



Electronic Pressure Regulator

EPDN4-MP series

*Catalogue no. PDE2529TCUK-ab
Edition: November 2006*



Electronic Pressure Regulator EPDN4-MP

General information

Description Proportional valve (Electronic pressure regulator)
Type example EPDN4-MP-0-12B-0U10
Code example 3505500 (see page 7)

Description

EPDN4 = Proportional valve 1/2"
MP = Micro processor
0-12B = Output pressure range: 0 to 12 bar
0U10 = Control signal: 0-10 Volt
(0,1V will be ignored)
= Customer identification if necessary

- Connector M12 4P male
(Plug and cable are not supplied)
- Alarm output signal 24VDC when required pressure is reached
- Fits in the Parker Pneumatic Frame-block (air service unit)

Working medium

Compressed air or inert gases, filtered to min. 50 μ , lubricated or non-lubricated, dried or non dried, above dewpoint.

Pressure range

Primary (Input pressure) max. 16 bar
Secondary (Output pressure) 0-12 bar
The output pressure is indicated on a built-in digital display.
Pressure drop input/output min. 0,5 bar

Supply voltage

24V DC \pm 10% (-20% / +25% with decrease of specs).
Reverse protected
Max. 200 mA.

Temperature range -10°C - +50°C

Class of protection IP 65

Flow capacity 1800 NI/min (acc. VDI 2173)

Settings

Dead band: \pm 1% of FS (= \pm 0,12 bar) = Hysteresis
Proportional band: \pm 10% of FS (= \pm 1,2 bar)
Signal band: \pm 10% of FS (= \pm 1,2 bar)

Accuracy

Linearity : < 0,3% of FS

Control signal

- 0...10V (Ri = -100k Ohm)
Due to safety exhaust, 0,1V will be ignored.
- 0(4)...20mA (Ri = 500 Ohm)
The control signal can be changed by means of parameters. (see page 4 ,5 and 6).

Alarm output signal

Within the signal band an output signal is available: 24VDC, PNP open collector, max 50mA, prevented against short-circuit (accepts inductive loads) or analog signal 0-10 V.
See page 4, for electrical connections

Air consumption

Under normal conditions and in steady state there is no air consumption.

Parameters.

Functionality of EPD can be manipulated by means of parameterset. This set can be changed by means of the 3 buttons at the front side of the EPD.
For details see page 5 and 6 'How to change parameters'.

Behaviour control.

In this version we introduced a five steps behaviour control functionality. This gives the user the capability of changing the regulation speed and accuracy by means of one parameter. (P20). For details see page 6.

Auto_enable functie.

The enable function can be activated automatically, and is activated when the enable input is made 'high' (24V), the first time after power on. For details see page 6.

Hidden functions.

There are several additional functions to perform different tasks, for instance resetting the default settings, storing actual parameters as the default set.
For details see page 5 and 6.

Available options.

Analog output.
External analog input.
Infrared communication.

For additional information, consult referred section or please contact factory.

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Pilot valve protection

When the required output pressure can not be achieved because of a lack of input pressure the unit will display “No. P”. The output pressure will then approximately be equal to the inlet pressure. As soon as the input pressure is back on the required level the normal control function follows.

Safety exhaust

The valve will force exhaust at a control signal below 0,1 volt.

Response times

For a volume of 330 cm³ directly on the outlet of the regulator:

Pressure increase from 2 to 4 bar	≈	32 msecs
Pressure increase from 2 to 8 bar	≈	137 msecs
Pressure decrease from 4 to 2 bar	≈	64 msecs
Pressure decrease from 8 to 2 bar	≈	159 msecs

For a volume of 330 cm³ on a distance of 20 meters from the regulator (connected with tubing - inner Ø 10 mm)

Pressure increase from 2 to 4 bar	≈	56 msecs
Pressure increase from 2 to 8 bar	≈	200 msecs
Pressure decrease from 4 to 2 bar	≈	69 msecs
Pressure decrease from 8 to 2 bar	≈	196 msecs

Settings

The regulator is pre-set at the factory as indicated on label. If required, adjustments can be made, see page 5 and 6.

Drawing

Attached is a drawing showing the dimensions and the pneumatic scheme.

Mounting

The unit preferably is to be mounted vertically with the electrical connection to the top.

