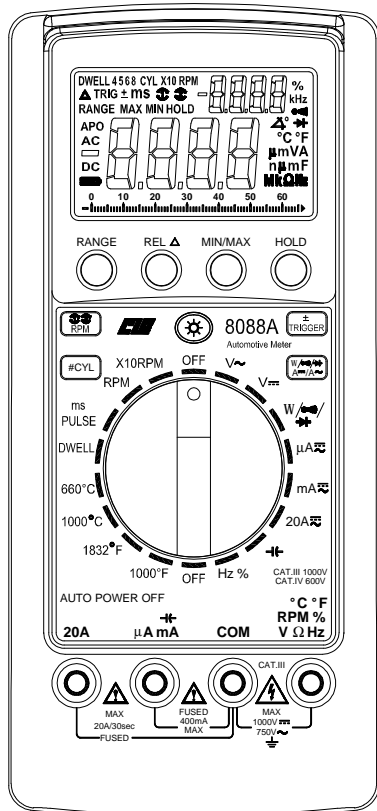


AUTOMOTIVE METER

6600 Counts, Autoranging

MODEL: 8088A

JAN-21-2010



DC Accuracy: $\pm(1.0\% \text{ rdg} + 4 \text{ dgts})$ on 660 μ A to 40mA ranges
 $\pm(1.5\% \text{ rdg} + 4 \text{ dgts})$ on 400mA range
 $\pm(3.0\% \text{ rdg} + 5 \text{ dgts})$ on 20A range

AC Accuracy: (50Hz - 500Hz)
 $\pm(1.5\% \text{ rdg} + 8 \text{ dgts})$ on 660 μ A to 40mA ranges
 $\pm(2.0\% \text{ rdg} + 8 \text{ dgts})$ on 400mA range
 $\pm(3.5\% \text{ rdg} + 8 \text{ dgts})$ on 20A range

Voltage burden: 500mV on 660 μ A, 66mA ranges, 2V on 6600 μ A, 400mA ranges
Input protection: 0.5A/1000V fast blow ceramic fuse (6.3x32mm) on μ A/mA input
 20A/600V fast blow ceramic fuse (10x38mm) on 20A input

20A input: 20A for 30 seconds maximum followed by a 10 minutes cooling period

RESISTANCE

Ranges: 660 Ω , 6.6k Ω , 66k Ω , 660k Ω , 6.6M Ω , 66M Ω **Resolution:** 0.1 Ω
Accuracy: $\pm(1.0\% \text{ rdg} + 8 \text{ dgts})$ on 660 Ω , 6.6k Ω ranges
 $\pm(1.0\% \text{ rdg} + 5 \text{ dgts})$ on 66k Ω , 660k Ω ranges
 $\pm(2.0\% \text{ rdg} + 5 \text{ dgts})$ on 6.6M Ω range, $\pm(3.5\% \text{ rdg} + 5 \text{ dgts})$ on 66M Ω range

Open circuit volts: -1.1V dc typical, (-3.5Vdc on 660 Ω range)

Overload protection: 1000VDC or 750VAC rms

CAPACITANCE

Ranges: 6.6nF, 66nF, 660nF, 6.6 μ F, 66 μ F, 660 μ F, 6.6mF **Resolution:** 1PF
Accuracy: $\pm(3.0\% \text{ rdg} + 30 \text{ dgts})$ on 6.6nF, 660nF ranges
 $\pm(3.0\% \text{ rdg} + 10 \text{ dgts})$ on 66nF, 6.6 μ F, 66 μ F, 660 μ F ranges
 $\pm(5.0\% \text{ rdg} + 10 \text{ dgts})$ on 6.6mF range

Overload protection: 1000VDC or 750VAC rms

When the capacitor to be tested is connected, if "dis.c" symbol indicates on LCD, it means there is voltage existing in the tested capacitor and need to be discharged before testing.

