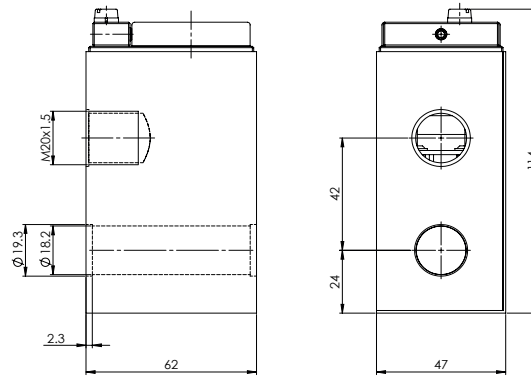


DIMENSIONS

without amplifier electronics


CHARACTERISTICS

Coil winding isolation class H

Protection class

acc. to EN 60529

Relative duty factor

Reference temperature

IP65/67, with corresponding cable gland and correct installation

100 % DF, combined with armature tube and valve

Execution L9:

-25...+40 °C (operation as T1...T6/T80 °C)

-25...+90 °C (operation as T1...T4/T130 °C)

Execution L15 / L12

Temperature range „-25° to...“

-25...+70 °C (operation as T1...T4/T130 °C)

Temperature range „-40° to ...“

-40...+70 °C (operation as T1...T4/T130 °C)

Temperature range „-60° to ...“

-60...+70 °C (operation as T1...T4/T130 °C)

Execution L21:

-25...+50 °C (operation as T1...T4/T130 °C)

 At $U_N < 20V$ the max. ambient temperature has to be reduced by 10 °C.

Housing

Relative humidity factor

Corrosion protection

Steel housing, AISI 316L-coated

max. 95 % (not dew-forming)

Salt spray test in accordance with EN ISO 9227 > = 2000 hours

Maximum operating voltage

Nominal frequency

Standard

nominal voltages

Nominal voltage +10 %

 in acc. with name plate $\pm 2\%$
 $U_N = 12 \text{ VDC}$
 $U_N = 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}$
 $U_N = 230 \text{ VAC}$

Other nominal voltages in the ranges of

12–230 VDC and 24–230 VAC on request

Standard

nominal powers

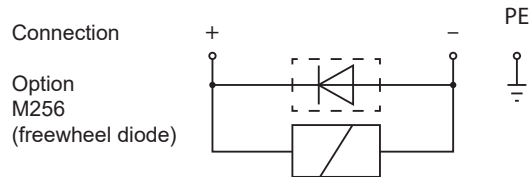
 $P_N = 9 \text{ W}$
 $P_N = 15 \text{ W}$
 $P_N = 21 \text{ W}$

| | 12 VDC | | |
|---|--------|-------|-------|
| Nominal power (W) | 9 | 15 | 21 |
| Nominal resistance (Ω) | 16,5 | 9,9 | 7,1 |
| Recommended rated current for fuse inserts (mA) | 1600 | 2'500 | 4'000 |
| Limiting current (mA) (Proportional function) | 610 | 960 | 1'230 |

| | 24 VDC | | |
|---|--------|-------|-------|
| Nominal power (W) | 9 | 15 | 21 |
| Nominal resistance (Ω) | 64 | 38,5 | 27,5 |
| Recommended rated current for fuse inserts (mA) | 800 | 1'250 | 2'000 |
| Limiting current (mA) (Proportional function) | 300 | 450 | 600 |

| | 115 VAC | | |
|---|---------|-----|-----|
| Nominal power (W) | 9 | 15 | 21 |
| Nominal resistance (Ω) | 1'180 | 700 | 500 |
| Recommended rated current for fuse inserts (mA) | 200 | 315 | 400 |

| | 230 VAC | | |
|---|---------|-------|-------|
| Nominal power (W) | 9 | 15 | 21 |
| Nominal resistance (Ω) | 4'750 | 2'850 | 2'050 |
| Recommended rated current for fuse inserts (mA) | 100 | 160 | 200 |


OPERATION SECURITY


The solenoid coil must only be put into operation, if the requirements of the operating instructions supplied are observed to their full extent.

In case of non-observance, no liability can be assumed.

A corresponding fuse in accordance with its design current has to be connected in series as short-circuit protection for every solenoid coil.

INSTALLATION

For stack assembly please observe the remarks in the operating instructions.

