Isolated Transmitters

Industry-standard octal-socket plug-in modules

	ACR4380
FUNCTIONS	
Isolated signal converter	x
POWER CONFIGURATION	
AC-powered	x
DC-powered	x
INPUTS	
DC voltage input	x
DC current input	x
AC current input	x
OUTPUTS	
DC current	x
DC voltage	x
ISOLATION CONFIGURATION	
3-way (input/output/power)	x

Isolated Transmitters

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Technical Documentation

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Isolated Transmitters

ACR4380 Units Universal DC I/O

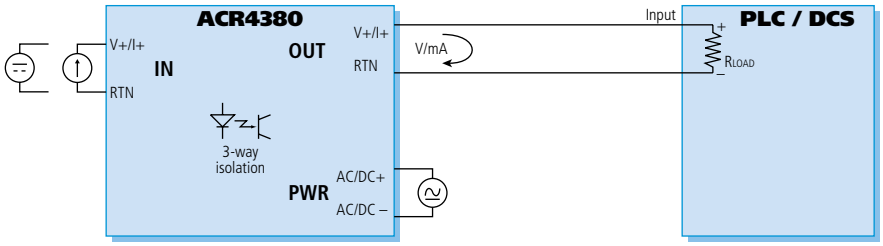
Input Ranges
Universal input
0 to 100mA (self-ranging),
±100V DC (self-ranging),
0 to 20 amps AC (with optional sensor)

Output Ranges
Universal output
0 to 20mA (full range capability),
0 to 10V DC (full range capability)

Power Requirement
Universal power
22 to 60V DC,
80 to 130V AC

Approvals
Consult factory.

AC/DC-Powered Transmitter



Description

The ACR4380 receives DC current or voltage input signals, provides isolation, and outputs proportional DC current or voltage signals. Industry-standard octal-pin sockets allow for "drop-in" compatibility with competing units.

With support for universal DC I/O ranges and AC/DC power, ACR4380 transmitters provide a solution for a wide variety of isolation and signal conversion tasks. They are ideal for panel shops and end-users who require a signal conditioner that can accommodate a broad range of instrumentation applications.

Advanced Σ–Δ A/D converters and microcontroller technology deliver superior performance and simplify maintenance.

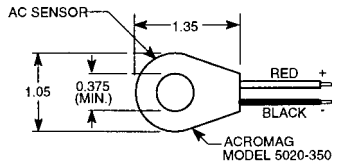
Installation is fast and easy with Acromag's built-in self-ranging feature. A single switch setting quickly selects between DC voltage or current input. Next, using your standard calibrator, the ACR4380's internal microcontroller automatically selects the optimum performance range for your zero and full-scale input values. To adjust the output signal values, simply push the up or down buttons on the front panel until you read the desired output signal on your meter. The up/down buttons help you quickly calibrate a normal (proportional) or reverse-acting (inverse) response. Press the set button and your configuration settings are stored in nonvolatile memory.

For easy troubleshooting, the top panel has diagnostic LEDs to identify input over/under range conditions. An additional status LED indicates that the front panel push-button lockout security feature has been invoked.

Special Features

- Footprint and pin compatibility with competitive units enables fast, drop-in replacement.
- Low cost saves up to 20% over competing transmitters.
- Self-ranging technology speeds installation without pots, jumpers, or software.
- Configuration lockout safety feature prevents tampering and accidental changes.
- Universal AC/DC power compatibility adds convenience and reduces spare models stock.
- Optical isolation eliminates ground loops, reduces noise, and blocks transient signals.
- Diagnostic LEDs provide a visual indication of the process loop's status.
- Universal DC input and output ranges offer flexibility to fit many applications.
- Push-button calibration simplifies field adjustments for easier maintenance.
- Reverse-acting output capability enables inverse proportional control signals.
- High-resolution Σ–Δ A/D converters digitize inputs for superior accuracy and less noise.
- Advanced microcontroller technology simplifies installation and improves performance.

AC Current Sensor



Performance

General Input

Analog to Digital Converter (ADC)
16-bit sigma-delta A/D converter.

Ambient Temperature Effect
Better than ±0.018% of output span per °C or ±1µV per °C, whichever is greater.

Noise Rejection
Normal Mode: Better than 60dB @ 60Hz.
Common Mode: Better than 100dB @ 60Hz.

Input Overvoltage Protection
Bipolar Transient Voltage Suppressors (TVS).

DC Current Input

DC Current Input Range
Any user-configured input range within 0-100mA, 4mA minimum span. ±12.5% over/under range is automatically built into calibrated spans.

DC Current Input Impedance
10 ohms.

DC Voltage Input

DC Voltage Input Ranges
Any user-configured input range within limits of ±100V DC, 1.0V minimum span.

