



## Isolated Transmitters



## 340i Isolators DC Current Input

### Input Range

- 4 to 20mA DC

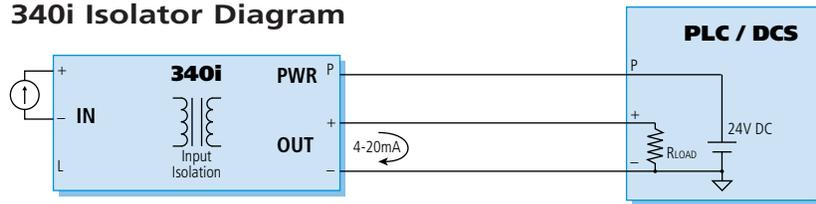
### Output Range

- 4 to 20mA DC

### Power Requirement

- 10 to 36V DC @ 30mA

## 340i Isolator Diagram



## Description

The 340i accepts a process current input and provides an isolated 4 to 20mA process current output signal.

These isolators use transformer isolation to effectively break the electrical path between the transmitted signal and the receiving device. This eliminates ground loops, reduces noise, and helps protect against transients for more accurate and reliable measurements.

This product is also extremely easy to install. All units are factory calibrated to eliminate any need for load trim adjustments. Also, up to eight isolators at a location can share a single Acromag 35PS power supply for a more convenient and cost-effective solution.

## Special Features

- Excellent accuracy and stability ensure reliable measurements in harsh industrial environments.
- 1500V AC peak isolation (250V AC or 354V DC continuous) prevents ground loops.
- Calibration is independent of the load to eliminate load compensation adjustments
- Zero and span adjustment enable precise calibration.
- RFI and EMI resistance minimize the effects of environmental noise.
- Low power consumption helps prevent expensive upgrades to larger power supplies.
- 25mS response time delivers fast updates to monitoring and control systems.
- Compact, 1-inch wide housing uses less space for easier installation in control panels.



## ■ Performance

### Reference test conditions

Input/Output current: 4 to 20mA; output load 250 ohms; 77°F (25°C); 15V DC supply.

## ■ Input

### Input

4 to 20mA DC, input drop less than 1.5V at full-scale. Input current must not exceed 100mA.

### Zero and span

The Zero and Span trim adjustments utilize 15-turn potentiometers which are accessible from the front of the unit. Isolator is DIN-rail mounted.

## ■ Output

### Output

4 to 20mA DC.

The output shares a common with the power supply.

NOTE: Voltage output is not available on this unit, use Model 350T on Page 144 if this is a requirement.

### Load resistance range equation

$R_{LOAD\ MAX} = (\text{Min. VDC supply} - 5.0V) / 0.02A$

At 10.0V DC supply,  $R_{LOAD} = 0$  to 250 ohms

At 15.0V DC supply,  $R_{LOAD} = 0$  to 500 ohms

At 24.0V DC supply,  $R_{LOAD} = 0$  to 950 ohms

### Output limiting

135% of full scale output, nominal.

### Output ripple

Less than  $\pm 0.1\%$  of maximum output span.

### Bandwidth

-3dB at 50Hz, typical, with 500 ohm load.

### Response time

For a step input, the output reaches 98% of output span in 25mS, typical, 500 ohm load.

### Accuracy

Better than  $\pm 0.1\%$  of output span. Error includes the combined effects of isolator repeatability, hysteresis, terminal point linearity and adjustment resolution. Does not include sensor error.

## ■ Power

### Power

10.0V to 36.0V DC, 30mA at full scale, 35mA at limit. The external DC power supply is connected between the output (P) and (-) terminals. The current specified is for rated supply inputs and full scale output. Diode on isolator provides reverse polarity protection. Note: Do not exceed 36V DC peak, to avoid damage to the isolator.

### Power supply effect

DC Volts: Less than  $\pm 0.001\%$  of output span per volt.

60/120Hz Ripple: Less than  $\pm 0.01\%$  of span per volt peak to peak of power supply ripple.

## ■ Environmental

### Ambient temperature range

Operating: -13 to 185°F (-25 to 85°C).

Storage: -40 to 185°F (-40 to 85°C).

### Ambient temperature effect

Less than  $\pm 0.003\%$  of output span per °F ( $\pm 0.005\%$  per °C) over the ambient temperature range for reference test conditions. This specification includes the combined effects of zero and span over temperature.

### Isolation

The input circuit is electrically isolated from the output and power circuits, allowing the input to operate at up to 250V AC, or 354V DC off ground, on a continuous basis (will withstand 1500V AC dielectric strength test for one minute without breakdown). Complies with test requirements outlined in ANSI C39.5-1974 for the voltage rating specified.

### Noise rejection

Common mode: -6 dB at 60Hz, typical, 500 ohm load.

### RFI resistance

Less than  $\pm 0.5\%$ , of output span with RFI field strengths of up to 10V/meter at frequencies of 27, 151 and 467 MHz.

### EMI resistance

Less than  $\pm 0.25\%$  of output span effect with switching solenoids or commutator motors.

### Surge withstand capability (SWC)

Input/Output terminations rated per ANSWECE C37.90-1978. Unit is tested to a standardized test waveform that is representative of surges (high frequency transient electrical interference), observed in actual installations.

## ■ Physical

### Construction

Circuit boards: Military grade FR-4 epoxy glass.

Terminals: Compression type, 14 AWG max.

Case: Self-extinguishing NYLON Type 6.6 polyamide thermoplastic UL94V-2, color black. General Purpose, NEMA Type 1 enclosure.

Circuit board coating: Fungus resistant acrylic conformal coat.

Mounting position: Position insensitive.

## ■ Ordering Information

### Isolator

340i-C1-Y-DIN-NCR

Single-channel 4-20mA isolator.

### Accessories

#### Power supplies

See Power Supplies on Page 199.

#### DIN RAIL 3.0

#### DIN RAIL 16.7

DIN rail strip, Type T, 3 inches (75mm) or 16.7 inches (425mm)

#### 20RM-16-DIN

19" rack-mount kit with DIN rail. Holds sixteen 340i transmitters.

#### 350T-N4-WM

NEMA 4 water-tight enclosure, wall-mount. Holds two 340i transmitters.

#### 350T-N12-WM

NEMA 12 oil-tight enclosure, wall-mount. Holds two 340i transmitters.