ACCESSORIES

– The operating instructions incl. the EC declaration of conformity for solenoid coils of the type MKY45/18x60 is supplied in German, English and French (download under www.wandfluh.com)

– Type test certifications (download under www.wandfluh.com)

– EC-declaration of conformity (download under www.wandfluh.com)

– Recognition of production quality assurance SEV 16 ATEX 4130 (download under www.wandfluh.com)

With amplifier electronics and with analogue interface

Digital amplifier electronics to MKY...M248

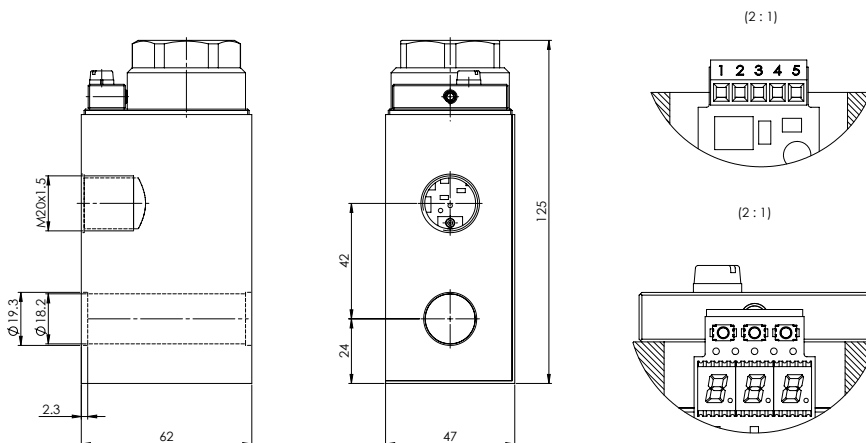
- Electronics integrated in solenoid housing
- For proportional or switching valves
- Screw terminals for simple assembly
- Protection IP 67
- 1 analogue input
- 1 digital input
- Adjustable with push-buttons and display directly on the device or via PC

ELECTRICAL SPECIFICATIONS

| | | |
|--|--|---|
| Protection class Supply voltage Residual ripple Fuse No-load current Max. current consumption Analogue input Resolution Input resistance Stabilised output voltage Solenoid current: • Minimal current I_{min} • Maximal current I_{max} | IP67 acc. to EN 60 529 G12: 12 V +10 %, G24: 24 V +10 % < +/-5 % low approx. 20 mA No-load current + limiting current of the solenoid 1 input non-differential Voltage / current (switchable by means of parameter) 0...+/- 10V or 0/4...20mA 10-Bit Voltage input >100 kΩ (Input current < 5 mA) Load for current input = 124 Ω 5 VDC max. load 20 mA Adjustable 0... I_{max} mA Factory setting 30 mA G24/L15 Adjustable I_{min} ...510 mA Factory setting 450 mA G12/L15 Adjustable I_{min} ...1020 mA Factory setting 960 mA | G24/L9 Adjustable I_{min} ...510 mA Factory setting 600 mA G12/L9 Adjustable I_{min} ...685 mA Factory setting 610 mA Frequency adjustable 4...500Hz Factory setting 80Hz Level adjustable 0...400mA Factory setting 150 mA <1% at $\Delta T = 40^\circ C$ 1 input high-active, no pull-up/down Switching threshold high 6...32 VDC Switching threshold low 0...1 VDC Usable as frequency input (frequency 5...5000 Hz) and as PWM input (automatic frequency recognition) Via digital input Requires the Wandfluh USB adapter PD2 EMC Immunity Emission EN 61 000-6-2 EN 61 000-6-4 |
|--|--|---|

