DC & TRUE RMS AC VOLT METERS

MODEL PD695 TRUE RMS AC VOLTS

PRECISION DIGITAL

45.63

❷

ENTER

PRECISION DIGITAL

174530

❷ ❹

ENTER

ACK
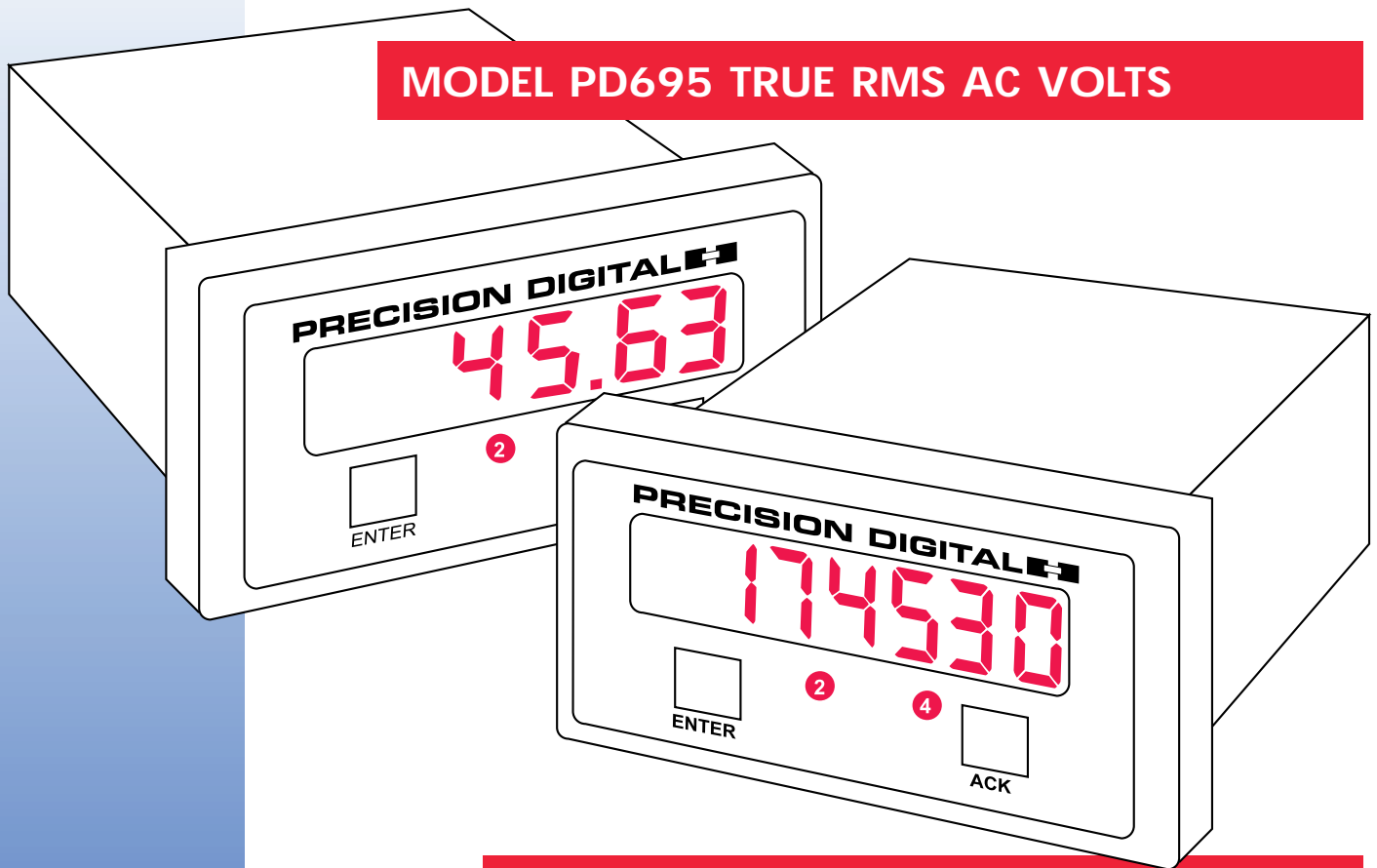
MODEL PD694 DC VOLTS

- **Easy Single Button Scaling**
- **4 ¹/₂ Digit + Extra Zero Display**
- **Calibration and Programming Lockout**
- **Type 4X, NEMA 4X Front Panel**
- **2 or 4 Relays + 4-20 mA Output Options**

