



Isolated Transmitters



330i and 430i Signal Isolators DC Current Input

Models

330i: DC-powered transmitter series

430i: AC-powered transmitter series

Input Range

- 4 to 20mA DC

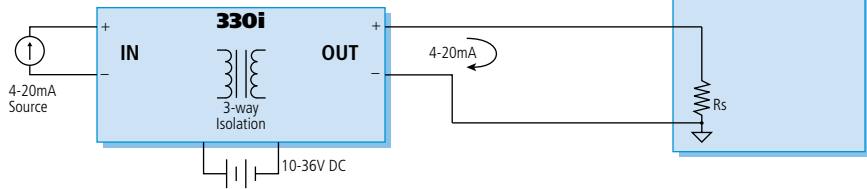
Output Range

- 4 to 20mA DC

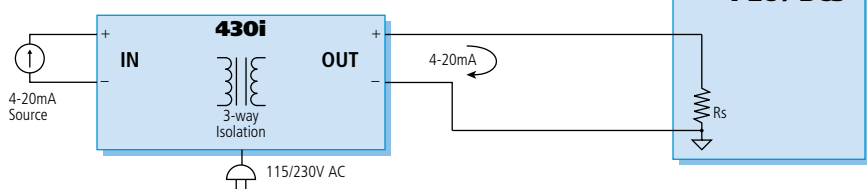
Power Requirements

- 330i: 10 to 36V DC
85mA with 15V supply, 55mA at 24V
- 430i:
115V AC @ 0.040A
230V AC @ 0.020A

330i Isolator Diagram



430i Isolator Diagram



Description

Series 330i and 430i isolators provide 3-way isolation and do not require recalibration for different loads.

Both the 330i and 430i accept a 4 to 20mA process current input and provide a 3-way isolated process current output signal.

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

The 330i and 430i are also extremely easy to use. Advanced circuitry eliminates the need to recalibrate as loads change and allows us to provide factory calibration regardless of the load. And, for highly reliable field operation, they withstand extreme ambient temperatures and have excellent temperature coefficients.

Special Features

- 3-way isolation; input, output, and power circuits are isolated from each other.
- 1500V AC peak isolation (250V AC or 354V DC continuous) prevents ground loops.
- Excellent accuracy and stability ensure reliable measurements in harsh industrial environments
- RFI and EMI resistance minimize the effects of environmental noise
- Factory calibration is provided standard
- Calibration is independent of the load to eliminate load compensation adjustments
- Wide power supply range on 330i handles more applications to reduce inventory stock
- DC power used with 330i carry lower voltages and do not require expensive conduit for safer and easier installation.
- Low input burden (1.3V typical), independent of load, helps prevent overloading of the loop
- High load compliance drives output load resistances up to 1050 ohms independent of supply voltage
- 25mS response time delivers fast updates to monitoring and control systems.
- Zero and span adjustment enable precise calibration.



■ Performance

Reference test conditions

Input/Output current: 4 to 20mA; output load 250 ohms; 25°C ambient; 15V DC or 115V AC supply.

■ Input

Input

4 to 20mA DC, with an input drop less than 1.5V DC (75 ohms) at full-scale. **IMPORTANT:** Input current must not exceed 100mA or damage to the unit may occur.

Zero and span

Zero and span trim adjustments utilize 15-trim potentiometers accessible on front of the unit.

■ Output

Output

4 to 20mA DC $R_{LOAD} = 0$ to 1050 ohms.

Output limiting

Output current limited to less than 28mA, nominal.

Output ripple

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

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.

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, with a 500 ohm load. Response time will vary with load resistance.

■ Power

Power (330i)

10V to 36V DC, current draw is a function of supply voltage (refer to table below)

Supply Voltage	Supply Current at 20mA Output	At Current Limit
10V	135mA	200mA
12V	105mA	145mA
15V	85mA	110mA
24V	55mA	70mA
36V	45mA	50mA

Power (430i)

-1: 115V AC $\pm 10\%$, 50 to 60Hz, 0.040A max.
-2: 230V AC $\pm 10\%$, 50 to 60Hz, 0.020A max.

Power supply effect

330i: Less than $\pm 0.001\%$ of output span per volt for rated supply variations.

430i: Less than $\pm 0.01\%$ of output span for rated supply variations.

■ Environmental

Ambient temperature range
-13 to 185°F (-25 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

Three-way isolation between input, output, and power circuits for common mode voltages up to 250V AC, or 354V DC off ground, on a continuous basis (withstand 1500V AC dielectric strength test for sixty seconds without breakdown).

Noise rejection

Normal 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 ANS/IEEE 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

Isolators

330i-C1-Y-DIN-NCR

Single-channel isolator unit, DC-powered.

430i-C1-Y-1-DIN-NCR

Single-channel isolator unit, 115V AC-powered.

430i-C1-Y-2-DIN-NCR*

Single-channel isolator unit, 230V AC-powered.

*Consult factory for long-term availability.

Accessories

Power supplies

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 ten 330i or 430i transmitters.

350T-N4-WM

NEMA 4 water-tight enclosure, wall-mount.

Holds one 330i/430i transmitter.

350T-N12-WM

NEMA 12 oil-tight enclosure, wall-mount.

Holds one 330i/430i transmitter.