



Bulletin HY11-5715-584/UK

## Installation Manual Series PWD 00B-400

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### Amplifier for Proportional Directional Control Valves



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**Note**

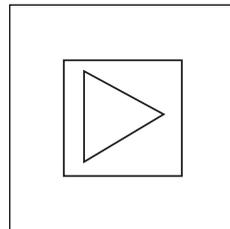
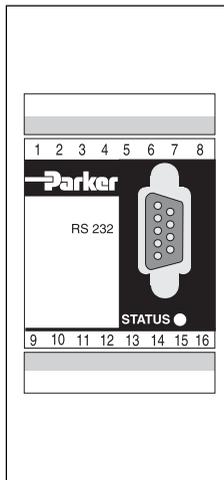
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## Installation Manual

Digital electronic module to drive proportional directional control valves without position feedback.

### Features

- Digital power amplifier.
- Differential command input.
- Voltage input.
- Programmable via serial interface (RS232).
- Status output.
- Four-quadrant rampfunction.
- Four internal programmable command values.
- Software for parameterization.
- Also programmable by scientific calculator (HP48G) Ordering code: HP-P\*D-GERMAN or HP-P\*D-ENGLISH
- Solenoid cable breakdown detection.

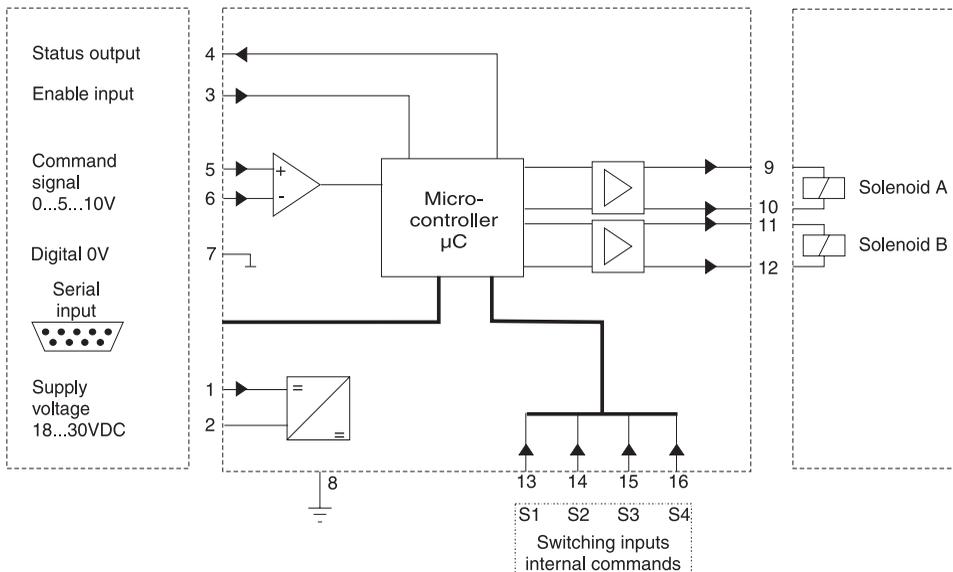


### Note

The user software ProPXD is going to be available for download on the PARKER homepage [www.parker.com](http://www.parker.com) or may be ordered under the ordering code 5715543.



### Circuit Diagram

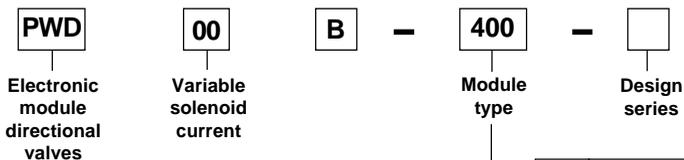


## Technical data

<b>General</b>		
Construction		Module box for snap-on assembly (EN 50022)
<b>Electrical</b>		
Supply voltage	[V]	8...30
Current consumption max.	[A]	2
Power consumption max. (at 24V)	[VA]	36
Fuse	[A]	2.5 medium lag
<b>Inputs</b>		
Analogue		[V] 0...5...10, 150kOhm
Digital	0	[V] 0...5
	1	[V] 8.5...30
<b>Outputs</b>		
Digital	0	[V] 0...0.5
	1	[V] Supply voltage; 15mA load
Solenoids		[A] 0.8; 1.3; 1.8; 2.7; 3.5
<b>Interfaces</b>		
Serial		RS 232C, null modem
<b>Adjustment ranges</b>		
MIN	[‰]	0...1000
MAX	[‰]	0...1000
Ramps	[s]	0...32.5
Dither	Amplitude	[%] 0...16
	Frequency	[Hz] 0...800
Zero position	[‰]	-1000...+1000
<b>Protection</b>		
Industrial protection class		IP20
<b>Environment</b>		
Temperature		[°C] -40...+70
<b>Connection</b>		
Wire connection		Screwable 0.2...2.5mm <sup>2</sup> , plug in
<b>EMC</b>		
conform to standards		EN 50081-2 EN 50082-2