PD694 DC Input
- **0-200 VDC Input**
- **Steady, Accurate Display to 199,990**
- **Green Display Available**

cULus

PD695 AC Input
- **True RMS Indication for Greater Accuracy**
- **50 mV, 200 mV, 2 V, 20 V, or 250 V Field Selectable Inputs**
- **Field Selectable Noise Filtering**
- **Peak Hold**
- **Steady, Accurate Display to 299,990**

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GENERAL FEATURES

Precision Digital's model PD694 is a high performance, industrial-grade DC Volt Meter. It accepts 0-200 VDC and displays this signal in engineering units on a 4^1/$_2$ digit display. The display also includes an extra zero which may be used to handle numbers up to 199,990.

The PD695 is a high performance, industrial-grade True RMS AC Volt Meter. It can handle low mV inputs such as 50 mV or high voltage inputs up to 250 V. The True RMS feature allows non-sinusoidal waveforms to be measured with high accuracy. The unit displays this signal in engineering units on a 4 ^{1}/$_2$ digit display that also includes an extra zero which may be used to handle numbers up to 299,990.

Single Button Scaling

Single **B**utton **S**caling means the meter can be completely programmed using only one button. Simply press the ENTER button to initiate the automatic menu scan. When the desired routine appears press ENTER again. Once in a routine, press the ENTER button when the display reads the desired value. It's that simple!
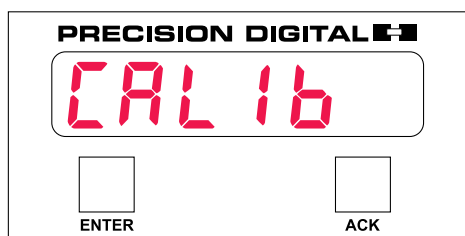
T**o Calibrate:**
Press **ENTER**
when meter
reads 𝐶𝐴𝐿 𝑙𝑏.

NEMA 4X Front Panel

Wet, dirty and dusty environments don't bother the NEMA 4X front panel which allows these meters to be installed in almost any panel in the plant. That means plant operators can have the important information right where they need it most; on the shop floor.

24 V Internal Power Supply

The internal power supply can provide 24 VDC power which may be used to power the 4-20 mA output option. This standard feature saves time and money by simplifying wiring and eliminating the cost of an external power supply.

Peak Hold (PD695 Only)

The peak hold feature captures the highest displayed value and stores it in memory for later viewing. Push ENTER when meter reads 𝑑𝑆𝑃𝑌 𝑃. A green LED labeled "P" illuminates indicating the display is showing the peak value. To erase the current peak value press ENTER when meter reads 𝑟𝑆𝐸𝑡𝑃. A new peak value will then be captured.
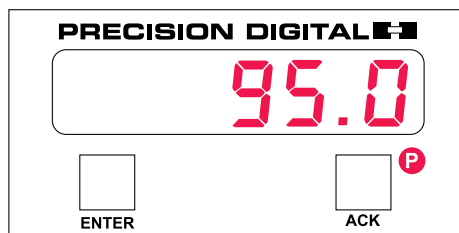

Meter
indicating
peak
reading.

Noise Filter (PD695 Only)

The field selectable noise filter allows the PD695 to be programmed so that an unsteady (noisy) input can be displayed with greater stability. Increasing the filter value will help stabilize the display, however it will also reduce the display response rate.

Noise Filter By-Pass (PD695 Only)

The Noise Filter averages any minor changes in the input signal and displays the reading with greater stability. Quick, small input spikes will not be immediately reflected on the display. However, the meter can be programmed to filter out only small changes. Larger input changes can be displayed immediately by decreasing the Noise Filter by-pass value. If the input signal spikes beyond the Noise Filter by-pass value the signal will not be averaged but rather immediately reflected on the display. The Noise Filter by-pass value may be set anywhere between 0.2% and 99.9% of full scale. Decreasing the Noise Filter by-pass value will increase the display response rate.

