



Low Cost, 3 Digit Logic Powered DPM

AD2026*

FEATURES

- Third Generation I²L LSI Design
- Logic Powered (+5 V DC)
- Large 0.56" Red Orange LEDs
- Balanced Differential Input/Floating 1000 V, CMV
- Terminal Block Interface (AC Version)
- High Reliability: >250,000 Hour MTBF
- Small Size and Weight
- Low Cost

GENERAL DESCRIPTION

The AD2026 is specifically designed to provide a digital alternative to analog panel meters. The AD2026 logic powered (+5 V dc). Most of the analog digital circuitry is implemented on a single I²L LSI chip, the AD2020. Only 13 additional components are required to complete the AD2026. The entire assembly is mounted on a single 3" x 1 5/8" PCB.

The AD2026 offers as a standard feature, 0.56" high LED Displays. Brightness is enhanced due to the Red Orange lens. In addition to the Red Orange lens, the AD2026 is also available with a dark red lens for applications where maximum brightness is not required and minimum backlighting is desired.

A unique patented case design utilizes molded-in fingers, both to capture the PCB in the case and to provide snap-in mounting of the DPM in a standard panel cutout. No mounting hardware of any kind is used. The AD2026 occupies less than 1" of space behind the panel.

EXCELLENT PERFORMANCE

The AD2026 offers the instrument designer digital accuracy, resolution and use of readout while occupying less space than its analog counterpart. Other features of analog meters such as reliability and instantaneous response are retained in the AD2026.

The AD2026 measures and displays inputs from -99 mV to +999 mV, with an accuracy of 0.1% of reading ±1 digit. Zero shift is less than one bit over the full operating temperature range, resulting in the same performance as a DPM with auto zero. The balanced differential input of the AD2026 rejects common-mode voltages up to 200 mV, enough to eliminate most ground loop problems.

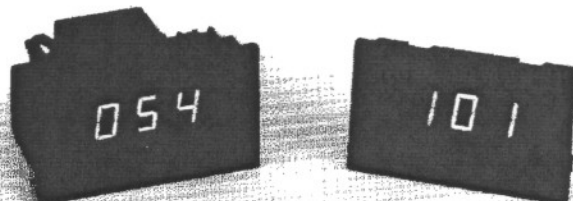
WIRING CONNECTIONS

For Balanced Differential operation with the AD2026, connect input as shown in Figure 1. The common-mode loop must provide a return path for the bias currents internal to the AD2026. The resistance of this path must be less than 100 kΩ and total common-mode voltages must not exceed 200 mV.

*Covered by Patent Numbers: 4,092,698, 29,992; 3,872,466; and 3,887,863.

REV. A

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For applications where attenuation is required scaling resistors can be connected between Pins 6 and 7 and between Pins F and H. Pin 5 must be used as the High Analog Input when scaling resistors are used and Pin 4 when they are not. Pin E is the Analog Low Input.

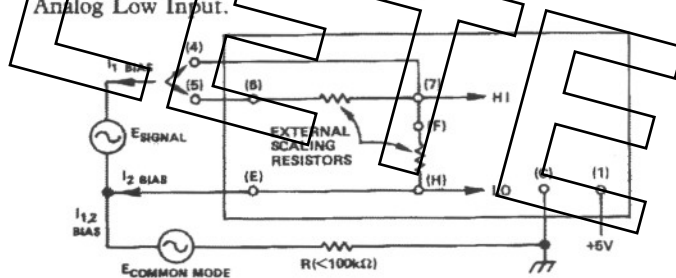


Figure 1.

PIN CONNECTIONS

DC VERSION

Pin	Function	Pin	Function
1	+5 V Power	A	Decimal Point XX.X
2	+5 V Display Power	B	Decimal Point XXX.
3	Decimal Point XXX	C	Power Ground
4	Input (When Scaling Resistors Not Used)	D	Hold
5*	Input (When Scaling Resistors Are Used)	E	Analog Ground
6*	Series Arm of Scaling Resistor Divider	F*	Shunt Arm of Scaling Resistor Divider
7*	Series Arm of Scaling Resistor Divider	H*	Shunt Arm of Scaling Resistor Divider

*Not normally used. Allows convenient mounting of scaling resistors.

