



ANDREAS LANG GmbH

Process / Counter / Frequency / Totalising Indicators

Model DPM-5001(-T) AL

Model DPM-8001(-T) AL



DESCRIPTION

These high accuracy, high quality LED indicators are used for universal process, counting and frequency applications. The – T option includes process integration / totalisation function. These indicators can be applied to most process variables with analogue & digital inputs, such as the 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 feature “Plug & Play” technology, allowing option boards to be ordered separately & field fitted when required.

The Model **DPM-5001(-T) AL** is a 5 ½ digit version for both rate and total displays, while the Model **DPM-8001(-T) AL** offer a 5 ½ rate display and an 8 digit totalising display.

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
- Bright red LED displays. 14.2mm height for DPM-5001(-T)AL and 10mm height for DPM-8001(-T)AL
- Model DPM-5001(-T) AL: -199999 to 199999 display counts for rate and total display
- Model DPM-8001(-T) AL: -199999 to 199999 display counts for rate (99999999 counts for total)
- Model DPM-5001(-T) AL or
- Model DPM-8001(-T) AL: process totalising option
- 24VDC supply for 2 / 3 wire transmitters
- Process inputs, frequency & counting functions
- Process x frequency for kW, mass flow applications etc.
- Keypad lockout standard to prevent authorised access to programming menu
- Meets European EMC directive 89/336/EEC & Low Voltage directive 73/23/EEC

OPTIONS

DPM-3000 AL	Lineariser (square root/sphere & more)	DPM-3010 AL	95-265V AC/DC supply (for 4004 only)
DPM-3001-P AL	2-setpoints (solid-state relays)	DPM-3012 AL	Peak or valley hold (min or max hold)
DPM-3001-M AL	2-setpoints (electro-mechanical relays)	DPM-3013 AL	RS 232 serial interface
DPM-3002 AL	RS485 serial interface	DPM-3014 AL	Auto zero (with remote zero)
DPM-3003 AL	0 – 20mA / 4 – 20mA analogue output	DPM-3017-P AL	3-setpoints (solid-state relays)
DPM-3004-P AL	1-setpoint (solid-state relay)	DPM-3017-M AL	3-setpoints (electro-mechanical)
DPM-3004-M AL	1-setpoint (electro-mechanical relays)	DPM-3018-P AL	4-setpoints (solid-state relays)
DPM-3006 AL	Isolation (order with 3002/3/7/13)	DPM-3018-M AL	4-setpoints (electro-mechanical)
DPM-3007 AL	0 – 10V analogue output	DPM-3020 AL	Ultra bright red LED display
DPM-3008 AL	Galvanic isolated DC supply (12 / 24V)	DPM-3026 AL	Display hold
DPM-3009 AL	Parallel BCD output		

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.

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

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SPECIFICATIONS

DISPLAY & OPERATION

Model DPM-5001 AL	Bright red LED display 14.2mm height
Model DPM-8001 AL	Bright red LED display 10mm height
Model DPM-5001 AL	-199999 to 199999 for rate & total display
Model DPM-8001 AL	-199999 to 199999 for rate, 99999999 counts for total
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	0 – 2V	Input impedance 100 $k\Omega$
4 – 20 mA	Input impedance 100 Ω	0 – 10V	Input impedance 500 $k\Omega$
0 – 200mV	Input impedance 100 $k\Omega$	0 – 20V	Input impedance 1 $M\Omega$
Potentiometer	Input impedance 100 $k\Omega$		

These inputs are all standard and are link selectable, with programmable zero, span and decimal point.

ANALOGUE PERFORMANCE

Accuracy & linearity	0.05% 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 / °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 – 40000Hz, 5V nominal, 24V maximum. Up to 0.01Hz resolution.
 Input factor programmable from 00.05 to 1999.99 Hz or RPM programmable.
 Frequency damping of 0, 0.5, 1.1 and 4.5 seconds programmable
 Counter reset via "Enter" key (press for 3 seconds) or via external reset (instantaneous).
 NPN / PNP / NAMUR proximity switch selectable via jumper links.

(-T) TOTALISING FUNCTION

Both models Process integration/totalisation with factor adjustment

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 / °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
Electro-mechanical relay form type:	Form C (change-over contact)
Solid-state relay rating:	400V AC/DC, 0.5A, power factor 1
Solid-state relay 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 \pm 10% (standard), link selectable, 50/60 Hz, 5VA typical
12 VDC or 24VDC non-isolated on request, 5VA typical