Signal & Power Connections
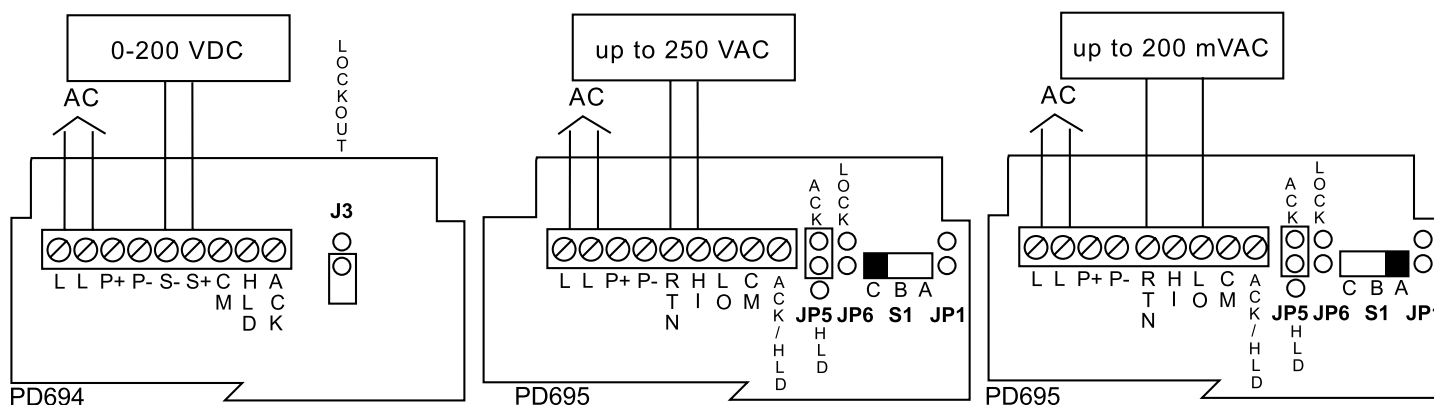
4 Visual Alarms Standard

Every PD694 and PD695 comes standard with 4 independent alarms. Each alarm is easily programmed for high or low set point and 0-100% deadband adjustment. Front panel alarm status LEDs assist in set/reset point programming and are perfect for visual-indication only applications. Options are available for 2 and 4 relays.

Alarm/Relay Programming

Pressing the ENTER button when the display reads ALArS initiates a scan of the alarm set and reset points. First, the display flashes alarm #1 set point and indicates this by illuminating the #1 LED and the "S" LED. This set point may be changed using the ENTER button. Next, the display flashes alarm #1 reset point and indicates this by illuminating the #1 LED and the "R" LED. This reset point may also be changed using the ENTER button. The remaining set and reset points are programmed in a similar fashion.
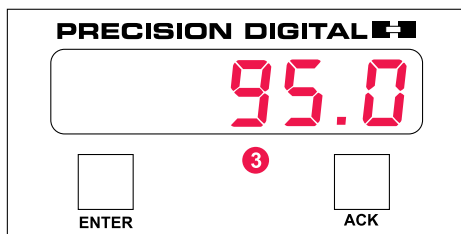
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80.0

ENTER ACK
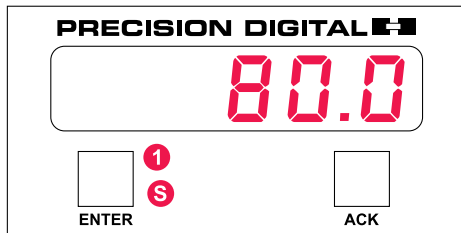
Alarm #1 Set Point set at 80.0

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70.0

ENTER ACK
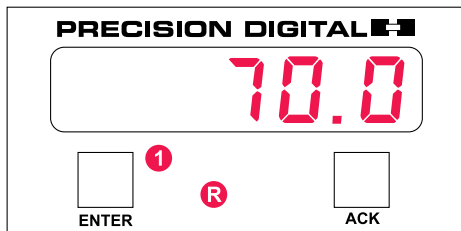
Alarm #1 Reset Point set at 70.0

Alarm Status Indication

When an alarm occurs, an LED will illuminate to indicate which alarm has tripped. This LED will stay illuminated until the signal returns to the non-alarm state.

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95.0

ENTER ACK

Meter indicating Alarm #3 is in alarm condition.

