



The Model 4001 four digit (-1999 to 9999) LED Universal Process Indicator can be applied to most process variables with analogue & digital inputs. This high accuracy, high-quality panel meter is designed for accurate measurement & display of pressure, level, flow, frequency, DC voltages or currents & revolutions per minute. Options include linearisation, analogue output and set-points up to a total of four. The display & analogue output is rangeable from the front pushbuttons. Excitation is standard & is link selectable for 2-wire / 3-wire transmitters, encoders & potentiometer input.

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

### FEATURES

- 1/8 DIN enclosure (45 x 92 cut-out), UL 94 V-0 flame retardant, 147mm depth
- Front panel IP 65 / NEMA 4 / UL Type 4 rating, bezel 48 x 96 mm
- -1999 to 9999 display counts, 14.2mm bright red LED display
- 24VDC supply for 2 / 3 wire transmitters
- Low cost - high performance design
- Process inputs, frequency & counting functions
- Keypad lockout available at no extra charge
- Meets EMC directive 89/336/EEC & Low Voltage directive 73/23/EEC
- 2 year guarantee

### OPTIONS

3000	Lineariser (square root / sphere / & more)	3013	RS 232 serial interface
3001-P	2 set points (solid-state relays)	3014	Auto zero (with remote zero)
3001-M	2 set points (electro-mechanical relays)	3017-P	3 set points (solid-state relays)
3002	RS 485 serial interface	3017-M	3 set points (electro-mechanical)
3003	0 - 20mA / 4 - 20 mA analogue output	3018-P	4 set points (solid-state relays)
3004-P	1 set point (solid-state relay)	3018-M	4 set points (electro-mechanical)
3004-M	1 set point (electro-mechanical relay)	3020	Ultra bright Red LED display
3006	Isolated outputs (order with 3002/3/13)	3021	Mains frequency measurement
3008	8 - 30Vdc galvanic isolated DC supply	3022	Vertical bar graph display
3009	Parallel BCD output	3024	Manual set point station
3010	95-265V AC/DC isolated power supply	3025	Keypad lockout Standard
3011	Ohms / tap input	3026	Display hold
3012	Peak / valley hold	3028	10 - 30Vdc non isolated DC supply

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

**NOTE :** Option 3009 cannot be ordered with any alarm options, or with option 3006, or with option 3022.

**NOTE :** Option 3012 & 3014 cannot be ordered together.

# SPECIFICATIONS

## DISPLAY & OPERATION

Specification	4 digit (-1999 to 9999) bright red LED, 14.2mm high
Setup and calibration	Full digital with visual prompting in plain messages
Memory retention	Full non-volatile operation

## ANALOGUE INPUT RANGES

0 - 20 mA	Input impedance 100 $\Omega$	Other ranges on request
4 - 20 mA	Input impedance 100 $\Omega$	
0 - 200mV	Input impedance 100 k $\Omega$	These inputs are all standard and are link selectable, with programmable zero, span and decimal point.
0 - 2 V	Input impedance 100 k $\Omega$	
0 - 10 V	Input impedance 500 k $\Omega$	
0 - 20 V	Input impedance 1 M $\Omega$	
Potentiometer	Input impedance 100 k $\Omega$	

## ANALOGUE PERFORMANCE

Accuracy & linearity	0.05% of full scale, $\pm 1$ display count
Option 3011/3015/3027 accuracy	0.5% of full scale, $\pm 1$ display count
A/D Type & resolution	16 bit dual slope, 40 000 internal counts
A/D conversion rate	Approximately 7 per second
Temperature coefficient	20 ppm/ $^{\circ}$ C typically
Settling time (process inputs)	0.5 seconds
Settling time (frequency input)	5 msec (no averaging)
Power-up / self test time	1 - 3 seconds
Warm up time	None required

## COUNTER / FREQUENCY INPUT

0.2Hz - 20000Hz, 5V nominal, 24V maximum. Up to 0.01 Hz resolution.  
Input factor programmable from 00.01 to 99.99.  
Frequency damping of 0, 0.5, 1.1 and 4.5 seconds programmable  
Frequency display is Hz or RPM programmable  
Counter reset via 'Enter' key (press for 3 seconds) or via external reset (instantaneous).  
NPN / PNP / NAMUR proximity switch selectable via jumper links.

