

The new direct operated proportional DC valve series D1FC (NG06) with digital onboard electronics and position feedback provides high dynamics combined with high flow.

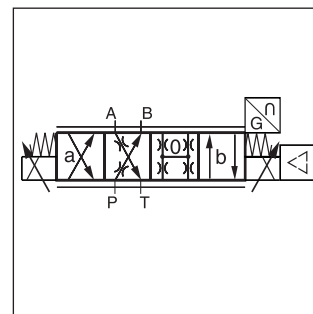
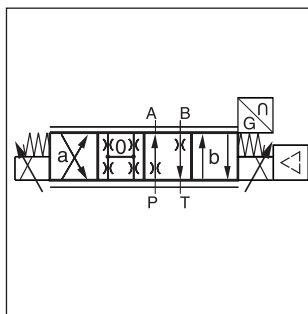
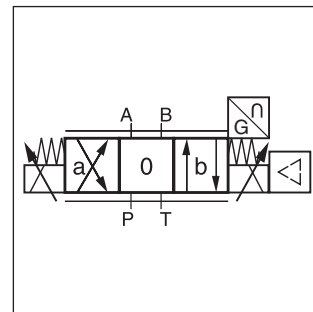
The D1FC is available with overlap spools for open loop applications as well as zero lap spools for closed loop control.

The LVDT is completely integrated into the housing and it does not require an exposed cable connection. Thus an unintended disconnection is impossible.

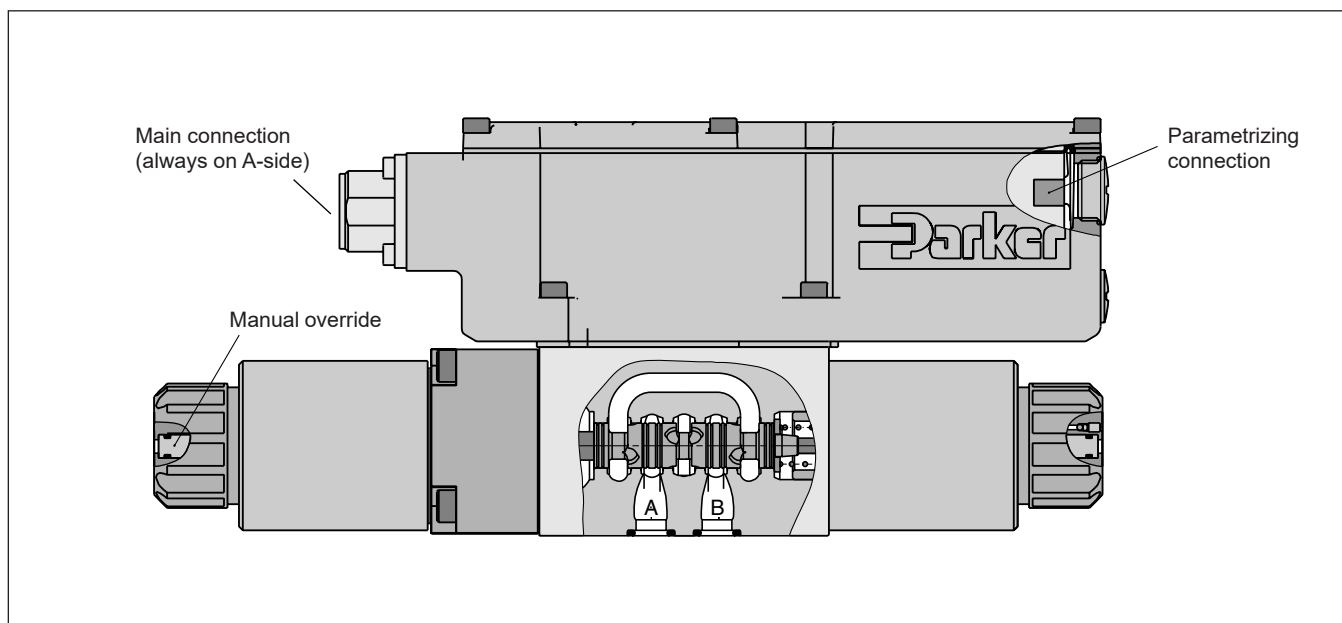
The digital onboard electronics is situated in a robust metal housing, which allows the usage under rough environmental conditions. The nominal values are factory set. The parametrizing cable to connect to a serial RS232 interface is available as accessory.