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AD2026 — SPECIFICATIONS (typical at +25°C and nominal supply voltage unless otherwise noted)

DISPLAY OUTPUT

- Light Emitting Diode, Planar Seven Segment Display
- Readouts, 0.56" (14.6 mm) High (Orange)
- Overload Indication: EEE
- Negative Indication: -XX
- Negative Overload Indication: - - -
- Decimal Points: Three (3) Selectable at Input Connector

ANALOG INPUT

- Configuration: Balanced Differential Input
- Full-Scale Range: -99 mV to +999 mV
- Automatic Polarity
- Input Impedance: 100 MΩ; 100 kΩ (10 V Option)
- Overvoltage Production: ±15 V dc, Sustained

ACCURACY

- ±0.1% ±1 Digit¹
- Resolution: 1 mV or 10 mV
- Temperature Range²: -10°C to +60°C Operating: -25°C to +80°C Storage
- Temperature Coefficient: Gain: 50 ppm/°C
Zero: 10 μV/°C (Essentially Auto Zero)
- Warm-Up Time to Rated Accuracy: Instantaneous
- Settling Time to Rated Accuracy: 0.3 sec for Full Input Voltage Swing

COMMON-MODE REJECTION

- (1 kΩ Source Imbalance, DC to 1 kHz)
- 50 dB, ±200 mV Common-Mode Voltage
- 116 dB (96 dB on 10 V Range); 1000 V rms Max CMV (AC Version)

NORMAL-MODE REJECTION

- 30 dB at 50 Hz-60 Hz (AC Version)

CONVERSION RATE

- 4 Conversions per Second
- Hold and Read On Command

CONTROL INPUTS

Display Blanking/Display Power Input: The display of the AD2026 can be blanked by removal of power to the display power input, with no effect on conversion circuitry. If external logic switching is used, the display requires 110 mA peak (85 mA Average) when illuminated.

Hold: When the Hold input is at Logic "0", grounded or open circuit, the AD2026 will convert at 4 conversions per second. If a voltage of 0.6 V to 2.4 V is applied to this input, the DPM will stop converting and hold the last reading. A 12 kΩ resistor in series with this input to +5 V will provide the proper voltage input.

DECIMAL POINT

- To Illuminate Decimal Points Ground Appropriate Pin (A, B or 3)

POWER INPUT LOGIC POWER³

- Converter: +5 V ±5%, 0.2 Watts Typ; 0.33 Watts Max
- Display: +5 V ±40%, 0.45 Watts Typ; 0.75 Watts Max

CALIBRATION ADJUSTMENTS

- Gain
- Zero
- Recommended Recalibration Interval: Six Months

SIZE

- 3.43" W " 2.0" H × 0.85" D (87" × 52 × 22 mm)
- 0.88" (22 mm) Overall Depth to Rear of Connector
- Panel Cutout Required: 3.175 ±0.015" × 1.810 ±0.015" (80.65 ±0.38 × 45.97 ±0.38 mm)

WEIGHT

- 1.8 Ounces (53 Grams) (DC Version)

CONNECTIONS

A 10-Pin T&B/Ansley 609-1000M with Two Feet of 10 Conductor Ribbon Cable Is Available. Order AC2618. Conductor to Pin A Is Color Coded. Sequence of Ribbon Connections Is A, 1, B, 2, C, 3, Etc.

ORDERING GUIDE

AD2026

Lens⁴

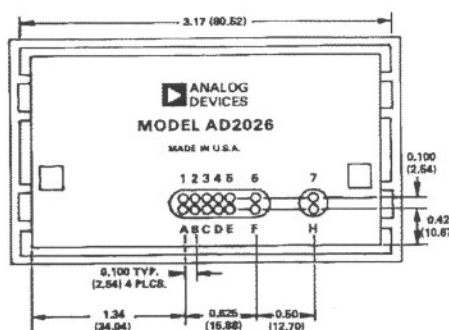
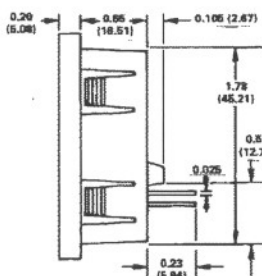
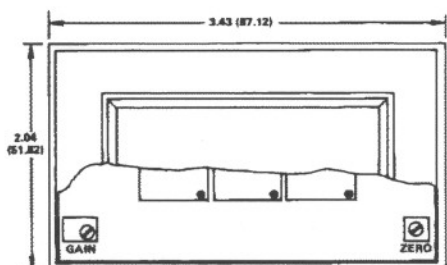
- Red Lens 1 } ENTER
- Red Orange Lens 2 }

NOTES

- ¹Guaranteed at +25°C and nominal supply voltage.
 - ²Guaranteed.
 - ³When the same power supply is used to power both display and converter, +5 V, ±5%, 0.65 watts typical, 0.9 watts max is required.
 - ⁴No Charge Options.
- Specifications subject to change without notice.

OUTLINE DIMENSIONS

Dimensions shown in inches and (mm).



- NOTES:
 1. ALL DIMENSIONS ARE IN INCHES AND (MM).
 2. PANEL THICKNESS 0.0625 TO 0.125 (1.6) TO (3.2).