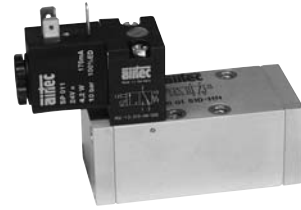


Standardized valve series MI-01

Connection pattern according to ISO 5599/1, size 1, 5/2- and 5/3-way NG 9
1610 and 1700 NI/min (1.636 and 1.728 Cv)



Order code

MI-01-510-HN-412

Series and function

Coil options

Standard coil¹⁾

- 411 = 12 V DC, 4.2 W
- 412 = 24 V DC, 4.2 W
- 422 = 24 V AC, 7/4 VA
- 426 = 115 V AC, 7/4 VA
- 427 = 230 V AC, 7/4 VA
- 431 = 12 V DC, 2.2 W²⁾
- 432 = 24 V DC, 2.2 W²⁾

Without coil and plug socket

- 500 = Power consumption 4.2 W, 7/4 VA
- 530 = Power consumption 2.2 W²⁾

Coils with M12 connector and LED

- O12 = 24 V DC, 4.8 W
- O32 = 24 V DC, 2.5 W²⁾

Coils with higher humidity resistance

- 712 = 24 V DC, 4.2 W without plug socket
- 727 = 230 V AC, 7/4 VA without plug socket

¹⁾ Plug socket see page 5.102.

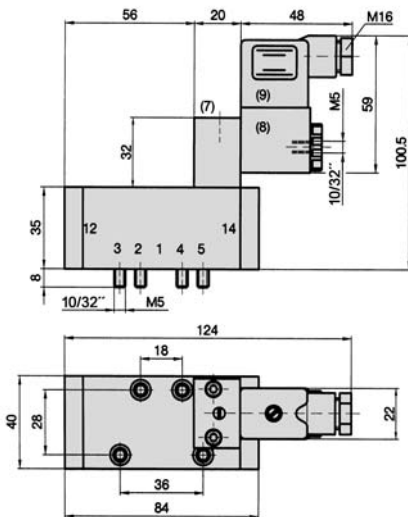
Design, function and technical data

Spool valve actuated by an electrical signal. The mounting screws and seals are included.

Please specify required control voltage when ordering.

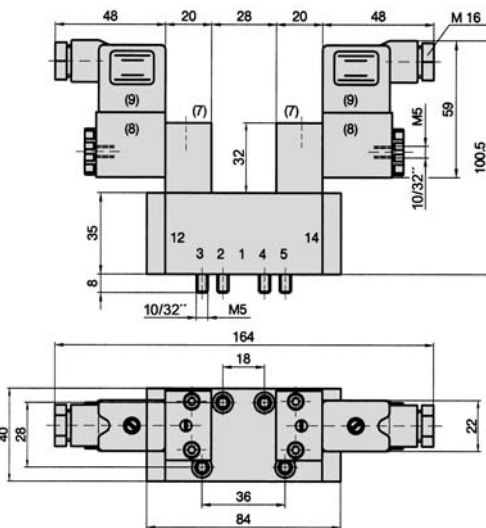
Valves of this series are available in explosion proof design in accordance with 94/9/EG (ATEX). For further details see chapter 13 of this catalogue.

MI-01-510-HN, MI-01-511-HN



- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- 14 = Pilot air supply (via sub-base)
- (7) = manual override (detent)
- (8) = solenoid coil can be repositioned 2 x 90°
- (9) = plug socket can be repositioned by 180°

MI-01-520-HN, MI-01-530-HN, MI-01-533-HN



- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- 12, 14 = Pilot air supply (via sub-base)
- (7) = manual override (detent)
- (8) = solenoid coil can be repositioned 2 x 90°
- (9) = plug socket can be repositioned by 180°