## EXCITATION

### (FOR EXTERNAL TRANSMITTERS, PROXIMITY SWITCHES & POTS)

Link selectable for:  
24 VDC (17-26V), current limited. For 2-wire transmitters, proximity switches or encoders.  
5VDC  $\pm 1\%$ . Maximum 25mA.  
2.5 VDC precision reference, 2mA maximum for potentiometer (2k $\Omega$  pot minimum).

Option: 24 VDC (17-26V), increased current capacity 100mA with option 3010.

## ANALOGUE OUTPUT OPTION

Analog output isolation	Optional, 1500V input/output isolation (order option 3006)
Analog output accuracy	0.1% of full scale, 12-bits
Analog output temp. coefficient	20 ppm / $^{\circ}$ C typically
Current analog output load	500 $\Omega$ maximum (current is source, not sink)
Voltage analog output load	1 k $\Omega$ minimum

## SET POINT OPTIONS

Adjustable settings:	Hysteresis, on delay, hi/lo, normally open/closed
Electro-mechanical relay:	
Rating	250V AC, 30V DC, 2A, power factor 1
Form type	Form C (change-over contact)
Solid-state relay:	
Rating	400V AC/DC, 0.5A, power factor 1
Form type	Form A (normally open contact)

## REGULATORY COMPLIANCE

Regulatory requirements	Complies with EC Directives 89/336/EEC & 73/23/EEC
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### SERIAL INTERFACE OPTIONS

Serial interface  
Isolation to input  
Capabilities - Digibus protocol  
Capabilities - Ascibus protocol

RS-232 or RS-485, 2400, 4800, 9600 & 19200 baud  
Optional, 1500V isolation (order option 3006)  
Full remote control, except for field setup  
- continuous output approximately 5 x second  
- output on demand via print button  
- output on demand via serial request

### ENVIRONMENTAL

Operating temperature range  
Service temperature range  
Storage temperature range  
Humidity

-10 to +50°C  
-15 to +60°C  
-40 to +80°C  
< 85% non-condensing

### MECHANICAL SPECIFICATIONS

Dimensions  
Protection  
Front panel rating

DIN 1/8, 96 mm wide x 48 mm high x 147 mm deep  
Industrial strength, UL 94 V-0 flame retardant ABS plastic  
IP 65 / NEMA 4 / UL Type 4 with supplied o-ring seal

### POWER SUPPLY

#### STANDARD

115 / 230 VAC ± 10% (standard), link selectable, 50/60Hz, 5VA typical  
8 - 30Vdc non-isolated on request, 5VA typical (Option 3028)

#### OPTIONAL

8 - 30Vdc isolated switch mode power supply option (Option 3008), 5VA typical  
95V-265V AC/DC switch mode power supply option (Option 3010), 5VA typical