FREQUENCY

Range: 66Hz, 660Hz, 6.6kHz, 66kHz, 200kHz **Resolution:** 0.01Hz
Accuracy: $\pm(0.1\% \text{ rdg} + 5 \text{ dgts})$ **Sensitivity:** 10Hz ~ 200kHz: > 3.5Vrms
Minimum pulse width: > 5 μ s **Duty cycle limits:** >30% and < 70%
Overload protection: 1000VDC or 750VAC rms

TEMPERATURE

Ranges: -20 $^{\circ}$ C ~ 1000 $^{\circ}$ C, -4 $^{\circ}$ F ~ 1832 $^{\circ}$ F **Resolution:** 0.1 $^{\circ}$ C, 0.1 $^{\circ}$ F
Accuracy: $\pm(2.0\% + 4^{\circ}$ C) -20 $^{\circ}$ C ~ 10 $^{\circ}$ C
 $\pm(1.0\% + 3^{\circ}$ C) 10 $^{\circ}$ C ~ 200 $^{\circ}$ C $\pm(3.0\% + 2^{\circ}$ C) 200 $^{\circ}$ C ~ 1000 $^{\circ}$ C
 $\pm(2.0\% + 8^{\circ}$ F) -4 $^{\circ}$ F ~ 50 $^{\circ}$ F $\pm(1.0\% + 6^{\circ}$ F) 50 $^{\circ}$ F ~ 400 $^{\circ}$ F
 $\pm(3.0\% + 4^{\circ}$ F) 400 $^{\circ}$ F ~ 1832 $^{\circ}$ F **Sensor type:** K-type thermocouple

Overload protection: 1000VDC or 750VAC rms

RPM

Range: 600 ~ 6600 (RPM), 6600 ~ 12000 (x10RPM) **Resolution:** 1RPM
Accuracy: $\pm(2\% \text{ rdg} + 5 \text{ dgts})$ **Effect Reading:** > 600RPM
Overload protection: 1000VDC or 750VAC rms

ms-PULSE WIDTH

Range: 0.1ms ~ 10.0ms **Accuracy:** $\pm(2.0\% \text{ rdg} + 0.2\text{ms})$
The applied time for most fuel injectors is displayed on the negative (-) slope.
Overload protection: 1000VDC or 750VAC rms

% DUTY CYCLE

Range: 5% to 95% **Resolution:** 0.1%
Pulse width: >100 μ s, <100ms **Frequency range:** 5% to 95% (40Hz to 10kHz)
Accuracy: $\pm(2\% \text{ rdg} + 10 \text{ dgts})$
The readings of % DUTY CYCLE measurements will show on the sub-display.
Overload protection: 1000VDC or 750VAC rms

DWELL ANGLE

No. OF Cylinders: 4, 5, 6, 8
Range: 0 ~ 90.0 $^{\circ}$ (4CYL), 0 ~ 72.0 $^{\circ}$ (5CYL), 0 ~ 60.0 $^{\circ}$ (6CYL), 0 ~ 45.0 $^{\circ}$ (8CYL)
Resolution: 0.1 $^{\circ}$ **Accuracy:** $\pm(2\% \text{ rdg} + 5 \text{ dgts})$

Overload protection: 1000VDC or 750VAC rms

DIODE TEST

Test current: 0.8mA (approximate) **Accuracy:** $\pm(1.5\% \text{ rdg} + 5 \text{ dgts})$
Open circuit volts: 3.2Vdc typical **Audible indication:** Less than 0.03V
Overload protection: 1000VDC or 750VAC rms

CONTINUITY

Ranges: 660 Ω **Resolution:** 0.1 Ω **Audible indication:** Less than 30 Ω
Response time: 100ms **Overload protection:** 1000VDC or 750VAC rms

AUXILIARY FEATURES

Operation of MAX / MIN

The "MAX" displays the maximum value of measurements. The "MIN" displays the minimum value of measurements. Press MAX/MIN button for more than 2 seconds to exit. The recorded value of MAX/MIN function will show on the sub-display, and the value being measured will show on the main-display.

REL/D : The REL/D button works as the relative mode.

Press REL button again to exit the mode.

DATA HOLD: Operating on all ranges **RANGE:** Execute manual range mode.
 $\Omega / \bullet / \rightarrow / \leftarrow / A^{\sim} / \sim$: shift Ω , \bullet , \rightarrow , \leftarrow , DCA, ACA function

RPM: shift RPM \odot for 2-Cycle engines, RPM \odot for 4 Cycle engines.

\pm TRIGGER: ms PULSE, % DUTY CYCLE Ranges: Press the \pm TRIGGER button to toggle between the negative (-) positive (+) slope.

BACKLIGHT: Backlight auto-off approx. 60 sec blue baklights.

