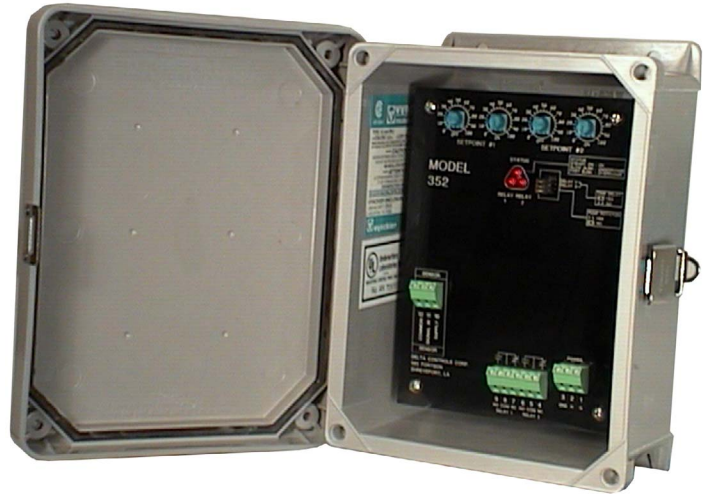


# ALARM / PUMP CONTROL MODULES

## MODELS 352 / 354

### FEATURES

- Microprocessor Based
- 2-Relay & 4-Relay Versions
- Available For Mounting in Enclosure by Others Or In Surface or Pipe Stand Mounted Housings
- Optional Direct Reading LCD Display
- Accepts 4-20 mADC Signal From Any Type Transmitter; 2, 3 or 4 wire
- Supplies DC Power For 2-Wire Loops and for 3 or 4-Wire Transmitters
- Field Selectable Fail Safe Action
- Optional Pump Control Functions
- Lead/Lag Or Rotation Control
- Relay Operate Time Delays
- Two or Four Alarm Points
- Built-in Loop Power Supply
- Selectable Starting Time Delay
- Self Checking Diagnostic Routine
- Will Not Lose Memory
- Continuous Setpoint Indication
- Optional Explosion Proof Housing



Model 352 in 4X Housing

### DESCRIPTION

The 352 and 354 instruments are designed to be operated as an alarm unit and/or adjustable differential controller. The 352 has 2 relays and the 354 has 4 relays; each relay has an individual 0-100% "On" and 0-100% "Off" setpoint. Both accept a 4-20 mADC input signal which is proportional to some process variable (usually level). Each is microprocessor based and checks its input signal loop for integrity. The relays may be set up for "Direct" or "Reverse" "Fail-safe" action.

The units are equipped with a built-in loop power supply. Each can also accept a remotely powered 4-20 mADC signal. The input signal wiring may be equipped with an electrical barrier and is intrinsically safe. The transmitter must be intrinsically safe for the loop and the 352/354 input to be intrinsically safe. The 352 or 354 must be located in a "Safe" area; the input signal wires may extend into the ignition hazard area.

The units may be operated in the pump controller mode. Features, such as lead-lag pump rotation, time delay starting, and alarms may be programmed in the field. Up to 4 pumps can be controlled and/or 4 alarm points can be actuated from a single module.

### SPECIFICATIONS

- **General Type:** Microprocessor based
- **Supply Power:** 120 or 240 VAC, or 24 VDC
- **Input Range:** 4-20 mADC
- **Relays:** 10 amp @ 250VAC SPDT  
Model 352 has 2, Model 354 has 4
- **Switching Action:** Alarm action is basic; adjustable differential for on/off control may be selected
- **Accuracy:** 0.1% of full scale
- **Transmitter Loop Power Supply:** 24 VDC
- **Multiple Pump Control:** Selectable lead/lag; rotation of up to two pumps for Model 352; Rotation of up to four pumps for Model 354.
- **Readout Display:** Optional, 3-1/2 digit LCD can be field calibrated for direct reading in engineering units.
- **Temperature Range:** -20°F to +170°F
- **Signal Loop With Optional Barrier:** Intrinsically safe, Classes 1&2, Divisions 1&2, Groups ABCD,EFG. Refer to Application Note #550-998 for details.