### ORDERING EXAMPLE

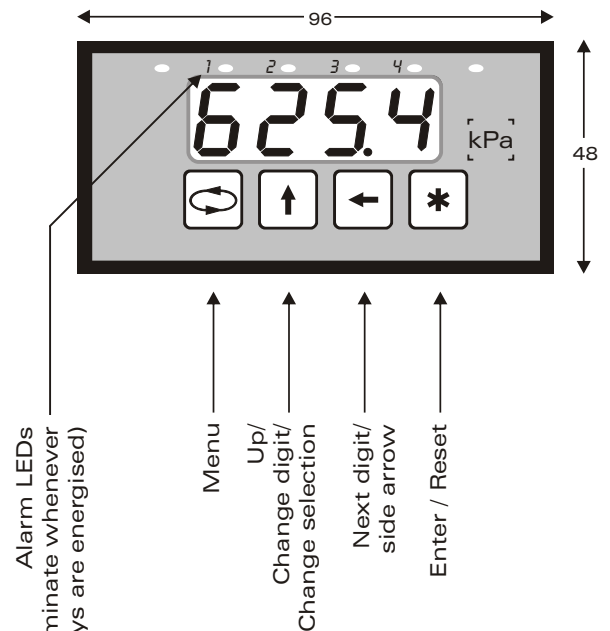
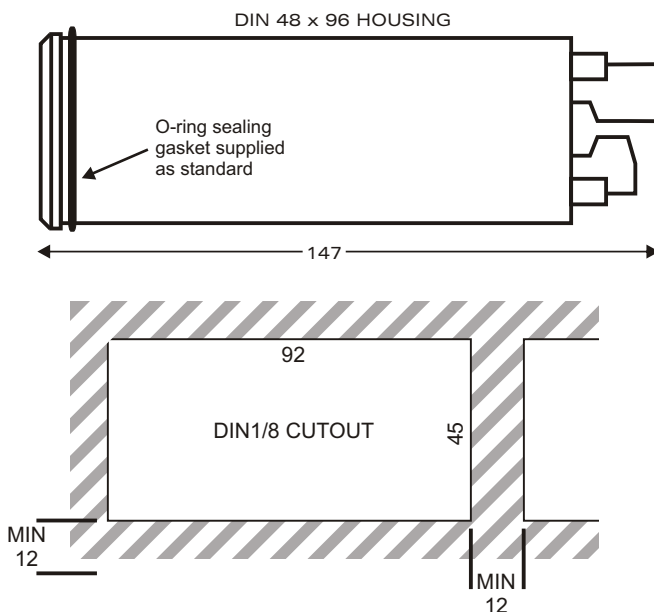
Option modules (see page 1)

**MODEL 4001 - 3001P - 3003**

Input : 4 - 20 mA  
Display : 0 - 350.0 T/Hr  
Aux Supply : 230 VAC  
Analog output : 4 - 20 mA = 0 - 250.0 T/Hr  
Setpoints : 2 setpoints with solid state relays

