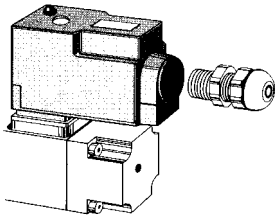


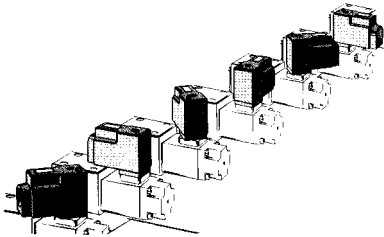
Murrelektronik valve plugs with integrated electronic circuits.
Saves time, money and space.



Electronics

With the Murrelektronik electronic valve plugs, we have made it possible to integrate many different circuits from simple suppression circuits for inductive spikes to logic control. The MSE plugs offer sufficient space inside.

The standard range includes plugs with indicators, suppressors, rectifiers, amplifiers, pulse generators, current and voltage monitors and proportional valve control.

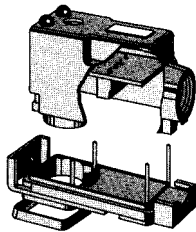


Rotation

The plug rotates up to 270° when mounted.

It snaps into place every 45°.

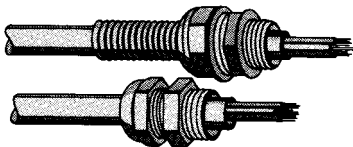
This makes mounting very simple, since the cable can be positioned exactly where required.



Connection

The connection chamber can be accessed very simply without any screws. Just place a screwdriver in the slots on the base and push the sliding plates left and right, as indicated.

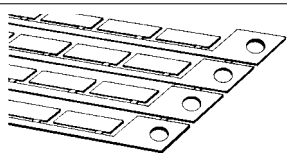
The base plate can be removed revealing the terminals within.



Compression gland

Whatever the connection you use, whether PVC cable, PUR cable or conduit, the MSE compression gland fits them all.

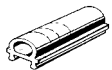
Both cable or conduit compression glands can be chosen.



Label plates can be labelled with the Computer system ACS

Labelling

The MSE can be simply labelled, which is of great benefit to service engineers and electricians. The MSE is supplied with a label plate for self-marking or can be marked with the Ademark/ACS labelling systems.



Label holder for Ademark label plates.



Protection

The MSE is water spray resistant, as every plug should be. The market requires IP65 to DIN 40050 and this is achieved in the MSE.

This allows the plug to be used in numerous different applications and environments.



Adjustment

The clear flip-top can be easily lifted to allow alterations and adjustments to be made to the parameters.

The adjustments are made using a series of potentiometers.

Valve plugs

Contact form
18 mm to DIN 43650 (ISO 4400)

Contact form
10 mm to DIN 43650 (ISO 6952)
on request

MSE

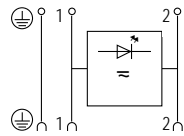
LED
LED + Suppressor



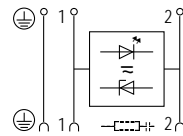
MSE

with suppression

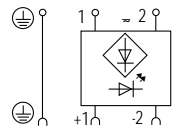
Circuit diagram



LED



LED + Z-diode resp. LED + RC



Rectifier

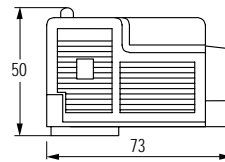
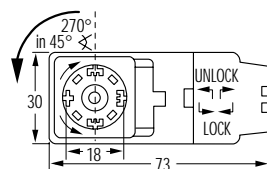
Ordering data

Contact form	Voltage (+10/-15%)	LED + Z-diode	Art.-No.	Art.-No.	Current consumpt [mA]	Valve - hold-on power	Switch off spike
						[W/VA]	[V]
18 mm	24 V AC/DC	LED + Z-diode	28018	18 mm	20	100	55
	48 V AC/DC	LED + Z-diode	28019		20	100	90
	110 V AC	LED + RC	28020		20	25	250
	230 V AC	LED + RC	28009		20	50	400
	24 ... 230 V AC/DC	rectifier		28006	30	max. 100	3

Technical data

Supply current	see valve hold-on rating	max. 1,5 A
Status indicator	yellow	
Frequency	DC resp. 50 ... 60 Hz	
Wire connection	stranded wire 1,5 mm ²	
Cable compression gland	PG 9, available on request (accessories are listed on page 1.4.7)	
Air and creepage distance	VDE 0110, over voltage cat. IV for U ≤ 110 V AC/DC; III for U > 110 V AC/DC	
Protection	IP 65, when fully mounted (DIN 40050), and screwed down; vibration test to DIN IEC 68 parts 2-6	
Material	plastic Pocan, flame retardant temperature range	
Temperature range	-20 ... +60 °C	

