



# SPECIFICATIONS (typical @ +25°C and +5V dc unless otherwise noted)

## STANDARD

### DISPLAY OUTPUT

- Display consists of three RCA Numitrons (7 segment incandescent readout tubes) for data digits plus 100% overrange.
- Overload – two data digits display dashes when reading exceeds the input range.
- Decimal Points – selectable at input (rear of the case – Figure 5). The AD2002 is supplied with both decimal points connected. The undesired decimal point may be eliminated by drilling out the appropriate plated through hole on the P.C. Board.

### INPUT

- Unipolar, single ended
- Input Range – 0 to +1.99 Volts
- Bias Current – 250nA max. 70nA typ.
- Impedance – 100 Megohms (10k ohms in overload)
- Overvoltage Protection – ±50 Volts sustained without damage

### ACCURACY

- Maximum Error – 0.5% of reading ±1 digit
- Resolution – 10 millivolts
- Temperature Range – 0 to +60°C operating
- Temperature Coefficient – 1/30 digit/°C

### SPEED

- Internal Conversion – 4 second nominal

### POWER<sup>1</sup>

- +5V dc ±5% – 750mA
- Separate dc Inputs – Regulated ±5% 250mA (converter) Unregulated ±10% 500mA (display)

WARM UP TIME – Essentially none required for rated accuracy.

ADJUSTMENTS – Range potentiometer for full scale adjustment. Recalibration recommended after 6 months.

### LAMP TEST

- An external manual switch or power transistor switched to ground will turn on all segments, polarity sign, and decimal points. The switch or transistor must sink 160mA of current.

OPTIONAL – The DP option includes the following:

DATA PROCESSING SIGNALS	In	Out
• DTL/TTL Compatible Logic "0"	<0.8V	<0.4V
Logic "1"	>2.0V	>2.4V

### Inputs

External Trigger – Operation in the External Trigger mode requires that the External Hold input be grounded. A >10μs external trigger pulse (Logic "1" to Logic "0") is required to start each conversion.

External Hold – When this input is grounded or held at 0.8V max, the last conversion is held and displayed. For a new conversion under internal control, this input must be open or at 5V.

Decimal Points – Grounding the appropriate pin or applying Logic "0" illuminates either decimal point. The switch or power transistor used must sink 24mA.

### Outputs

- 2BCD Digits (8421 Positive True) – unlatched – 9TTL loads
- Overrange – Logic "1" indicates an overrange – unlatched – 7TTL loads
- Overload – Logic "1" indicates the input has exceeded the input range – unlatched – 8TTL loads
- Status Signal – Logic "0" indicates conversion is complete – 8TTL loads

### SPEED

- External Trigger – up to 200 conversions/second
- Hold & Read on command

### POLARITY INDICATION

- "+" or "-" polarity indication is programmable externally. A switch or power transistor to ground must sink 24mA for "-" or 48mA for "+".

### SIZE

- 3"W x 1.8"H x 1.5"D (7.6 x 4.6 x 3.8cm)
- Overall depth to rear of connector is 2" (5.1cm) (2.2" (5.7cm) on AD2002/DP)

### WEIGHT

- 4 oz. (113gm)

### ORDERING GUIDE

- AD2002 – Standard 2½ digit DPM without DP option
- AD2002/DP – Standard 2½ digit DPM with DP option

### PRICE

- (1-9) \$118

Connector for use with AD2002 – None Required

Connector for use with AD2002/DP

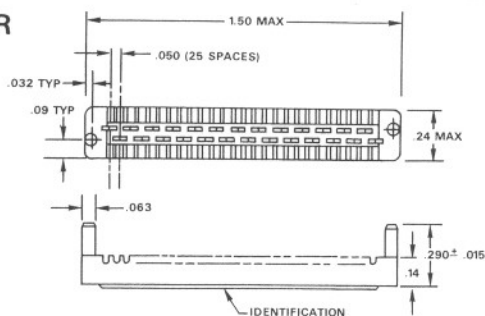
AC5002 3M mating connector part No. 3399-1000  
Price \$4.50 each.

AC5003 6 feet of decade color coded wire mated with the above 3M connector part No. 3399-1000  
Price \$12.00 each.

Specifications subject to change without notice.

