



ANDREAS LANG GmbH

Programmable BCD / Gray Code / Binary Indicator Model DPM-5002 AL



DESCRIPTION

The Model **DPM-5002 AL** 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 48x96 size.

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

Options include programmable analogue output, one, two, three or four alarms, RS232 output etc. The analogue outputs 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

- 1/8 DIN enclosure (45 x 92mm cut-out), UL 94 V-0 flame retardant, 147mm depth
- Front panel IP 65 / NEMA 4 / UL Type 4 rating, bezel 48x96mm
- 5 3/4 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
- Keypad lockout as standard
- "Plug & Play" feature available with selected options
- Meets European EMC directive 89/336/EEC & Low Voltage directive 73/23/EEC
- 3 year guarantee

OPTIONS

DPM-3001-P AL	2-setpoints (solid-state relays)	DPM-3009 AL	BCD output option
DPM-3001-M AL	2-setpoints (electro-mechanical relays)	DPM-3010 AL	95-265V AC/DC power supply
DPM-3002 AL	RS485 serial interface	DPM-3012 AL	Peak or valley hold (min or max hold)
DPM-3003 AL	0 – 20mA / 4 – 20mA analogue output	DPM-3013 AL	RS 232 serial interface
DPM-3004-P AL	1-setpoint (solid-state relay)	DPM-3017-P AL	3-setpoints (solid-state relays)
DPM-3004-M AL	1-setpoint (electro-mechanical relays)	DPM-3017-M AL	3-setpoints (electro-mechanical)
DPM-3006 AL	Isolation (order with 3002/3/7/13)	DPM-3018-P AL	4-setpoints (solid-state relays)
DPM-3007 AL	0 – 10V analogue output	DPM-3018-M AL	4-setpoints (electro-mechanical)
DPM-3008 AL	Galvanic isolated DC supply (12 / 24V)	DPM-3020 AL	Ultra bright red LED display

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.

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SPECIFICATIONS

GENERAL

Display specification	6 digit (-199999 to 999999) bright red LED, 14.2mm high
Setup and calibration	Full digital with visual prompting in plain messages
Memory retention	Full non-volatile operation
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 update rate	5 per second
Warm-up time	None required
Terminations	2 way plug for auxiliary supply, 0.2 – 2.5mm ² 25 way D-type male connector, with female cable plug incl.

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	500Ω maximum (current is source, not sink)
Voltage analog output load	1kΩ minimum

SET POINT OPTIONS

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)

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

REGULATORY COMPLIANCE

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

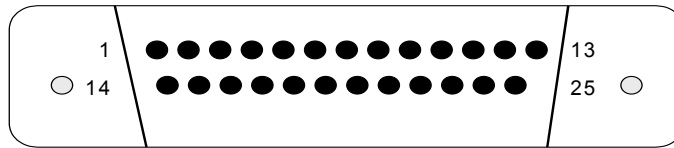
Standard	115 / 230 VAC ± 10% (standard), link selectable, 50/60Hz, 5VA typical 12VDC or 24VDC non-isolated on request, 5VA typical
Optional	12 V DC isolated switch mode power supply option (Option DPM-3008-12 AL), 5VA typical 24 V DC isolated switch mode power supply option (Option DPM-3008-24 AL), 5VA typical 95V-265V AC/DC switch mode power supply option (DPM-3010 AL), 5VA typical

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TERMINATIONS



**25-way D-type male
connector on indicator**

TERMINATIONS PARALLEL BCD INPUT (5 ¼ 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 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 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 DPM-5002 AL – DPM-3001-P AL – DPM-3003 AL

Aux supply: 230 VAC
Analogue outputs : 4-20mA = 0-250.0
Set points : 2 set points with solid-state relays

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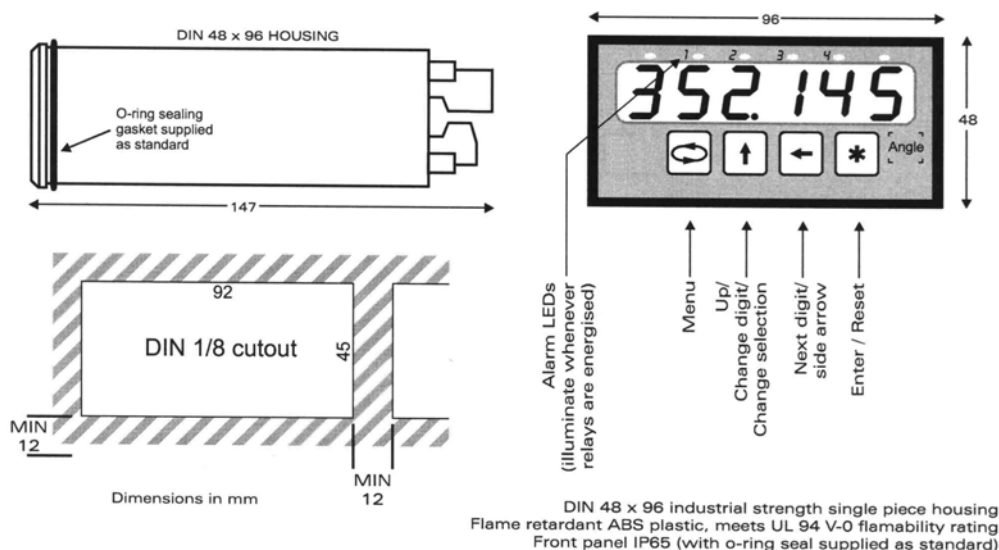
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PROGRAMMABLE SETTINGS

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 – 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-AL'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

FRONT PANEL DIMENSIONS & CUTOUT



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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