Order number Please complete according to order code.	MI-01-510-HN	MI-01-511-HN	MI-01-520-HN	MI-01-530-HN	MI-01-533-HN
Function	5/2-way single solenoid air spring return	5/2-way single solenoid spring return	5/2-way double solenoid	5/3-way center position closed	5/3-way center position exhausted
Nominal size	9 mm				
Flow rate	1700 NI/min (1.728 Cv)			1610 NI/min (1.636 Cv)	
Pressure range	2...10 bar ²⁾ (29...145 psi)	2.5...10 bar ²⁾ (36...145 psi)	2...10 bar ²⁾ (29...145 psi)	3...10 bar ²⁾ (34...145 psi)	
Response time at 6 bar	on 16 ms off 22 ms	on 15 ms off 27 ms	13 ms	on 17 ms off 19 ms	
Temperature range	- 10 °C ... + 70 °C (+ 14 °F ... + 158 °F)				
Materials	Body: Al (anodized), Seals: NBR and POM, Inner parts: Al, stainless steel, brass				
Medium	Compressed air in accordance with ISO 8573-1:2001, Class 7.4 – and free of aggressive additives				
Degree of protection	IP 65 according to EN 60529				
Weight	0.469 kg (1.034 lbs.)	0.480 kg (1.058 lbs.)	0.645 kg (1.422 lbs.)	0.620 kg (1.367 lbs.)	

²⁾ max. 8 bar (max. 116 psi) at 2.2 W and 2.5 W.

Accessories for series MI-01

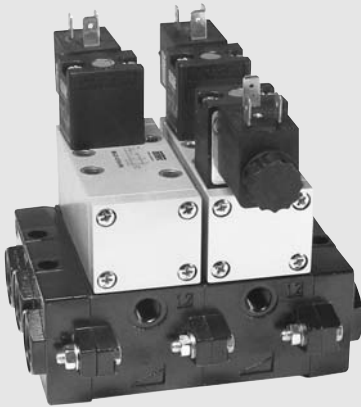
Connection pattern according to ISO 5599/1, size 1, 5/2- and 5/3-way NG 9
1610 and 1700 NI/min (1.636 and 1.728 Cv)



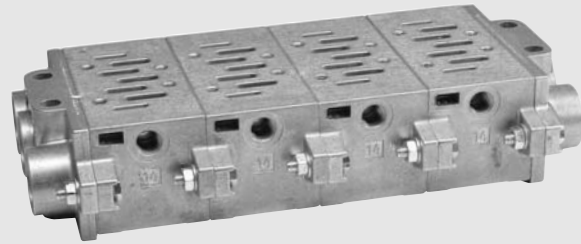
Note:

Accessories for solenoid coils, actuators and plug sockets see page 5.102.

Sub-base mounting



Sub-base will be delivered completely assembled with valves if requested.



Assembled sub-base with "n"-stations.
ISO 5599/1, VDMA 24345 type C and D
MI-013/n



Single sub-base, ports on side
ISO 5599/1, VDMA 24345 type A,
side ports
MI-011



Modular element, one station
ISO 5599/1, VDMA 24345 type C,
bottom connections
MI-013



Single sub-base, ports on side
ISO 5599/1, VDMA 24345 type A,
bottom connections
MI-012



Modular element, one station ports 2 and 4
on front ISO 5599/1, VDMA 24345,
ports face each other
MI-014
1 pair of end plates (model-no. MI-015) is
available on request.



End plate (1 pair)
ISO 5599/1, VDMA 24345 type D
MI-01/E
(Only to be used with MI-013)



Blind plate for blank
valve station
MI-01-V

Other single elements:

20-I-01-02

Seal disc for use between valve and sub-base.

Accessories for standardized valve series

MI-01 (ISO-1), MI-02 (ISO-2), MI-03 (ISO-3)



Solenoid coils, actuators

Solenoid coils	23-SP-011-...	Standard coil	page 4.280
	23-SP-012-...	Coil with 2,2 W power consumption	page 4.280
	23-SP-011-5-O12	Coil with M12 plug connection, 4,8 W, LED and circuit protection	page 4.282
	23-SP-012-5-O32	Coil with M12 plug connection, 2,5 W, LED and circuit protection	page 4.282
	⊕-explosion proof	Valves with explosion proof actuator see chapter 13	
Actuators	23-R-013	Standard actuator	
	23-R-014	Low power actuator	
Plug sockets	28-ST-01	Standard plug socket	page 4.283
	28-ST-04-...	Plug socket with LED	page 4.283
	28-ST-06-...	Plug socket with LED and circuit protection	page 4.283
	28-ST-06-K3-...	Plug socket with LED, circuit protection and cable	page 4.283

User information

Low power consumption coils (2.2 W or 2.5 W) are for pressures up to 8 bar (116 psi) only. Valve actuator 23-R-014 is required. The actuator 23-R-014 is nickel plated. Make sure that the coils with the right power consumption are used.

