

Serial Input Indicators

Model DPM-4011 AL

Model DPM-5011 AL



DESCRIPTION

The Model DPM-4011 AL (4 digit) & Model DPM-5011 AL (5½ digit) LED serial input indicators are used for remote display of serial data of numeric & alpha-numeric format. These indicators are ideal for applications where multiple slave display units are required. The indicators utilise DPM's ASCIIbus protocol for easy implementation into almost any system. The indicators come with a choice of either RS 232 input or RS 485 input for bus systems. The display may be set to flash on and off whenever the indicator does not receive valid refresh data within a specified time period.

Options include programmable analogue output, one, two, three or four alarms, BCD output and other options. The analogue output is rangeable from the front pushbuttons.

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

FEATURES

- ASCII data format for easy implementation
- Choice of RS232 or RS485 serial interface
- 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
- 14.2mm bright red LED display
- Model DPM-4011 AL: -1999 to 9999 display counts
- Model DPM-5011 AL: -199999 to 199999 display counts
- 99 addresses with selectable baud rate
- Keypad lockout available at no extra charge
- Meets European EMC directive 89/336/EEC & Low Voltage directive 73/23/EEC
- 3 year guarantee

OPTIONS

DPM-3001-P AL	Two setpoints (solid-state relays)	DPM-3010 AL	95-265V AC/DC isolated supply
DPM-3001-M AL	Two setpoints (electro-mechanical relays)	DPM-3012 AL	Peak / valley hold
DPM-3003 AL	0 – 20mA / 4 – 20mA analogue output	DPM-3017-P AL	3-setpoints (solid-state relays)
DPM-3004-P AL	One setpoint (solid-state relay)	DPM-3017-M AL	3-setpoints (electro-mech. relays)
DPM-3004-M AL	One setpoint (electro-mechanical relays)	DPM-3018-P AL	4-setpoints (solid-state relays)
DPM-3006 AL	Signal isolation (order with 3002/3/7/13)	DPM-3018-M AL	4-setpoints (electro-mech. relays)
DPM-3007 AL	0 – 10V analogue output	DPM-3020 AL	Ultra bright red LED display
DPM-3008 AL	Galvanic isolated DC supply (12V / 24V)	DPM-3025 AL	Keypad lockout
DPM-3009 AL	Parallel BCD output		

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SPECIFICATIONS

DISPLAY & OPERATION

Display specification 4011	4 digit (-1999 to 9999) bright red LED, 14.2mm high
Display specification 5011	5 ½ digit (-199999 to 199999) bright red LED, 14.2mm high
Setup and calibration	Full digital with visual prompting in plain messages
Memory retention	Full non-volatile operation

SAMPLING PERFORMANCE

Maximum conversion rate	14 per second
Power-up / self test time	1 – 3 seconds
Warm up time	None required

SERIAL INTERFACE

Serial interface:	RS-232 standard, RS-485 optional
Baud rates	2400, 4800, 9600 & 19200
Line settings	1 start bit, 7 data bits, 1 parity bit, odd parity, 1 stop bit
Address range	00 to 99

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)

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

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

REGULATORY COMPLIANCE

Regulatory requirements	Complies with EC Directives 89/336/EEC & 73/23/EEC
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PROTOCOL

The RS 232 connection allows for communications of up to 15 metres via three wire system (Tx, Rx & GND). No hardware handshaking is required.

The RS 485 connection allows for communications of up to 1000 metres with up to 99 indicators on one RS 485 bus. This is a two wire system. For best results, the cable should be shielded.

The data format string required by the indicator is described below. 7 bit ASCII code is used.

Data Bits:	Acceptable numerical ASCII characters:	0, 1, 2, 3, 4, 5, 6, 7, 8, 9
	Acceptable lower case ASCII alphanumeric:	b, c, d, g, h, l, n, o, r, t, u, y
	Acceptable upper case ASCII alphanumeric:	A, C, E, F, I, J, L, P, S, U

The protocol format is : # A A S D D D D D D D D P C R L F

where

- : # = start of message
- : A A = Instrument address. ASCII 00 to 99. 00 is default.
- : S = sign (polarity) (ASCII "+" or "-" or blank/space) Note (1)
- : D = data bits (data for 8 numerals / letters) Note (2)
- : P = decimal point position. ASCII 0 to 8.
- : CR = ASCII carriage return
- : LF = ASCII line feed

Note 1: ASCII "blank/space" must be transmitted if alphanumeric data is to be transmitted. This allows the indicator to hold the previous numeric value while giving the ability to display a text message.