Shunts and Transformers

Precision Digital offers a complete line of shunts, current transformers and voltage transformers to satisfy most AC current and voltage applications. **CALL FOR DETAILS.**
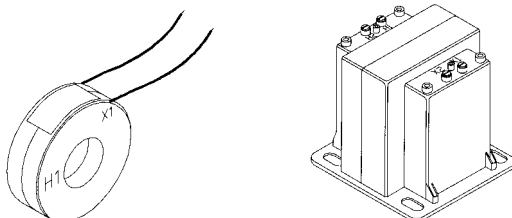
OPTIONS

The PD694 and PD695 can be equipped with options for 2 or 4 relay contacts and isolated 4-20 mA transmitter output. These options may be combined in any configuration to satisfy a wide variety of applications. In fact, a fully loaded model PD695-3-18 includes 4 relays and 4-20 mA output.

Relay Options

2 or 4 relay options are available. The SPDT relays are rated 2 Amp @ 250 VAC and can be programmed for automatic or automatic + manual reset. The relays can be programmed for 0-100% deadband adjustment.

Isolated 4-20 mA Output Option

The PD694 and PD695 can be equipped with an isolated 4-20 mA output signal option that can be programmed to produce a 4-20 mA output signal for virtually any input. The 4-20 mA output signal can be powered either by the internal or an external power supply.
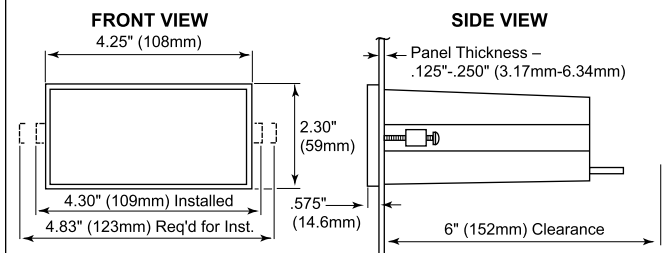
Option Card Pin-Outs

Pin:	Function:
J1 1	Transmitter +	PD175
J1 2	Transmitter -	
J2 1	Relay #1 Common	
2	Relay #1 NC	PD176
3	Relay #1 NO	PD174
4	Relay #2 Common	
5	Relay #2 NC	PD178
6	Relay #2 NO	
J3 1	Relay #3 Common	PD177
2	Relay #3 NC	
3	Relay #3 NO	
4	Relay #4 Common	
5	Relay #4 NC	
6	Relay #4 NO	

Notes:
1. Alarm acknowledgement terminals (ACK and COM) are located on the meter main board.
2. In the alarm condition, the NC contact is connected to common in the fail-safe mode.

Mounting Dimensions

FRONT VIEW
4.25" (108mm)
2.30" (59mm)
4.30" (109mm) Installed
4.83" (123mm) Req'd for Inst.
.575" (14.6mm)

SIDE VIEW
Panel Thickness – .125"-.250" (3.17mm-6.34mm)
6" (152mm) Clearance

Notes:
1. Panel cutout required: 1.772″ x 3.622″ (45 mm x 92 mm) 1/8 DIN
2. Panel thickness: 0.125″ - 0.250″ (3.17 mm - 6.34 mm)
3. Clearance: allow 6 inches (152 mm) behind the panel
4. Weight: 16 oz (454g)

3

SPECIFICATIONS

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

General
PD694

INPUT: 0-200 VDC

DISPLAY: Bright, large, 0.56" (14.2mm) high efficiency red or green LED $4^1/2$ digits + extra zero may be switched on to display ± 19,999(0). Leading zeros blanked.

CALIBRATION RANGE: 0 VDC input may be set anywhere in range of the meter. 200 VDC may be set anywhere above or below 0 VDC input. An *Error* message will appear if input 1 and input 2 signal are within 5 VDC.

ACCURACY: ±0.05% of calibrated span, ± 1 count.

LOCKOUT: Jumper J3 restricts modification of calibration values.

INPUT IMPEDANCE: Greater than 1 Mohms.

FRONT PANEL: Type 4X, NEMA 4X, panel gasket provided.

POWER: AC power: 115 VAC ± 10%, 50/60 Hz, 10VA.
230 VAC ± 10%, 50/60 Hz, 10VA.
DC power: 18-36 VDC, 6 watts max.

ISOLATION: AC power: 1500 VAC, DC power: 500 VDC.

NORMAL MODE REJECTION: 64 dB at 50/60 Hz.

UL FILE NUMBER: E160849; 508 Industrial Control Equipment.
(AC Powered Units Only)

PD695

INPUTS: Field Selectable: 50 mV, 200 mV, 2 V, 20 V, 250 VAC

INPUT FREQUENCY RESPONSE: 10 Hz to 30 KHz

DISPLAY: Bright, large, 0.56" (14.2mm) high efficiency red LED. $4^1/2$ digits + extra zero may be switched on to display 29,999(0). Leading zeros blanked.

