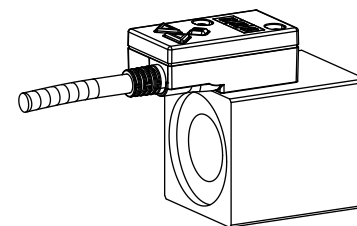


Solenoid coil acc. to VDE 0580

- With integrated amplifier electronics PD2
- Protection class IP 67



DESCRIPTION

Solenoid coil with integrated amplifier electronics. Protection class is IP67. The electronics are fix mounted on the solenoid coil. The construction corresponds to standard VDE 0580. The steel housing is zinc coated.

FUNCTION

The electronics has a Pulse-Width-Modulated current output. The solenoid output can also be parameterised for switching solenoids. The parameterisation is carried out directly on the device by means of push-buttons and display, or by means of the parameterisation and diagnostics software "PASO" of Wandfluh.

APPLICATION

Due to its water spray resistant execution, the solenoid coil is suitable for most diverse applications.

It can be used on all proportional valves with 19 mm, resp. 23 mm armature tube diameters. Easy connecting enables assembly and commissioning with conventional tools. All settings can be carried out easily and quickly.

TYPE CODE

		M	P	☐	-	P	1	-	☐	-	A	1	#	☐
Metal housing square														
Integrated amplifier electronics														
Coil execution														
• Square 35 mm	35/19x50													
• Square 45 mm	45/23x50													
Connection cable														
• waway from the solenoid														
1-solenoid execution														
Nominal voltage U _N														
12 VDC	12													
24 VDC	24													
Analogue input														
Voltage / Current														
Preset														
• Voltage command value 0...5 VDC														
Design index (subject to change)														

GENERAL SPECIFICATIONS

Connections	Connection cable	5 x 0,34 mm ² , Exterior coating PVC length = 1,5 m
	USB interface	via connection «Digital input» requires the Wandfluh USB adapter PD2
Dimensions	See drawing page 3	
Ambient temperature	-20...+85 °C	