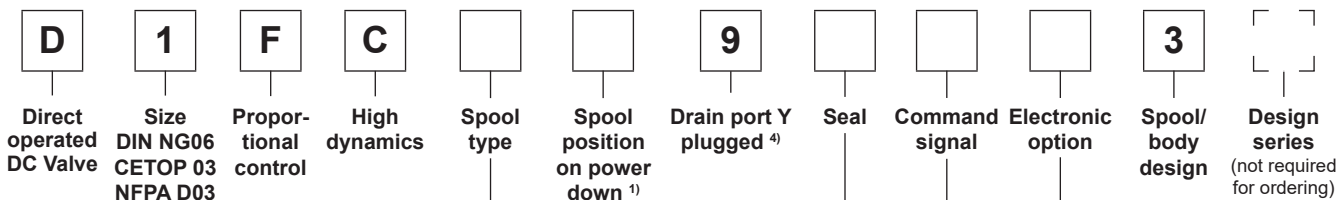
**Features**

- Progressive flow characteristics for sensitive adjustment
- Low hysteresis
- High dynamics
- High flow capacity
- Compact dimensions
- Defined spool positioning at power-down for zero lap spools
- Optional pressure compensation element for valve electronics available for environments with strong temperature fluctuations.



**3**





**3**

Code	Spool type	Flow [l/min] at Δp 5 bar per metering edge
Zerolap		
E50C		5
E50F		10
E50H		20
E50K		30
B60F	$Q_B = Q_A/2$ 	5 / 10
B60H		10 / 20
B60K		15 / 30
Overlap		
E01C		5
E01F		10
E01H		20
E01K		30
E02C		5
E02F		10
E02H		20
E02K		30
B31F	$Q_B = Q_A/2$ 	5 / 10
B31H		10 / 20
B31K		15 / 30
B32F	$Q_B = Q_A/2$ 	5 / 10
B32H		10 / 20
B32K		15 / 30

Code	Electronic option <sup>5)</sup>
0	6+PE acc. EN175201-804
5	11+PE acc. EN175201-804
7	6+PE + enable acc. EN175201-804

Code	Signal	Function
B	±10 V	0...+10 V -> P-A
E	±20 mA	0...+20 mA -> P-A
S	4...20 mA	12...20 mA -> P-A
W <sup>6)</sup>	Adjustable	Default ±10V

Code	Seal
N	NBR
V	FPM

Code	Spool pos. at power down
A <sup>2)</sup>	
B <sup>2)</sup>	
C <sup>3)</sup>	

Short delivery time  
for all variations

Parametrizing cable OBE<sup>®</sup> RS232, item no. 40982923

- <sup>1)</sup> On power down the spool moves in a defined position. This cannot be guaranteed in case of single flow path on the control edge A – T resp. B – T with pressure drops above 120 bar or contamination in the hydraulic fluid.
- <sup>2)</sup> Approx. 10 % opening, only zero lap spools.
- <sup>3)</sup> Only for overlap spools.
- <sup>4)</sup> Plug in port Y needs to be removed at tank pressure >35 bar.
- <sup>5)</sup> Please order connector separately, see chapter 3 accessories.
- <sup>6)</sup> Available command signals see technical data.