### FRONT PANEL

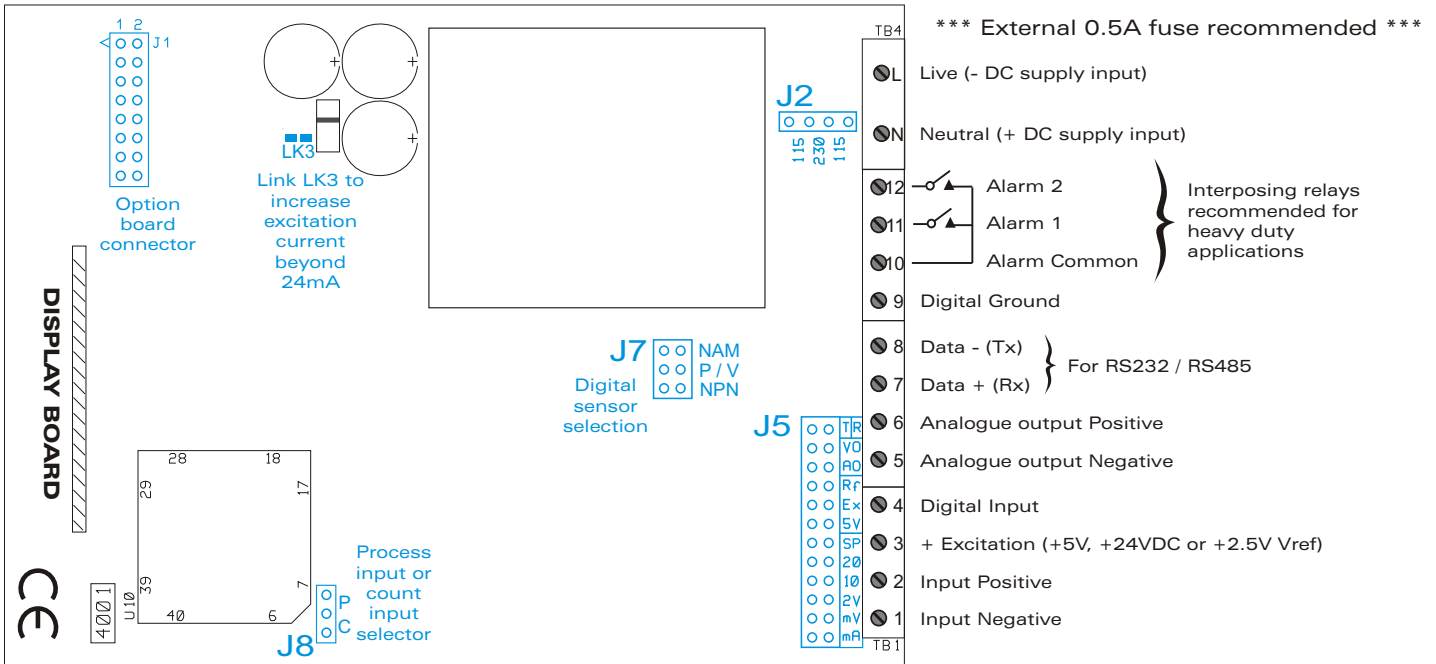
### DIMENSIONS & CUTOUT



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

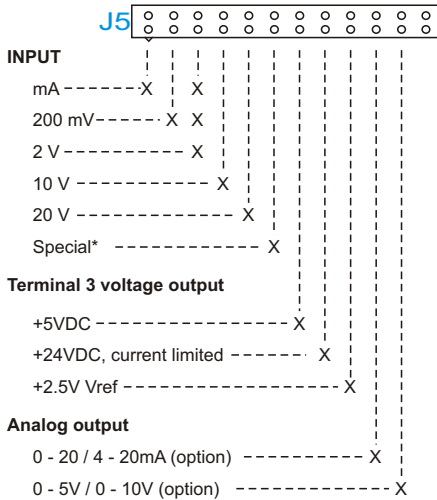
Dimensions in mm

# PINOUT



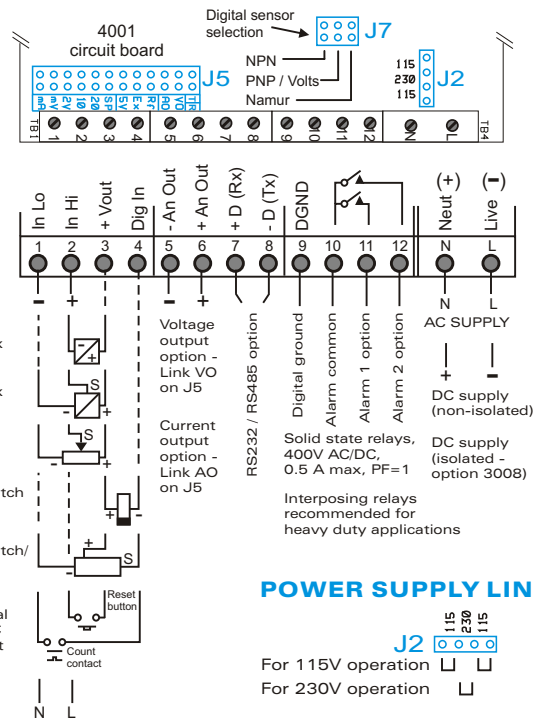
## INTERNAL LINKS

NOTE : Counter reset via 'Enter' key (press for 3 seconds) or via external reset (almost instantaneous).  
 NOTE : To select different proximity switch types, use the appropriate NPN, PNP or Namur link on the circuit board.



\* The "special" input is normally configured for pot input. It can however be configured to order as per customer's requirements.  
 \*\* For 2-wire NAMUR sensors, the proximity switch must be able to operate from 5V supply.

## APPLICATION EXAMPLES



## POWER SUPPLY LINKS

J2   
 For 115V operation   
 For 230V operation

## GUARANTEE

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

The Manufacture 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.

The Manufacture reserves the right to alter any specification without notice.

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