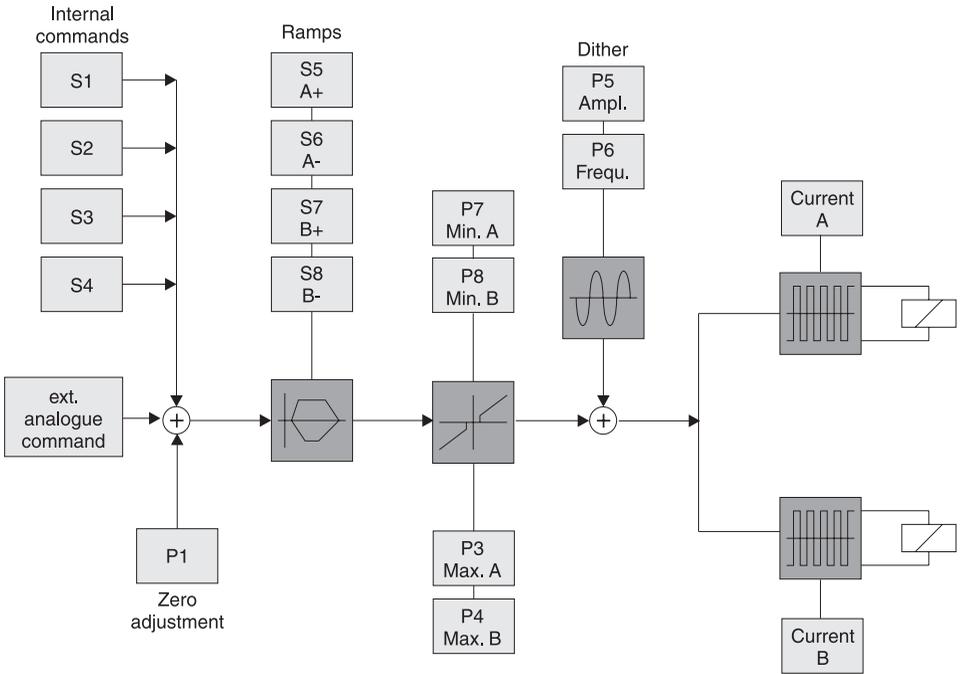
If high resistance solenoids with nominal current of 1,3A or 0,8A are used, the supply voltage has to be raised to 24VDC or 29VDC.

## Ordering Code



Code	Module type
<b>400</b>	Amplifier, adjust. Min./Max.-limits accel./decel.-ramp for each solenoid, 4 internal programmable commands

Signal flow diagram



Commands

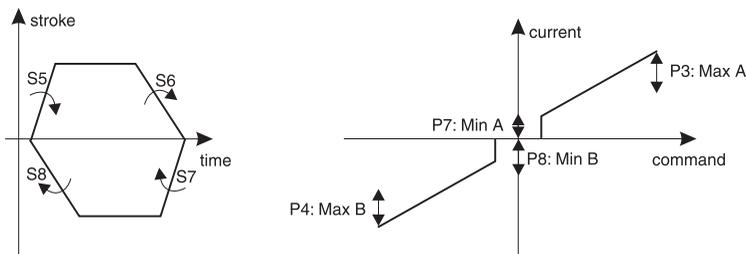
Additionally to the external analogue command input (Pin 5 and 6), the PWD00B-400-electronic includes four internal programmable command values S1 to S4, which can be activated by the

switching inputs (Pins 13, 14, 15, 16). S1 at pin 13 has the highest priority, S4 at pin 16 the lowest. The switching inputs have higher priority than the analogue inputs.

## Ramp-function / Min-Max-function

The PWD00B-400-Electronic includes four internal programmable ramps. Acceleration and/or deceleration are adjustable for each solenoid separately.

Additionally a current step may be programmed for each solenoid (Min), and the current may be limited for each solenoid (Max).



