

On/off valves with spool position monitoring

RE 24830/02.11
Replaces: 03.08

1/30

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Information on available spare parts:
www.boschrexroth.com/spc

General

Inductive position switches and proximity sensors

In case of seat valves, contactless position switches and proximity sensors (hereinafter shortly only referred to as position switches) with integrated switching amplifiers switch shortly before, in case of on/off valves only after achievement of the spool position to be monitored. The spool position achieved is displayed by a binary signal.

Advantages of the position switches:

- Short-circuit-proof
- Available with M12x1 plug-in connection
- Direct monitoring of the spool position at the control spool
- Long service life
- High reliability as no use of dynamic seals
- Reaction time of the switch upon operation ca. 15 ms.
- The switching times according to ISO 6403 specified in the related valve data sheets do **not** correspond to the reaction times of the position switch (time from signal change at the solenoid to the signal change of the position switch).

Query mechanisms with regard to time are to be set to a minimum of 80 to 100 ms.

Attention!

Valves with inductive position switches and proximity sensors in safety-relevant controls may only be assembled and commissioned by hydraulically and electrically trained experts. Adjustment and maintenance works require special tools and equipment. These works may only be performed by authorized specialists or in the factory!

In case of improper works at safety equipment, there is the risk of personal injury and damage to property!

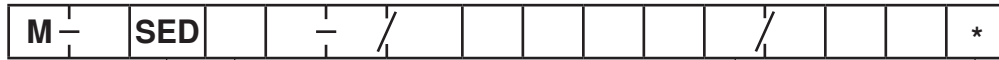
- The essential valve components are adjusted to each other in the production plant and adjusted during the assembly. They must not be interchanged. In case of valve or position switch defects, the entire valve must be exchanged!
- The factory setting of the position switch must not be changed. The position switch may only be set by the valve manufacturer.
- The position switch can be automatically monitored by the machine control so that even in case of position switch failure, another machine cycle cannot be initiated.
- The machine control and the selection of the components are to be designed so that the leaks cannot lead to an inadmissible closing movement.

Notes!

- In pilot operated directional valves, only the main valve is monitored, not the pilot control valve.
- In 4/2 directional seat valves, only the main valve is monitored, not the complete valve function.
- Position switches have an attenuating effect, i.e. the switching times specified in the basic data sheets of the valves may be increased.

Directional seat valve type SED with inductive position switch type QM

Ordering code



Seat valve

Size 6

Size 10

= 6

= 10

Basic data sheets:

Size 6 22049

Size 10 22045

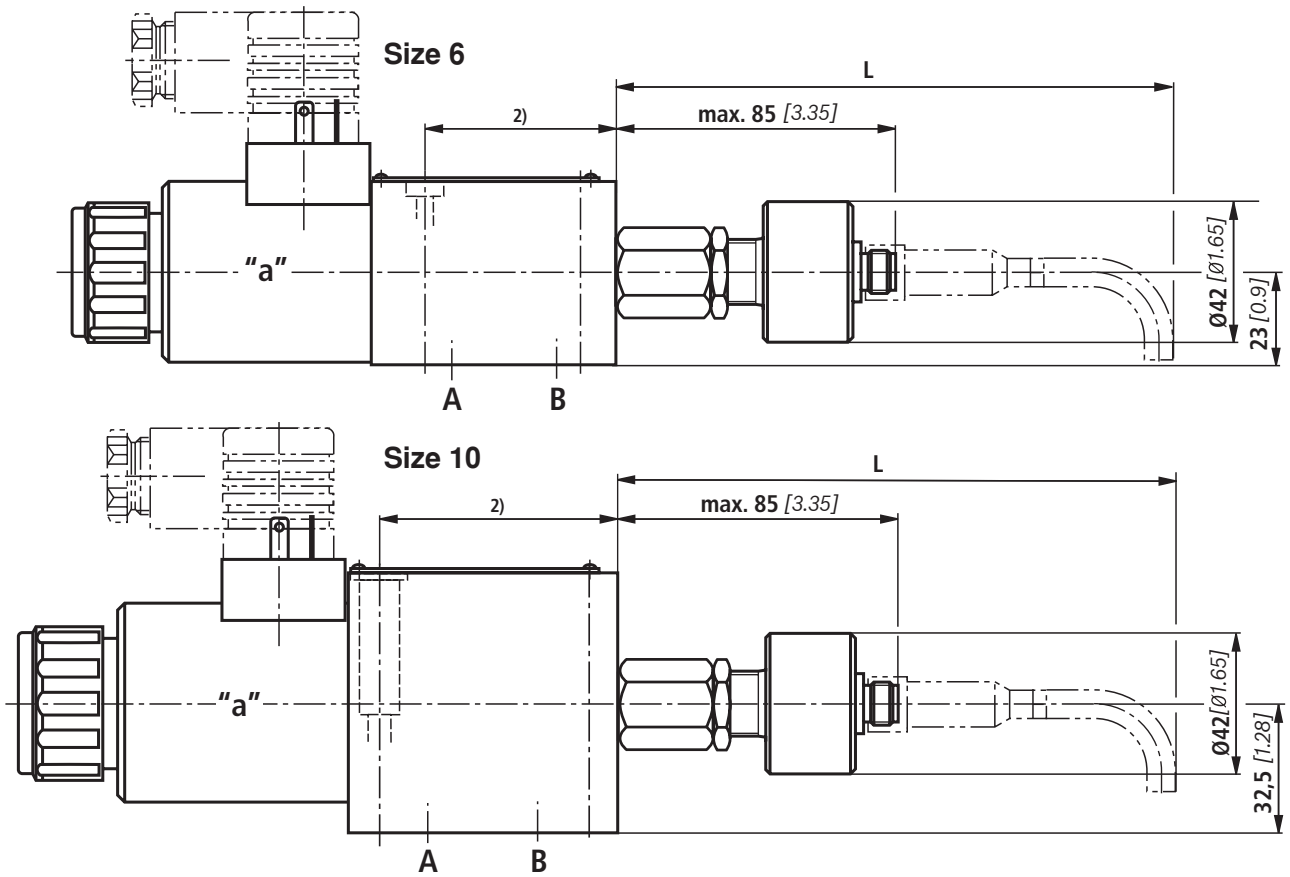
Further details in the plain text

Order example:

M-3SED 6 UK1X/350CG24N9K4QMAG24/...