SAFE OPERATION

Caution: To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

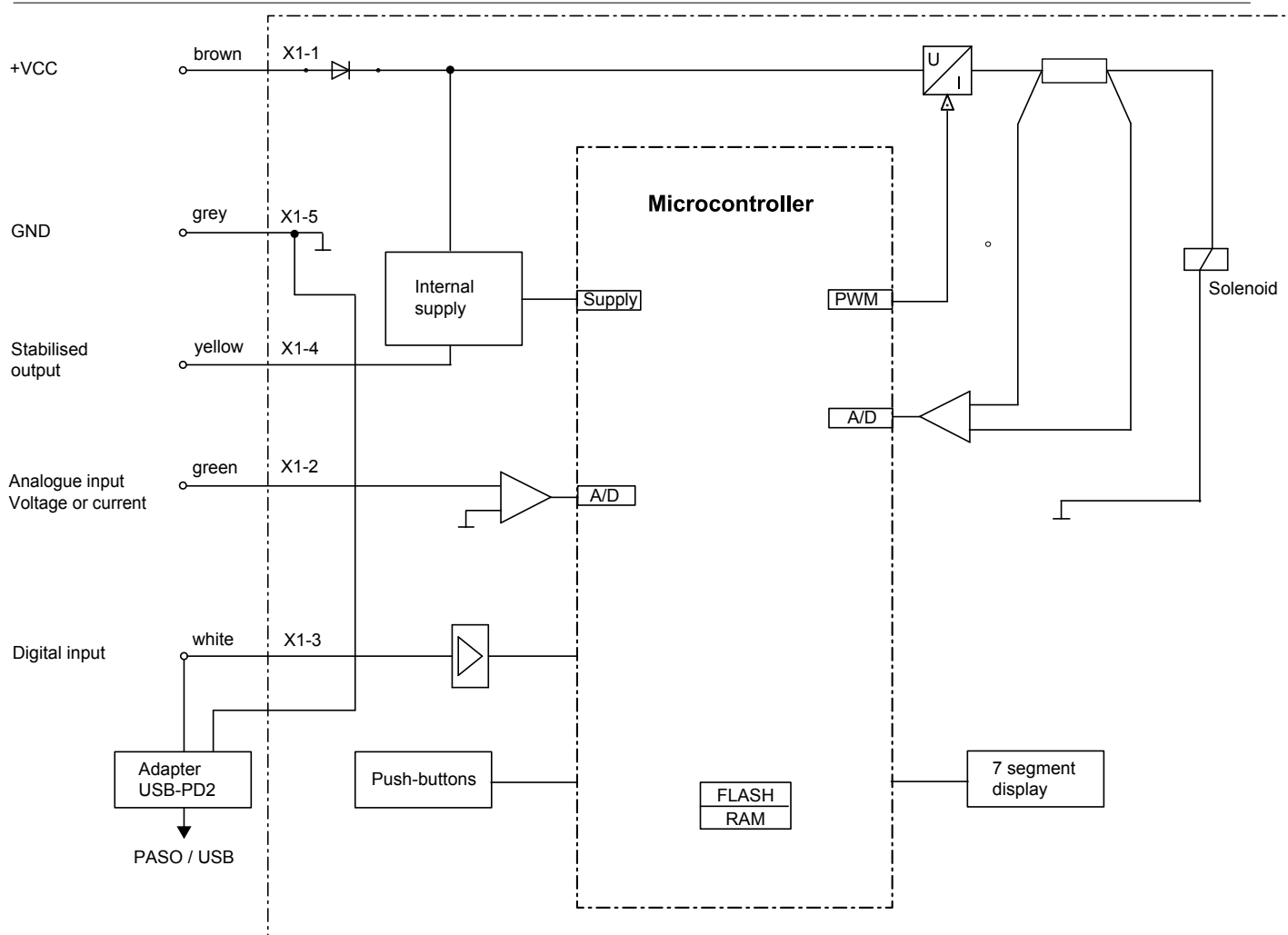
Note: For maximum power development the coil has to be installed in its preferred direction. A reversed installation can lead to lower hydraulic values.

Amplifier with analogue interface

ELECTRICAL SPECIFICATIONS

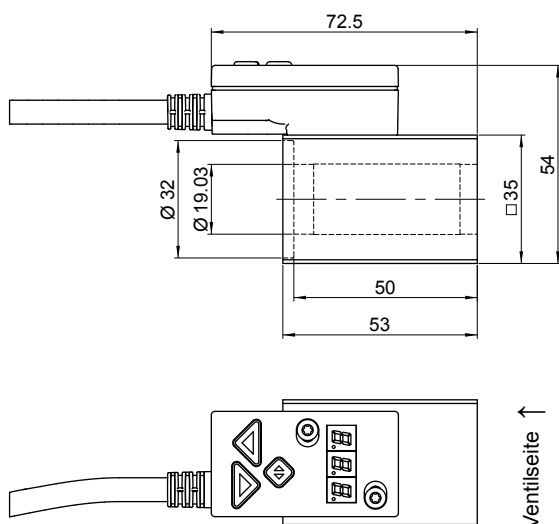
Protection class	IP 67 acc. to EN 60 529	Dither	Frequency adjustable 4...500 Hz Factory setting 80 Hz
Supply voltage	8...32 V	Temperature drift	Level adjustable 0...400 mA Factory setting 180 mA
Residual ripple	< +/- 5 %	Digital inputs	<1 % at $\Delta T = 40^\circ C$ 1 input high-active, no pull-up/down
Fuse	low	Switching threshold high	6...32 VDC
No-load current	approx. 20 mA	Switching threshold low	0...1 VDC
Max. current consumption	No-load current + 2,5 A per solenoid	Usable as frequency input	(frequency 5...5000 Hz) and as PWM input (automatic frequency recognition)
Analogue input	1 input non-differential Voltage / current (switchable by means of parameter) 0...+/- 10V or 0/4...20mA	USB interface	Via digital input Requires the Wandfluh USB adapter
Resolution	10-Bit	EMV	
Input resistance	Voltage input >100 k Ω (Input current < 5 mA) Load for current input = 124 Ω	Immunity	EN 61 000-6-2
Stabilised output voltage	5 VDC max. load 20 mA	Emission	EN 61 000-6-4
Solenoid current:			
• Minimal current I_{min}	Adjustable 0... I_{max} mA Factory setting 150 mA		
• Maximal current I_{max}	Adjustable I_{min} ...2450 mA MP35/19x50-...-12, Factory setting 1360 mA MP35/19x50-...-24, Factory setting 680 mA MP45/23x50-...-12, Factory setting 1490 mA MP45/23x50-...-24, Factory setting 780 mA		

