundant/backup control for a triplex pump application
- Abnormal Level output (selectable Monitor or Alarm)
- Alarm Silence/Acknowledge input
- Pump alternation (w/disable)
- Field-adjustable timers:
  - Abnormal Level Alarm
  - 1st lag ON
  - 2nd lag ON
  - Off delay

The CD-3R contains four field-adjustable timers. They are the 'Off Delay', '1st Lag On', '2nd Lag On' delay timers and the 'Abnormal Level' alarm timer.

The CD-3R contains a rotary alternator that advances the pumping sequence at the end of a pumping cycle (e.g. from 1-2-3 to 2-3-1 to 3-1-2 at the end of successive cycles). The alternator can be placed in a fixed pumping sequence.

(For Duplex Pumping applications Contegra offers the CD-2R redundant controller.)

### Redundant Controller - CD-3R

The CD-3R is designed to provide triplex redundant/backup control for a primary control system. The CD-3R's outputs are typically wired in parallel with the primary system's control contacts. The CD-3R can be applied using either one or several 'pump required' inputs.

When a single float input is used, the CD-3R provides timed ON & OFF operation based on the input's continued activation (e.g. add capacity) or deactivation (e.g. pump(s) timed-off as a group). When multiple float switches are used, the CD-3R provides immediate OFF operation when the OFF input deactivates.

Additionally, with the activation of the 'pump required' input, the CD-3R starts the abnormal level alarm timer. Should the 'pump required' input remain active, and the timer completes its timing cycle, the Abnormal Level alarm is activated. The Abnormal Level can be used as either an alarm output or a monitor output.

The CD-3R also contains an alarm silence/acknowledge input. The alarm automatically resets at the completion of a pumping cycle.

### Multiple Float Control

The CD-3R can provide reliable cost effective primary triplex pump control. The CD-3R accepts four pump control inputs (Off, Lead ON, 1st Lag ON and 2nd Lag ON) and a abnormal level input. The pumps are called into service as the respective float switch closes. All pumps turn off when the OFF input deactivates. (If an OFF input is not provided, the pumps are timed-off as a group.) At the end of the

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pumping cycle, the alternator advances (only if Input 6 is inactive). The abnormal level output activates by either closing the Abnormal Level input or it is timed-on when any pump required input closes. (The abnormal-level timer is field adjustable from 0:05 minutes (5 seconds) to 99.55 minutes.)

## Specifications

**Power:** 12 VDC (10.8 - 15.6 VDC)  
or  
24 VDC (20.4 - 28.8 VDC)  
reverse polarity protection

**Display:** LCD (Liquid Crystal Display)  
The display shows the status of the eight inputs and four outputs. The following screens appear as necessary: initialization, lag pump(s) timing on, abnormal level, timing off.

**Inputs:** Eight, +VDC (input power), non-isolated  
**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 CD-2 PS Power Supply (120/12 VDC) adds 1" to the width of the unit.]

**Weight:** 0.4 pounds (approx.)

**Ratings:** UL 508

**Options:** 120 VAC-12 VDC power supply, DIN Rail mounted.

## Engineering Specifications

### Model CD-3R

#### REDUNDANT PUMP CONTROL (Single float input)

This specification covers a complete automatic redundant pump control and alarm system responding to the \_\_\_\_\_ level as shown on the plan drawings.

The redundant pump controller shall be used with a single high-level float switch mounted above the normal operating range of the primary control system. The controller shall incorporate a front panel LCD (liquid crystal display) that clearly indicates the active inputs/ outputs and provides an operator interface for viewing and changing the integral timers. When the high-level float input contact closes, the controller shall energize a lead pump output. If the float switch remains closed, the controller's internal 1st lag on-delay timer shall expire and call for the 1st lag pump. If the float switch remains closed, the controller's internal 2nd lag on-delay timer shall expire and call for the 2nd lag pump. The second and third pump start delay shall be adjustable from 0-99.9 seconds. The pump(s) shall continue to operate for a field-adjustable time period following the opening of the single abnormal level float switch input. The OFF delay timer shall be keypad programmable from 0-10.00 minutes. At the end of the pumping sequence, the controller's alternator shall advance to the next pumping sequence.

All timing values shall be stored in permanent memory. The controller shall have provision to place the alternator in a fixed sequence. The controller shall contain four relay outputs. Three outputs shall be used for pump control and shall be wired in tandem with the primary control system's control outputs. The controller shall contain a selectable abnormal level output. The abnormal level output shall be selectable to provide either an abnormal level 'alarm' or 'monitor' function. The controller shall accept an external alarm silence/acknowledge input. The abnormal level output shall be reset by activating the silence/acknowledge input or shall automatically silence and reset at the end of each pumping cycle. The controller shall be UL 508 Listed. The controller shall be a CONTEGRA CD-3R.

**Refer to Contegra's web site for multiple float control specifications.**

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### Ordering Information

Model	Description	Accessories
CD-3Ra	Redundant Pump Controller	CD-2 PS - 12V Power Supply, DIN Mtd

For float switches refer to Contegra's FS 90 and FS 96 discrete level sensors.

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