Disable Auto Power Off

Set the DMM to off position, press (RANGE) or (MAX/MIN) button, and hold the (RANGE) button while turning the rotary knob to the desired range position. Release the button when LCD displays normally. Note "APO" annunciator is missing from the LCD. The Auto Power Off mode is activated with an "APO" symbol indicating on LCD.

SPECIFICATIONS

- Display:** 6600 counts. 66-segments analog bar-graph.
- Polarity:** Automatic, (-) negative polarity indication.
- Overrange indication:** "OL" mark indication.
- Low battery indication:** The " " is displayed when the battery voltage drops below the operating level.
- Auto power off:** Approx. 30 minutes.
- Measurement rate:** 2 .8 times per second, nominal.
Anglog bar-graph: 28 times per second.
- Operating environment:** 0 $^{\circ}$ C to 50 $^{\circ}$ C at <70% R.H.
- Storage temperature:** -20 $^{\circ}$ C to 60 $^{\circ}$ C, 0 to 80% R.H. with battery removed from meter.
- Accuracy:** Stated accuracy at 23 $^{\circ}$ C $\pm 5^{\circ}$ C, <75% relative humidity.
- Temperature Coefficient:** 0.1 x (specified accuracy) per $^{\circ}$ C. (0 $^{\circ}$ C to 18 $^{\circ}$ C, 28 $^{\circ}$ C to 50 $^{\circ}$ C). **Altitude:** 6561.7 Feet (2000m).
- Power:** Single 9 battery, NEDA 1604, JIS 006P, IEC 6F22.
- Battery life:** 100 hours typical with carbon-zinc.
- Dimensions:** 198mm (H) x90mm (W) x44mm (D). **Weight:** Approx. 400g.
- Accessories:** One pair test leads, one spare fuse(0.5A/1000V), 9V battery (installed), Operating Instructions, K-type thermocouple, temperature adapter, (RPM) Inductive Pick-up probe HA100.
- Safety:** Designed to meet IEC61010-1(EN61010-1), CAT III 1000V, CAT IV 600V Class II, pollution degree 2, indoor use and comply with CE.

DC VOLTS

Ranges: 660mV, 6.6V, 66V, 660V, 1000V **Resolution:** 0.1mV
Accuracy: $\pm(0.5\% \text{ rdg} + 2 \text{ dgts})$
Input impedance: 660mV: >100M Ω ; 6.6V:10M Ω ; 66V ~ 1000V: 9.1M Ω
Overload protection: 1000VDC or 750VAC rms

AC VOLTS (50Hz - 1KHz)

Ranges: 660mV, 6.6V, 66V, 660 V, 750V **Resolution:** 0.1mV
Accuracy: $\pm(1.5\% \text{ rdg} + 8 \text{ dgts})$ 50 ~ 100Hz on 660mV range
 $\pm(1.5\% \text{ rdg} + 8 \text{ dgts})$ 50 ~ 500Hz on 6.6V to 750V ranges
 $\pm(2.0\% \text{ rdg} + 8 \text{ dgts})$ 500 ~ 1KHz on 6.6V to 660V ranges

FREQUENCY Ranges: 50Hz ~ 1kHz.

Accuracy: $\pm(0.1\% \text{ rdg} + 5 \text{ dgts})$ **Minimum Input Range:** >500dgts.

The readings of frequency measurements will show on the sub-display.

Input impedance: 660mV: >100M Ω ; 6.6V:10M Ω ; 66V ~ 750V: 9.1M Ω

Overload protection: 1000 VDC or 750VAC rms

CURRENT

Ranges: 660 μ A, 6600 μ A, 66mA, 400mA, 20A
Resolution: 0.1 μ A



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DWELL 4568 CYL X10 RPM
 Δ TRIG ± MS - %
 RANGE MAX MIN HOLD kHz
 APO Δ°
 AC °C °F
 DC μmVA
 0 10 20 30 40 50 60 nμmF
 - MkΩHz

RANGE REL Δ MIN/MAX HOLD

RPM 8088A TRIGGER
 Automotive Meter

#CYL X10RPM OFF V~
 RPM V=

ms PULSE W /
 DWELL μA
 660°C mA
 1000°C 20A
 1832°F Hz % CAT.III 1000V
 1000°F OFF Hz % CAT.IV 600V

AUTO POWER OFF °C °F
 20A μA mA COM RPM %
 V Ω Hz

CAT.III

MAX 20A/30sec FUSED
 FUSED 400mA MAX
 MAX 1000V
 750V
 ⚡