Inductive position switch
no code = without position switch
QMAG24 = Monitored spool position "a"
QMBG24 = Monitored spool position "b"

Unit dimensions (dimensions in mm [*inch*])



Mating connector (separate order, see page 29)		L in mm [<i>inch</i>] ¹⁾	
		Size 6	Size 10
Mating connector straight	Material no. R900031155	186 [7.32]	183 [7.21]
Mating connector angled	R900082899	117 [4.61]	114 [4.48]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]	153 [6.02]

¹⁾ With mating connector, 10 mm [0.39 *inch*] removal space and minimum bending radius for the connection line

²⁾ Dimension see basic data sheet

Contact assignment see page 28.

Switching logics see page 20 to 22.

Directional seat valve type SEW with inductive position switch type QM

Ordering code

M	SEW	-	/	M		K4	/		*
---	-----	---	---	---	--	----	---	--	---

Seat valve

Size 6 = 6
Size 10 = 10

Basic data sheets:

Size 6	22058
Size 10	22075

Further details in the plain text

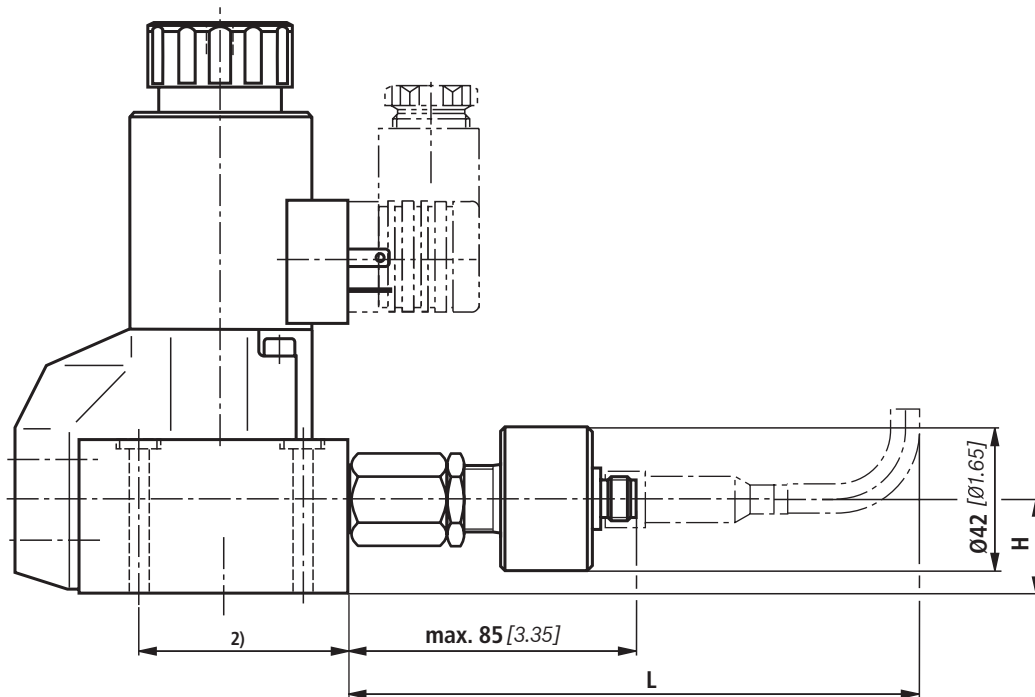
Inductive position switch

no code = without position switch
QMAG24 = Monitored spool position "a"
QMBG24 = Monitored spool position "b"

Order example:

M-3SEW 6 U3X/420MG24N9K4QMAG24/...

Unit dimensions (dimensions in mm [inch])



Mating connector (separate order, see page 29)	Material no.	L in mm [inch] ¹⁾		H in mm [inch]	
		Size 6	Size 10	Size 6	Size 10
Mating connector straight	R900031155	186 [7.32]	183 [7.21]	23 [0.9]	32.5 [1.28]
Mating connector angled	R900082899	117 [4.61]	114 [4.48]	23 [0.9]	32.5 [1.28]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]	153 [6.02]	23 [0.9]	32.5 [1.28]

¹⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

²⁾ Dimension see basic data sheet

Contact assignment see page 28.