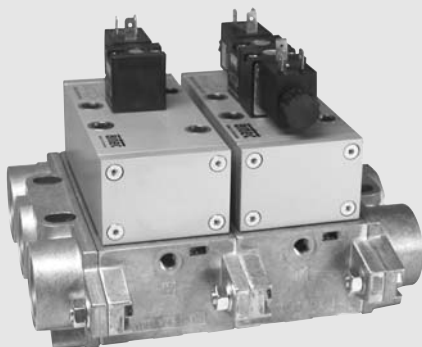
For outdoor applications or in areas with high humidity, use coil 23-SP-011-1-... or 23-SP-012-1-... (see page 4.280).

The following types are available on request

Coils and sockets with contacts according to DIN EN 175301-803 type B (U-form).

Plug sockets with molded cable.

Sub-base mounting for series MI-03



Sub-base will be delivered completely assembled with valves if requested.



Assembled sub-base with "n"-stations.
ISO 5599/1, VDMA 24345 type C and D
MI-033/n



Single sub-base, ports on side
ISO 5599/1, VDMA 24345 type A
MI-031



Modular element, one station
ISO 5599/1, VDMA 24345 type C
MI-033



End plate (1 pair)
ISO 5599/1, VDMA 24345 type D
MI-03/E



Blind plate for blank valve station
MI-03-V

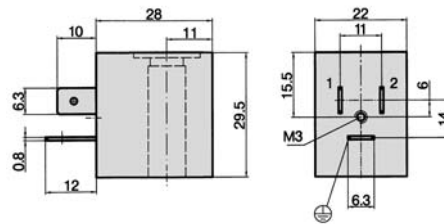
Other single elements:

20-I-03-02

Seal disc for use between valve and sub-base.

Accessories for electrically operated valves

Solenoid coils



Solenoid coils with connection pattern pursuant to DIN EN 175301-803 Shape B

Order number	23-SP-011-411	23-SP-011-412	23-SP-011-422	23-SP-011-426	23-SP-011-427	23-SP-012-431	23-SP-012-432
Standard voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC	12 V DC	24 V DC
Power consumption DC	4.2 W	4.2 W				2.2 W	2.2 W
Power consumption 50 Hz			4 VA	4 VA	4 VA		
Degree of protection	IP 65 according to EN 60529 with connected plug socket						
Duty cycle	100 %						
Temperature range	- 20 °C ... + 50 °C (- 4 °F ... + 122 °F)						
Voltage tolerance	± 10 %						
Standard for series	MS-18, M-04, M-05, M-07, M-22, KM-09, KM-10, MF-05, MF-07, MN-06, KN-05, MI-01, MI-02, MI-03						

Other voltages on request.

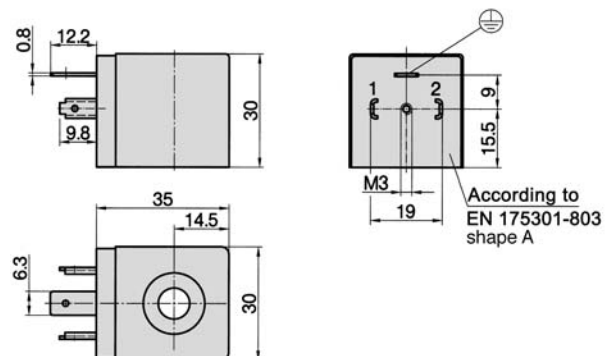
Solenoid coils with connection pattern pursuant to DIN EN 175301-803 Shape B

(with enhanced humidity resistance)

Order number	23-SP-011-1-711	23-SP-011-1-712	23-SP-011-1-712	23-SP-011-1-722	23-SP-011-1-725	23-SP-011-1-727	23-SP-012-1-732
Standard voltage	12 V DC/24 V AC	24 V DC	48 V AC	12 V DC/24 V AC	110 V AC	230 V AC	24 V DC
Power consumption DC	4.6 W	4.8 W	-	5.5 W	-	-	2.5 W
Power consumption 50 Hz	7.1 VA	-	7.7 VA	8.9 VA	8.5 VA	7.9 VA	
Degree of protection	IP 65 according to EN 60529 with connected plug socket *1						
Duty cycle	100 %						
Temperature range	- 20 °C ... + 50 °C (- 4 °F ... + 122 °F)						
Voltage tolerance	± 10 %						
Standard for series	KMX-09, KMX-10, ICK-09, ICK-10, KN-55, KNX-55, ICKN-55						