<b>General</b>			
Design	Direct operated proportional DC valve with position feedback		
Actuation	Proportional solenoid		
Size	<b>NG06 / CETOP 03 / NFPA D03</b>		
Mounting interface	DIN 24340 / ISO 4401 / CETOP RP121 / NFPA		
Mounting position	unrestricted		
Ambient temperature	[°C]	-20...+60 (in case of strong temperature fluctuations see footnote 3))	
MTTF <sub>D</sub> value <sup>1)</sup>	[years]	150	
Weight	[kg]	3.4	
Vibration resistance	[g]	10 Sinus 5...2000 Hz acc. IEC 68-2-6 10 (RMS) Random noise 20...2000 Hz acc. IEC 68-2-36 15 Shock acc. IEC 68-2-27	
<b>Hydraulic</b>			
Max. operating pressure	[bar]	Ports P, A, B 350, port T max. 35; 210 (external drain); port Y max. 35	
Fluid	Hydraulic oil according to DIN 51524 ... 535, other on request		
Fluid temperature	[°C]	-20...+60 (NBR: -25...+60)	
Viscosity permitted	[cSt] / [mm <sup>2</sup> /s]	20...400	
Viscosity recommended	[cSt] / [mm <sup>2</sup> /s]	30...80	
Filtration	ISO 4406; 18/16/13		
Nominal flow at Δp=5 bar per control edge <sup>2)</sup>	[l/min]	5 / 10 / 20 / 30	
Leakage at 100 bar	[ml/min]	<800 (zerolap spool); <50 (overlap spool)	
Opening point	set to 10 % command signal (see flow characteristics)		
<b>Static / Dynamic</b>			
Step response at 100 % step	[ms]	20	
Hysteresis	[%]	<0.1	
Temperature drift	[%/K]	<0.01	
<b>Electrical characteristics</b>			
Duty ratio	[%]	100	
Protection class	IP65 in accordance with EN 60529 (with correctly mounted plug-in connector)		
Supply voltage/ripple DC	[V]	18...30, electric shut-off at < 17, ripple < 5 % eff., surge free	
Current consumption max.	[A]	2.0	
Pre fusing medium lag	[A]	2.5	
Command	Depending on chosen signal type		
voltage	signal [V]	+10...0...-10, ripple < 0.01% eff., surge free, 0...+10 V P→A	
	impedance [kOhm]	100	
current	signal [mA]	+20...0...-20, ripple < 0.01 % eff., surge free, 0...+20 mA P→A	
	impedance [Ohm]	<250	
current	signal [Ohm]	4...12...20, ripple < 0.01 % eff., surge free, 12...20 mA P→A	
	impedance [Ohm]	<250	
Differential input max.	Code 0/7 [V]	30 for terminal D and E against PE (terminal G) 11 for terminal D and E against 0 V (terminal B)	
	Code 5 [V]	30 for terminal 4 and 5 against PE (terminal PE) 11 for terminal 4 and 5 against 0 V (terminal 2)	
Adjustment ranges	Min [%]	0...50	
	Max [%]	50...100	
	Ramp [s]	0...32.5	
Parametrizing interface	RS232C, parametrizing connection 5pole		
Enable signal (code 5/7)	[V]	5...30	
Diagnostic signal	[V]	+10...0...-10 / +12.5 error detection, rated max. 5 mA	
EMC	EN 61000-6-2, EN 61000-6-4		
Electrical connection	Code 0/7	6 + PE acc. to EN 175201-804	
	Code 5	11 + PE acc. to EN 175201-804	
Wiring min.	Code 07 [mm <sup>2</sup> ]	7 x 1.0 (AWG 16) overall braid shield	
	Code 5 [mm <sup>2</sup> ]	8 x 1.0 (AWG 16) overall braid shield	
Wiring length max.	[m]	50	

<sup>1)</sup> If valves with onboard electronics are used in safety-related parts of control systems, in case the safety function is requested, the valve electronics voltage supply is to be switched off by a suitable switching element with sufficient reliability.

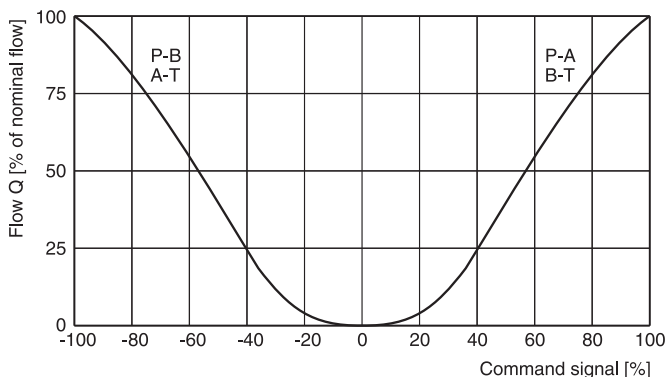
<sup>2)</sup> Flow rate for different Δp per control edge: 
$$Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$$

<sup>3)</sup> In case of strong temperature fluctuations, such as in outdoor applications, a pressure compensation element for the onboard electronics is recommended, available on request with ordering code suffix XG481.