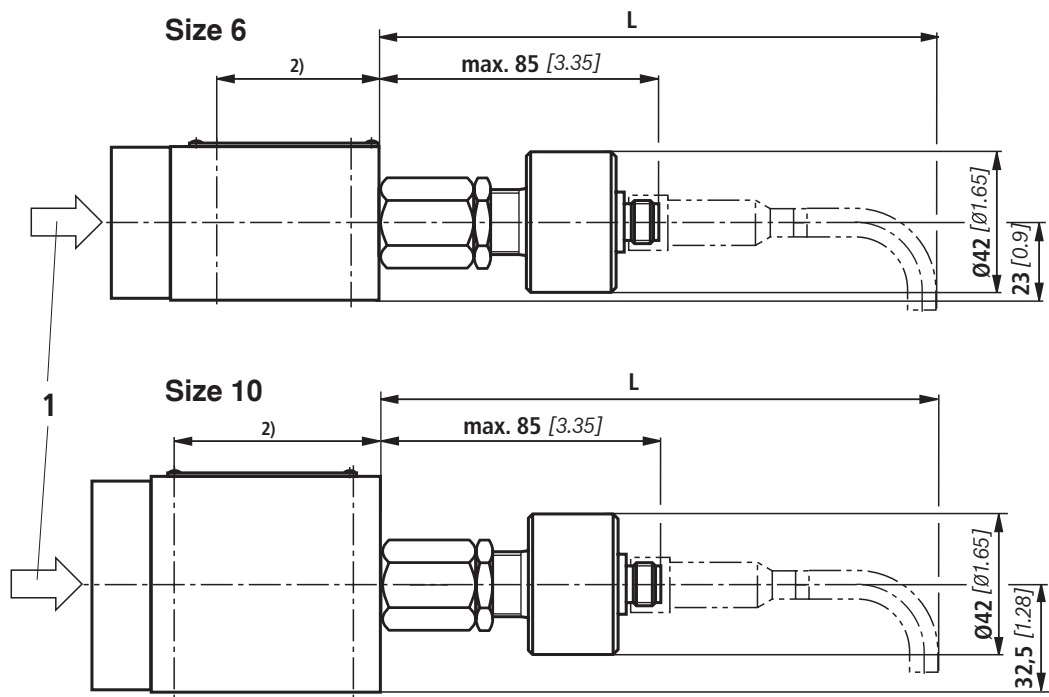
Switching logics see page 20 to 22.

Directional seat valves type SH, SP, SMM, SMR with inductive position switch type QM

Ordering code

Seat valve, direct operated Hydraulically operated = SH Pneumatically operated = SP Manually operated (handle-operated lever) = SMM Mechanically operated (roller plunger) = SMR Size 6 = 6 Size 10 = 10	M		3X				*
							Further details in the plain text
							Inductive position switch without position switch Monitored spool position "a" Monitored spool position "b"
							no code = QMAG24 = QMBG24 =
							Order example: M-2SMR 6 NU3X/420QMAG24...
Basic data sheet: 22340							

Unit dimensions (dimensions in mm [inch])



1 Types of actuation see data sheet 22340

Mating connector (separate order, see page 29)	Material no.	L in mm [inch] ¹⁾	
		Size 6	Size 10
Mating connector straight	R900031155	186 [7.32]	183 [7.21]
Mating connector angled	R900082899	117 [4.61]	114 [4.48]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]	153 [6.02]

¹⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

²⁾ Dimension see basic data sheet

Contact assignment see page 28.

Switching logics see page 20 to 22.

Directional spool valves type WE with inductive position switch type QM

Ordering code

5 ¹⁾	WE	/		/		*
-----------------	----	---	--	---	--	---

Directional spool valve,
direct operated = WE

Size 6 = 6
Size 10 = 10

Order example:

4WE 6 C6X/EG24N9K4QMAG24/...

¹⁾ 5-chamber design only with size 10

Basic data sheets:

Size 6	23178 23178-00
Size 10	23327 23351 ¹⁾

no code =

QMAG24 =

QMBG24 =

QM0G24 =

Inductive position switch
without position switch

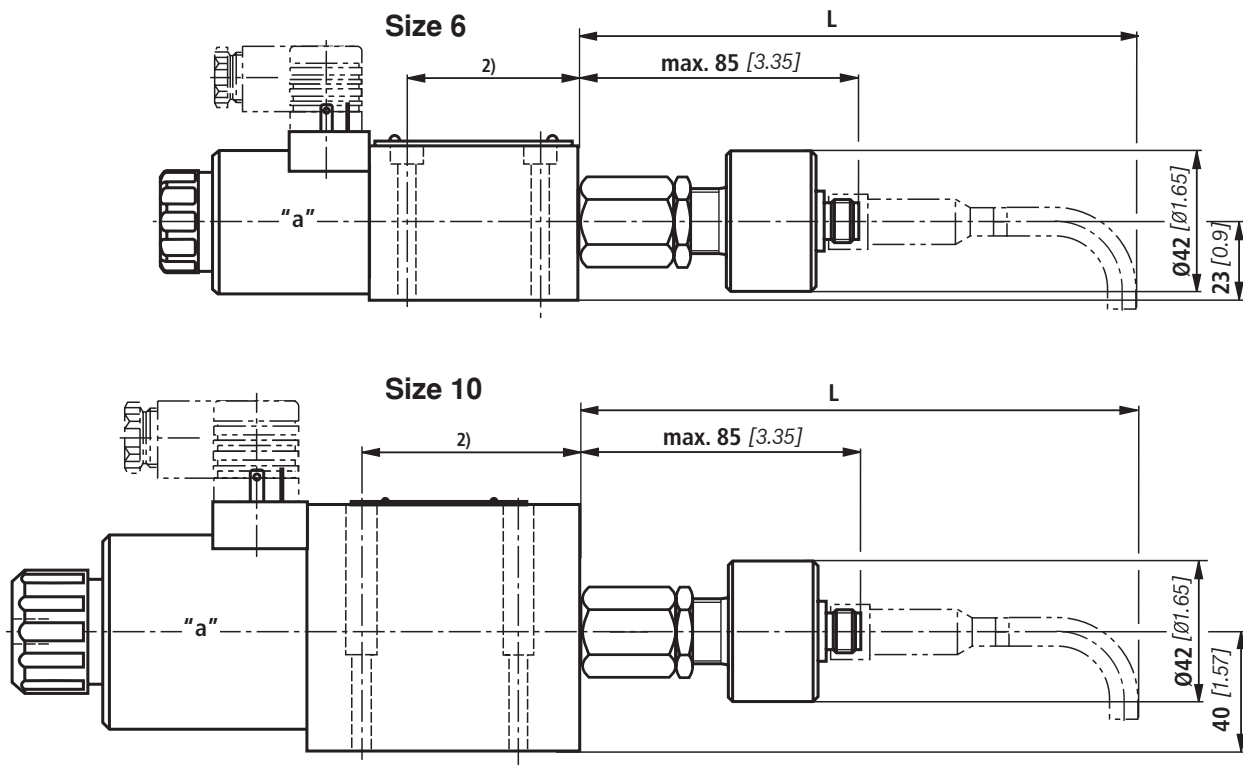
Monitored spool position "a"