DISPLAY UPDATE: 2 times per second

CREST FACTOR: up to 5:1

ACCURACY: ±0.25% of full scale @ 60 Hz

RESOLUTION: 0.025% of full scale

HOLD READING or EXTERNAL ACKNOWLEDGE: Connect ACK/HLD and COM terminals, and select jumper pins JP5 on rear.

LOCKOUT: Jumper JP6 restricts modification of calibration values.

INPUT IMPEDANCE: Greater than 1 MΩ

POWER: 115 VAC or 230 VAC ±10%, 50/60 Hz, 10 VA.

FRONT PANEL: NEMA 4X, panel gasket provided.

Common Specifications

LOOP POWER: Isolated 24 VDC ±5% @ 20 mA regulated. Max. loop resistance of 1200 Ω. Available for the 4-20 mA output option.
(AC Powered Units Only)

ENVIRONMENTAL: Operational Ambient temperature range: 0 to 60°C. Storage temperature range: -40 to 85˚C. Relative Humidity: 0 to 90% non-condensing.

ENCLOSURE: 1/8 DIN, high impact plastic, UL 94V-0, color: black.

CONNECTIONS: Removable screw terminal block.

ALARM POINTS: Four, any combination of high or low alarms.

ALARM STATUS INDICATION: Front panel LED.

ALARM DEADBAND: 0-100% F.S. user selectable.

WARRANTY: 1 year parts and labor

Relays

RATING: 2 or 4 SPDT (form C); rated 2 Amp @ 30 VDC or 2 Amp @ 250 VAC resistance load; 1/14 HP @ 125/250 VAC for inductive loads.

Reset: User select.

1. Automatically when the input passes the reset point.

2. Automatically + manually (via user supplied push button or front panel ACK button). Manual reset resets all manually resetable relays,

FAIL-SAFE OPERATION: The relay coils are energized in the non-alarm condition. In the case of a power failure, the relays will go to the alarm state. Fail-safe may be disabled with internal jumper.

AUTO INITIALIZATION: When power is applied to the meter, the relays will always reflect the state of the input to the meter.

DEADBAND: 0-100%, user selectable.

Isolated 4-20 mA Transmitter Output

CALIBRATION RANGE: Anywhere in range of meter, 501 count minimum span.

OUTPUT LOOP RESISTANCE:

Power supply	Loop Resistance minimum	maximum
24 VDC	10 Ω	600 Ω
35 VDC (external)	600 Ω	1000 Ω

ACCURACY: ± 0.1% F.S., ± .004 mA.

ISOLATION: 500 VDC or peak AC, input-to-output or input/output-to-power line.

EXTERNAL LOOP POWER SUPPLY: 35 V max.

DISCLAIMER: The information contained in this document is subject to change without notice. Precision Digital makes no representations or warranties with respect to the contents hereof, and specifically disclaims any implied warranties of merchantability or fitness for a particular purpose.

ORDERING INFORMATION — Models PD694 & PD695

115 VAC	230 VAC	24 VDC	115 VAC	230 VAC	Description	Option Card**
PD694-3-N	PD694-4-N	PD694-2-N	PD695-3-N*	PD695-4-N	No Options	
PD694-3-14	PD694-4-14	PD694-2-14	PD695-3-14	PD695-4-14	2 Relays	PD174
PD694-3-15	PD694-4-15	PD694-2-15	PD695-3-15	PD695-4-15	4-20 mA Output	PD175
PD694-3-16	PD694-4-16	PD694-2-16	PD695-3-16	PD695-4-16	2 Relays + 4-20 mA Output	PD176
PD694-3-17	PD694-4-17	PD694-2-17	PD695-3-17	PD695-4-17	4 Relays	PD177
PD694-3-18	PD694-4-18	PD694-2-18	PD695-3-18	PD695-4-18	4 Relays + 4-20 mA Output	PD178

Notes: *Quick Product Item, shipped within 2 working days.   **Part numbers for Option Cards when purchased separately.
G may be added after second field in the part number to call out meters with a green display for an additional charge; example: PD694-3G-14. Green display is not available on PD695.

YOUR LOCAL DISTRIBUTOR IS:

LDS694-5 Rev A 02/02

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