

April 2024

► Description

The 330R2 digital process and temperature panel meter is one of the most versatile meters on the market. Its universal input and dual process relays will satisfy a wide variety of process and temperature applications. Housed in a 1/8 DIN enclosure, the meter can be field programmed to accept process voltage (0-5V, 1-5V, 0-10V, $\pm 10V$) and current (0-20mA, 4-20mA, $\pm 20mA$) inputs, 100 Ohm RTDs, and the four most common thermocouples.

One of the 330R2's most useful options is its ability to provide 24VDC to power the transmitter's 4-20mA signal which simplifies wiring and reduces costs. The 330R2 is housed in a shallow-depth, 1/8 DIN enclosure that features a NEMA 4X front panel and convenient mounting hardware. Programming and setup is accomplished via the four front panel pushbuttons, or with free PC configuration software.

The two included relays and optional isolated 4-20mA output increase the utility of the 330R2 meter. The relays can be used for alarm or control applications and the 4-20mA output provides an isolated retransmission of the input signal which is especially useful for thermocouple and RTD temperature inputs.

The 330R2's bright and large 0.56" viewing area features a display intensity setting that can be adjusted to compensate for various lighting conditions, especially useful when installed in direct sunlight.



The 330R2 is housed in a 1/8 DIN enclosure with a NEMA 4X front

► Features (model specific)

- 1/8 DIN Digital Panel Meter with NEMA 4X, IP65 Front
- Programmable Inputs: 0-20mA, 4-20mA, $\pm 20mA$, 0-5V, 1-5V, 0-10V, $\pm 10V$, TC & RTD
- UV Resistant and Sunlight Readable 4-Digit Display, with 0.56" (14.2 mm) Tall Digits
- Shallow Depth Case Extends Only 3.6" (91.4 mm) Behind Panel
- Auxiliary Isolated 24VDC @ 200mA Transmitter Power Supply
- All Models Include 2 Form C (SPDT) Relays
- Isolated 4-20mA Output Option
- Free PC-Based Programming & Monitoring Software
- Adjustable Display Intensity – Especially Effective for Outdoor Installations
- Operating Temperature Range: -40 to 65°C (-40 to 150°F)
- UL & Canada-UL Listed. UL 508 Industrial Control Equipment
- Input Power Options: 85-265VAC, 90-265VDC, 12-24VAC or 12-36VDC
- Duplex Pump Controller with Alternation Capability
- Max/Min Display
- High & Low Alarms with Multiple Reset Actions
- Stainless Steel Sun Hood Accessory Available

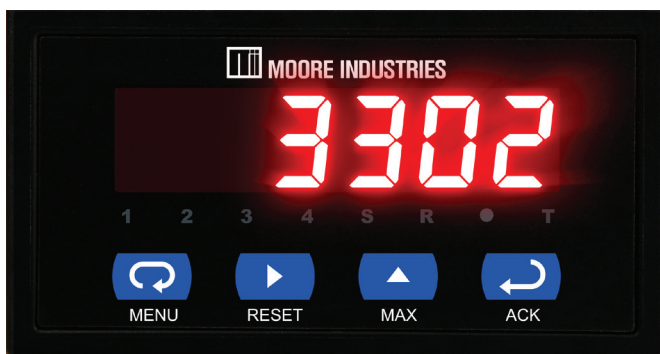


Figure 1. The 330R2 features an adjustable display intensity setting for installations in direct sunlight.

330R2

Process & Temperature Meter

► Advanced Display Features

Four Full Digits

The display on the 330R2 is four full digits which means it can display numbers up to 9999. Many digital panel meters have displays of only 3½ digits which means they can display only to 1999. In practical terms, this means the 330R2 can display type K thermocouples to 2300°F and 4-20mA signals up to 9,999.

Front Panel LEDs

The meter is supplied with two alarm points that include front panel LEDs to indicate alarm conditions. This standard feature is particularly useful for alarm applications that require visual-only indication.

Sunlight Readable Display

The intensity of the display on the 330R2 can be adjusted to compensate for various lighting conditions, including direct sunlight. In the advanced menu features menu, you can choose from eight levels of intensity depending on the visibility conditions.