Monitored spool position "b"

Monitored rest position

Further details
in the plain text

Unit dimensions (dimensions in mm [inch])



Mating connector (separate order, see page 29)	Material no.	L in mm [inch] ¹⁾	
		Size 6	Size 10
Mating connector straight	R900031155	186 [7.32]	183 [7.21]
Mating connector angled	R900082899	117 [4.61]	114 [4.48]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]	153 [6.02]

¹⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

²⁾ Dimension see basic data sheet

Contact assignment see page 28.

Switching logics see page 20 to 22.

Directional spool valves type WE with inductive position switch type QR

Ordering code



Directional spool valve,
direct operated = WE

Size 6 = 6
Size 10 = 10

Order example:
4WE 6 E6X/EG24K4QR0G24S/...

¹) 5-chamber design only with size 10

Basic data sheets:

Size 6	23178
Size 10	23351 ¹)

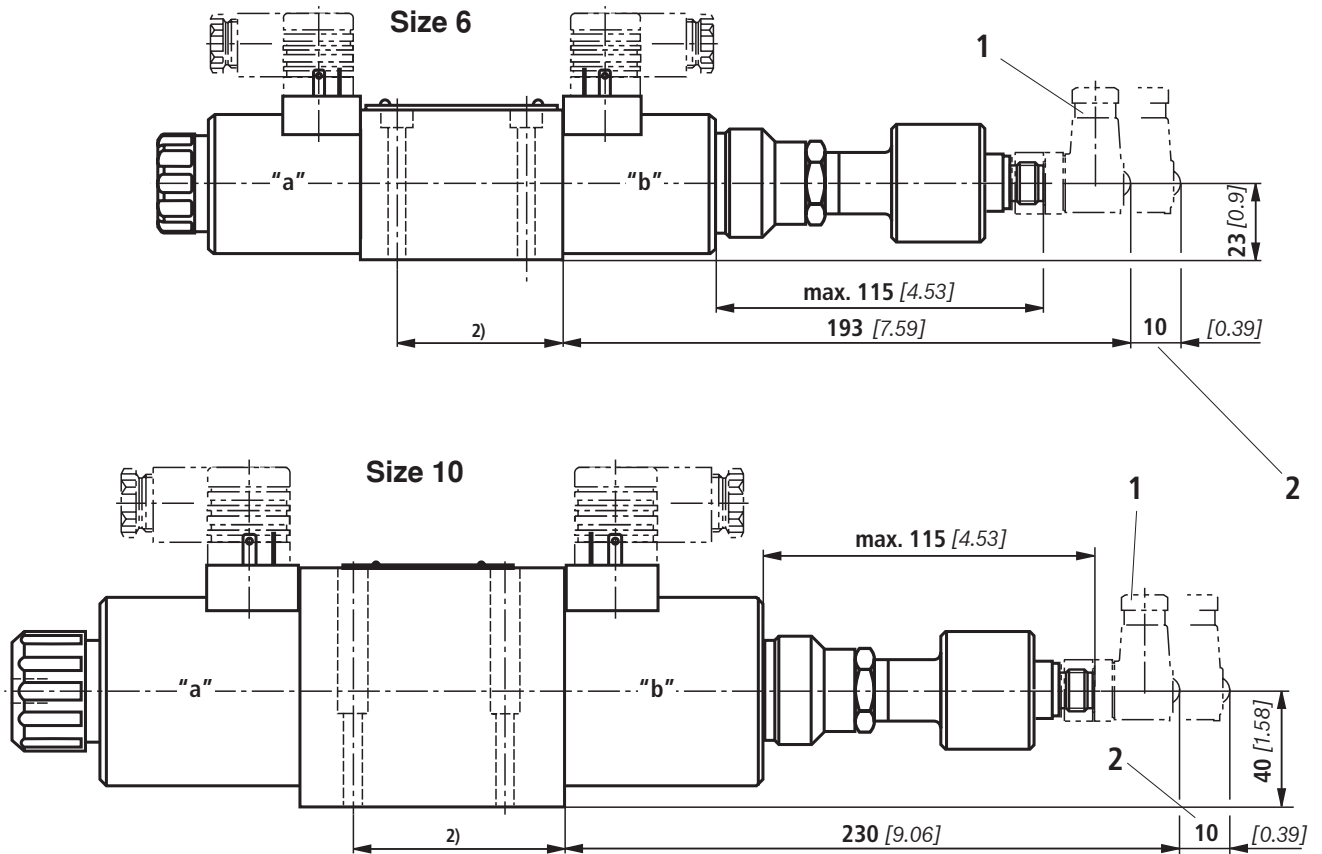
Further details
in the plain text

Inductive position switch
without position switch
Monitored rest position
Monitored spool position
"a" and "b"

no code =
QR0G24S =
QRABG24E =

no code = without manual override

Unit dimensions (dimensions in mm [inch])



- 1 Mating connector, Material no. R900082899 (separate order, see page 29)
- 2 Space required for removing the mating connector

Contact assignment see page 28.
Switching logics see page 23.

²) Dimension see basic data sheet

Directional spool valves type WE with inductive proximity sensor type QS

Ordering code

5 ¹⁾	WE		/			/			*
-----------------	----	--	---	--	--	---	--	--	---

Directional spool valve,
direct operated = WE

Size 6 = 6
Size 10 = 10

Order example:

4WE 6 C6X/EG24N9K4QSAG24W/...

