

Programmable 4 Digit Process / Counter / Frequency Indicator Model DPM-4001 AL



DESCRIPTION

Model DPM-4001 AL

The Model DPM-4001 AL 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
- 24V DC supply for 2 / 3 wire transmitters
- Low cost - high performance design
- Process Inputs, frequency & counting functions
- Keypad lockout available at no extra charge
- Meets European EMC directive 89/336/EEC & Low Voltage directive 73/23/EEC

OPTIONS

DPM-3000 AL	Lineariser (square root / sphere / & more)	DPM-3013 AL	RS 232 serial interface
DPM-3001-P AL	Two setpoints (solid-state relays)	DPM-3014 AL	Auto zero (with remote zero)
DPM-3001-M AL	Two setpoints (electro-mechanical relays)	DPM-3015 AL	Differential inputs (non-prog)
DPM-3002 AL	RS485 serial interface	DPM-3017-P AL	3-setpoints (solid-state relays)
DPM-3003 AL	0 – 20mA / 4 – 20mA analogue output	DPM-3017-M AL	3-setpoints (electro-mechanical)
DPM-3004-P AL	One setpoint (solid-state relay)	DPM-3018-P AL	4-setpoints (solid-state relays)
DPM-3004-M AL	One setpoint (electro-mechanical relays)	DPM-3018-M AL	4-setpoints (electro-mechanical)
DPM-3006 AL	Isolated outputs (order with 3002/3/7/13)	DPM-3020 AL	Ultra bright Red LED display
DPM-3007 AL	0 – 10V analogue output	DPM-3021 AL	Mains frequency measurement
DPM-3008 AL	12 / 24V galvanic isolated DC supply	DPM-3022 AL	Vertical bar graph display
DPM-3009 AL	Parallel BCD output	DPM-3024 AL	Manual setpoint display
DPM-3010 AL	95-265V AC/DC isolated power supply	DPM-3025 AL	Keypad lockout
DPM-3011 AL	Ohms / tap input	DPM-3026 AL	Display hold
DPM-3012 AL	Peak / valley hold		

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 DPM-3009 AL cannot be ordered with any alarm options, or with option DPM-3006 AL, or with option DPM-3022 AL.

NOTE: Option DPM-3012 AL & DPM-3014 AL cannot be ordered together.

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

ANALOGUE PERFORMANCE

Accuracy & linearity	0.05% of full scale, ± 1 display count
Option DPM-3011 AL	0.5% of full scale, ± 1 display count
Option DPM-3015 AL	0.5% of full scale, ± 1 display count
A/D Type & resolution	16 bit dual slope, 40000 internal counts
A/D conversion rate	Approximately 7 per second
Temperature coefficient	20ppm / $^{\circ}$ 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

FREQUENCY INPUT RANGE

0.2Hz – 40000Hz, 5V nominal, 24V maximum. Up to 0.01Hz 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 Ω pot minimum)

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

ANALOGUE OUTPUT OPTION

Analogue output isolation	Optional, 1500V input/output isolation (order option DPM-3006 AL)
Analogue output accuracy	0.1% of full scale, 12-bits
Analogue output temp. coefficient	20 ppm / $^{\circ}$ C typically
Current analog output load	500 Ω maximum (current is source, not sink)
Voltage analog output load	1k Ω 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: RS-232 or RS-485, 2400, 4800, 9600 & 19200 baud
 Isolation to input: Optional, 1500V isolation (order option DPM-3006 AL)
 Capabilities – DIGIbus protocol Full remote control, except for field setup
 Capabilities – ASCIIbus protocol
 - continuous output approximately 5 x second
 - output on demand via print button
 - output on demand via serial request

ENVIRONMENTAL

Operating temperature range -10°C to +50°C
 Service temperature range -15°C to +60°C
 Storage temperature range -40°C to +80°C
 Humidity < 85% non-condensing

MECHANICAL SPECIFICATIONS

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

POWER SUPPLY

STANDARD

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

OPTIONAL

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

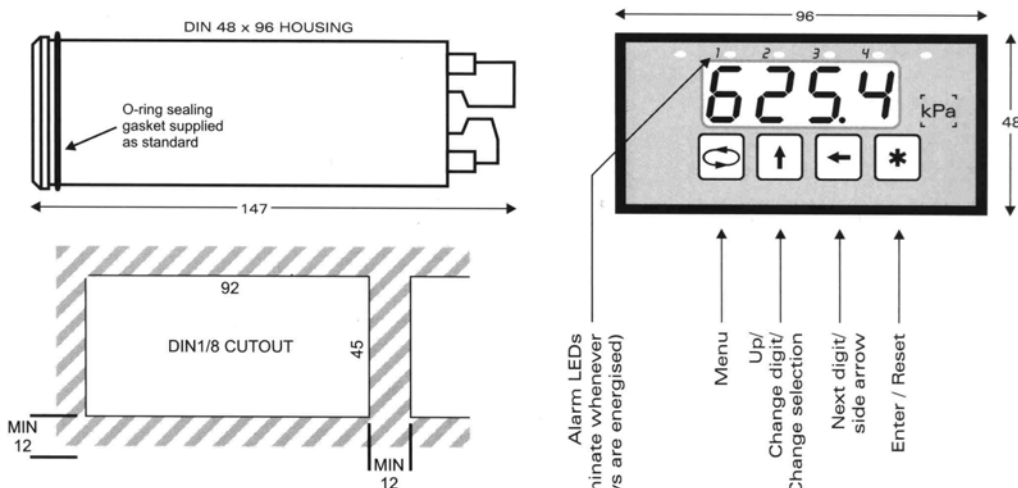
ORDERING EXAMPLE

Option modules (see page 1)