DIMENSIONS

with amplifier electronics

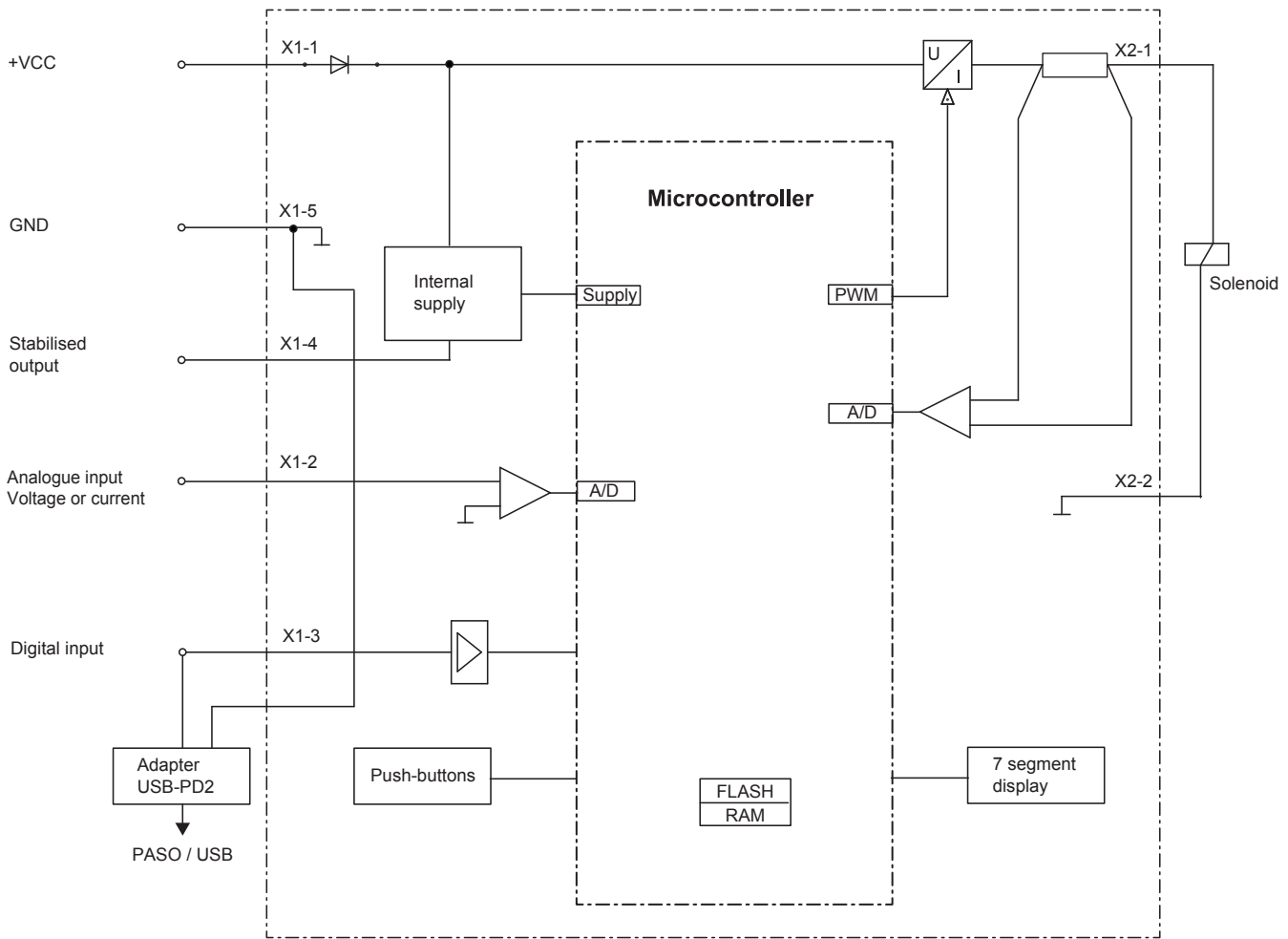

CONNECTOR ASSIGNMENT (X1)

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

GENERAL SPECIFICATIONS

| | |
|----------------|---|
| Execution | Electronics board built-in directly in solenoid housing |
| Connections | 5-pole, max. 1.0 mm ² |
| Screw terminal | via connection «Digital Input», requires an additional Wandfluh adapter PD2 |
| USB interface | |

BLOCK DIAGRAM



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

| | | |
|----------------------------------|---------------------------------|------|
| Proportional spool valve | Wandfluh documentation register | 1.10 |
| Proportional pressure valves | register | 2.3 |
| Proportional flow control valves | register | 2.6 |

ACCESSORIES

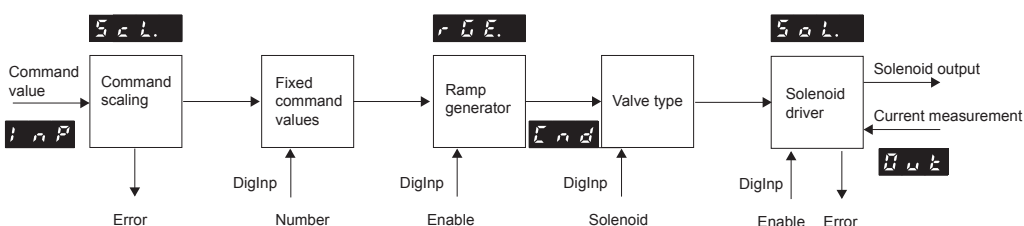
| | |
|--|----------------------|
| USB adapter PD2 incl. USB cable, 1,8 m (for parameterisation via PASO) | Article no. 726.9900 |
|--|----------------------|

PARAMETER SETTINGS

The MKY electronics have push-buttons and a 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



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

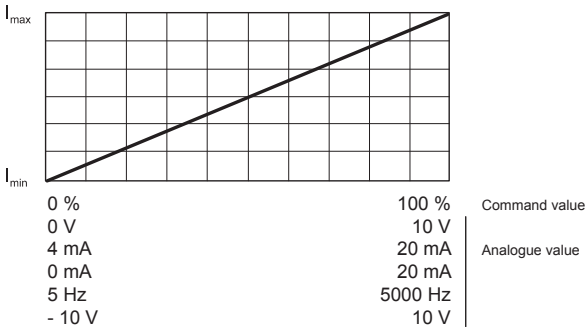
Two linear ramps for up and down are available which can be adjusted separately.

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

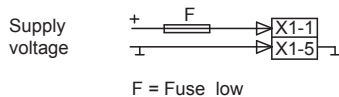
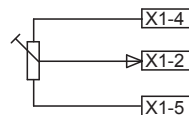
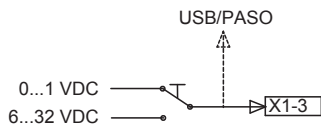
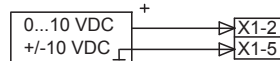
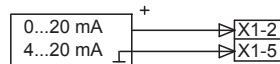
A Pulse-Width-Modulated current output is available. A dither signal is superimposed, whereby the dither frequency and the dither level are separately adjustable. The minimum (I_{min}) and maximum (I_{max}) current can be adjusted. The solenoid output can also be configured as switching solenoid output.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