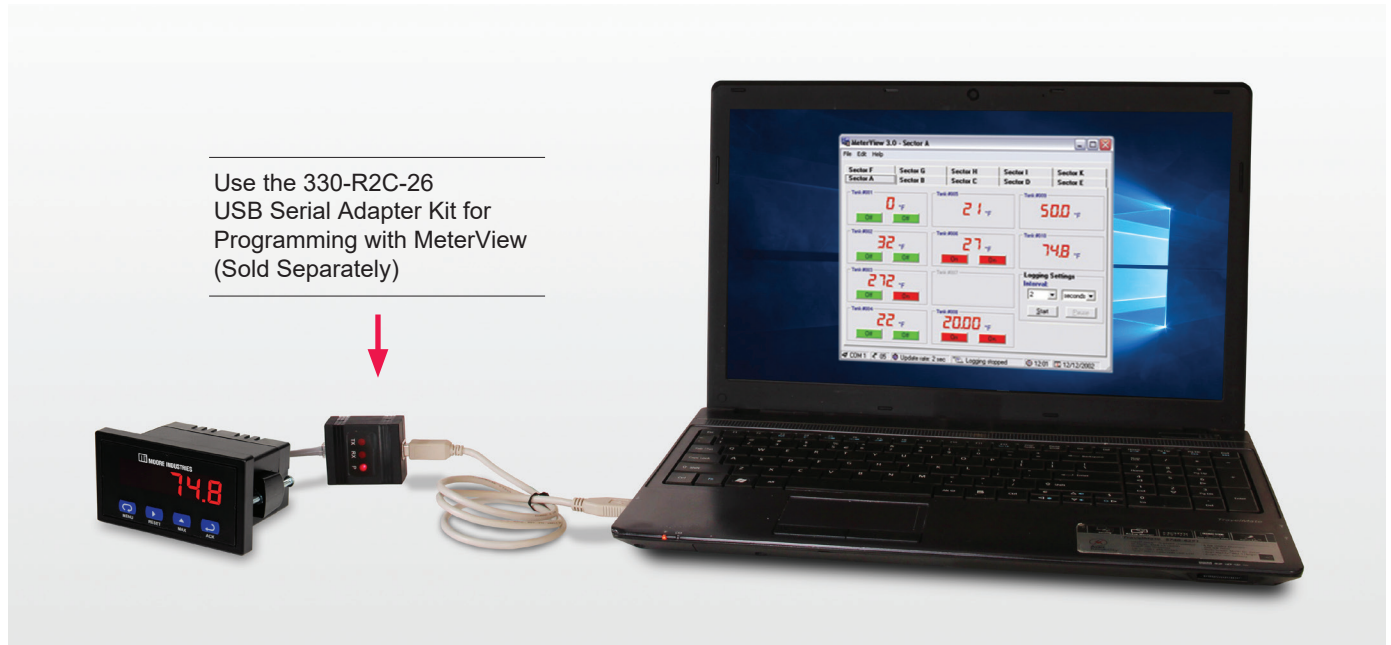


Figure 2. Large and easy to view buttons for effortless navigation and seamless user interaction.

► Quick & Easy Programming Methods

The 330R2 can be easily setup and programmed using the simple four buttons on the faceplate of the unit. The meter can also be programmed using a PC, free MeterView software and USB Serial Adapter (an accessory that is sold separately).

Free PC-Based MeterView Software

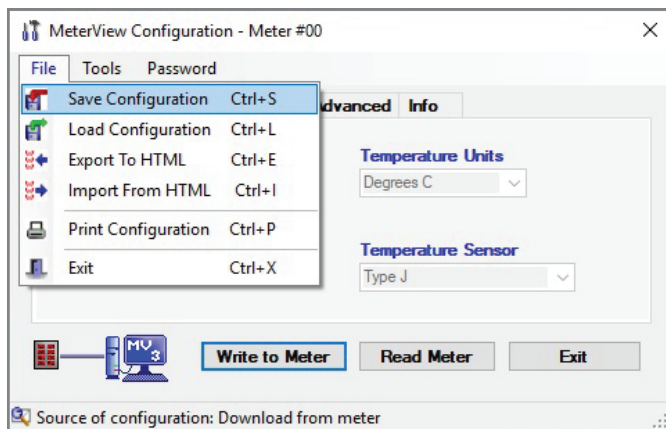


Note: The 330R2 is not powered from USB connection and requires external power to be programmed.

MeterView software allows all 330R2 parameters to be programmed from a PC. Once the configuration parameters have been downloaded to the unit, the configuration file can be saved and utilized for reporting or programming additional 330R2 meters. MeterView software connects to the meter via the low-cost 330-R2C-26 USB serial adapter (pictured above).