# ALARM / PUMP CONTROL MODULES



EXAMPLE            352            -            1            -            1            -            AA

M/N	Description
352	2 Relays, alarm action
354	4 Relays, alarm action

M/N	Voltage
1	120V, 50/60Hz
2	240V, 50/60Hz
3	24VDC

M/N	Description of Rating
1	No housing, general purpose, surface mounts in user's enclosure; 250VAC maximum supply voltage
4X	Hoseproof for corrosive areas, epoxy fiberglass, SS hinge and latch; 4X
7C	Explosionproof; Class 1, Division 1, Groups C & D areas; also meets 4X Hoseproof specifications
7B	Ditto, except for Group B areas

M/N	Description
AA	No options
ID	3-1/2 Digit Direct Reading LCD Display; Requires Window in housing
PSM	2" Pipe stand mounting bracket
RLZ	Additional setpoints & relays for activating alarms controlling multiple pumps, rotating beacons, etc.

## ENGINEERING SPECIFICATIONS

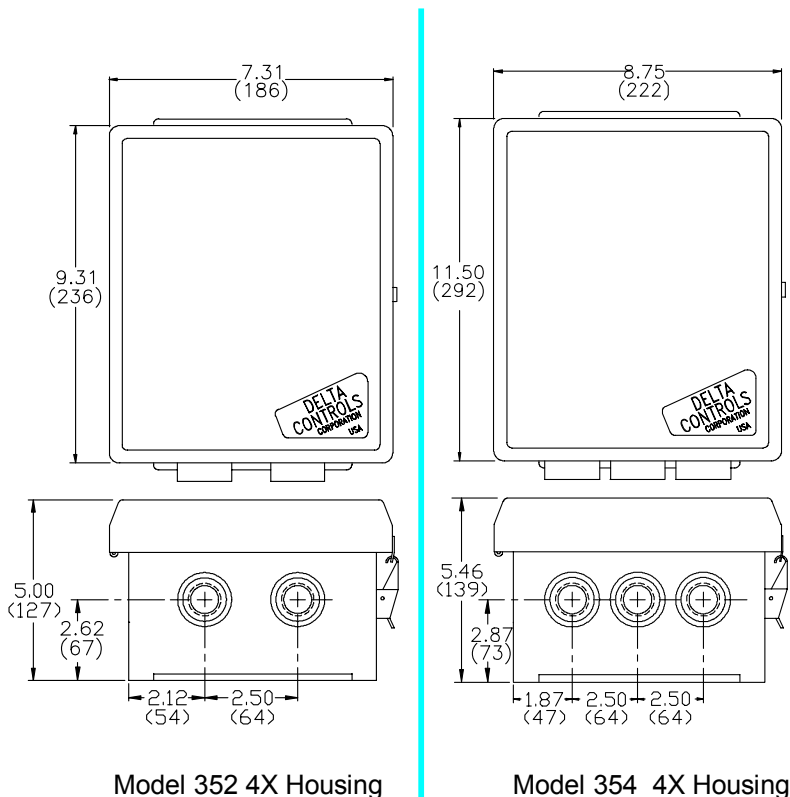
### ALARM MODULE

- 1.0 Alarm Module shall be microprocessor based and shall include two (or four) 10 amp, SPDT relays.
- 1.1 Input signal shall be 4-20 mADC, with internal loop power supply (or an isolated 4-20 mADC)
- 1.2 Alarm module will be located in a safe area and shall have integral loop power supply (or shall be intrinsically safe with barrier).
- 1.3 The alarm module shall be Delta Controls Model 352 (or Model 354) as manufactured by Delta Controls Corp., Shreveport, LA or an approved equal.

Or

### PUMP CONTROL

- 1.0 Pump Control shall be microprocessor based and shall include two (or four) 10 amp, SPDT relays.
- 1.1 Input signal shall be 4-20 mADC, with internal loop power supply (or an isolated 4-20 mADC).
- 1.2 Pump control shall provide lead/lag control of two pumps (or rotating control of three or four pumps, or alarm points).
- 1.3 Pump control unit will be located in a safe area and shall have integral loop power supply (or shall be intrinsically safe with barrier).
- 1.4 Pump control shall be Delta Controls Model 352 (or 354) as manufactured by Delta Controls, Shreveport, LA or an approved equal.



Model 352 4X Housing

Model 354 4X Housing

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