<sup>1</sup>To assure the specified life span of the RCA Numitron displays (100,000 hours) when using an unregulated power supply, it is essential that no more than 5.25V dc max be supplied to the displays. Normal voltage range is 4.5 to 5.0V dc.

## COVER



## BODY

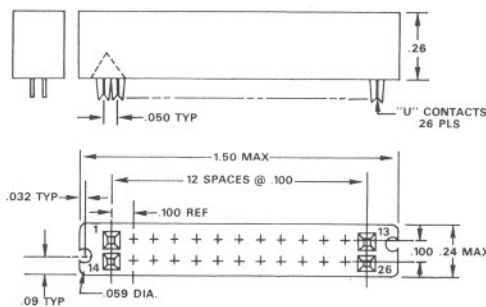


Figure 1. AD2002/DP Connector Options

## TYPICAL PROPERTIES OF AC5002

- Self Stripping
- Simultaneous Terminations
- Positive Pressure Type Connections

### PHYSICAL

- No. Contacts: 26
- Body Material: Glass Filled Nylon
- Contact Metal: Beryllium Copper

- Contact Plating: Gold Over Nickel
- Contact Spacing: Fits Wire on 0.050" Centers
- Color: Gray

### ELECTRICAL

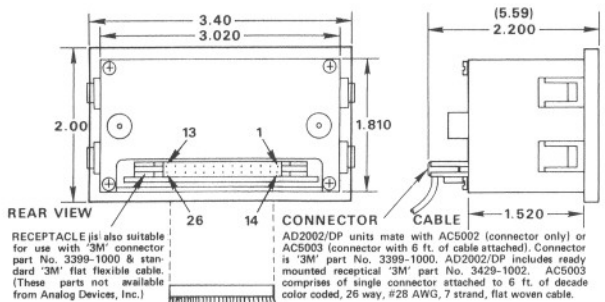
- Temperature Rating: +105°C
- Contact Rating: 1 Amp
- Withstand Voltage: 500V dc (Sea Level)

### WIRE RECOMMENDATIONS

- #28 AWG Solid
- #28 AWG Stranded (7 Strand)
- #30 AWG Solid
- Maximum O.D. of Ins. Wire: 0.038"
- Insulation: (Most Acceptable) – PVC, Non-Irradiated

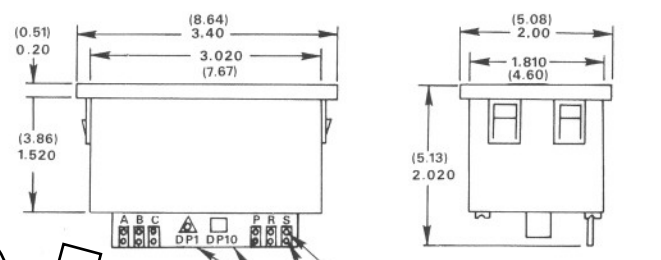
AC5003: consists of AC5002 attached to 6 ft. (1.83m) of decade color coded, 26 way #28 AWG, 7 strand, flat woven cable.





WIRE COLOR	FUNCTION
BROWN	10's DIGIT
RED	1's DIGIT
ORANGE	2's DIGIT
YELLOW	3's DIGIT
GREEN	4's DIGIT
BLUE	5's DIGIT
VIOLET	6's DIGIT
GRAY	7's DIGIT
WHITE	8's DIGIT
BLACK	9's DIGIT
BRN	0's DIGIT
RED	10's DIGIT
ORANGE	20's DIGIT
YELLOW	30's DIGIT
GREEN	40's DIGIT
BLU	50's DIGIT
VIO	60's DIGIT
GRY	70's DIGIT
WHT	80's DIGIT
BLK	90's DIGIT
BRN	00's DIGIT
ORN	100's DIGIT
RED	200's DIGIT
YEL	300's DIGIT
GRN	400's DIGIT
BLU	500's DIGIT
VIO	600's DIGIT
GRY	700's DIGIT
WHT	800's DIGIT
BLK	900's DIGIT
BRN	000's DIGIT
ORN	ANALOG GND
RED	OVERLOAD
YEL	+5V LOGIC
GRN	ANALOG IN
BLU	

Figure 4. AD2002/DP With AC5003 Option



DECIMAL POINT SELECTION FOR UNITS DIGIT DRILL OUT DP10 AND FOR 10'S DIGIT DRILL OUT DP1 DRILL SHOULD BE GREATER THAN .035 DIAMETER.

