



The Model 5002 is a 6 digit (-199999 to 999999) red LED programmable indicator for parallel digital inputs, such as BCD, Gray Code & Binary inputs. As a universal indicator, the instrument is fully programmable from the front pushbuttons for decimal point selection, scaling, positive or negative logic, parallel or multiplexed BCD input, Gray Code input & Binary input. The panel mount housing is a standard DIN 48 x 96 size.

Applications include displays for PLC outputs for process control, & displays for absolute shaft encoders.

Options include programmable analog output, one, two, three or four alarms, RS 232 output etc. The analog output is rangeable from the front pushbuttons. The instrument meets European Community EMC directive 89/336/EEC & Low Voltage Directive 73/23/EEC.

Selected options now feature 'Plug & Play' technology, allowing option boards to be ordered separately & field fitted when required.

## FEATURES

- DIN 48 x 96 enclosure, 147mm depth
- 5 ¾ digit display with parallel BCD input (-199999 to 799999)
- 6 digit display with multiplexed BCD input (-199999 to 999999)
- 6 digit display with Gray Code input & Binary input (-199999 to 999999)
- 14.2mm bright red LED display
- Positive or negative (true or inverse) logic
- 5 to 24V logic levels
- Low cost - high performance design
- Keypad lockout as standard
- 'Plug & play' feature available with selected options
- 3 year guarantee

## OPTIONS

3001-P	Two setpoints (solid state relays)	3009	BCD output option
3001-M	Two setpoints (electro-mechanical relays)	3010	95-265V AC/DC power supply
3002	RS 485 communications	3012	Peak / valley hold
3003	0 - 20mA / 4 - 20 mA analog output	3013	RS 232 communications
3004-P	One setpoint (solid state relays)	3017-P	3 setpoints (solid state relays)
3004-M	One setpoint (electro-mechanical relays)	3017-M	3 setpoints (electro-mechanical)
3006	Isolated outputs (order with 3002/3/7/13)	3018-P	4 setpoints (solid state relays)
3007	0 - 5V / 0 - 10V analog output	3018-M	4 setpoints (electro-mechanical)

**NOTE :** Most of the above options are factory fitted. Customer / field fitted options are available as 'plug-&-play' boards and software activated options. Contact factory for more information.

# SPECIFICATIONS

## ELECTRICAL SPECIFICATIONS

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Input types	: Parallel or multiplexed BCD, Gray Code, or Binary input
Logic	: Positive or negative (true or inverse)
Level	: 5 to 24V
Internal pull-ups	: Yes
Display	: 6 digit, 14.2mm red LED, -199999 to 999999
Display update rate	: 5 per second
Memory retention	: Full non-volatile operation
Operating temp. range	: -10°C to +50°C
Storage temperature range	: -40 to +80°C
Humidity	: <85% non-condensing
Relays, electro-mechanical	: 250VAC, 30VDC, 2A, PF=1
Relays, solid state	: 400V AC/DC, 0.5A, PF=1
Analog output accuracy	: 0.1% of full scale
Temperature coefficient	: 20 ppm / °C typically
Current analog output load	: 500 maximum
Voltage analog output load	: 1 k minimum
Option 3006 isolation rating	: 1500 V
EC EMC & Low Volt directives	: 89/336/EEC & 73/23/EEC
Terminations	: 2 way plug for auxiliary supply, 0.2 - 2.5mm <sup>2</sup> : 25 way D-type male connector, with female cable plug incl.