Note 2: This protocol allows for future expansion. Therefore if Model DPM-4011 AL is used, the first four digit data will be ignored as only 4 digits can be displayed. Similarly, if the Model DPM-5011 AL is used, the first 2 digit data will be ignored as only 6 digits can be displayed.

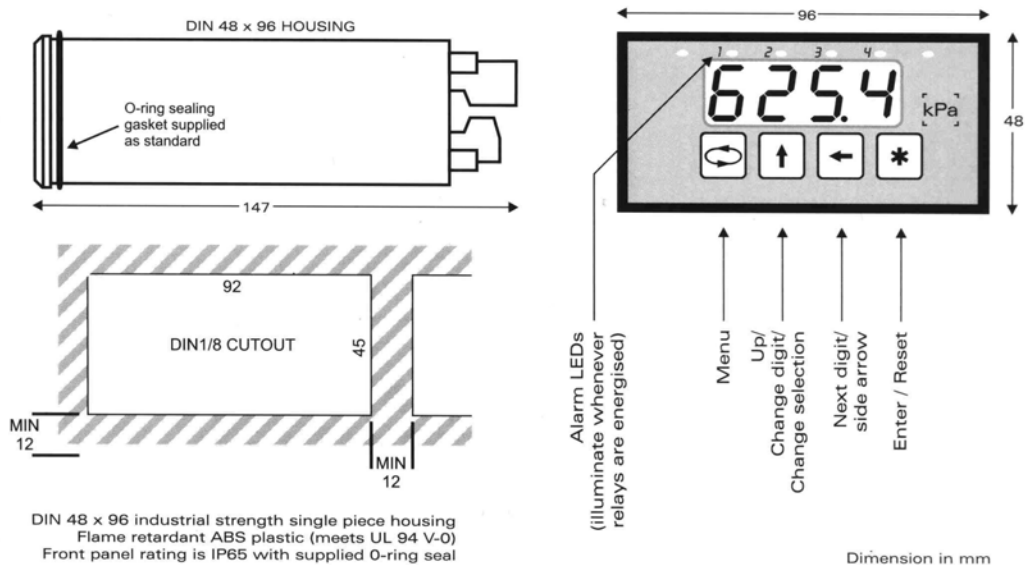
ORDERING EXAMPLE

Option modules (see front page)

MODEL DPM-5011 AL – DPM-3001-P AL – DPM-3003 AL – RS232

Model:	5 ½ digit protocol reader
Aux Supply:	230 VAC
Analogue output:	4-20mA = 0-250.0 kPa
Set points:	2 set points with solid-state relays
Interface method:	RS 232 input required

FRONT PANEL DIMENSIONS & CUTOUT



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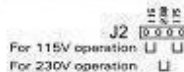
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PINOUT

INTERNAL LINKS

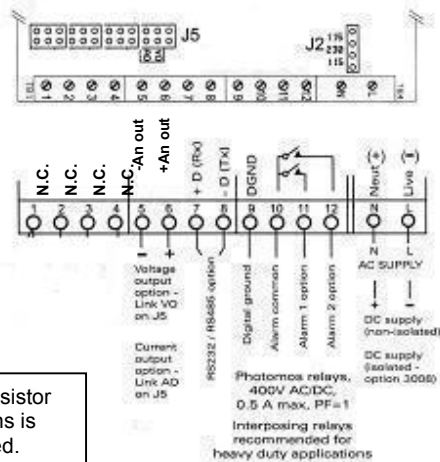


POWER SUPPLY LINKS



Use of a terminating resistor for RS485 applications is highly recommended.

APPLICATION EXAMPLES



COMUTER CONNECTIONS

Should the serial input to the indicator come from a personal computer, the TX terminal of the DPM should be connected to PIN 3 of the 9 / 25 pin COM port of the computer. The RX terminal of the DPM should be connected to PIN 2 of the 9 / 25 pin COM port. The GND terminal should be connected to PIN 5 of the 9 pin COM port or to PIN 7 of the 25 pin COM port.

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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