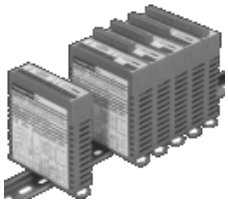
ANDREAS LANG GmbH

Programmable Transmitter
Model DPM-9000 AL
Model DPM-9240 AL



DESCRIPTION

Model DPM-9000 AL & Model DPM-9240 AL

The Model DPM-9000 AL & Model DPM-9240 AL are miniature space saving 92 x 92 x 26 mm DIN rail mount Universal Programmable Transmitters. Configuration and field calibration is done via a notebook computer or desktop PC using user-friendly software available from our WebSite.

Model DPM-9000 AL

This transmitter offers complete 3-way isolation between power supply, input and output. The inputs are programmable to accept thermocouples of type J, K, N, R, S, T & W5, RTD's of type Pt100 or Ni100, mV inputs up to 52mV, 0-20mA / 4-20mA inputs, volt inputs up to 10V, potentiometer inputs, and frequency inputs from NPN / PNP proximity switches. Integral 2-wire transmitter power is supplied as standard with the unit, as well as a precision reference for potentiometer inputs. The analogue output is programmable for 0-20mA / 4-20mA or 0-10V output. The power supply is 95-265V AC/DC as standard. The RS232 serial interface is standard. The serial interface allows connections to remote computers and SCADA systems using DPM´s DIGIbus protocol. The RS485 option allows up to 99 transmitters to be linked on the same bus. The unit can also accept an ASCII based serial input signal for conversion to an analogue output signal. The lineariser feature is standard and the user can select s-curve, sphere, square-root extraction or off (no linearisation).

Model DPM-9240 AL

This transmitter is the same as the Model DPM-9000 AL, but offers a 8-30 VDC isolated power supply instead of 95-265V AC/DC.

FEATURES

- DIN rail mount 92 x 92 x 26 mm enclosure, UL 94 V-0 flame retardant plastic
- Fully programmable via a notebook or desktop PC.
- Low cost - high performance design
- Complete 3-way isolation between power, input and output.
- Temperature inputs of type J, K, N, R, S, T, W5, Pt100, Ni100
- Analogue inputs of type: mV, 0-20mA, 4-20mA, 0-10V, and potentiometer input
- Frequency inputs for NPN or PNP sensors
- 0-10V, 0-20mA or 4-20mA analogue output with programmable zero & span
- RS232 serial communications standard with DIGIbus protocol.
- Meets European EMC directive 89/336/EEC & Low Voltage directive 73/23/EEC

OPTIONS

Model DPM-3001-P AL Two set points (solid-state relays)
Model DPM-3002 AL RS485 serial interface
Model DPM-3004-P AL One set point (solid-state relay)

E	**Programmable Transmitter Model DPM-9000 AL Model DPM-9240 AL**	**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

- Stand Januar 2003

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SPECIFICATIONS

TEMPERATURE INPUT RANGES

The temperature probes are accurately linearised in the following temperature ranges:

Type J	- 25°C to + 900°C
Type K	- 25°C to +1275°C
Type N	+ 200°C to +1200°C
Type S	+ 625°C to +1750°C
Type R	+ 625°C to +1750°C
Type T-	- 235°C to + 25°C
Type T+	- 35°C to + 330°C
Type W5	+1150°C to +2050°C
PT100	-165.0°C to +600.0°C (max.999.9°F)
Ni 100	- 60.0°C to +235.0°C
PT 500 (optional)	-165.0°C to +600.0°C (max. 999.9°F)
PT1000 (optional)	-165.0°C to +600.0°C (max. 999.9°F)
Internal TC resolution	1°C (Type T+ is 0.1°C)
Internal RTD resolution	0.1°C

NOTE:

When the instrument is first installed, it may take a few minutes before accurate readings are shown. This is normally due to the different temperatures between the instrument, panel and thermocouple cable, and these temperature have to stabilise for the cold junction compensation circuit to measure the correct temperature.

This instrument is designed for non-grounded thermocouple probes only.

Note 1: Overall accuracy is dependent on the thermocouple type. The table below lists the designated minimum standard error of some thermocouple types:

Type:	J	K	R	S	T
Minimum Std error:	±2.2C	±2.2C	±1.4C	±1.4C	±0.8C

ANALOGUE INPUT RANGES

0 – 20 mA / 4 – 20 mA	Input impedance 100 Ω
0 – 52 mV	Input impedance >1 MΩ
0 – 10 V	Input impedance 500 kΩ
Potentiometer	Input impedance 500 kΩ

NOTE:

Linearisers feature is standard for s-curve, sphere, square root extraction and off (no linearisation)

NOTE: All measuring ranges are programmable for non-standard inputs. E.g. 10mV – 45MV can be programmed as the zero and full scale values respectively.