¹⁾ 5-chamber design only with size 10

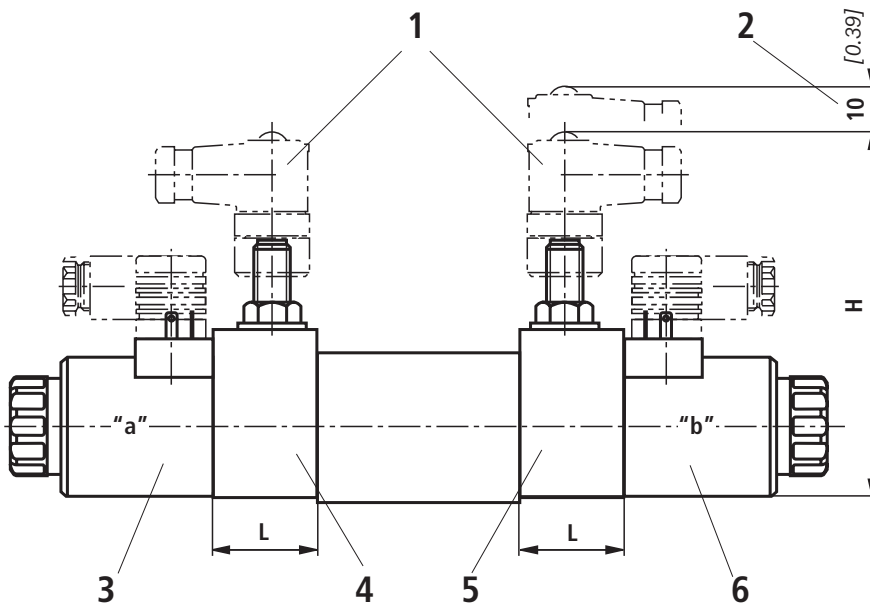
Basic data sheets:

Size 6	23178
Size 10	23351 ¹⁾

Further details
in the plain text

Inductive proximity sensor
no code = without proximity sensor
QSAG24W = Monitored spool position "a"
QSBG24W = Monitored spool position "b"
QS0G24W = Monitored spool position "0"
QS0AG24W = Monitored spool position "0" and "a"
QS0BG24W = Monitored spool position "0" and "b"
QSABG24W = Monitored spool position "a" and "b"

Unit dimensions (dimensions in mm [inch])



- 1 Mating connector, Material no. **R900082899** (separate order, see page 29)
- 2 Space required for removing the mating connector
- 3 Solenoid side "a"
- 4 Switch side "a"
- 5 Switch side "b"
- 6 Solenoid side "b"

L in mm [inch] ¹⁾		H in mm [inch]	
Size 6	Size 10	Size 6	Size 10
35 [1.38]	43 [1.69]	136 [5.35]	153 [6.02]

Mounting options:

Monitored spool position	Ordering code	3-spool position valve with 2 solenoids		2-spool position valve .../O...; .../OF...	
		Switch side "a"	Switch side "b"	Switch side "a"	Switch side "b"
"a"	QSAG24W		X		X
"b"	QSBG24W	X		X	
"0"	QS0G24W	X	X		
"0" and "a"	QS0AG24W	X	X		
"0" and "b"	QS0BG24W	X	X		
"a" and "b"	QSABG24W	X	X	X	X

¹⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

Contact assignment see page 28.
Switching logics see page 24 to 28.

Directional isolator valves type Z4WE with inductive position switch type QM

Ordering code

Z4WE	6	-	/						*
------	---	---	---	--	--	--	--	--	---

Isolator valve, sandwich plate
Size 6 = 6

Basic data sheet:
23193

Further details in the plain text

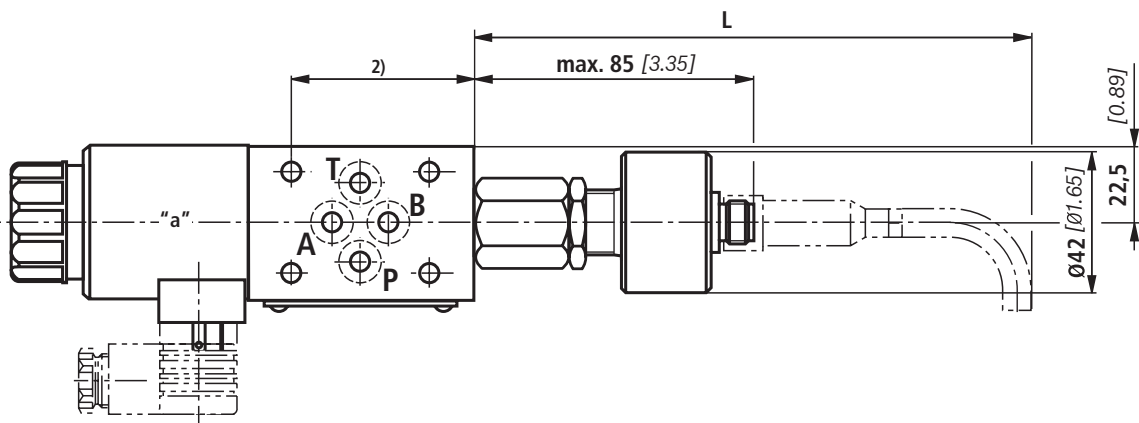
Inductive position switch
without position switch
QMAG24 = Monitored spool position "a"
QMBG24 = Monitored spool position "b"
QM0G24 = Monitored rest position

Order example:
Z4WE 6 D24-3X/EG24N9K4QMAG24/...

Note!
Not available with spool symbol "E53"

no code =
QMAG24 =
QMBG24 =
QM0G24 =

Unit dimensions (dimensions in mm [inch])



Mating connector (separate order, see page 29)		L in mm [inch] ¹⁾
	Material no.	
Mating connector straight	R900031155	186 [7.32]
Mating connector angled	R900082899	117 [4.61]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]

¹⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

²⁾ Dimension see basic data sheet

Contact assignment see page 28.
Switching logics see page 20 to 22.

