



Bulletin HY11-3236-M1/UK

Installation Manual Series PCD 00A-400

Design \geq 19



Electronic for Proportional Pressure/ Throttle Valves

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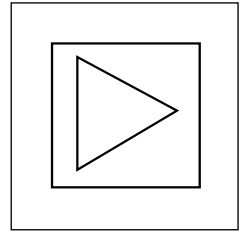
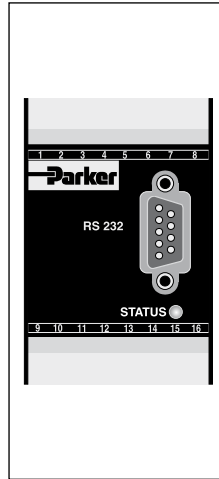
Installation Manual

Parker electronic modules series PCD00A-400 for rail mounting are compact, easy to install and provide time-saving wiring by disconnectable terminals. The digital design of the circuit results in good accuracy and optimal adaption for proportional pressure/flow control valves by a comfortable interface program.

Features

The described electronic unit combines all necessary functions for the optimal operation of two proportional pressure/flow control valves (series R*V, RE*E*W, RE06M*W, DUR, PRPM, VBY, VMY, TDA, TEA). The most important features are:

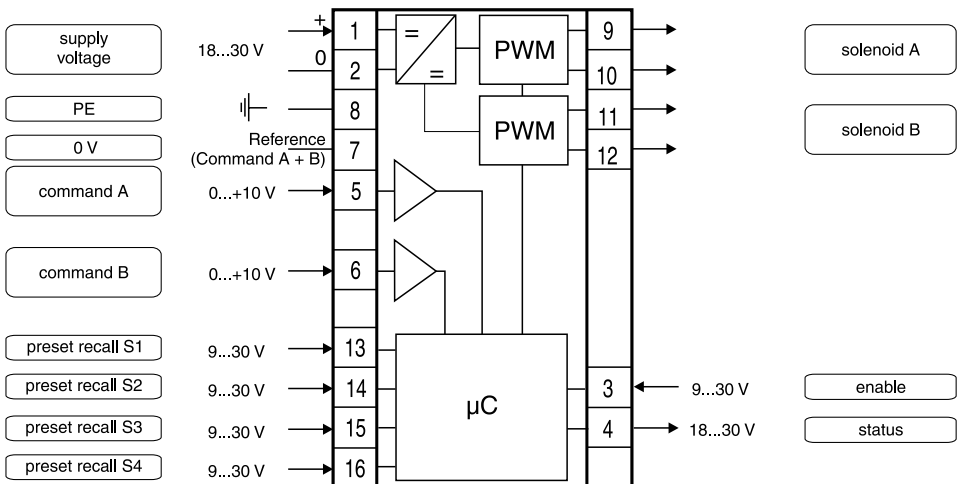
- Digital circuit design
- Two independent operable amplifiers
- Four parameterizable preset recall channels
- Constant current control
- Two input stages 0...10 V
- Status output
- Two up/down ramp functions
- Enable input for solenoid driver
- Status indicator
- Parametering by serial interface RS232C



- Connection by disconnectable terminals
- Compatible to the relevant European EMC standards
- Comfortable PC user software, free of charge:
www.parker.com/euro_hcd
 see "Support", or directly at
www.parker.com/propxd.



Diagram



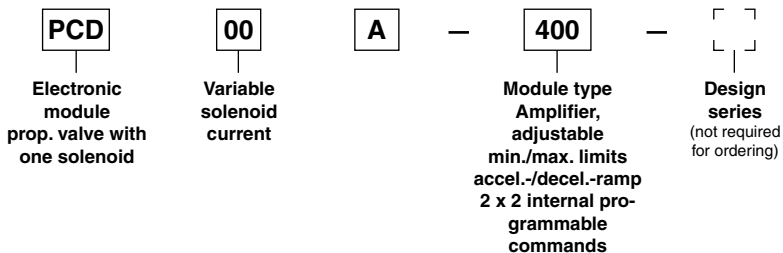
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Technical Data