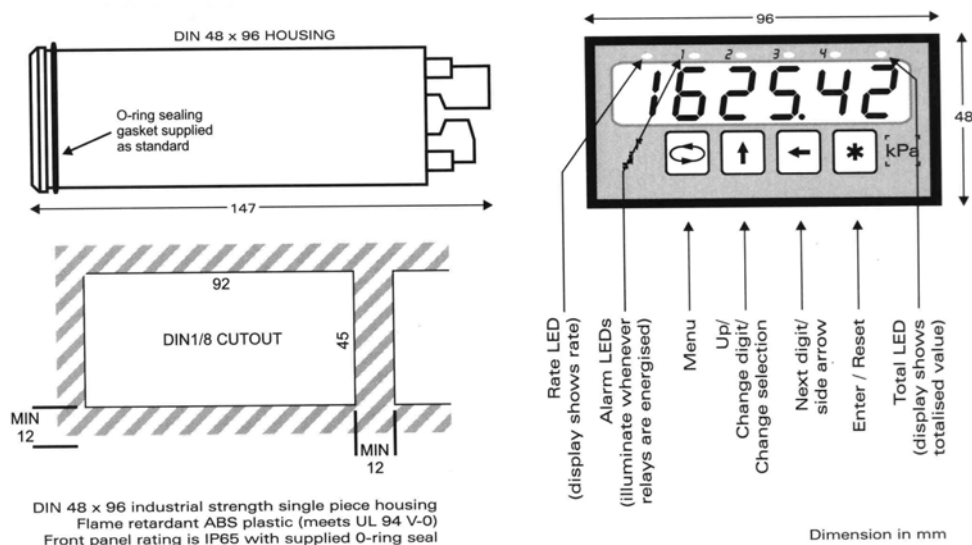
OPTIONAL

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-5001 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

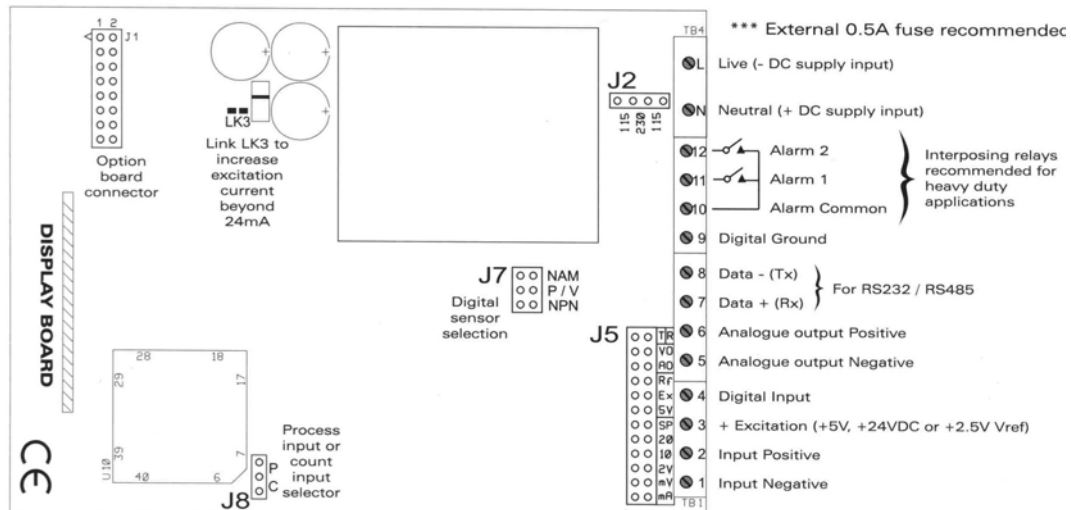


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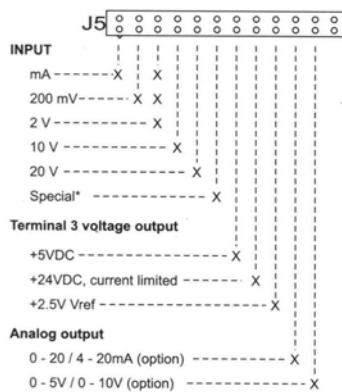
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PINOUT



INTERNAL LINKS

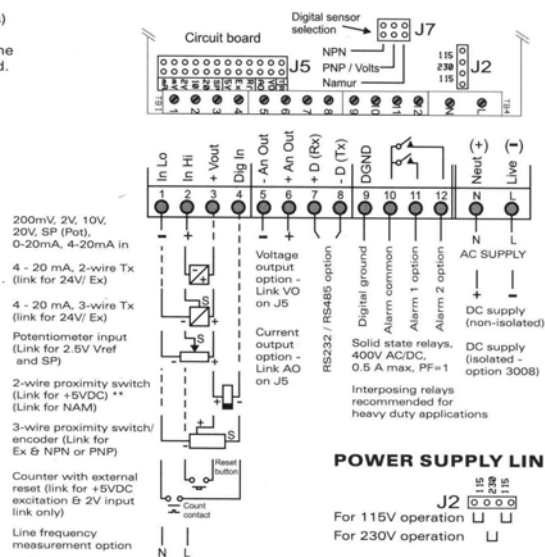
NOTE : Counter reset via 'Enter' key (press for 3 seconds) or via external reset (almost instantaneous).
NOTE : To select different proximity switch types, use the appropriate NPN, PNP or Namur link on the circuit board.



* 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



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.

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