Programming with Front Panel Buttons

Onsite and field programming of the 330R2's configuration parameters can be conveniently programmed via the four front panel buttons.

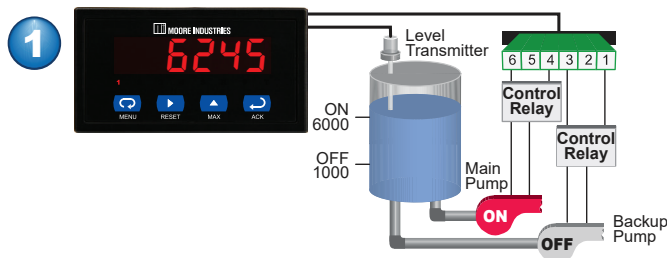


330R2

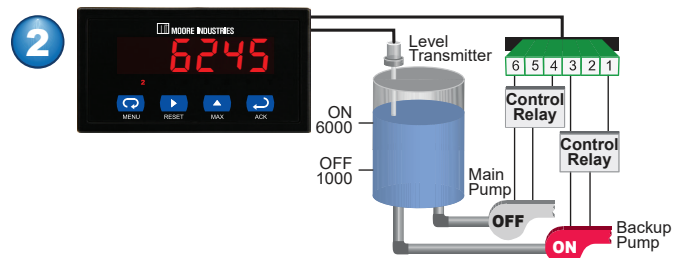
Process & Temperature Meter

► Pump Controller with Dual-Pump Alternation

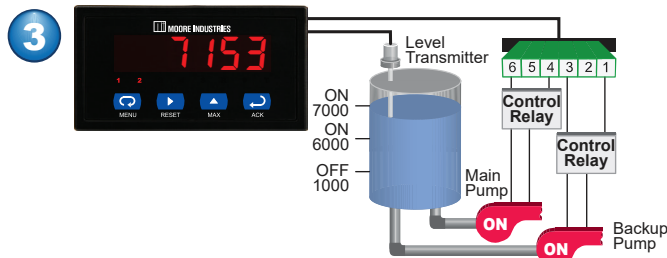
The 330R2 can be used as a low-cost pump controller when combined with a continuous level transmitter. One of the most common pump control applications, controlling and alternating two pumps, is shown below. The goal is to control the level between 1,000 and 6,000 gallons. The main pump turns on when the level reaches 6,000 gallons and pumps down to 1,000 gallons, then shuts the pump off. At the start of the next cycle, the backup pump turns on at 6,000 gallons and shuts off at 1,000 gallons. If at any time the active pump can't keep the level below 7,000 gallons, the other pump would also be activated.



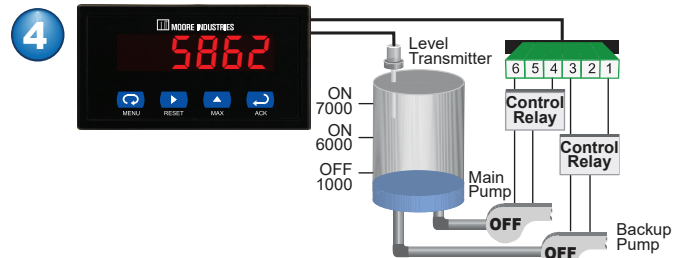
Relay #1 turns the main pump on at 6,000 gallons and turns it off at 1,000 gallons.



With the Pump Alternation feature activated, the next time the level reaches 6,000 gallons relay #2 starts the backup pump.



If the active pump is not able to keep up and the level reaches 7,000 gallons, the other relay will start the inactive pump as well.



When the level falls below 1,000 gallons, both pumps will turn off.

► Specifications

Except where noted all specifications apply to operation at +25°C.