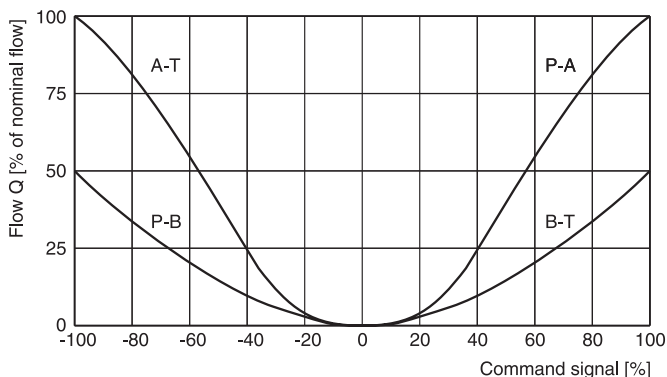
**Flow characteristics**

(set to opening point 10 %) at  $\Delta p = 5$  bar per metering edge

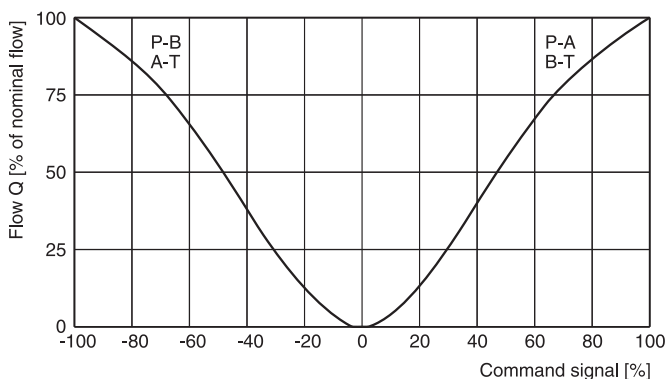
**Spool type E01**



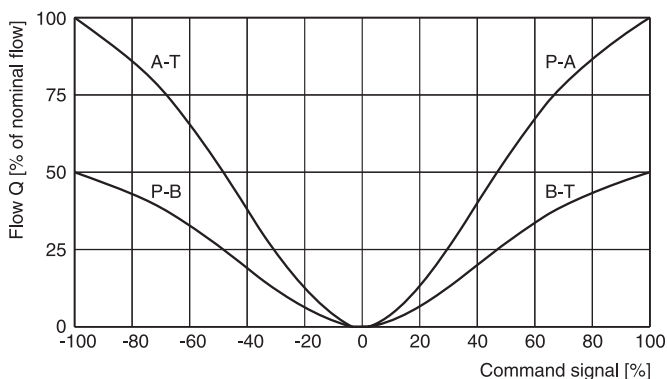
**Spool type B31**



**Spool type E50**



**Spool type B60**

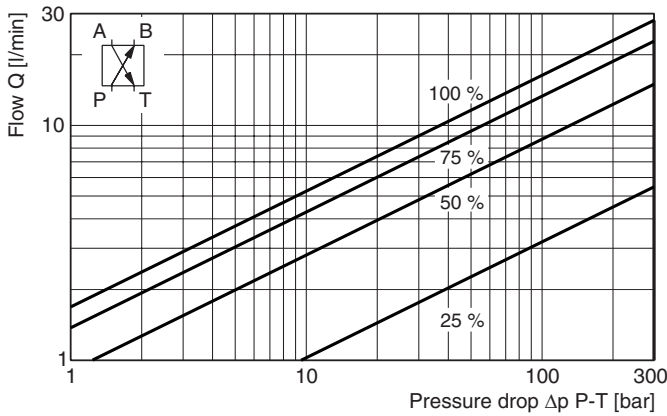


All characteristic curves measured with HLP46 at 50 °C.

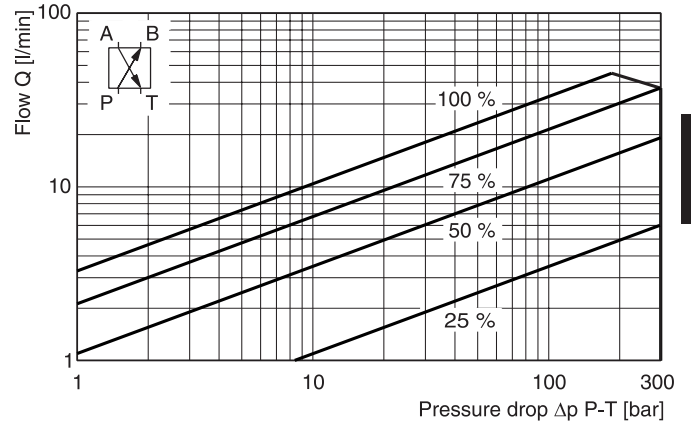
**Functional limits**

25 %, 50 %, 75 % and 100 % command signal (symmetric flow).  
At asymmetric flow a reduced flow limit has to be considered.