Dimensions



Notes

MSE plugs can only be supplied in black housings. To differentiate between valves please use, either the grey or black compression glands. A flat gasket is supplied. Accessories can be found on page 1.4.7

Valve plugs

MSE

for pressure switches
to DIN 3393



MSE

for pressure switches
to DIN 3393

MSE

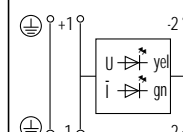
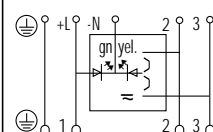
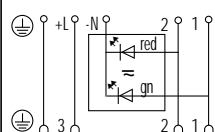
with current indicator

Contact form
18 mm to DIN 43650 (ISO 4400)

Contact form
10 mm to DIN 43650 (ISO 6952)

on request

Circuit diagram



Ordering data

Contact form	18 mm	Art.-No.	18 mm	Art.-No.	18 mm	Art.-No.
Voltage (tolerance $\pm 15\%$) suppression						
24 V DC				28030		
24 V DC VDR						28021
12...230 V AC/DC (50...60 Hz)		28031		28032		

Technical data

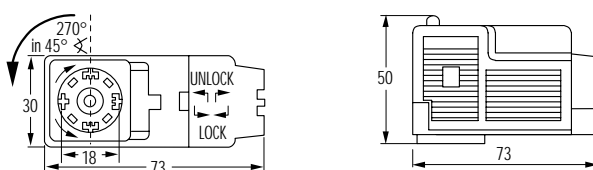
Supply current	max. 2 A	max. 2 A	max. 2 A
Current consumption	≤ 10 mA	≤ 25 mA	≤ 20 mA
Status indicator	red; green	yellow; green	yellow; green
Valve hold-on rating	–	–	≤ 50 W
Switch off spike	–	–	≤ 65 V
Wire connection	stranded wire 1,5 mm ²		
Cable compression gland	PG 9, available on request		
Air and creepage distance	VDE 0110, over voltage cat. IV for $U \leq 48$ V AC/DC; III for $U > 48$ V AC/DC		
Protection	IP 65, when fully mounted (DIN 40050), and screwed down; vibration test to DIN IEC 68 parts 2-6		
Material	plastic Pocan, flame retardant temperature range		
Temperature range	0...+60 °C		-20...+60 °C

Function description

Plug connector for pressure/level switch with 2 different colored LED's to show switch state.

Connector for sol. valves with intelligent LED.
Current indicator
LED yellow: Supply voltage is present
LED green: Current flow > 20 mA

Dimensions



Notes

MSE plugs can only be supplied in black housings. To differentiate between valves, please use either the grey or black compression glands. A flat gasket is supplied. Accessories can be found on page 1.4.7

Electronic plugs for valves MSE

Valve plugs

MSE
with relay

MSE
with transistor

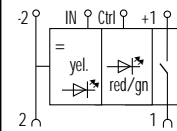
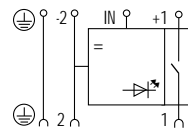
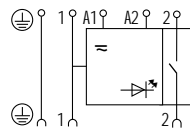
MSE
with short-circuit protected transistor



Contact form
18 mm to DIN 43650 (ISO 4400)

Contact form
10 mm to DIN 43650 (ISO 6952)

Circuit diagram



Ordering data

Art.-No.

Art.-No.

Art.-No.

Contact form	18 mm	18 mm	18 mm
10...30 V DC		28008	28007
10...35 V DC			
24 V AC/DC + 10% - 15 %	28010		
Technical data			
Supply current	max. 4 A	0,01...2 A	2 mA...3,5 A (at 20 °C)
Current consumption	≤ 20 mA	≤ 10 mA	≤ 10 mA
Status indicator	yellow	yellow; ¹⁾ red; green	yellow; red resp. green
Valve hold-on rating	100 W/VA at 24 V AC/DC	max. 60 W	max. 100 W
Switch on and off delay	10 ms/10 ms	max. 2 ms/max. 40 ms	approx. 0,3 ms/ approx. 120 ms at 1,6 A
Switch off spike	80 V (VDR)	55 V (suppressor diode)	2 V (free wheeling diode)
Wire connection	stranded wire 1,5 mm ²		
Cable compression gland	PG 9, available on request		
Air and creepage distance	VDE 0110, over voltage cat. IV		
Protection	IP 65, when fully mounted (DIN 40050), and screwed down; vibration test to DIN IEC 68 parts 2-6		
Material	plastic Pocan, flame retardant temperature range		
Temperature range	-20...+60 °C		