Directional spool valves type WMM, WMR with inductive position switch type QM

Ordering code



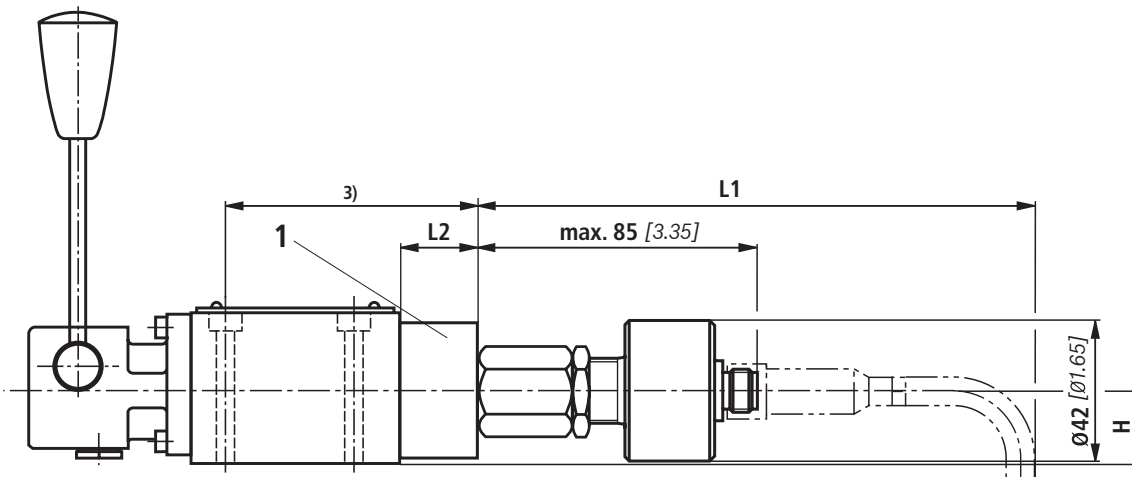
Type of actuation	
Roller plunger	= WMR
Roller plunger	= WMU
Handle-operated lever	= WMM
Size 6	= 6
Size 16	= 16
Size 25	= 22

no code =	Further details in the plain text
QMAG24 =	Inductive position switch without position switch
QMBG24 =	Monitored spool position "a"
QM0G24 =	Monitored spool position "b"
	Monitored rest position

Order example:
4WMM 6 LB5X/FQMBG24/...

Basic data sheets:	
Size 6	22280
Size 16 to 25	22371

Unit dimensions (dimensions in mm [inch])



Mating connector (separate order, see page 29)		
	Material no.	L1 in mm [inch] ¹⁾
Mating connector straight	R900031155	186 [7.32]
Mating connector angled	R900082899	117 [4.61]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]

Size	L2 in mm [inch]	H in mm [inch]
6	31 [1.22]	23 [0.9]
16	- ²⁾	34 [1.34]
25	- ²⁾	37 [1.46]

¹⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line
²⁾ Mounting without adapter plate
³⁾ Dimension see basic data sheet

Contact assignment see page 28.
Switching logics see page 20 to 22.

Directional spool valves type WH, WP with inductive position switch type QM

Ordering code



Type of actuation

Pneumatic = P
Hydraulic = H

Size 6 = 6

Basic data sheet:

22282

no code =
QMAG24 =
QMBG24 =
QM0G24 =

Inductive position switch

without position switch
Monitored spool position "a"
Monitored spool position "b"
Monitored rest position

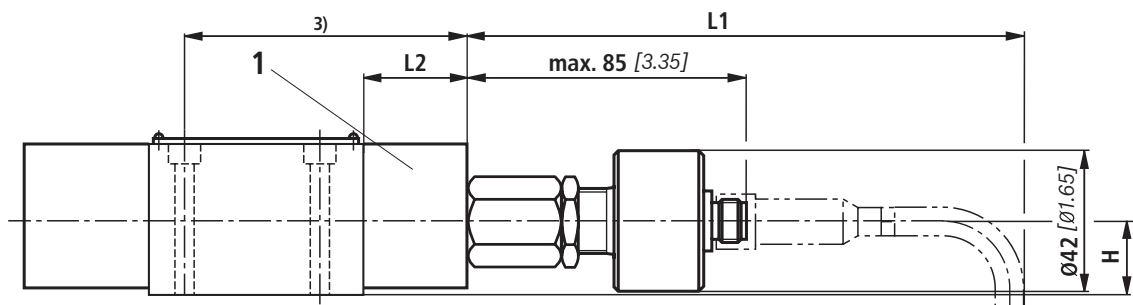
Further details in the plain text

Order example:

4WH 10 D4X/QMAG24...

1) Optional with pilot operated directional spool valves

Unit dimensions (dimensions in mm [inch])



Mating connector (separate order, see page 29)		
	Material no.	L in mm [inch] ¹⁾
Mating connector straight	R900031155	186 [7.32]
Mating connector angled	R900082899	117 [4.61]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]

Size	L2 in mm [inch]	H in mm [inch]
6	31 [1.22]	23 [0.9]
10	- ²⁾	40 [1.57]
16	- ²⁾	34 [1.34]
25	- ²⁾	37 [1.46]
32	- ²⁾	57 [2.24]

1) With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

2) Mounting without adapter plate

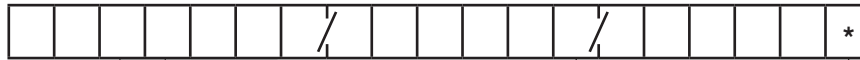
3) Dimension see basic data sheet

Contact assignment see page 28.

Switching logics see page 20 to 22.