## Nominal current adjustment

The nominal current can be adjusted by one parameter separately for each solenoid (Pin 9, 10, and 11, 12). The default nominal current is 800mA.

The computer-software and the calculator-software show the parameters in text-form. So they are easy to use.

## Parameterization

All parameters can be adjusted via a serial connection (RS232-null modem) by

If you want to communicate via a terminal program, the syntax is:

- the computer-software,
- the calculator-software
- or a terminal program (9600, 8, n, 1).

- Show the actually programmed value:  
<Parameter> ↵ e. g.: P5 ↵
- Change a value:  
<Parameter> = <new value> ↵ e. g.: P5=10 ↵
- Load Default-Values: L ↵

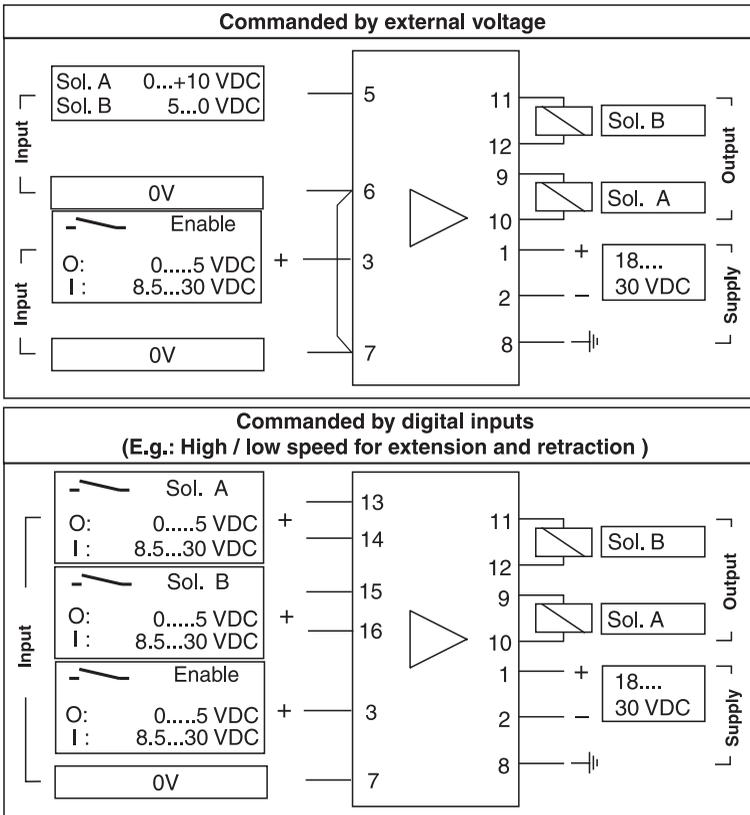
Parameter	Range	Default value	Unit	Function
P1	0...±1000	0	‰	Zero point adjustment
P2	-	-	-	Reserved
P3	0...1000	1000	‰	Max. current A-solenoid
P4	0...1000	1000	‰	Max. current B-solenoid
P5	0...100	20	%	Dither amplitude, 100% = 16% max. current
P6	0...800	110	Hz	Dither frequency
P7	0...1000	0	‰	Min. current A-solenoid
P8	0...1000	0	‰	Min. current B-solenoid
S1	-1000...+1000	0	‰	Internal command 1
S2	-1000...+1000	0	‰	Internal command 2
S3	-1000...+1000	0	‰	Internal command 3
S4	-1000...+1000	0	‰	Internal command 4
S5	0...32500	0	ms	Acceleration A-solenoid
S6	0...32500	0	ms	Deceleration A-solenoid
S7	0...32500	0	ms	Acceleration B-solenoid
S8	0...32500	0	ms	Deceleration B-solenoid
IA	0, 1, 2, 3, 4	2	-	Nominal current A-solenoid, 0=0.8A; 1=3.5A; 2=2.7A; 3=1.8A; 4=1.3A
IB	0, 1, 2, 3, 4	2	-	Nominal current B-solenoid, 0=0.8A; 1=3.5A; 2=2.7A; 3=1.8A; 4=1.3A

All parameters are saved in an EEPROM and become active directly after supply voltage is switched on.