FREQUENCY INPUT RANGE

0.2Hz – 40000Hz, 5V nominal, 24V maximum, 0.01Hz resolution maximum
NPN / PNP proxies selectable via solder links under board

GENERAL SPECIFICATIONS

Thermocouple input accuracy	0.5°C, ± 1 display count (note 1 above)
RTD input accuracy	0.3°C, ± 1 display count
Analogue & freq input accuracy	0.05% of full scale, ± 1 display count
A/D Type & resolution	16 bit dual slope, 40000 internal count
A/D conversion rate	Approximately 7 per second
Temperature coefficient	20ppm /°C typically
Settling time (temperature inputs)	1 second
Settling time (frequency input)	5 msec (no averaging)
Memory retention	Full non-volatile operation
Power-up / self test time	1 – 3 seconds
Warm up time	15 minutes typically
RS232 isolation to input	No

EXCITATION FOR EXTERNAL TRANSMITTERS, PROXIES & POTENTIOMETERS

Link selectable
24 VDC (18-24V), current limited. For 2-wire transmitters, proximity switches or encoders.
2.5 VDC precision reference, 2mA maximum for potentiometer (2kΩ pot minimum)

ANALOGUE OUTPUT

Analogue output isolation	1000V input/output/power isolation (3-way)
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	5kΩ minimum

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SET POINT OPTIONS

Solid-state relay rating	400V AC/DC, 0.5A, power factor 1
Form Type	Form A (normally open contact)

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 rail mount92x92x26mm enclosure, IP40 rating
Protection	Industrial strength, UL 94 V-0 flame retardant ABS plastic

POWER SUPPLY OPTIONS

Model DPM-9000 AL	95V – 265V AC/DC isolated supply, 5VA typical
Model DPM-9240 AL	24V DC isolated supply, 5VA typical

REGULATORY COMPLIANCE

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

ORDERING EXAMPLE

Option modules (see front page)

„Programmable transmitter with 95-265V AC/DC power supply and dual alarm option“

MODEL DPM-9000 AL – DPM-3001-P AL

PROGRAMMABLE SETTINGS

The following ranges can be set with the SmartView software, available from our WebSite.

VOLTAGE & CURRENT INPUTS

Input types	:mA, mV, V
Zero & span setting	:-1999 to 20000
Digital filter	: 0, 1, 2 or 4 secs

FREQUENCY INPUT

Scale factor	:0.01 to 99.99
Filter	:0, 0.5, 1.1 & 4.5 sec
Mode	:Hz or RPM

SERIAL INTERFACE

Bus address	:0 to 99
Baud rate	:2400, 4800, 9600, 19k2

TEMPERATURE INPUTS

Units	:°C, °F, or Kelvin
Broken TC	:Selectable high or low
Broken RTA	:Selectable high or low

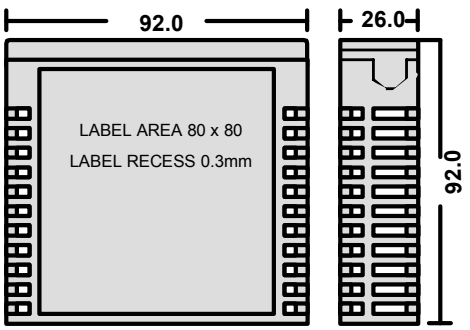
ANALOG OUTPUT

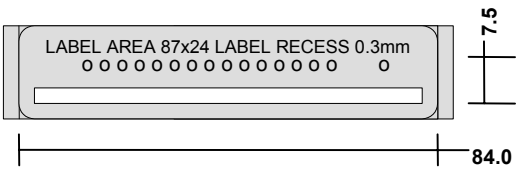
Output type	:0-20mA/4-20mA/0-10V
Zero & span setting	:-1999 to 20000

OPTIONS

Alarm values	:-1999 to 20000
Alarm hysteresis	:0 to 255 (default 1)
Alarm delay	:0 to 255 seconds (default 0)
Alarm relay settings	:Selectable HI or LO alarm
Alarm relay state	:Selectable NO or NC