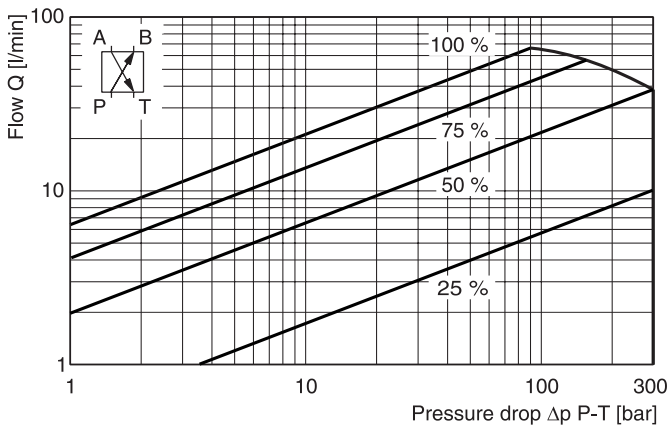
**Spool type E01C**



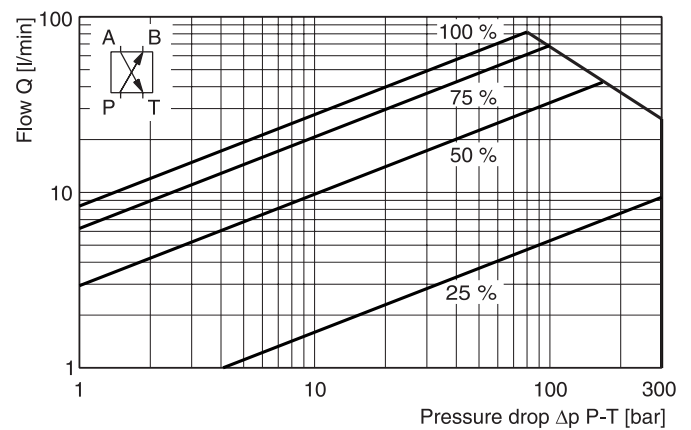
**Spool type E01F**



**Spool type E01H**

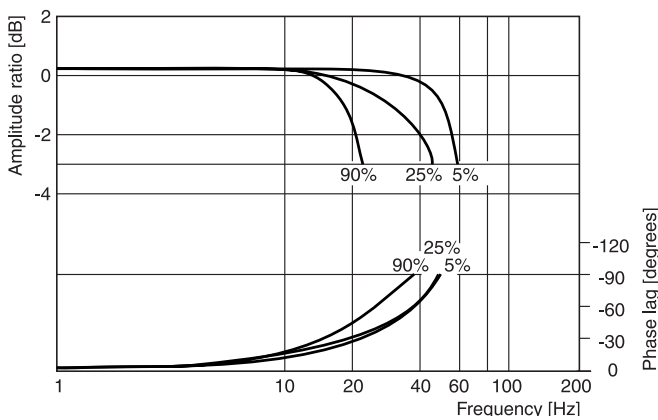


**Spool type E01K**

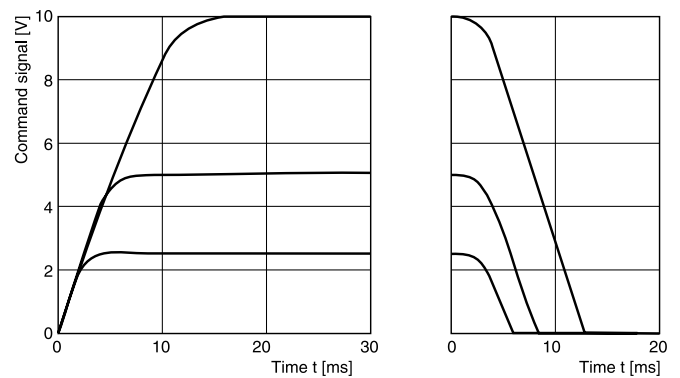


**Frequency**

± 5 %, ± 25 %, ± 90 % input signal

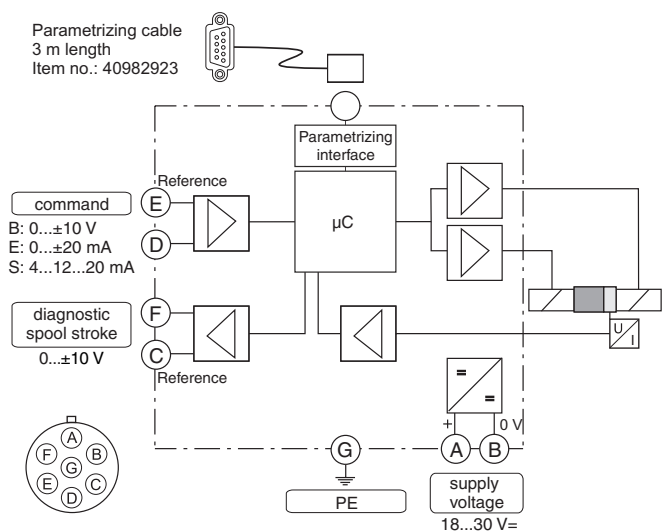


**Step response**

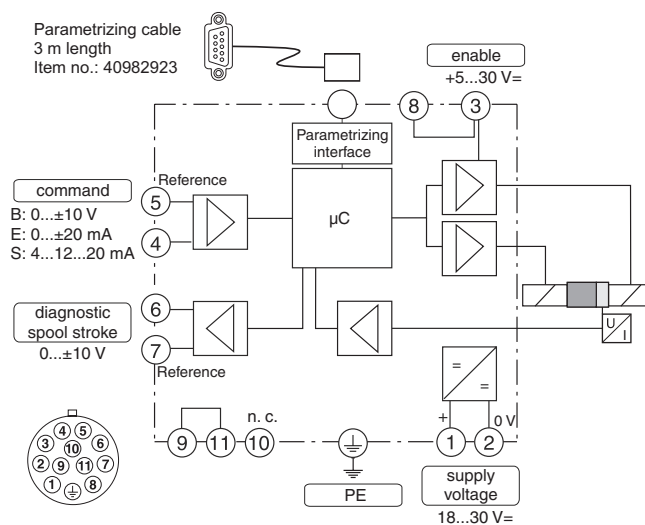


All characteristic curves measured with HLP46 at 50 °C.

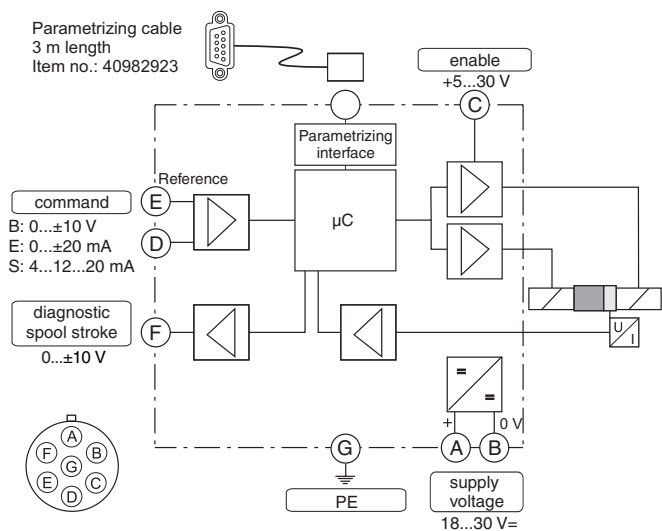
**Code 0, 3**  
 6 + PE acc. to EN 175201-804



**Code 5**  
 11 + PE acc. to EN 175201-804



**Code 1, 7**  
 6 + PE acc. to EN 175201-804 + enable



**ProPxD interface program**

The ProPxD software allows quick and easy setting of the digital valve electronics. Individual parameters as well as complete settings can be viewed, changed and saved via the comfortable user interface.

Parameter sets saved in the non-volatile memory can be loaded to other valves of the same type or saved for documentation purposes.

The PC software "ProPxD" can be downloaded free of charge from [www.parker.com](http://www.parker.com)

**Features**

- Comfortable editing of all parameters
- Oscilloscope function
- Storage and loading of optimized parameter adjustments
- Plain communication between PC and electronics via serial interface RS232C

**The parametrizing cable may be ordered under item no. 40982923.**

If no RS232 interface is available, standard RS232-to-USB adapters can be used. These are available from electronics retailers.