Standard Parameters

Valve	Solenoid	Nominal Current		Dither	
		I <sub>max</sub> A-side (IA)	I <sub>max</sub> B-side (IB)	Amplitude (P5)	Frequency (P6)
D1FW	K	1.8A (3)	1.8A (3)	20	100
	M	2.7A (2)	2.7A (2)	20	100
	L	3.5A (1)	3.5A (1)	20	100
D3FW	K	2.7A (2)	2.7A (2)	20	100
	M	3.5A (1)	3.5A (1)	20	100
RLL NG06	G09	2.7A (2)	2.7A (2)	20	130
WLL NG06	G09	2.7A (2)	2.7A (2)	20	110
WLL NG10	G10	3.5A (1)	3.5A (1)	20	130
D*1FW	L	2.7A (2)	2.7A (2)	20	100

Connection Examples



Certainly modifications and / or combinations of digital inputs over the analogue input has to be kept in mind!

## Pinning

Pin	Description	Pin	Description
1	+ supply 18...30 VDC	9	solenoid A
2	GND supply 0 VDC	10	solenoid A
3	Enable input 8.5...30 VDC	11	solenoid B
4	Status output 0 VDC / 18...30 VDC	12	solenoid B
5	Command + 0...5...10 VDC	13	int. command 1 0 VDC / 18...30 VDC
6	Command - 0 VDC	14	int. command 2 0 VDC / 18...30 VDC
7	GND dig. IO 0 VDC	15	int. command3 0 VDC / 18...30 VDC
8	PE Earth	16	int. command 4 0 VDC / 18...30 VDC

## Enable input and status output

The enable input activates (8.5...30VDC) the power amplifiers or deactivates them (0VDC). The

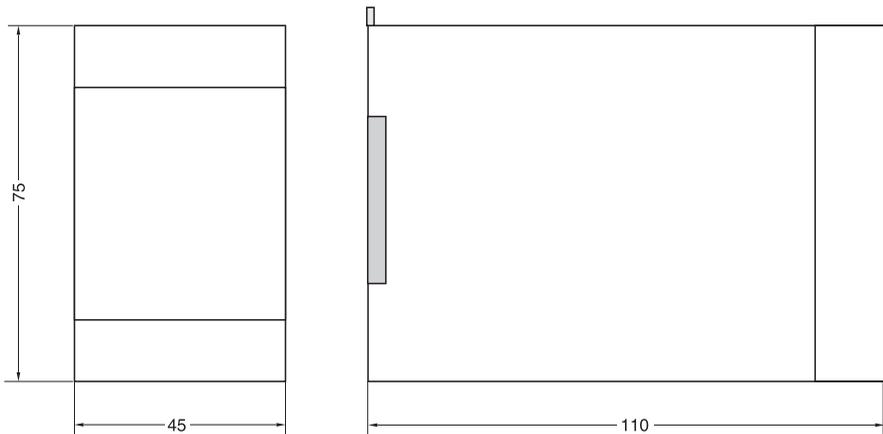
status output delivers 18...30VDC during normal operation. It switches to 0VDC in case of an error.

## Software & Pocket-calculator

The user-software (runs under Windows 95/98/NT) and the Hewlett Packard pocket calculator HP48G may be ordered at Parker with the special

software already installed. Ordering number HP-P\*D-ENGLISH. The ordering number for the Windows user software is 5715543.

## Dimensions



## Installation guide to electronic modules to provision of electromagnetic compatibility Power Supply

The utilized power supply has to comply with the EMC-standards (CE-sign, certificate of conformity). Parker is offering the following power supplies:

EX00-N01	( 2.5 Amp.)
EX00-N04	( 5.0 Amp.)
EX00-N08	(10.0 Amp.)

Relais and solenoids operating from the same supply circuit as the valve electronics have to be fitted by surge protection elements.

## Wiring Cable

The wires between the installation site of the module and the peripheral units, as power supply, valve solenoids, position transducer, command signal source have to be shielded. The following wire sizes must be reached: power supply AWG 16, other connections AWG 20. The capacity should not exceed a value of approx. 130 pF/m (wire/wire). The maximum cable length is 50 m. No power current lines may be placed within the wired shielded cables to the electronic module. The cable shield has to be connected to ground at both ends (see also chapter "Grounding"). Please be aware of ground loops.

## Installation

The module has to be mounted within a conductive, shielded enclosure. Usable is i.e. an EMC-approved control cabinet. A perfect grounding of the enclosure is mandatory (see also chapter "Grounding").

## Grounding

The mounting plate of the valve has to be connected to the grounded metal machine frame. The cable shields must be tied to ground at the control cabinet. A low-ohmic potential compensation wire has to be provided between the control cabinet and the machine frame (cable wire >AWG 7 cross section) to prevent ground loops.