MODEL DPM-4001 AL – DPM-3001-P AL – DPM-3003 AL

Input: 4-20 mA
 Display: 0-350.0 T/Hr
 Aux Supply: 230 VAC
 Analog output: 4-20mA = 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

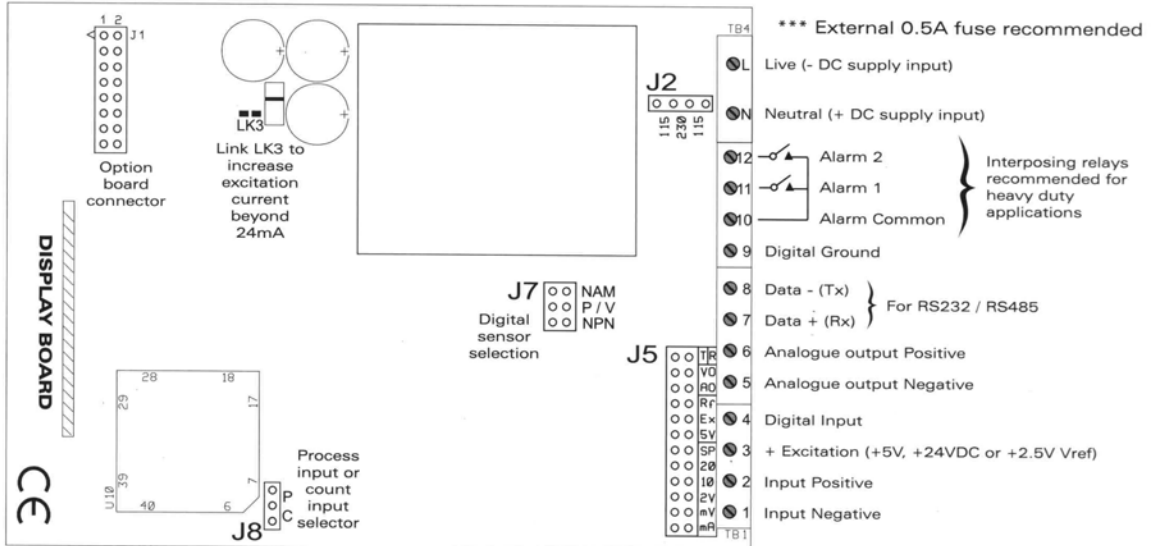
DIN 48 x 96 industrial strength single piece housing
 Flame retardant ABS plastic, meets UL 94 V-0 flammability rating
 IP53 rating (front panel)
 IP 65 option (seal)

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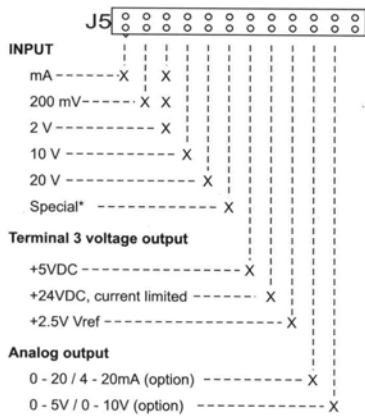
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PINOUT



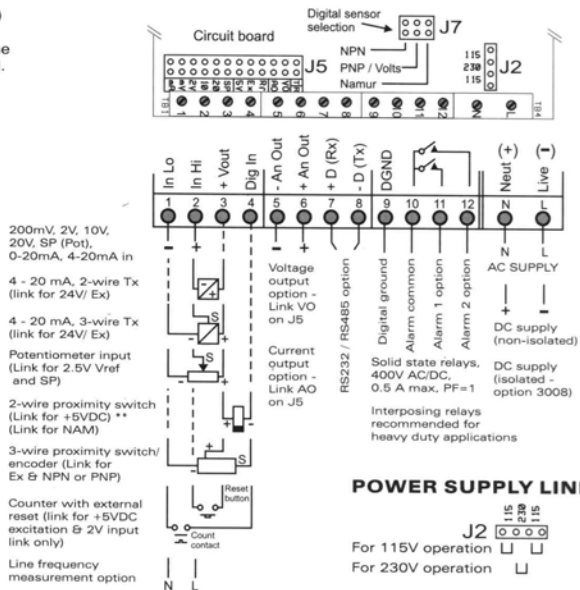
INTERNAL LINKS

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



GUARANTEE

This product is guaranteed against faulty workmanship or defective material, for a period of 3 (three) years from date of delivery by Andreas Lang GmbH.

Andreas Lang GmbH 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. Andreas Lang GmbH reserves the right to alter any specification without notice.

E	<h2 style="margin: 0;">Programmable 4 Digit Process / Counter / Frequency Indicator</h2> <h3 style="margin: 0;">Model DPM-4001 AL</h3>	Andreas Lang GmbH Industrievertretung & Service Bahnhofstraße 33 D - 61137 Schöneck Telefon: +49 (0) 6187 88 54 +49 (0) 6187 88 60 Telefax: +49 (0) 6187 88 71 WebSite: www.alanggmbh.de E-Mail: info@alanggmbh.de
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