Input impedance
500K ohms.

AC Current Input (requires optional sensor)

An external AC current sensor (Model 5020-350) provides a direct interface to the ACR4380 input.

AC Current Range	Primary Turns
0 to 20A AC	1
0 to 10A AC	2
0 to 5A AC	4
0 to 2A AC	10
0 to 1A AC	20

Output (DC V/mA)

Current Output
Ranges: User-configured within 0-20mA DC range.
±12.5% over/under built into calibrated ranges.
Compliance: 11V DC typical.
Load resistance range: 0 to 550 ohms.

Voltage Output
Ranges: User-configured within 0-10V DC range.
±12.5% over/under built into calibrated ranges.
Impedance : 1 ohms.

Accuracy (overall input to output)
Better than ±0.1% of output span.

Response Time (for input step change)
500mS typical.

Environmental

Ambient Temperature
Operating: -25 to 70°C (-13 to 158°F).
Storage: -40 to 85°C (-40 to 185°F).

Relative Humidity
5 to 95%, noncondensing.

Power Requirements
22 to 60V DC or 80 to 130V AC.
80mA @ 24V DC.

Isolation
3-way optical isolation (input/output/power). 1500V AC for 60 seconds, 250V AC (354V DC) continuous.

Radiated Field Immunity (RFI)
Designed to comply with EN61000-4-3 Level 3 and European Norm EN50082-1.

Electromagnetic Field Immunity (EMI)
Less than ±0.25% of output span effect under the influence of electromagnetic fields.

Electrical Fast Transient (EFT)
Complies with EN61000-4-4 Level 3 and EN50082-1.

Surge Withstanding Capability (SWC)
Complies with EN61000-4-5 Level 3 and EN50082-1.

Electrostatic Discharge (ESD)
Complies with EN61000-4-2 Level 3 and EN50082-1.

Radiated Emissions
Designed to meet or exceed European Norm EN55022-1 for Class A equipment.

Approvals
Consult factory.

Physical

Enclosure
Case: Self-extinguishing Noryl UL 04 V0 NEMA Type 1 enclosure.

Socket pins: Octal plug-in type, polarized. Compatible with industry-standard 8-pin sockets and Acromag base socket 5032-694.

Printed Circuit Boards
Military grade FR-4 epoxy glass circuit board.

Base Socket (optional, Part No. 5032-694)
Material: UL94-V1 self-extinguishing glass-filled Noryl.

Ratings: 10A/380V.

Dielectric strength: Greater than 2kV.

Contacts: Tin-plated brass.

Screws: Zinc-plated steel for Pozidriv™ or slotted screwdrivers.

Wire size: 22-12 AWG.

Dimensions
1.38W x 3.50H x 3.10D inches.
34.5W x 87.6H x 77.5D millimeters.

Shipping Weight
1 pound (0.45 Kg) packed.

Ordering Information

Models

ACR4380-0501
Plug-in transmitter for eight-pin socket.

5032-694
Eight-pin base socket for DIN rail or wall mount.

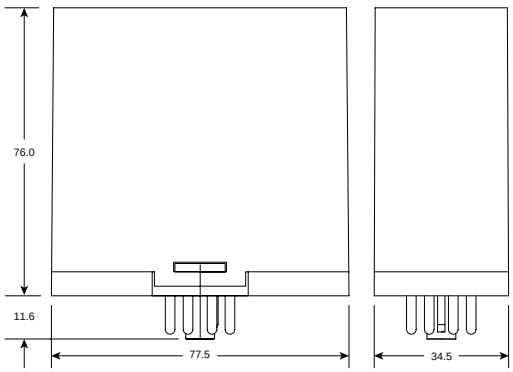
Accessories

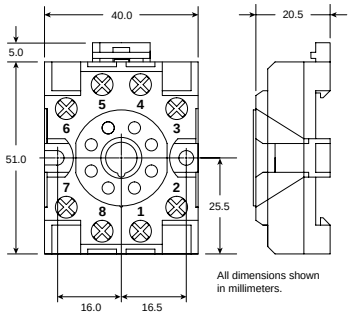
PS5R-D24
Power supply (24V DC, 2.1A).
See Power Supplies on page 183.

5020-350
AC current sensor. See Pg. 189 for more information.

DIN RAIL 3.0
DIN RAIL 16.7
DIN rail strip, Type T,
3 inches (75mm) or16.7 inches (425mm)

20RM-16-DIN
19" rack-mount kit with DIN rail.





Connection	Pin Screw	Connection	Pin Screw
L1 / DC+	1	IN+	5
no connection	2	IN-	6
N / DC-	3	OUT+	7
no connection	4	OUT-	8