## POWER SUPPLY

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### STANDARD

115 / 230 VAC  $\pm$  10% (standard), link selectable, 50/60Hz, 5VA typical  
12VDC or 24VDC non-isolated on request, 5VA typical

### OPTIONAL

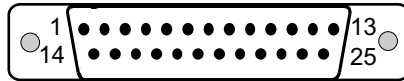
12VDC isolated switch mode power supply option (Option 3008-12), 5VA typical  
24VDC isolated switch mode power supply option (Option 3008-24), 5VA typical  
95V-265V AC/DC switch mode power supply option (Option 3010), 5VA typical

## PROGRAMMABLE SETTINGS

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Decimal point	: x.xxxxx, xx.xxxx, xxx.xxx, xxxx.xx, xxxxx.x (default), xxxxxx
Logic "1"	: High or Low (positive or negative)
Code	: BCD, Gray Code or Binary (default)
Scaling	: 0.001 to 999.999 (default is 1.000)
Method	: Parallel or Multiplexed for BCD
*Analog output zero	: -199999 to 999999 (for 0 - 20 / 4 - 20mA or 0 - 5V / 0 - 10V out)
*Analog output span	: -199999 to 999999
*Alarm values	: -199999 to 999999 (default)
*Alarm hysteresis	: 0 to 255 (default 1)
*Alarm delay	: 0 to 255 seconds (default 0)
*Alarm relay settings	: Selectable HIGH (default) or LOW alarm
*Alarm relay state	: Selectable normally open (default) or normally closed
*Protocol options	: DPM's DIGIbus (default) or ASCIIbus
*RS485 address (Digibus)	: 0 (default) to 127
*RS485 address (ASCIIbus)	: 0 (default) to 99
*RS232 / RS485 baud rate	: 2400, 4800, 9600 (default), 19200

\* indicates option



25-way D-type male connector on indicator

### TERMINATIONS FOR PARALLEL BCD INPUT (5 <sup>3</sup>/<sub>4</sub> DIGIT ONLY)

1 = Binary 1 units	5 = Binary 1 hundreds	9 = Binary 1 ten thousands
14 = Binary 2 units	18 = Binary 2 hundreds	22 = Binary 2 ten thousands
2 = Binary 4 units	6 = Binary 4 hundreds	10 = Binary 4 ten thousands
15 = Binary 8 units	19 = Binary 8 hundreds	23 = Binary 8 ten thousands
3 = Binary 1 tens	7 = Binary 1 thousands	11 = Binary 1 hundred thousands
16 = Binary 2 tens	20 = Binary 2 thousands	24 = Binary 2 hundred thousands
4 = Binary 4 tens	8 = Binary 4 thousands	12 = Binary 4 hundred thousands
17 = Binary 8 tens	21 = Binary 8 thousands	
		25 = Common (negative)
		13 = Polarity pin (Note 1)

### TERMINATIONS FOR MULTIPLEXED BCD INPUT (FULL 6 DIGIT)

1 = Binary 1	3 = Latch enable, units	25 = Common (negative)
14 = Binary 2	16 = Latch enable, tens	13 = Polarity pin (Note 1)
2 = Binary 4	4 = Latch enable, hundreds	
15 = Binary 8	17 = Latch enable, thousands	6, 7, 8, 9, 10, 11, 12, 19, 20,
	5 = Latch enable, ten thousands	21, 22, 23, 24 = Not used
	18 = Latch enable, hundred thousands	

### TERMINATIONS FOR GRAY CODE or BINARY (20-BIT) INPUT (FULL 6 DIGIT)

1 = Bit 1 (LSB)	5 = Bit 9	9 = Bit 17
14 = Bit 2	18 = Bit 10	22 = Bit 18
2 = Bit 3	6 = Bit 11	10 = Bit 19
15 = Bit 4	19 = Bit 12	23 = Bit 20
3 = Bit 5	7 = Bit 13	11 = Not used
16 = Bit 6	20 = Bit 14	24 = Not used
4 = Bit 7	8 = Bit 15	12 = Not used
17 = Bit 8	21 = Bit 16	
		25 = Common (negative)
		13 = Polarity pin (Note 1)

Note (1) : If Positive logic is selected in the menu, then a Low input to pin 13 implies negative polarity.  
 : If Negative logic is selected in the menu, then a Low input to pin 13 implies positive polarity.

Note : Illegal BCD input states are clamped to a value of "9".