*1: IP67 pursuant to EN 60529 with plug socket and sealing set 20-SP-011/012-02

Solenoid coils with connection pattern pursuant to DIN EN 175301-803 Shape A



Order number	23-SP-016-712	23-SP-016-722	23-SP-016-726	23-SP-016-726	23-SP-016-727	23-SP-016-727
Standard voltage	24 V DC	24 V AC	110 V AC	115 V AC	230 V AC	110 V DC
Power consumption DC	4.5 W	-	-	-	-	5.3 W
Power consumption 50 Hz	-	8.0 VA	7.6 VA	8.6 VA	7.9 VA	-
Degree of protection	IP 65 according to EN 60529 with connected plug socket					
Duty cycle	100 %					
Temperature range	- 20 °C ... + 50 °C (- 4 °F ... + 122 °F)					
Voltage tolerance	± 10 %					
Standard for series	MC-07					

Accessories for electrically operated valves

Solenoid coils



Solenoid coils with connection pattern pursuant to DIN EN 175301-803 Shape B (cranked contacts)



Order number	23-SP-011-G-412	23-SP-011-G-427
Standard voltage	24 V DC	230 V AC
Power consumption DC	4.2 W	
Power consumption 50 Hz		4 VA
Degree of protection	IP 65 according to EN 60529 with connected plug socket	
Duty cycle	100 %	
Temperature range	- 20 °C ... + 50 °C (- 4 °F ... + 122 °F)	
Voltage tolerance	± 10 %	

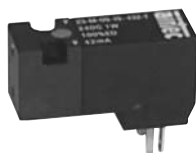
Solenoid coils with connection pattern pursuant to DIN EN 175301-803 Shape C

Degree of protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range	- 20 °C ... + 50 °C (- 4 °F ... + 122 °F)
Voltage tolerance	± 10 %
Standard for series	BM-01, BM-02



Order number	23-M-09-19-461-T	23-M-09-19-462-T	23-M-09-19-452-T	23-M-09-19-456-T	23-M-09-19-457-T
Standard voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC
Power consumption	1 W	1 W	3 VA	3 VA	3 VA
Ambient temperature	- 10 °C ... + 50 °C (+ 14 °F ... + 122 °F)				
Manual override	non detented				
Position of manual override	Side of the contacts				

Order number	23-M-09-19-461-R	23-M-09-19-462-R	23-M-09-19-452-R	23-M-09-19-456-R	23-M-09-19-457-R
Standard voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC
Power consumption	1 W	1 W	3 VA	3 VA	3 VA
Ambient temperature	- 10 °C ... + 50 °C (+ 14 °F ... + 122 °F)				
Manual override	detented				
Position of manual override	Side of the contacts				



Order number	23-M-09-19-431-T	23-M-09-19-432-T	23-M-09-19-422-T	23-M-09-19-426-T	23-M-09-19-427-T
Standard voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC
Power consumption	1 W	1 W	3 VA	3 VA	3 VA
Manual override	non detented				
Position of manual override	Opposite the contacts				

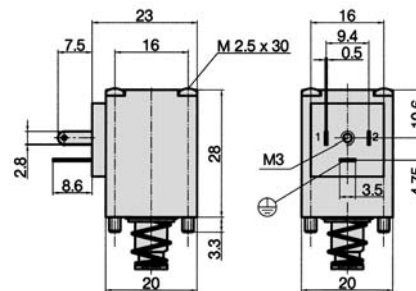
Order number	23-M-09-19-431-R	23-M-09-19-432-R	23-M-09-19-422-R	23-M-09-19-426-R	23-M-09-19-427-R
Standard voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC
Power consumption	1 W	1 W	3 VA	3 VA	3 VA
Manual override	detented				
Position of manual override	Opposite the contacts				

