

# Process Multimeter

## Loop Power, 4 to 20 mA Digital Multimeter Output Function



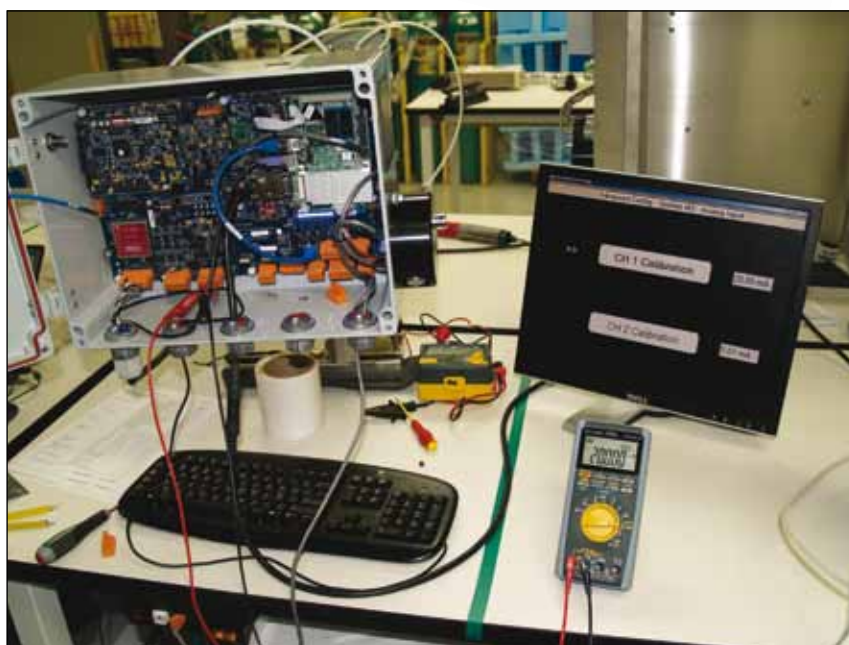
- ✓ 4 to 20 mA Step, 0 to 100% Toggle, Auto Step, Sweep Output
- ✓ Transmitter Simulate by SINK Function
- ✓ HART® Mode Setting with Loop Power (Adds 250Ω Resistor)
- ✓ 24V Loop Power Supply and mA Measurement Available Simultaneously
- ✓ High Accuracy Measurement of DC mA 0.05%, 30.000 mA
- ✓ DCS Power Supply Crest Value Measurement by Peak Hold Function
- ✓ Direct Reading (ACA/ DCA) of Various Signals by Sensor Mode
- ✓ Data Transmission by PC Communication with IR-USB\*

The TRPDEX® CA450 Process Multimeter is a portable test instrument to combine a digital RMS multimeter and a loop calibrator to give process technicians the same functionality in one tool. The model CA450 provides 24V loop power, reducing the need for carrying a separate power supply when performing transmitter testing. And with its built-in, selectable 250Ω HART resistor, it also eliminates the need for a separate resistor. Process technicians can now do the same job while carrying less equipment.

\* For details visit [omega.com/ir-usb](http://omega.com/ir-usb)



CA450 shown smaller than actual size.



CA450 shown calibrating a tunable diode laser during a final inspection test.



| Input                | Range                 | Accuracy                |
|----------------------|-----------------------|-------------------------|
| DCV                  | 0.1 to 600.0 mV       | 0.09% +2                |
|                      | 0.001 to 6.000V       | 0.09% +1                |
|                      | 0.01 to 60.00V        | 0.09% +1                |
|                      | 0.1 to 600.0V         | 0.09% +1                |
|                      | 0 to 1000V            | 0.1% +1                 |
| DCA                  | 0.001 to 30.000 mA    | 0.05% +2                |
|                      | 0.01 to 100.00 mA     | 0.05% +2                |
|                      | Clamp 0.1 to 180A     | 1.2% +0.4 mV            |
| ACV                  | —                     | 50/60 Hz                |
|                      | 0.1 to 600.0 mV       | 0.5% +5                 |
|                      | 0.001 to 6.000V       | 0.5% +5                 |
|                      | 0.01 to 60.00V        | 0.5% +5                 |
|                      | 0.1 to 600.0V         | 0.5% +5                 |
|                      | 0 to 1000V            | 0.5% +5                 |
|                      | 50/60 Hz              | 0.5% +5                 |
|                      | 500 Hz                | 1.0% +5                 |
|                      | 1 kHz                 | 1.5% +5                 |
| ACA with Clamp Probe |                       |                         |
| ACA                  | Clamp 1 0.1 to 130.0A | 0.5% +DCV accuracy      |
|                      | Clamp 2 0.1 to 500.0A | 1.0% +DCV accuracy      |
|                      | Clamp 3 0.1 to 3000A  | 1.2% +0.4 mV @ 50/60 Hz |
|                      | Clamp 1               | 0.5% +DCV accuracy      |
|                      | Clamp 2               | 1.0% +DCV accuracy      |
|                      | Clamp 3               | 1.2% +0.4 mV @ 50/60 Hz |
| Resistance           | 0.1 to 600.0Ω         | 0.2% +2                 |
|                      | 0.001 to 6.000 kΩ     | 0.2% +1                 |
|                      | 0.01 to 60.00 kΩ      | 0.2% +1                 |
|                      | 0.1 to 600.0 kΩ       | 0.2% +1                 |
|                      | 0.001 to 6.000 MΩ     | 0.35% +3                |
|                      | 0.01 to 60.00 MΩ      | 1% +2                   |
| Frequency            | 0.01 to 199.99 Hz     | 0.005% +1               |
|                      | 0.1 to 1999.9 Hz      | 0.005% +1               |
|                      | 0.001 to 19.999 KHz   | 0.005% +1               |
| Diode Test           | 0.001 to 2V           | 1% +2                   |
| Peak Hold DCV        | ±100 digit            | >6 ms                   |
| DC mA SOURCE         | 0.001 to 25.000 mA    | 0.05% of range          |
| 20 mA SINK           | 0.001 to 25.000 mA    | 0.05% of range          |
| 24V LOOP POWER       | 24V                   | 20 mA @ 24V             |