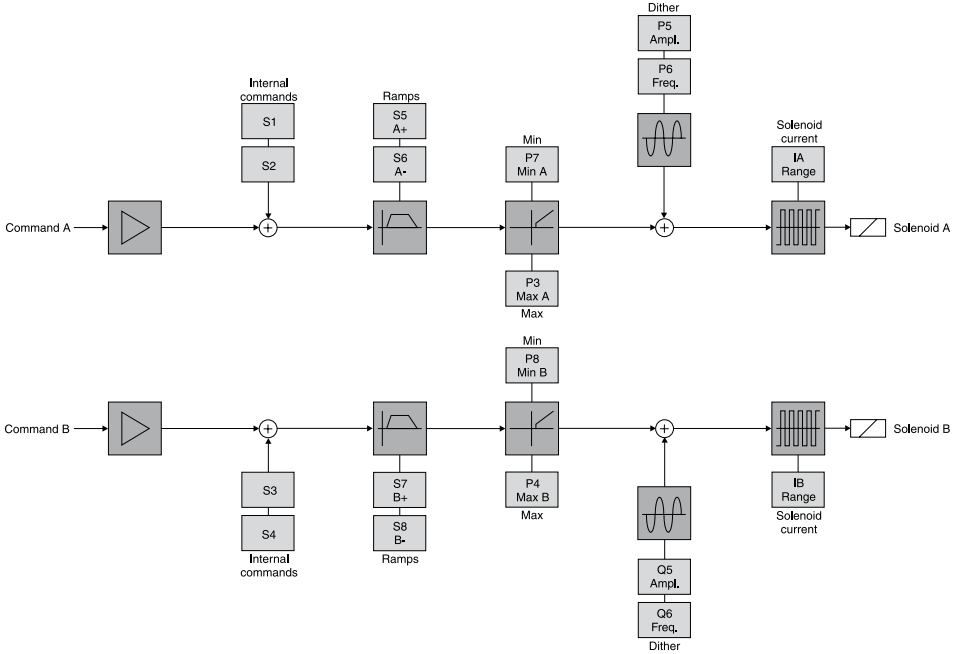
| General | |
|---------------------------------|---|
| Model | Module package for snap-on mounting on EN 50022 rail |
| Package material | Polycarbonate |
| Inflammability class | V0 acc. UL 94 |
| Installation position | Any |
| Ambient temperature range | [°C] -20...+60 |
| Protection class | NEMA 1/IP20 acc. EN 60529 |
| Weight | [g] 160 |
| Electrical | |
| Duty ratio | [%] 100 |
| Supply voltage | [VDC] 18...30, ripple < 5 % eff., surge free *) |
| Switch-on current typ. | [A] 22 for 0.2 ms |
| Current consumption max. | [A] 5.0 |
| Pre-fusing | [A] 6.3 A medium lag |
| Command signal | [V] 0...+10, ripple < 0.01 % eff., surge free, Ri = 150 kOhm |
| Input signal resolution | [%] 0,025 |
| Differential input voltage max. | [V] 30 for terminals 5 und 6 against PE (terminal 8) |
| Enable signal | [V] 0...4.0: Off / 9.0...30: On / Ri = 30 kOhm |
| Channel recall signal | [V] 0...4.0: Off / 9.0...30: On / Ri = 30 kOhm |
| Status signal | [V] 0...0.5: Off / Us: On / rated max. 15 mA |
| Adjustment ranges | Min [%] 0...50 Max [%] 50...100 Ramp [s] 0...32.5 Current [A] 0.8/1.3/1.8/2.7/3.5 |
| Interface | RS232C, DSub 9p. male for null modem cable |
| EMC | EN 50081-2, EN 50082-2 |
| Connection | Screw terminals 0.2...2.5 mm ² , disconnectable |
| Cable specification | [AWG] 16 overall braid shield for supply voltage and solenoids [AWG] 20 overall braid shield for sensor and signal |
| Cable length | [m] 50 |

*) If solenoids with a nominal voltage of 24 V are connected, the supply voltage has to be raised to 29 V.

Ordering Code



Signal Flow Diagram A



Commands

Additionally to the external analogue command inputs (Pins 5-7 and 6-7), the PCD00A-400-electronic includes, for each channel, two internal programmable command values S1 to S4, which can be activated by the switching inputs (Pins 13, 14, 15, 16). S1 (Pin 13) has a higher priority than

S2 (Pin 14) and S3 (Pin 15) has a higher priority than S4 (Pin 16).