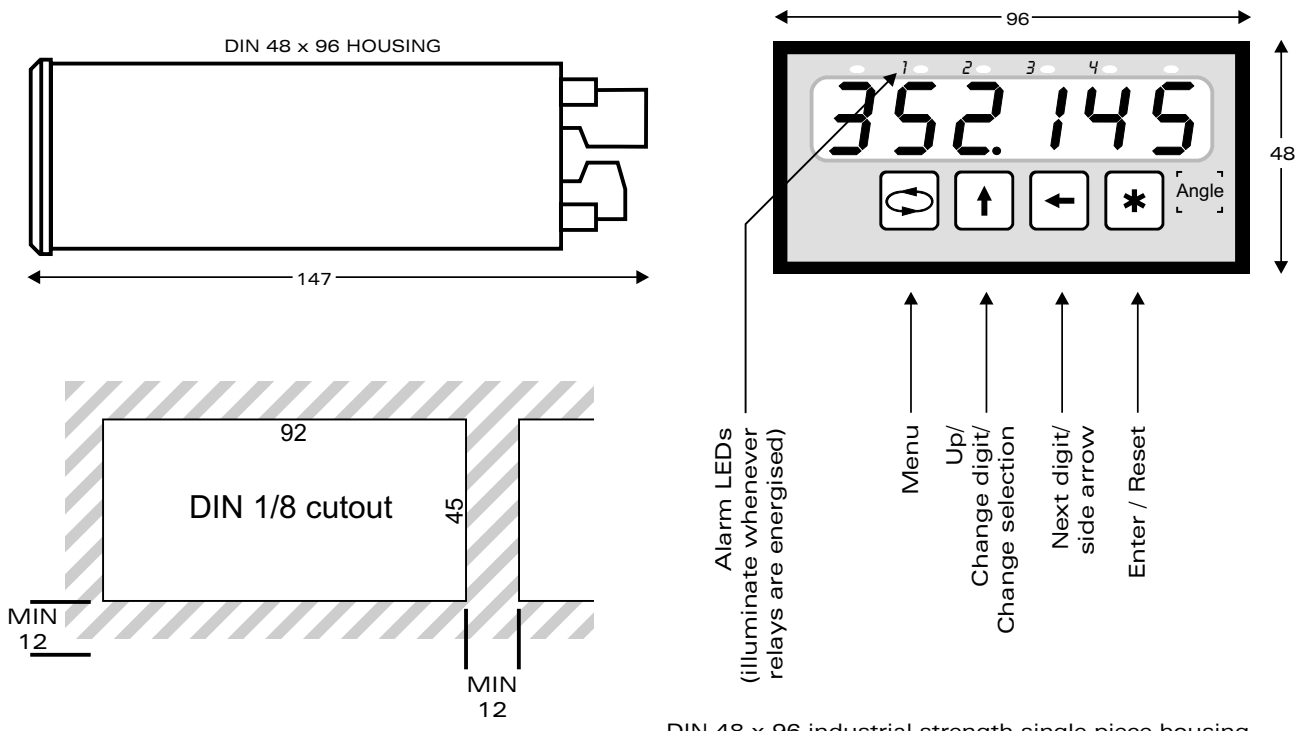
### ORDERING EXAMPLE

Option modules (see page 1)

**MODEL 5002 - 3001P - 3003**

Aux supply : 230 VAC  
 Analog output : 4 - 20 mA = 0 - 250.0  
 Setpoints : 2 setpoints with solid state relays

# FRONT PANEL, DIMENSIONS & CUTOUT



DIN 48 x 96 industrial strength single piece housing  
 Flame retardant ABS plastic, meets UL 94 V-0 flamability rating  
 Front panel IP65 (with o-ring seal supplied as standard)

Dimension in mm

## GUARANTEE

This product is guaranteed against faulty workmanship or defective material, for a period of 2 (two) years from the date of delivery by Instrotech.

Instrotech undertakes to replace without charge all defective equipment which is returned to it (transportation costs prepaid) during the period of guarantee, provided there is no evidence that the equipment has been abused or mishandled in any way.

Instrotech reserves the right to alter any specification without notice.

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