Accessories for electrically operated valves

Solenoid coils and plug sockets

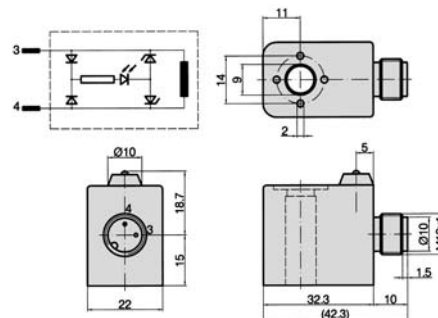


Solenoid coils with connection pattern pursuant to DIN EN 175301-803 Shape C



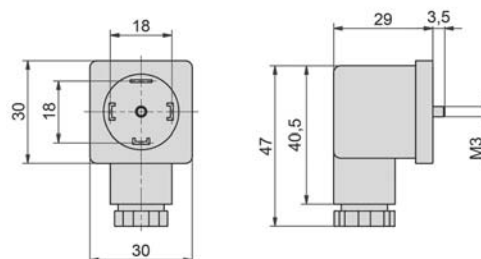
Order number	23-M-20-411	23-M-20-412
Standard voltage	12 V DC	24 V DC
Power consumption	2 W	2 W
Degree of protection	IP 65 according to EN 60529 with connected plug socket	
Duty cycle	100 %	
Temperature range	- 20 °C ... + 50 °C	
Voltage tolerance	± 10 %	
Standard for series	MS-20, MF-04	

Solenoid coils with M12 connection, with LED and protective circuit.



Order number	23-SP-011-5-O12	23-SP-012-5-O32
Standard voltage	24 V DC	24 V DC
Power consumption	4.8 W	2.5 W
Degree of protection	IP 65 according to EN 60529 with connected cable	
Duty cycle	100 %	
Temperature range	- 20 °C ... + 50 °C	
Voltage tolerance	± 10 %	

Plug sockets pursuant to DIN EN 175301-803 Shape A (2pol. + PE, 27 x 27 mm, Contact distance 18 mm)



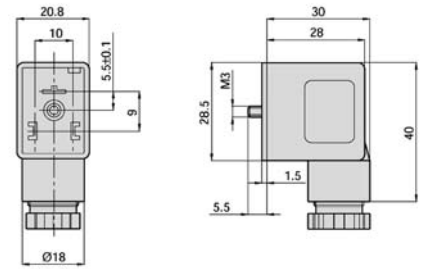
Order number	28-ST-03	28-ST-11-112
Standard voltage	all	24 V DC
Protective circuit	no	yes
Status indicator	without	yes
Degree of protection	IP 65 pursuant to EN 60529 requires a flat gasket	
Connecting cable	without	
Ø Connecting cable	6 - 8 mm	
Max. wire cross section	1,5 mm ²	
for coil	23-SP-016	

Accessories for electrically operated valves

Plug sockets for coil

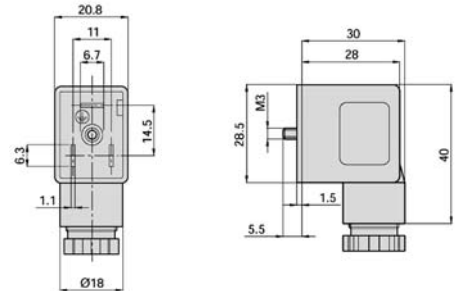


Plug sockets pursuant to DIN EN 175301-803 Shape B with cranked contacts (2pol. + PE, 21 x 28 mm, Contact distance 10 mm)



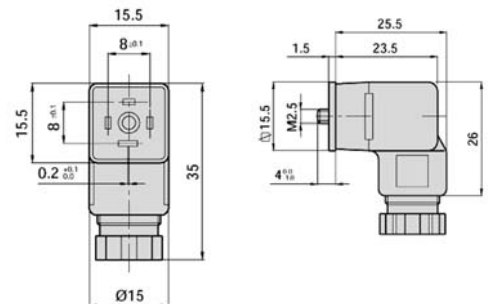
Order number	28-ST-01-G
Standard voltage	all
Protective circuit	no
Status indicator	without
Degree of protection	IP 65 pursuant to EN 60529 requires a flat gasket
Connecting cable	without
Ø Connecting cable	6 – 8 mm
Max. wire cross section	1,5 mm ²
for coil	23-SP-011-G

Plug sockets pursuant to DIN EN 175301-803 Shape B (2pol. + PE, 21 x 28 mm, Contact distance 11 mm)



Order number	28-ST-01	28-ST-04-112	28-ST-04-127	28-ST-06-112	28-ST-06-127	28-ST-06-K3-112	28-ST-06-K3-127
Standard voltage	all	24 V DC	230 V AC	24 V DC	230 V AC	24 V DC	230 V AC
Protective circuit	no	no	no	yes	yes	yes	yes
Status indicator	without	yes	yes	yes	yes	yes	yes
Degree of protection	IP 65 pursuant to EN 60529 requires a flat gasket						
Connecting cable	without					3 m	3m
Ø Connecting cable	6 – 8 mm					–	–
Max. wire cross section	1,5 mm ²					–	–
for coil	23-SP-011, 23-SP-011-1						