Materials used

Body	: Anodised aluminium
Seals	: NBR
Valve	: Polyurethane
Inner parts	: Delrin, brass, aluminium

Electrical connections

Use plug M12 - 4pole female
(Other connectors available on request)

The electrical connections are as follows:

Pin no.	Function	Colour
1	24V supply	brown
2	0-10V control signal Ri = 100k	white
3	0V (GND) supply	blue
4	24V alarm output signal	black

Change the control signal

From 0 - 10 V to 0 - 20mA (Ri = 500Ω): (Parameter 4)

From 0 - 10 V to 4 - 20mA (Ri = 500Ω): (Parameter 4 + 29)

Warning

Do not adjust any of the other parameters. These are factory settings. Any other change can have a big influence on the performance of the regulator.

Parker Pneumatic does not warranty units which have not been properly used and/or adjusted.

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Parameter setting

Changeable user parameters*	Setting	Standard value	Description	Unit	Action	Result
0	0 1 2 3	0	n.u. n.u. n.u. green key		Back to factory settings	Back to normal settings
4	0 1	1	mA V		Set setpoint input to mA Set setpoint input to volt	0(4)-20mA, (P29) 0-10V
5	0 1	0	mA V		Set external input to mA Set external input to volt	0(4)-20mA, (P29) 0-10V
6	0 1	0	Alarm output Analog output		Set output to digital alarm output Set output to analog output	24V= in band 0-10V~P_out
7	0 to 20	0		% F.S.	Set analog output offset	offset = 0-2V
8	80 to 120	100		% F.S.	Set analog output span	span = 0-11V
12	50 to 250	100		x 10 mBar	Set proportional area	0,5 to 2,5 Bar
13	2 to 40	15		x 10mBar	Set deadband area	20 to 400 mBar
15	1 to 250	1		x 10 mBar	Set slow area	0 to 2,5 Bar
16	1 to 20	5		*****	Set slow steps	highest speed lowest speed
18	0 to 200	0		x 10 mBar	Set preset pressure (x10 mBar)	0 to 2 bar
19	0 to 100	100		% F.S.	Pressure correction	0 to P-max
20	0 1 2 3 4 5	3	Custom set Fastest Fast Normal Slow Slowest		Set behaviour control	P 12,13, 21
21	5 to 100	10			Set proportional value	fastest regulation slowest regulation
29	0 to 255	0			Set setpoint/external offset	(4mA~165)

*Other parameter settings are available. Consult factory.

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How to change parameters:

Pressing Accept key for more than 3 sec, will activate parameter change mode. User can select parameter by pressing up or down key on EPD.(display shows Pxx). When parameter number is correct, pressing accept again will enter parameter number.(display shows parameter value now). Pressing the up or down key will change the parameter itself now. (blinking display point shows parameter editing mode). Pressing the accept key will accept the new parameter value. (all digits will blink during acceptance). After releasing all keys, the next parameter number will be presented on the display. (you may evt. step to the next parameter). When no key is pressed, after ca. 3 sec the display will show the actual output pressure.

When the unit is initially powered up allow approximately 10 seconds for the unit to “boot-up” before changing parameter settings

Hidden functions EPDN4-MP

During startup unit. (Power goes on)

When keys DOWN and UP are pressed during startup, (connecting to the 24V power supply) manual modus is activated. This means that the user is able to in/decrease the output pressure of the EPD, by pressing the UP or DOWN key. During this action the display will blink, indicating that the manual mode is activated.

Pressing the UP and DOWN key again simultaneously will cause the EPD to terminate manual modus.

After startup. (Power is on)

Parameter 0 = 3 (green_key function)

Entering this value in parameter 0 will store the calibrated factory data into the working parameters. (Default calibration data is used)

Auto enable function.

Default the auto enable function is deactivated. The unit will now respond to any new applied setpoint.

If the enable input is made high (24Vdc) for the first time, the auto enable function is activated. The unit will now only respond to the new setpoint when the enable input is high.

If auto enable function is activated and the enable input is low. Pressing UP or DOWN will cause the unit to go in manual modus. The user is able to in/decrease the output pressure of the EPD, by pressing the UP or DOWN key. During this action the display will blink, indicating that the manual mode is activated.

When the enable input becomes high, the new setpoint will overrule the manual setting, and will exit the manual mode directly. Also pressing the UP and DOWN key again simultaneously will cause the EPD to terminate manual modus.