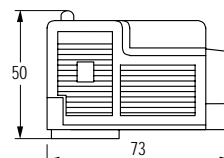
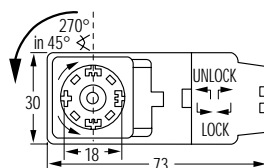
Function description

Electronic plug connector for sol. valves with an integrated relay amplifier. With small control voltage, larger valves can be driven. Control voltage (A1, A2) has the same value as the supply voltage. Supply type can differ.

Electronic plug connector for sol. valves with an integrated transistor amplifier. Small control voltages can drive larger valves. The control voltage IN (galvanically separated) 10...30 V DC/10mA

Electronic plug connector for sol. valves with integrated electronics. When the supply voltage is applied, the LED lights yellow. 2 color LED lights green with the cont. voltage IN and load is $I > 0.5A / < 3.5A$ and red with the control voltage IN and $I < 0.5A / > 3.5A$.
When the LED light is red, there is an alarm on the Control output 10V DC / 15mA
Control voltage IN 10...30 VDC / 2mA
Switching voltage 24 V DC ±15%
Ripple < 5%

Dimensions



Notes

MSE plugs can only be supplied in black housings. To differentiate between valves, please use either the grey or black compression glands.
A flat gasket is supplied. Accessories can be found on page 1.4.7

Valve plugs for Proportional valves

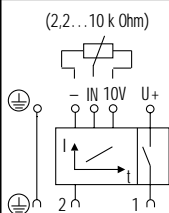
MSE Proportional amplifier



Contact form
18 mm to DIN 43650 (ISO 4400)

Contact form
10 mm to DIN 43650 (ISO 6952)
on request

Circuit diagram



Ordering data

Contact form 18 mm

Art.-No.

24 V DC 28520

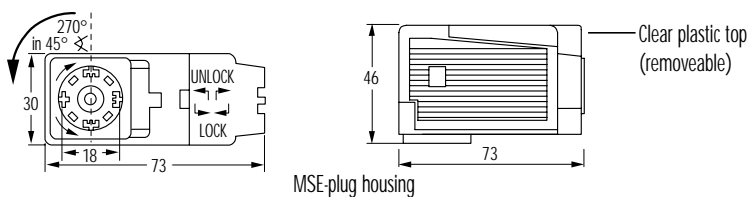
Technical data

Supply voltage (U+)	18...32 V DC smoothed with 2200 µF per 1 A load current
Supply current (I max)	max. 1,6 A, inductive
Current consumption	≤ 40 mA
Control voltage (IN)	0...10 V DC
Reference voltage	10 V ±5 %/5 mA at 24 V DC
Output voltage	24 V DC, pulse width modulated
Reaction time	< 10 s (dwell time after switch on)
Input resistor	≥ 200 kOhm
Output current (I min)	adjustable by pot: 0...30/40 % of I max.; factory set at 10 mA
(I max)	adjustable by pot: 0,2 A +20 %...I max. +10 %; factory set at 1 A
Ramp time	adjustable by pot: 0,2...10 s +20 % ramp-up and ramp-down times equal, factory adjusted to 0,1...0,2 s
Modulation frequency	adjustable by pot: 40 Hz -5 %...400 Hz +10 %; factory set at 50 Hz
Short-circuit protection	short time rated (max. 2 s), over temperature switch off
LED for supply voltage	green
Wire connection	stranded wire 1,5 mm ²
Cable compression gland	PG 9, available on request
Air and creepage distance	VDE 0110, over voltage cat. IV
Protection	IP 65, when fully mounted (DIN 40050)
Material	plastic POCAN, flame retardant temperature range
Temperature range	-20...+60 °C

Function description

The adapter controls the current supply to a proportional valve. This current is proportional to the voltage at the input of the amplifier. If required, a 10 V supply is available from the amplifier to supply an input transducer (e.g. potentiometer). Min/max. current (gain control), ramp-up/ramp-down time and switching frequency can all be adjusted by potentiometers. The amplifier gives a smooth stepless control of the valve.