Plug sockets pursuant to DIN EN 175301-803 Shape C (2pol. + PE, 15,5 x 15,5 mm, Contact distance 8 mm)



Order number	28-ST-02-1	28-ST-09-1-112	28-ST-09-1-127	28-ST-10-1-112	28-ST-10-1-127	28-ST-10-1-K3-112
Standard voltage	all	24 V DC	230 V AC	24 V DC	230 V AC	24 V DC
Protective circuit	no	no	no	yes	yes	yes
Status indicator	without	yes	yes	yes	yes	yes
Degree of protection	IP 65 pursuant to EN 60529 requires a flat gasket					
Connecting cable	without					3 m
max. Ø Connecting cable	6,5 mm					–
Max. wire cross section	0,75 mm ²					–
for coil	23-M-09-19					

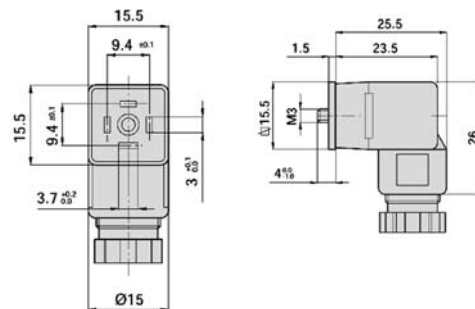
Accessories for electrically operated valves

Plug sockets for coil



Plug sockets pursuant to DIN EN 175301-803 Shape C

(2pol. + PE, 15,5 x 15,5 mm, Contact distance 9,4 mm)

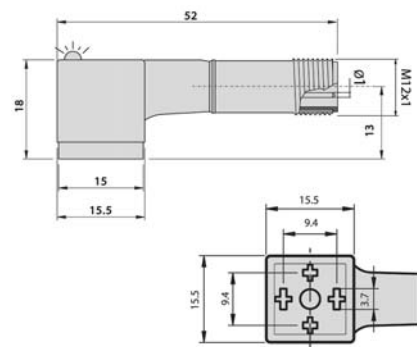
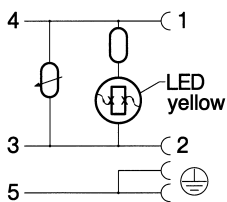


Order number	28-ST-02-01	28-ST-09-112	28-ST-09-127	28-ST-10-112	28-ST-10-127	28-ST-10-K3-112	28-ST-10-K3-127
Standard voltage	all	24 V DC	230 V AC	24 V DC	230 V AC	24 V DC	230 V AC
Protective circuit	no	no	no	yes	yes	yes	yes
Status indicator	without	yes	yes	yes	yes	yes	yes
Degree of protection	IP 65 pursuant to EN 60529 requires a flat gasket						
Connecting cable	without					3 m	3m
max. Ø Connecting cable	6,5 mm					-	-
Max. wire cross section	0,75 mm ²					-	-
for coil	23-M-20						

Plug sockets with integrated adaptor for M8/M12

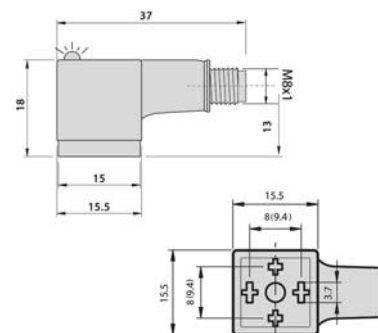
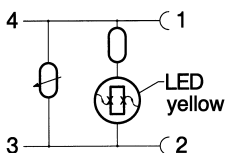
(2pol. + PE, 15,2 x 15,8 mm, Contact distance 8 bzw. 9,4 mm)

Plug socket 28-ST-02-2-07



2 = not connected 4 = +24 Volt (+)
3 = 0 Volt (-) 5 = ⊕

Plug socket 28-ST-02-1-05 and 28-ST-02-2-05



2 = +24 Volt (+)
3 = 0 Volt (-)
4 = not connected

Order number	28-ST-02-1-05	28-ST-02-2-05	28-ST-02-2-07
Standard voltage	24 V DC		
Protective circuit	yes		
Status indicator	yes		
Degree of protection	IP 65 pursuant to EN 60529 requires a flat gasket		
Contact distance	8 mm	9,4 mm	9,4 mm
for plug sockets	M8	M8	M12
for coil	23-M-09-19	23-M-20	