Directional spool valves type W.H, WM.H with inductive position switch type QM

Ordering code



Types of actuation

- Hydraulic = WH
- Pneumatic-hydraulic = WPH
- Hydraulic-hydraulic = WHH
- Mechanical-hydraulic:
 - Handle-operated lever = WMMH
 - Rotary knob = WMDH
 - Rotary knob, lockable = WMDAH
 - Roller plunger = WMRH
 - Roller plunger, rotated by 90° = WMUH
- Size 10 = 10
- Size 16 = 16
- Size 25 (type 4W.H 22 .7X/...) = 22
- Size 25 (type 4W.H 25 .6X/...) = 25
- Size 32 = 32

no code =

QMAG24 =

QMBG24 =

QMABG24 =

QM0G24 =

Inductive position switch

- without position switch
- Monitored spool position "a"
- Monitored spool position "b"
- Monitored spool position "a" and "b"
- Monitored rest position (see mounting options page 14 to 16)

Further details in the plain text

Basic data sheets:

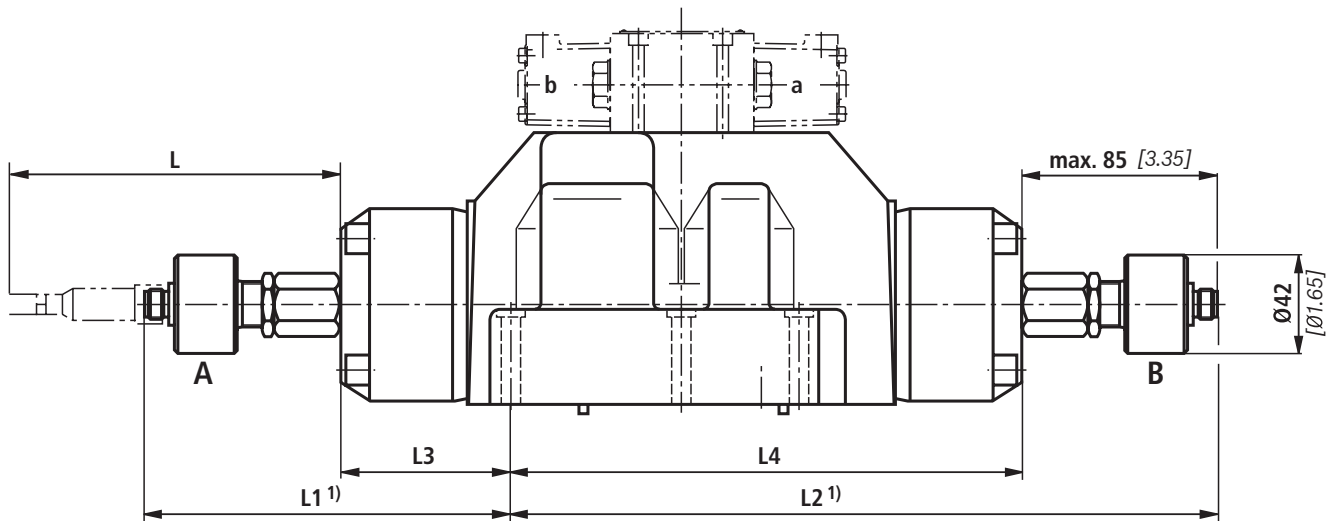
Type WH ¹⁾	24751
Type W.H	24851

¹⁾ Without pilot control valve, only with diversion plate

Order example:

4WPH 16 C7X/6EQMAG24/...

Unit dimensions (dimensions in mm [inch])



Mating connector (separate order, see page 29)		
	Material no.	L in mm [inch] ²⁾
Mating connector straight	R900031155	186 [7.32]
Mating connector angled	R900082899	117 [4.61]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]

¹⁾ Without mating connector

²⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

Mounting options see page 14 to 16.

Contact assignment see page 28.

Switching logics see page 20 to 22.

Directional spool valves type WEH with inductive position switch type QM

Ordering code

WEH																		*
-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---

Directional spool valve, pilot operated, electro-hydraulically operated

Size 10 = 10
 Size 16 = 16
 Size 25 (type 4WEH 22 .7X/...) = 22
 Size 25 (type 4WEH 25 .6X/...) = 25
 Size 32 = 32