General

Display: 0.56" (14.2 mm); red LED, 4 digits (-1999 to 9999).
Display Intensity: Eight user selectable levels.
Front Panel: NEMA 4X, IP65; panel gasket provided.
Programming Methods: Four front panel buttons or PC with MeterView software.
Noise Filter: Programmable 2 to 199 (0 will disable filter).
Display Update Rate: Process/RTD: 3.7-5/sec; TC: 1.8-2.5/sec.
Overrange: Display flashes 9999.
Underrange: Display flashes -1999.
Recalibration: All inputs are calibrated at the factory; recalibration is recommended at least every 12 months.
Max/Min Display: Stored until reset by user or meter is turned off.
Password: Restricts modification of programmed settings.
Non-Volatile Memory: Settings stored for a minimum of 10 years.
Power Options: 85-265VAC, 50/60 Hz; 90-265VDC, 20W max or 12-36VDC; 12-24VAC, 6W max.
Required Fuse: UL Recognized, 5A max, slow-blow; up to 6 meters may share one fuse.
Normal Mode Rejection: 64 dB at 50/60 Hz.
Isolation: 4kV input/output-to-power line; 500V input-to-output or output-to-24VDC supplies. For 4-20mA output models only: 100V output-to-24VDC supply.
Operating Temperature: -40 to 65°C (-40 to 149°F).
Storage Temperature: -40 to 85°C (-40 to 185°F).
Relative Humidity: 0 to 90% non-condensing.
Connections: Power & Signal: removable screw terminal blocks accept 12 to 22 AWG. Serial: RJ11 header, standard on all meters.
Enclosure: 1/8 DIN, high impact plastic, 94V-0, color; black.
Weight: 9.5 oz (269 g) (including options).
UL File Number: E539990; UL 508 Industrial Control Equipment.
Warranty: 3 years.

Process Inputs

Inputs: 0-20mA, 4-20mA, ±20mA, 0-5V, 1-5V, 0-10V, ±10V.
Transmitter Supply: (AC powered units only) Isolated, 24VDC ±10% @ 200mA max.
Accuracy: ±0.05% FS ±1 count; square root: ±0.1% FS ±2 counts.
Function: Linear or square root.
Low-Flow Cutoff: 0 to 9999 (0 disables cutoff function).
Decimal Point: Up to 3 decimals.
Calibration: Scale without signal or calibrate with signal source.
Calibration Range: User programmable over entire range of meter.
Input Impedance: Voltage range: greater than 1 MΩ, Current range: 50-100 Ω, varies with resettable fuse impedance.
Input Overload: Protected by automatically resettable fuse.
Temperature Drift:

Input	0 to 65° C ambient	-40 to 0° C ambient
Current	±0.20% FS (50 PPM/°C)	±0.80% FS
Voltage	±0.02% FS (1.7 PPM/°C)	±0.06% FS

Temperature Inputs

Inputs: Factory calibrated, field selectable: type J, K, T, or E thermocouples and 100 Ω platinum RTD (0.00385 or 0.00392 curve).
Resolution: 1°; type T TC & RTD: 1° or 0.1°.
Cold Junction Reference: Automatic.
Temperature Drift: ±2°C maximum.
Offset Adjustment: Programmable to ±19.9°. This parameter allows the user to apply an offset value to the temperature being displayed.
Input Impedance: Greater than 100 kΩ.

Type	Range	Acc. (0-65°C)	Acc. (-40-0°C)	Resolution
J	-58° to 1382°F -50° to 750°C	±2°F ±1°C	±5°F ±3°C	1°
K	-58° to 2300°F -50° to 1260°C	±2°F ±1°C	±4°F ±2°C	1°
T	-292° to 700°F -180° to 371°C	±2°F ±1°C	±13°F ±7°C	1° or 0.1°
E	-58° to 1700°F -50° to 927°C	±2°F ±1°C	±11°F ±6°C	1°
RTD	-328° to 1382°F -200° to 750°C	±1°F ±1°C	±5°F ±3°C	1° or 0.1°

Relays

Rating: 2 Form C (SPDT); rated 3A @ 30VDC or 3A @ 250VAC resistive load; 1/14 HP (≈ 50 watts) @ 125/250VAC for inductive loads such as contactors, solenoids, etc.
Deadband: 0-100% FS, user selectable.
High or Low Alarm: User may program any alarm for high or low.
Relay Operation:
 1. Automatic (non-latching) 2. Latching 3. Pump alternation control
Relay Reset: User selectable via front panel buttons.
 1. Automatic reset only (non-latching).
 2. Automatic plus manual reset at any time (non-latching).
 3. Manual reset only, at any time (latching).
 4. Manual reset only after alarm condition has cleared (latching).
Automatic Reset: Relays reset when input passes the reset point.
Manual Reset: Front panel button.
Time Delay: 0 to 199 seconds, on and off delays; programmable.
Sensor Break Relay Operation: The sensor break relay condition may be programmed for each relay as On (alarm) or Off (non-alarm). The relays will enter these states when a sensor break is detected for RTD or thermocouple inputs. These settings have no effect when current or voltage inputs are selected.
Fail-Safe Operation: Programmable, independent for each relay. Relay coils are energized in non-alarm condition. In case of power failure, relays will go to alarm state.
Auto Initialization: When power is applied to the meter, relays will reflect the state of the input to the meter.