Behaviour control.

The regulation speed of the pressure regulator can be modified by means of one parameter. (P 20)

The value in this parameter has a range from 0-5, an higher value means slower regulation speed. (but more accurate). When the value 0 is entered, you are able to create your own custom settings true parameters 12,13 and 21.

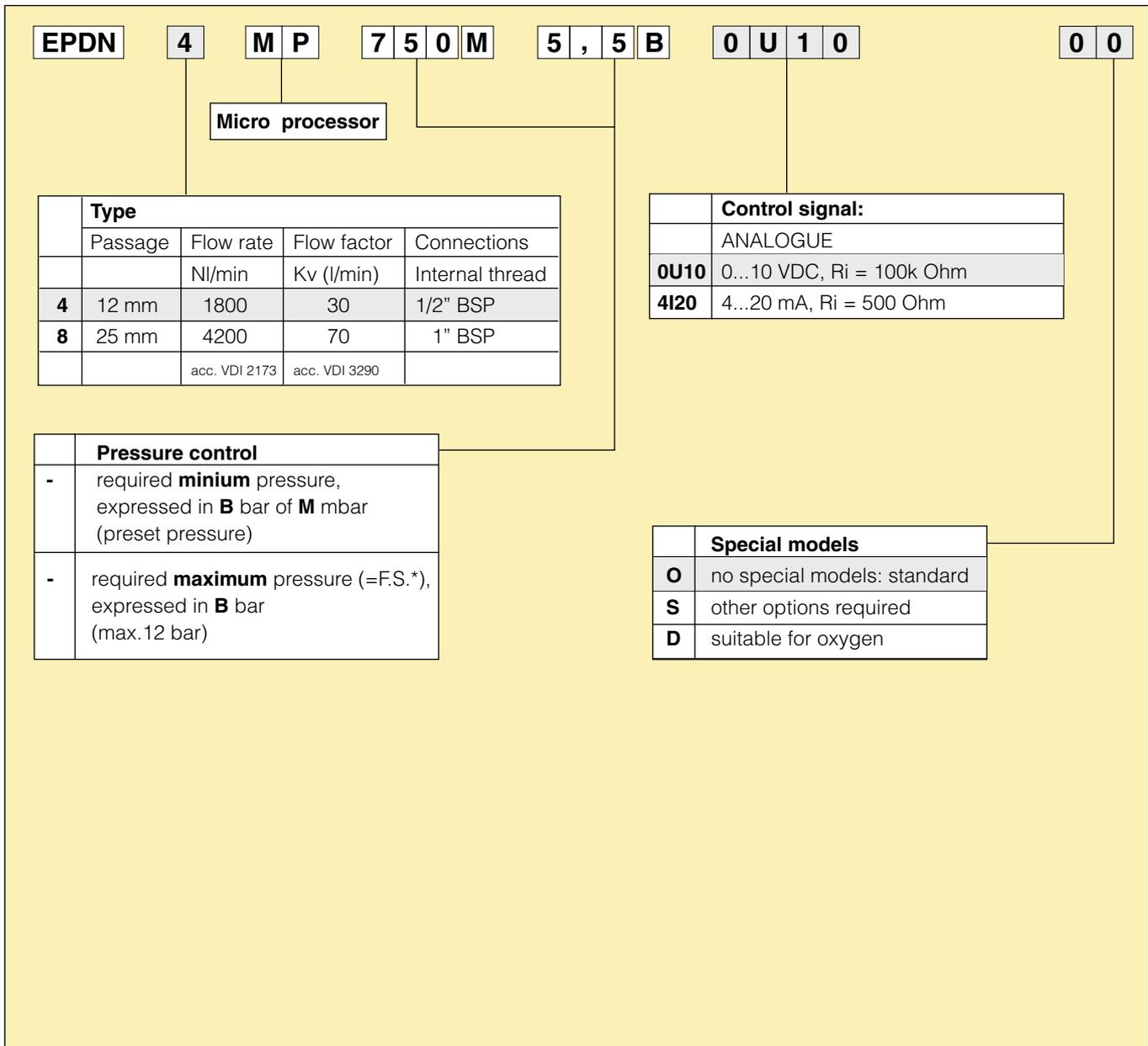
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With M12 connector - size 1/2"