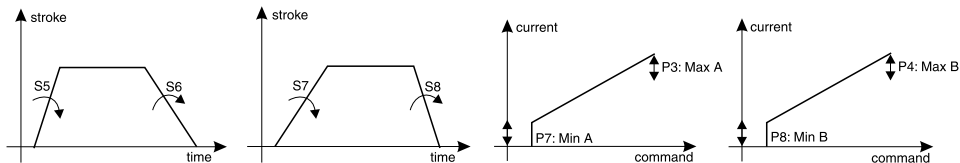
If only one amplifier channel is used, it is possible to switch all four internal commands to this channel by setting parameter N=1.

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Ramp-function / Min-Max-function

The PCD00A-400-electronic includes two internal programmable ramps for each channel. Addition-

ally a current step may be programmed (Min) and / or the current may be limited (Max) for each



Nominal current adjustment

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

Parameterization

All parameters can be adjusted via a serial connection (RS232C-null modem) by the computer-software.



The connected valves may not operated before loading an appropriate parameter set from the PC into the module electronics.

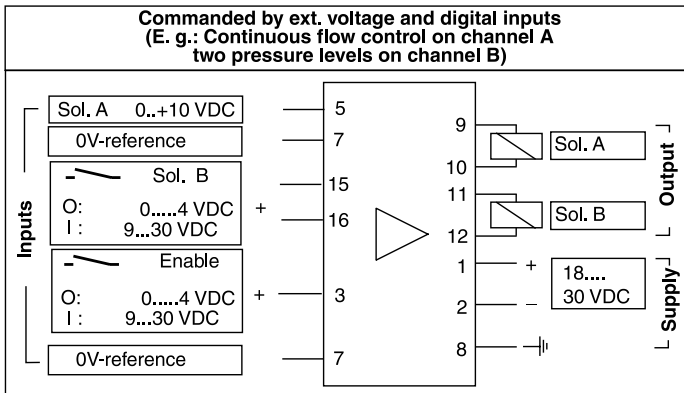
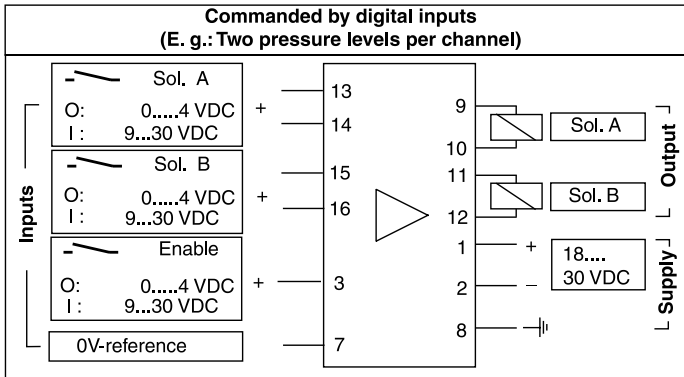
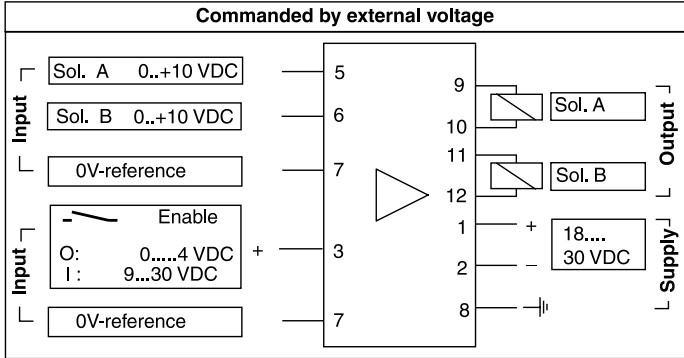
The computer-software shows the parameters in textform. So they are easy to use.