## Specifications

**Measurement Functions:** DC voltage, AC voltage, DC current, resistance, frequency, continuity check, diode test; data hold (D•H), auto hold (A•H), peak hold (P•H), auto range (Auto), range hold (range hold), maximum, minimum, and average value recording and measurement, zero adjustment (q), relative measured value display (REL, REL %), 24V loop power supply, internal resistor on/off for HART communication

**Output Functions:** 20 am DC current for current output SOURCE and current output SIMULATE (SINK); current span switching and current sweep output

**Measurement Operation Method:** Modulation

**Output:** Multiplicative DA

**Display:** 5-digit LCD (7 segment)

**Numeric Display, DC Current:**

**Measurement:** 33000

**Output:** 25000

**Frequency:** 19999

**Other:** 6600

**Sub Display:** Displays supplemental information for various functions

**Polarity Indicator:** Automatic display; only the minus sign “-” appears

**Over Range Indicator:** “OL”

**Low-Battery Indicator:** Appears when the battery voltage is below the operating voltage

### Measurement Cycle:

2.5 to 5 times a second (however, frequency measurement takes place once a second)

### Operating Temperature and Humidity:

-20 to 55°C (-4 to 131°F) (80% RH or less) with no condensation; within the range of 40 to 55°C (104 to 131°F), the humidity must be 70% RH or less

### Storage Temperature and Humidity:

-40 to 70°C (-40 to 158°F) (70% RH or less) with no condensation

### Temperature Coefficient (Typical):

In the ranges of -20 to 18°C (-4 to 64.4°F) and 28 to 55°C (82.4 to 131°F), add the accuracy of  $23^{\circ}\text{C} \pm 5^{\circ}\text{C} \times 0.1/^{\circ}\text{C}$

**Power Supply:** 4 “AA” alkaline batteries (1.5 V LR6) included

**Battery Life:** When using alkaline batteries

### DC Voltage Measurement:

Approximately 140 hours

### DC Current Output (SIMULATE):

Approximately 140 hours

### DC Current Output (SOURCE)

12 mA (500 q load): Approximately 10 hours

**Insulation Resistance:** 100 MΩ or greater at 1000 Vdc

**Withstand Voltage:** 6.88 kVac for five seconds (between the input terminals and the case)

**External Dimensions:** Approximately 90 W x 192 H x 49 mm D (3.5 x 7.5 x 1.9")

**Weight:** Approximately 600 g (1.3 lb) (including the batteries)

**Safety Compliant Standards:** EN61010-1 and EN61010-031

**Measurement Categories:** 1000V CATIII, 600V CATIV

**For Current Measurement and Output:** 48 V maximum, 100 mA maximum CAT I

**Lead Cables (98064):** 70 Vdc, 100 mA CAT I; pollution degree 2, indoor use

**Vibration:** Sweep vibration frequencies 10 to 5 Hz to 10 Hz; amplitude 0.15 mm (peak value); duration 30 minutes

**Shock:** 1 m (3.3') drop test as defined by safety standards

**Altitude:** 2000 m (6562') or less

**EMC Standards:** EN61326-1 Class B, EN61326-2-2; EN55011 Class B Group 1; influence of radiated immunity: In RF electromagnetic fields of 3 V/m

### EN61326-1:

**AC Voltage Measurement, 600 mV Range:** 1.5% of range  
**DC Voltage Measurement, 600 mV Range:** 1% of range  
**DC Current Measurement, All Ranges:** 1.5% of range  
**DC current Output:** 1.5% of range

### EN61326-2-2:

**AC/DC Voltage Measurement, 6V Range or Higher:** Within 5 times the accuracy

## To Order ca450 for Pricing and Details

| Model No. | Description   |
|-----------|---|
| CA450     | Process Multimeter with loop power and 4 to 20 mA output function |

## Accessories

| Model No.    | Description   |
|--------------|---|
| HMM450-93029 | For carrying the CA450, the test leads, and the lead cables |
| HMM450-93043 | Large carrying case with hanger strap                       |
| HMM450-99032 | Magnet hook (maximum weight 1.5 kg)                         |
| HMM450-99014 | 1000V CAT III, 600 V CAT IV red black 1 set                 |

Comes complete with 4 “AA” alkaline batteries, test leads, lead cables, fuses (inside the CA450), blank cover and operator's manual.

**Ordering Example:** CA450, process multimeter with loop power and 4 to 20 mA output function.

OCW-2, OMEGACARE<sup>SM</sup> extends standard warranty to an additional two years.