.043 DIAMETER HOLES SUITABLE FOR SOLDERING INPUT LEADS

.76 DIAMETER HOLES SUITABLE FOR AMP DISCONNECT PART NO. 60973-2 (NOT AVAILABLE FROM ADI, INC.)

(METRIC DIMENSIONS - CM - ARE SHOWN IN PARENTHESES)

SYMBOL	A	B	C	P	R	S
FUNCTION	+5V DISPLAY	DIGITAL GRD	LAMP TEST	ANALOG IN	ANALOG GRD	+5V LOGIC

NOTE: UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE MAXIMUM

Figure 5. Standard AD2002

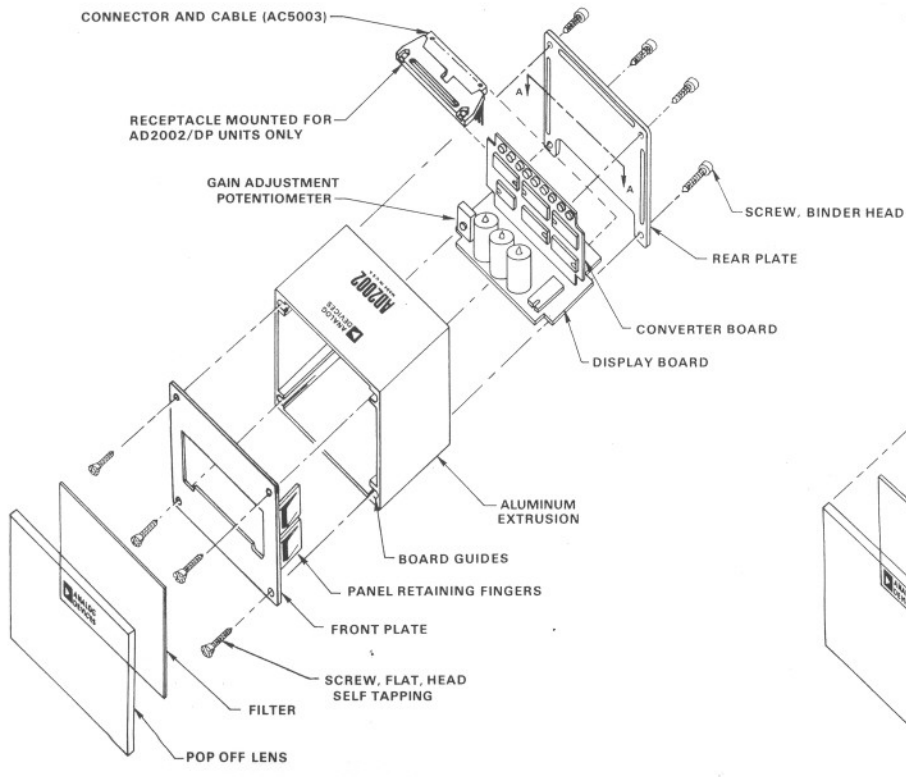


Figure 6. Easy to Maintain

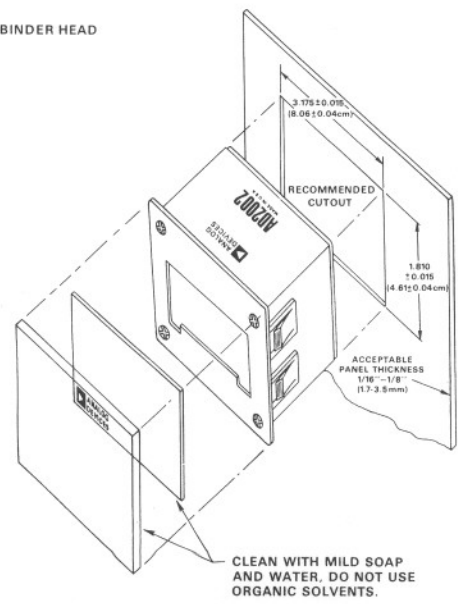


Figure 7. Installation (3 Parts) Into Panel