Isolated 4-20mA Transmitter Output

Scaling Range: 1.00 to 23.00mA; reverse scaling allowed.
Calibration: Factory calibrated 4.00 to 20.00mA.
Accuracy: ±0.1% FS ±0.004mA.
Temperature Drift: 50 PPM/°C.
Note: Analog output drift is separate from input drift
Isolation: 500V input-to-output or output-to-24VDC supplies; 4kV output-to-power line.
External Power: 35VDC maximum.
Output Loop Resistance:

Power Supply	Minimum	Maximum
24VDC	10 Ω	700 Ω
35VDC (external)	100 Ω	1200 Ω

330R2

Process & Temperature Meter

► Ordering Information

Four 330R2 Models Available

Unit	Input	Output	Power	Options	Housing
330R2	PRG	2PRG	HIACDC	-AO-TX	P
330R2	PRG	2PRG	HIACDC	-TX	P
330R2	PRG	2PRG	LOACDC	-AO	P
330R2	PRG	2PRG	LOACDC		P
1/8 Din Process and Temperature Digital Panel Meter & Alarm	Programs to accept: <u>Current:</u> Any range from -20 to 20mA including: 4-20mA, 0-20ma <u>Voltage:</u> Any range from -10 to 10V including: 1-5V, 0-5V, 0-10V, -10 to 10V <u>RTD:</u> 2W & 3W 100 Ohm Platinum, .00385 or .00392 Curve <u>Thermocouple:</u> J, K, T, E	Dual Relays (Relays are SPDT, Form C, rated 3A@30VDC or 3A@250 VAC, resistive load)	HIACDC: High level AC/DC power input of 85-265VAC or 90-265VDC LOACDC: Low level AC/DC power input of 12-24VAC or 12-36VDC	AO: Analog output (isolated and linearized) scalable for any range between 1-23mA, reverse scalable allowed, passive TX: 24Vdc, ±10%@200mA max	Panel mount, corrosion resistant Nema 4X, IP65 faceplate

When ordering, specify: Unit / Input / Output / Power / Options [Housing]

Model number example: 330R2 / PRG / 2PRG / LOACDC [P]

330R2 / PRG / 2PRG / HIACDC / -AO-TX [P]

Accessories

Part Number 330-R2SS-00	Stainless Steel Sun Hood
Part Number 330-R2C-26	USB Serial Adapter for Programming Meter with MeterView Software

Certifications



UL & C-UL Listed. File No. E539990; UL 508 Industrial Control Equipment.



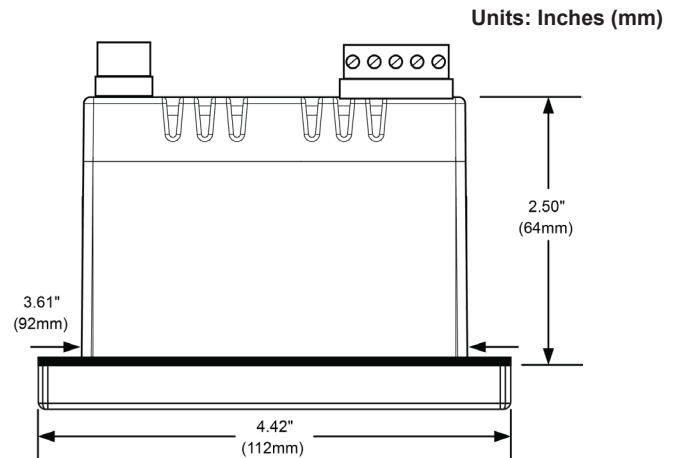
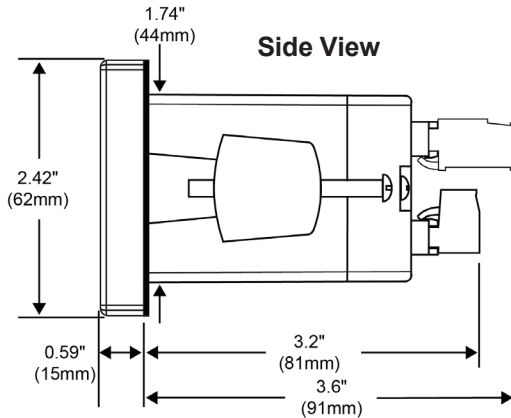
CE Conformant - EMC Directive 2014/30/EU EN61326; Low Voltage Directive 2014/35/EU EN61010; RoHS Directive 2011/65/EU