HOUSING DIMENSIONS





Dimension in mm
IP40 rating
Rail mount industrial strength single piece housing
Rail clips not shown

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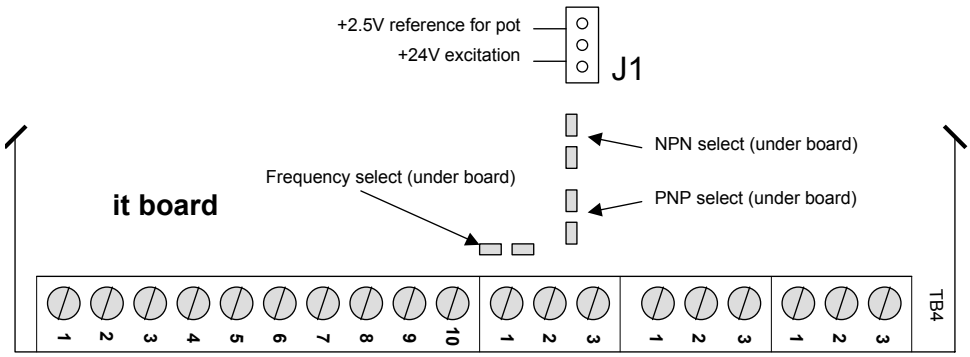

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External 0.5A
SLO BLO Fuse
Recommended
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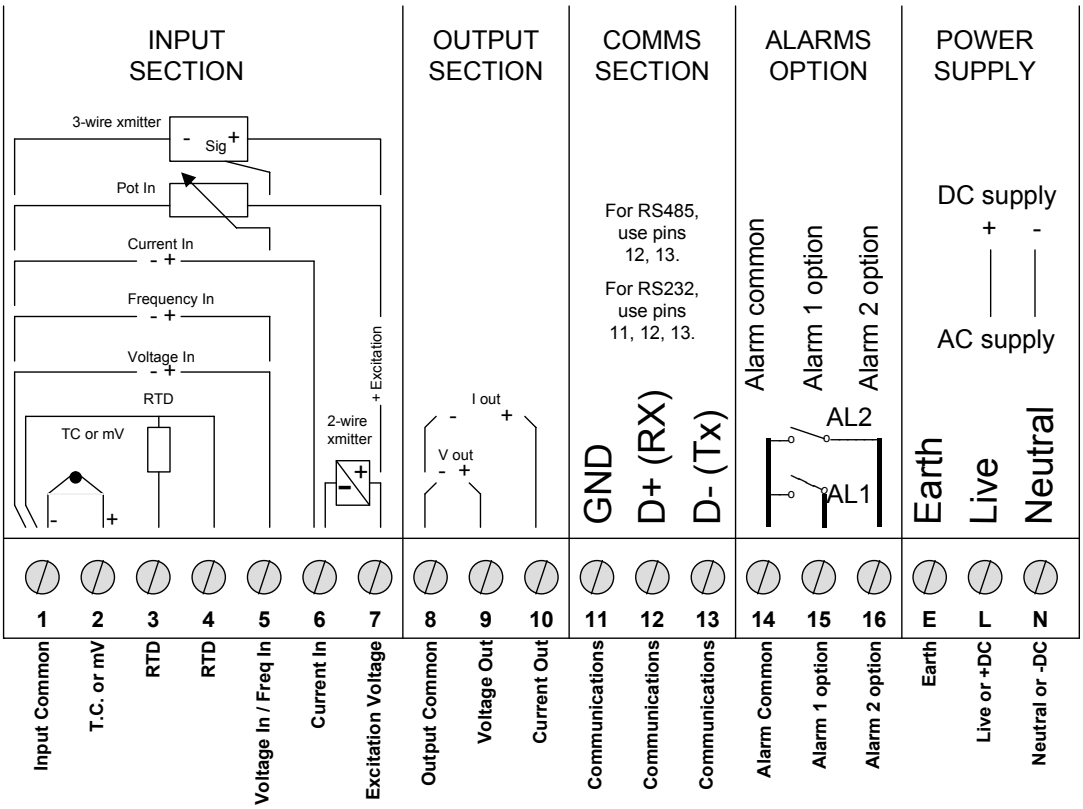
Note: For potentiometer input, link for 2.5V reference voltage.
Note: For loop powered transmitter inputs, link for 24V excitation.

Note: For ASCIIbus input mode, apply frequency-shorting link.
Thereafter for DIGIbus mode, short out terminal 5 to 1.
For ASCIIbus, do not short out terminal 5 to 1.



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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