



## MODEL 2411 DUPLEX PUMP CONTROLLER

... *A reliable, versatile unit designed for duplex control and alternation for basins, wetwells, tanks, etc...*

### FEATURES

- Extremely accurate, repeatable and easy to use.
- Each output may be individually programmed for PUMP UP or PUMP DOWN operation.
- Digital indication of process variable and setpoints in desired engineering units.
- Setpoints are adjusted from front of instrument via 25-turn potentiometers.
- LED output status indicators.
- Standard and optional time delays are available to override system surging during operation and startup.

### DESCRIPTION

The Essex Engineering Model 2411 Duplex Pump Controller is designed specifically for controlling the filling and emptying of tanks, vats or basins by means of two pumps. It accepts standard input signal levels of 1-5 VDC, 4-20 mADC and special ranges from a continuous level or pressure transmitter.

The incoming analog process signal is displayed on the front of the instrument via a 3-1/2 digit LED readout. This same display is also used to set the various turn-on and turn-off points for the control and alarm functions.

Two outputs are available to activate remote relays. Each has an independent turn-on/turn-off setting of 0 to 100% of full scale. A unit indicator lamp is illuminated when its output is energized. Turn-on and turn-off points are set by means of their associated 25-turn potentiometers on the face of the instrument. Each point is set via the read and select pushbuttons which will illuminate a red bar adjacent to the potentiometer being calibrated. The lead unit is indicated via green LED's which are adjacent to the #1-Alternate-#2 selector switch. The switch provides manual override of the alternation cycle.



Fill/empty action is field selectable for each control point via slide switches within the unit. Three alarms, two of which have an LED indicator, are provided. These are high and low level with the signal loss causing the low alarm LED to flash when activated. The 2411 Controller may be field programmed, via internal DIP switches, to deenergize the control outputs when any alarm condition occurs. External inputs are available to deactivate the control and/or alarms or provide alternation via a push button or time clock contact.

Standard with the unit is a time delay, field adjustable from 0.2 to 60 seconds, to inhibit control and alarm action on power up. This allows system parameters to stabilize before the controller initiates a response. Optional time delay boards are also available to provide various timing functions.

## ELECTRICAL CONNECTIONS

## MODEL 2411 SPECIFICATIONS

**AMBIENT OPERATING TEMPERATURE RANGE**  
0 to 40 °C

### POWER INPUT

120 VAC  $\pm$  10% 15W max.  
24 VDC  $\pm$  10% 650 mADC max.  
12 VDC  $\pm$  10% 1200 mADC max.

### ANALOG INPUTS

4-20 mADC @ 250 $\Omega$  impedance  
1-5 VDC @ 470K $\Omega$  impedance  
Factory specials

### ANALOG OUTPUTS

Standard has NONE.  
Optional: Isolated 4-20mADC @ 0-800 $\Omega$  LOAD

### CONTROL INPUTS

Contact closure or NPN transistor; 10 mADC max. @ 24 VDC

### CONTROL OUTPUTS

NPN solid state output; 50 VDC @ 60 mADC max.  
per point; 2 outputs for unit operation; 3 outputs for alarm indication; 1 output for horn or external alarm indication.

### INDICATORS

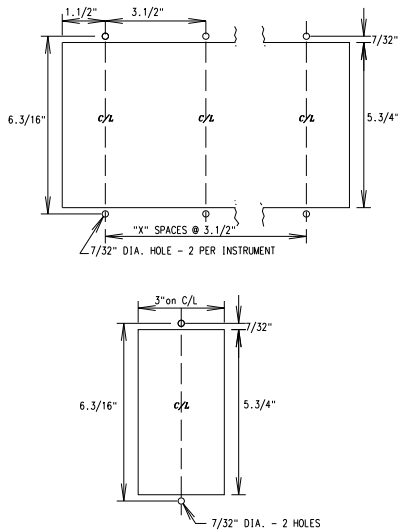
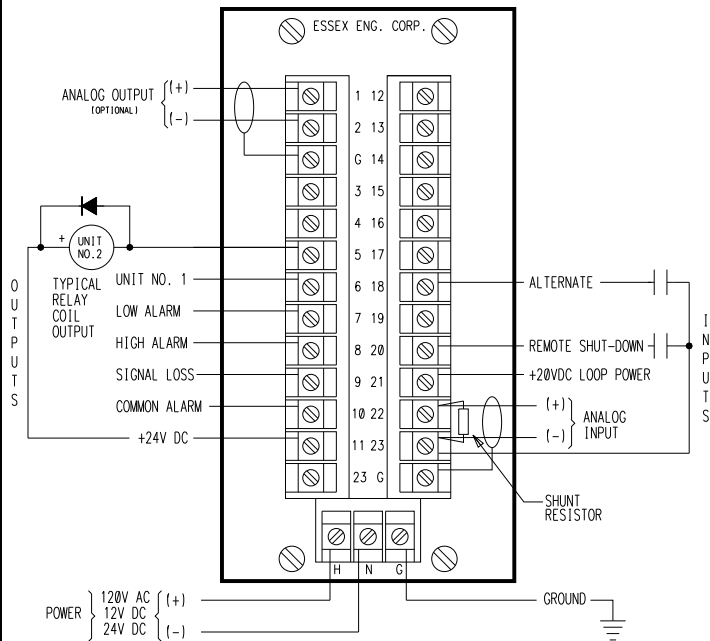
3-1/2 digit, 0.56" LED type display  
Control Output - amber LED  
Alarm Output - red LED

### REPEATABILITY & ACCURACY

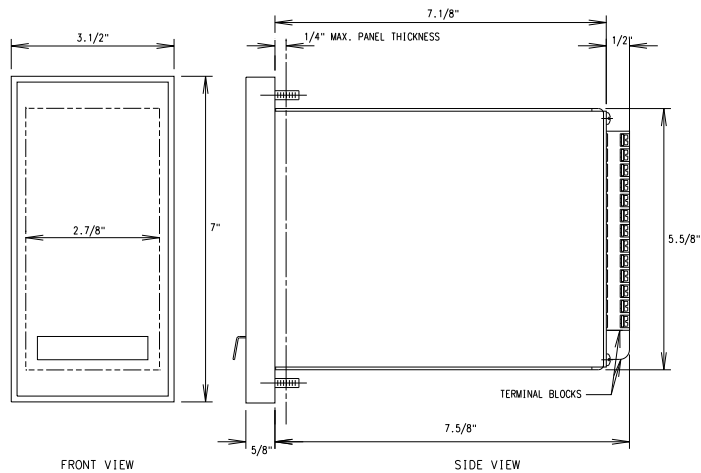
0.2% of span,  $\pm$  1 of least significant digit

### TIME DELAYS

0.2 to 60 second field adjustable time delay is provided for control and alarm functions to inhibit outputs when unit is initially powered. An optional 0.2 to 60 second, or special range, field adjustable time delay is available for OFF-ON and ALARM timing.



**CUTOUT DIMENSIONS**



**OVERALL DIMENSIONS**

**REPRESENTED BY**



**ESSEX ENGINEERING CORPORATION**

21 Industrial Drive • Ivyland, PA 18974 • 215-322-5880 • FAX 215-322-8368 • www.essexeng.com