Dimensions



Notes

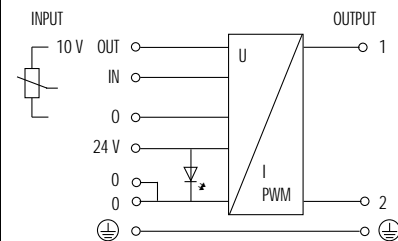
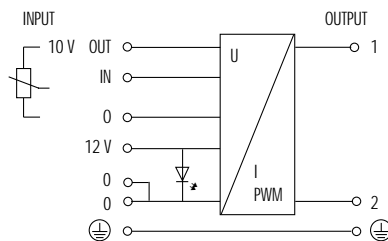
MSE plugs can only be supplied in black housings. To differentiate between valves, please use either the grey or black compression glands. A flat gasket is supplied. Accessories can be found on page 1.4.7

MCVO housing with controller for proportional valves

MCVO Proportional amplifier



Circuit diagram



Ordering data

Art.-No.
28500

Art.-No.

28501

12 V DC

24 V DC

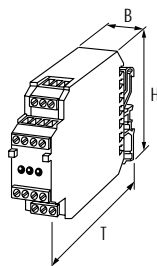
Technical data

Supply voltage	10...15 V DC, smoothed (2200 µF each 1 A)	18...32 V DC, smoothed (2200 µF each 1 A)
Supply current	max. 2,5 A, inductive	max. 2,5 A, inductive
Current consumption	≤ 50 mA	≤ 50 mA
Control voltage (IN)	0...10 V DC, single polarity	0...10 V DC, single polarity
Output voltage	12 V DC, pulse width modulated	24 V DC, pulse width modulated
Reference voltage (OUT)	10 V ± 5 %, max. 5 mA at 12 V DC	10 V ± 5 %, max. 5 mA at 24 V DC
Input resistor	≥ 1 MΩ	≥ 200 kΩ
Output current (I min) adjustable	0...30/40 % from I max.	0...30/40 % from I max.
(I max) adjustable	0,02 A + 20 %...2,5 A + 10 %	0,02 A + 20 %...2,5 A + 10 %
Ramp time adjustable	0,2...10 sec. + 20 % (ramp up and ramp down time equal)	0,2...10 sec. + 20 % (ramp up and ramp down time equal)
Modulation freq. adjustable	150 Hz -5 %...400 Hz + 10 %	40 Hz -5 %...400 Hz + 10 %
Short-circuit protection	short term (max. 2 sec.), over temperature switch off	
Status indicator	green	
Material	flame retardant plastic	
Temperature range	-20...+60 °C	
Mounting method	DIN-rail mounting to EN 50022 or 50035	
Dimensions H x B x T	75 x 22,5 x 102 mm	


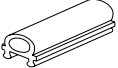

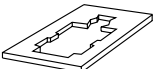
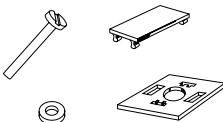

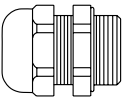
Function description

The adapter controls the current supply to a proportional valve. This current is proportional to the voltage at the input of the amplifier. If required, a 10 V supply is available from the amplifier to supply an input transducer (e.g. potentiometer). Min./max. current (gain control), ramp-up/ramp-down time and switching frequency can all be adjusted by potentiometers. The amplifier gives a smooth stepless control of the valve.

Dimensions



Notes

Label plates		Art.-No.	Suitable for contact spacing				
			18 mm	11 mm	10 mm	9,4 mm	8,0 mm
	Self marking label. ACS computer generated labelling system is also available. Information on request.	90900	■	■	■	■	■
	ACS label plates, suitable for label sleeves to fit M8 and M12 cables.	996041					
	Label holders for ADEMARK markers.	90903	■	■	■	■	■
	For label plates 4 x 18 mm. For cable diameter 4,0 to 6,5 mm.	996043					
Gaskets and Screws		Art.-No.	18 mm	11 mm	10 mm	9,4 mm	8,0 mm
	Silicon gasket	90223	■				
	Standard gasket (MSVS/MSE)	90204	■				
	Silicon gasket	90228		■	■		
	Standard gasket (MSVS/MSE)	90206		■	■		
	Accessories set for pre-wired valve plug	MSUD 996003	■				
		MSVS 996039	■				
		MSUD 996004		■	■		
	Pack contents:	MSVS 996040		■	■		
	1 x Fixing screw	MSUD 996007				■	
	1 x Insulating washer	MSUD 996008					■
	Fixing screw for valve plug	90990	■				
	Fixing screw for valve connector system MSVS	90991	■				
End fittings (MSVS/MSE)		Art.-No.	18 mm	11 mm	10 mm	9,4 mm	8,0 mm
	Cable compression gland PG 9	grey 90920	■	■	■		
	Cable compression gland PG 9	black 90921	■	■	■		
	Conduit on request						