BLOCK DIAGRAM

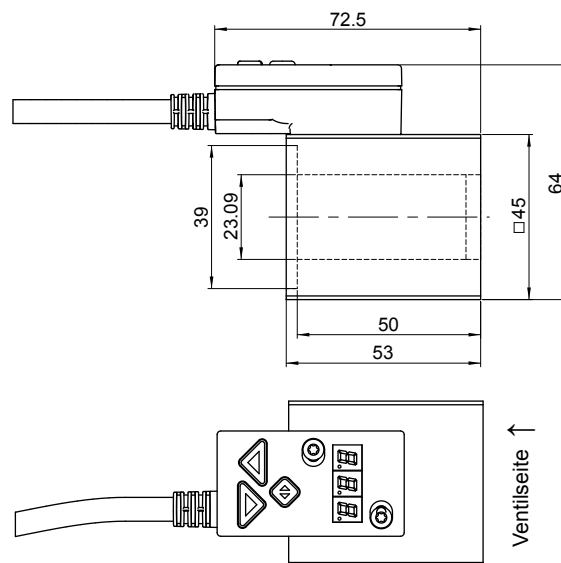


DIMENSIONS

MP35/19x50

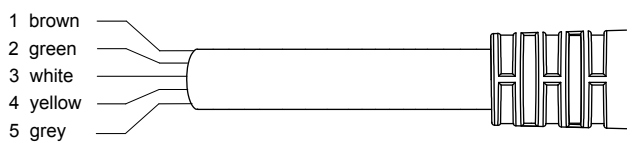


MP45/23x50



CONNECTOR ASSIGNMENT

Connection cable



- 1 = + VCC
- 2 = Command value
- 3 = Dig Inp
- 4 = Stab out
- 5 = GND

START-UP

Information regarding installation and commissioning are contained in the information leaflet supplied with the amplifier electronics and in the operating instructions.

Additional information can be found on our website:
«www.wandfluh.com»

Free-of-charge download:

- «PASO-PD2» Parameterisation software
- Operating instruction (*.pdf)

ADDITIONAL INFORMATION

Wandfluh electronics general
Proportional spool valve
Proportional pressure valves
Proportional flow control valves

Wandfluh documentation-
register 1.13
register 1.10
register 2.3
register 2.6

ACCESSORIES

USB-adapter PD2
incl. USB-cable, 1,8 m
(for parameterisatio via PASO)