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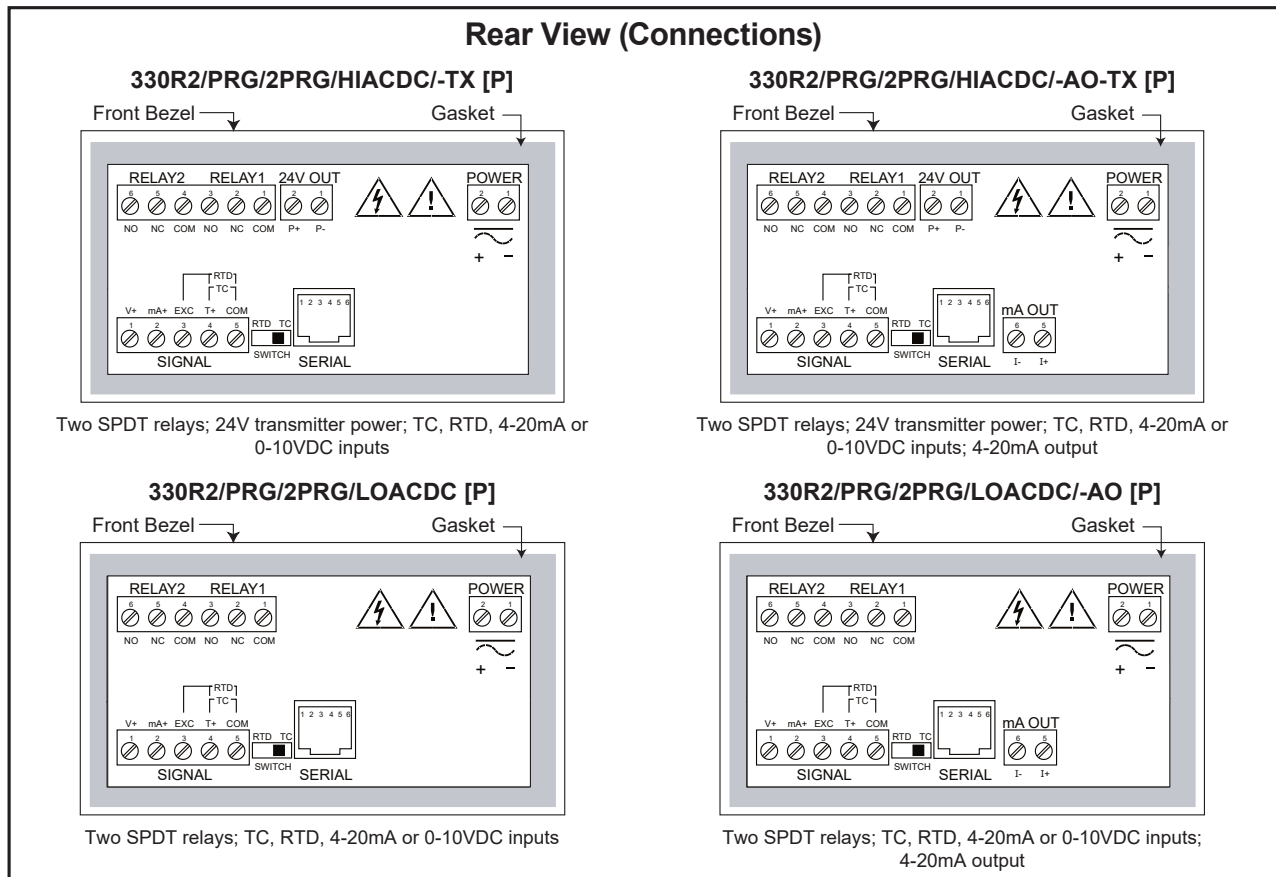
► Dimensions



Notes:

1. Panel cutout required: 1.772 x 3.622 (45 x 92)
2. Panel thickness: 0.040 – 0.250 (1.0 – 6.4)
3. Mounting brackets lock in place for easy mounting

► Connections



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