Example of parameter chart

| Parameter | Range | Default value | Unit | Function |
|-----------|---------------|---------------|------|--|
| P3 | 50.0...100.0 | 100.0 | % | max. current A-channel |
| P4 | 50.0...100.0 | 100.0 | % | max. current B-channel |
| P5 | 0.0...10.0 | 0.0 | % | Dither amplitude A-channel |
| P6 | 0...300 | 0 | Hz | Dither frequency A-channel |
| P7 | 0.0...50.0 | 0.0 | % | Min. current A-channel |
| P8 | 0.0...50.0 | 0.0 | % | Min. current B-channel |
| Q5 | 0.0...10.0 | 0.0 | % | Dither amplitude B-channel |
| Q6 | 0...300 | 0 | Hz | Dither frequency B-channel |
| S1 | 0.0...+100.0 | 0.0 | % | Internal command 1 |
| S2 | 0.0...+100.0 | 0.0 | % | Internal command 2 |
| S3 | 0.0...+100.0 | 0.0 | % | Internal command 3 |
| S4 | 0.0...+100.0 | 0.0 | % | Internal command 4 |
| S5 | 0...32500 | 0 | ms | Ramp UP A-channel |
| S6 | 0...32500 | 0 | ms | Ramp DOWN A-channel |
| S7 | 0...32500 | 0 | ms | Ramp UP B-channel |
| S8 | 0...32500 | 0 | ms | Ramp DOWN B-channel |
| IA | 0, 1, 2, 3, 4 | - | - | Nominal current A-channel, 0=0.8 A; 1=3.5 A; 2=2.7 A; 3=1.8 A; 4=1.3A |
| IB | 0, 1, 2, 3, 4 | - | - | Nominal current B-channel, 0=0.8 A; 1=3.5 A; 2=2.7 A; 3=1.8 A; 4=1.3 A |
| n | 1, 2 | 2 | - | Allocation of internal command signals |

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

Connection Examples



Certainly combinations and / or modifications of these examples are possible. The priority of the digital inputs over the analogue inputs has to be kept in mind! Via parameter N=1 all four digital inputs may be dedicated to channel A.

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Pinning

| Pin | Description | | Pin | Description |
|-----|------------------|---------------------|-----|------------------------------------|
| 1 | + supply | 18...30 VDC | 9 | channel A |
| 2 | GND supply | 0 VDC | 10 | channel A |
| 3 | Enable input | 9...30 VDC | 11 | channel B |
| 4 | Status output | 0 VDC / 18...30 VDC | 12 | channel B |
| 5 | Cmd. A-channel | 0...+10 VDC | 13 | int. command 1 0 VDC / 18...30 VDC |
| 6 | Cmd. B-channel | 0...+10 VDC1 | 4 | int. command 2 0 VDC / 18...30 VDC |
| 7 | GND cmds./dig.IO | 0 VDC | 15 | int. command 3 0 VDC / 18...30 VDC |
| 8 | PE | Earth | 16 | int. command 4 0 VDC / 18...30 VDC |

Enable input and status output

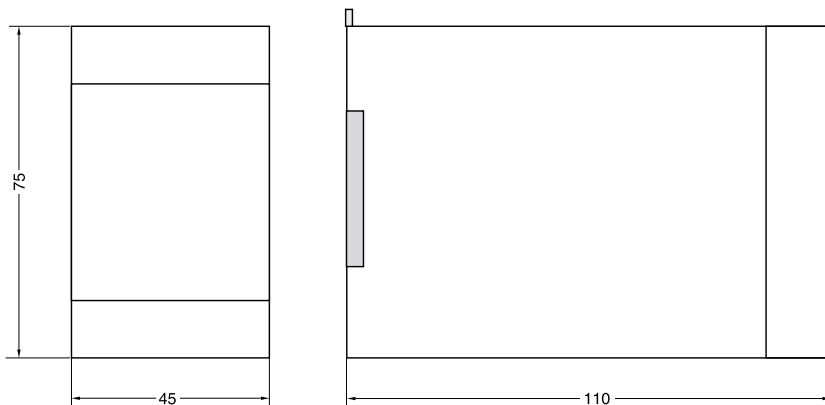
The enable input activates (9...30 VDC) the power amplifiers or deactivates them (0 VDC). The status output delivers 18...30VDC during normal operation. It switches to 0 VDC in case of an error.

Standard Parameters

| Valve | Solenoid | Nominal Current | | Dither | |
|---------|----------|------------------------------|------------------------------|----------------|----------------|
| | | I _{max} A-side (IA) | I _{max} B-side (IB) | Amplitude (P5) | Frequency (P6) |
| TDA | L | 1.3 A (4) a. P3=80.7 | 1.3 A (4) | 1.6 | 21 |
| | M | 2.7 A (2) | 2.7 A (2) | 0.8 | 21 |
| DSA | L | 1.3 A (4) | 1.3 A (4) | 1.6 | 88 |
| VBY/VMY | L | 0.8 A (0) | 0.8 A (0) | 2.4 | 88 |
| | M | 2.7 A (2) | 2.7 A (2) | 2.4 | 88 |

Please obey supply voltage (see technical data sheets).

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).

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.