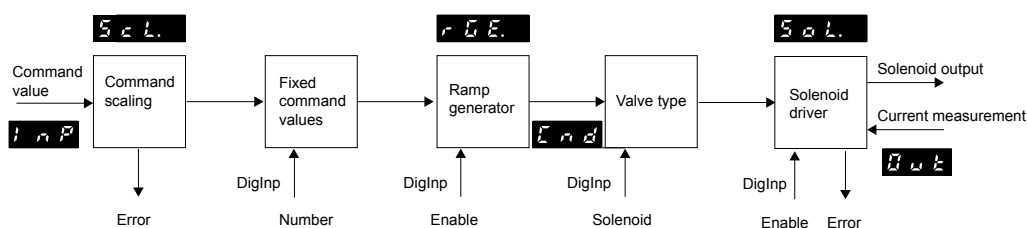
Article no. 726.9900

PARAMETER SETTINGS

The PD2 electronics have push-buttons and a 7 segment display which enable setting the most important parameters. In addition, the digital input can be used as a communication interface, through which, by means of the parameterisation software "PASO-PD2", the complete parameterisation and diagnostics can be carried out. For this, the Wandfluh USB-PD2 adapter is required.

Attention: During the communication, the digital input cannot be used.

FUNCTION DESCRIPTION



PD2-AMPLIFIER WITH ANALOGUE INTERFACE

Command value scaling

The command value can be applied as a voltage, current, digital, frequency or PWM signal. The scaling takes place via the parameter "Interface". Furthermore, the command value can be monitored for a cable break. A dead band can also be set.

Fixed command value

There is 1 fixed command value available, which can be selected via the digital input. This function has to be configured before in PASO.

Ramp generator

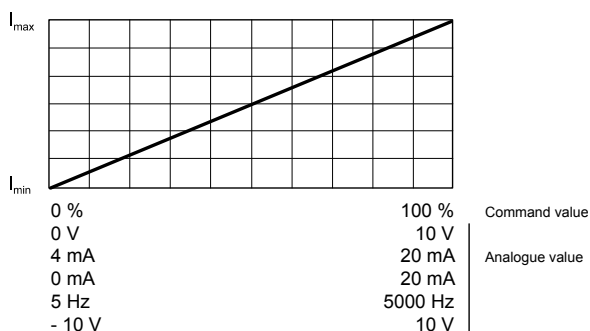
Two linear ramps for up and down are available which can be adjusted separately.

Valve type

Adjustment possibilities: switching solenoid or proportional solenoid.

Mode of operation „Command value unipolar/bipolar (1-Sol)

Dependent on a command value signal (voltage, current, digital, frequency or PWM), the solenoid is driven (e.g. 0...10V correspond to 0...100 % command value, 0...+100 % command value correspond to I_{min}...I_{max} solenoid driver)



Signal recording

Furthermore, the „PD2“ amplifier electronics have a signal recording function. This, by means of PASO, enables the recording of various system signals, such as command value, solenoid current, etc., which can be represented on a common time axis.

Solenoid driver

A Pulse-Width-Modulated current output is available. A dither signal is superimposed, whereby the dither frequency and the dither level are separately adjustable. The minimum (I_{min}) and maximum (I_{max}) current can be adjusted. The solenoid output can also be configured as switching solenoid output. In this case, a power reduction can be adjusted.

Optimisation of characteristic curve

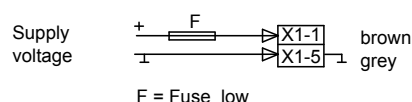
An adjustable characteristic curve „Command value input – solenoid current output“ enables an optimised (e.g. linearised) characteristic of the hydraulic system.

Channel enabling

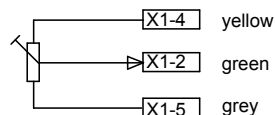
The device is enabled as per factory setting. Via PASO or menu item, the digital input can be configured for enabling.

CONNECTION EXAMPLES

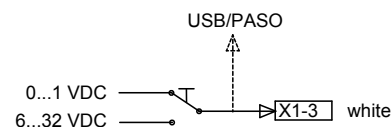
Supply voltage



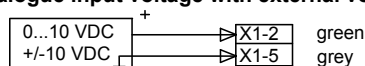
Analogue input with potentiometer



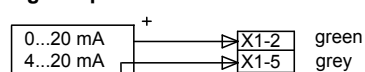
Digital input as function input



Analogue input voltage with external voltage source



Analogue input current with external current source



Digital input as USB interface