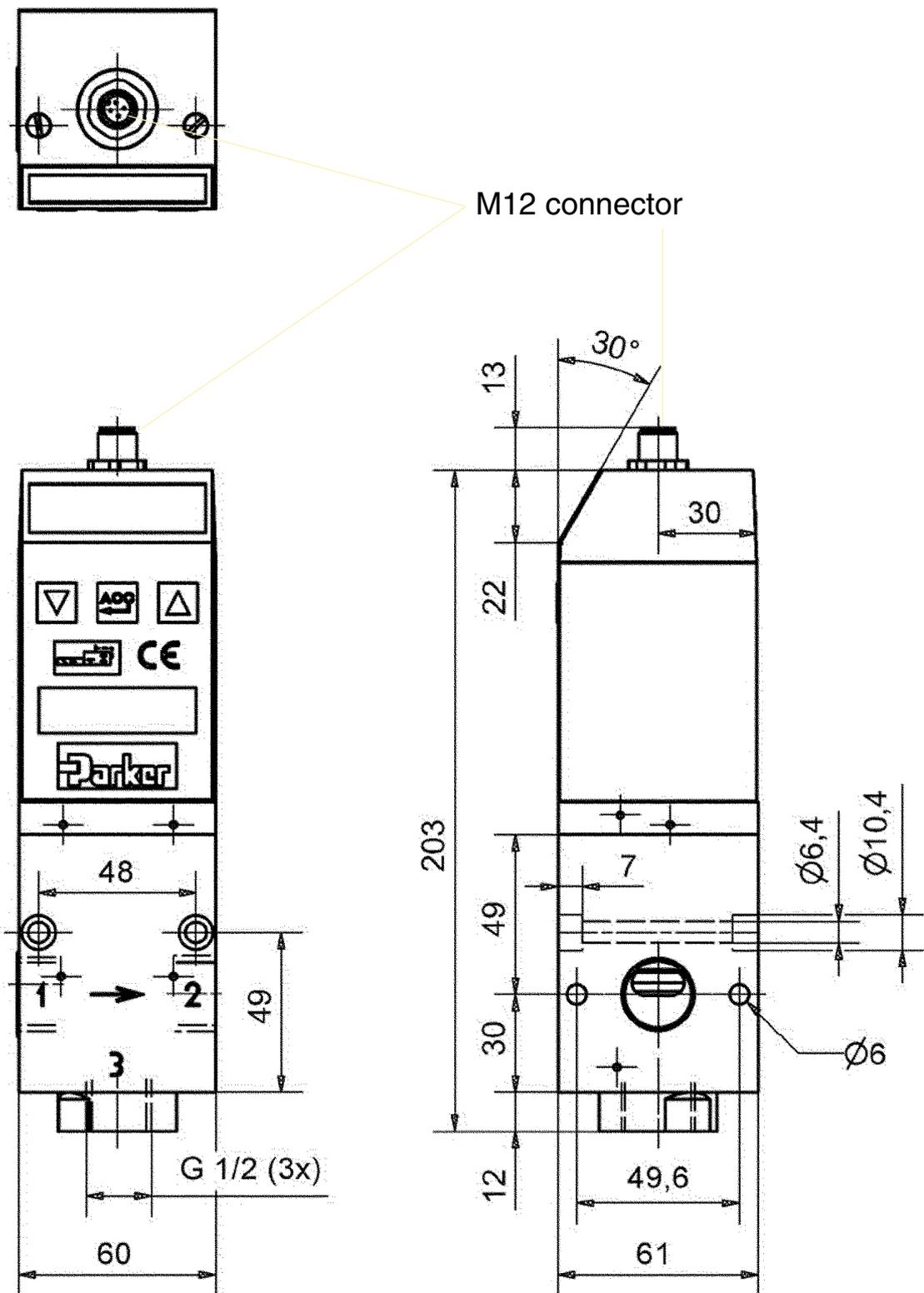
Order code

EPDN4-MP-0-12B-0U10	3505500
EPDN4-MP-0-12B-4I20	3505600
EPDN4-MP-0-7B-0U10	3505700
EPDN4-MP-0-7B-4I20	3505800
EPDN4-MP-0-2B-0U10	3505900
EPDN4-MP-0-2B-4I20	3506000

Ordering-key Specials



Electronic Pressure Regulator EPDN4-MP



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