Basic data sheet:
24751

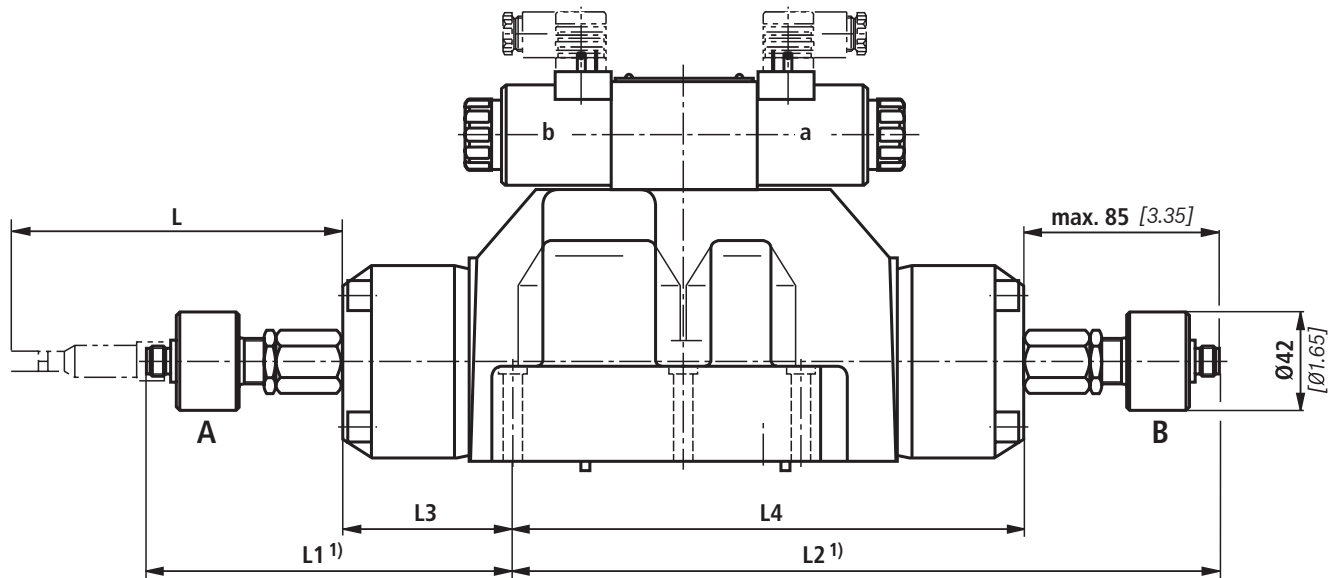
Further details in the plain text

Inductive position switch
 without position switch
QMAG24 = Monitored spool position "a"
QMBG24 = Monitored spool position "b"
QMABG24 = Monitored spool position "a" and "b"
QM0G24 = Monitored rest position
 (see mounting options page 14 to 16)

Order example:

4WEH 16 C7X/6EG24N9K4QMAG24/...

Unit dimensions (dimensions in mm [*inch*])



Mating connector (separate order, see page 29)		
	Material no.	L in mm [<i>inch</i>] ²⁾
Mating connector straight	R900031155	186 [7.32]
Mating connector angled	R900082899	117 [4.61]
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]

¹⁾ Without mating connector

²⁾ With mating connector, 10 mm [0.39 *inch*] removal space and minimum bending radius for the connection line

Mounting options page 14 to 16.

Contact assignment see page 28.

Switching logics see page 20 to 22.

Directional spool valves type W.H, WM.H and WEH with inductive position switch type QM

Mounting options – 2-spool position valve (dimensions in mm [inch])

Monitored spool position	Ordering code	Size	Hydraulic end position HC, HD, HK, HZ, HY ⁴⁾				Spring end position C, D, K, Z				Spring end position Y			
			L1 ³⁾	L2 ³⁾	L3	L4	L1 ³⁾	L2 ³⁾	L3	L4	L1 ³⁾	L2 ³⁾	L3	L4
"a" Position switch on side B	QMAG24	10		211 [8.31]	57 [2.24]			211 [8.31]	57 [2.24]			211 [8.31]	57 [2.24]	
		16		259 [10.20]	55 [2.16]							259 [10.20]	55 [2.16]	
		25 ¹⁾		294 [11.58]	47 [1.85]			294 [11.58]	47 [1.85]			294 [11.58]	47 [1.85]	
		25 ²⁾		325 [12.80]	72 [2.83]							325 [12.80]	72 [2.83]	
		32		371 [14.61]	76 [2.99]							371 [14.61]	76 [2.99]	
"b" Position switch on side A	QMBG24	10	157 [6.18]			111 [4.37]	157 [6.18]			111 [4.37]	157 [6.18]			111 [4.37]
		16	159 [6.26]			155 [6.10]	159 [6.26]			155 [6.10]				
		25 ¹⁾	149 [5.87]			192 [7.56]	149 [5.87]			192 [7.56]	149 [5.87]			192 [7.56]
		25 ²⁾	172 [6.77]			225 [8.86]	172 [6.77]			225 [8.86]				
		32	161 [6.34]			287 [11.30]	161 [6.34]			287 [11.30]				
"a" and "b" Position switch on side A and B	QMABG24	10	157 [6.18]	211 [8.31]			157 [6.18]	211 [8.31]			157 [6.18]	211 [8.31]		
		16	159 [6.26]	259 [10.20]										
		25 ¹⁾	149 [5.87]	294 [11.58]			149 [5.87]	294 [11.58]			149 [5.87]	294 [11.58]		
		25 ²⁾	172 [6.77]	325 [12.80]										
		32	161 [6.34]	371 [14.61]										

¹⁾ Type 4WEH 22..

²⁾ Type 4WEH 25..

³⁾ Without mating connector

⁴⁾ Only with type WEH

Directional spool valves type W.H, WM.H and WEH with inductive position switch type QM

Mounting options – 3-spool position valve (dimensions in mm [*inch*])

Monitored spool position	Ordering code	Size	Spring-centered				Pressure-centered			
			L1 ³⁾	L2 ³⁾	L3	L4	L1 ³⁾	L2 ³⁾	L3	L4
"a" (Position switch on side B)	QMAG24	10		211 [8.31]	57 [2.24]					
		16		259 [10.20]	55 [2.16]			259 [10.20]	81 [3.19]	
		25 ¹⁾		294 [11.58]	47 [1.85]					
		25 ²⁾		325 [12.80]	72 [2.83]			325 [12.80]	107 [4.21]	
		32		371 [14.61]	76 [2.99]			371 [14.61]	120 [4.72]	
"b" (Position switch on side A)	QMBG24	10	157 [6.18]			111 [4.37]				
		16	159 [6.26]			155 [6.10]				
		25 ¹⁾	149 [5.87]			192 [7.56]				
		25 ²⁾	172 [6.77]			225 [8.86]				
		32	161 [6.34]			287 [11.30]				
"a" and "b" (Position switch on side A and B)	QMABG24	10	157 [6.18]	211 [8.31]						
		16	159 [6.26]	259 [10.20]						
		25 ¹⁾	149 [5.87]	294 [11.58]						
		25 ²⁾	172 [6.77]	325 [12.80]						
		32	161 [6.34]	371 [14.61]						
Zero position (Position switch on side A and B) 2 position switches	QM0G24 ⁴⁾	10	157 [6.18]	211 [8.31]						
		16	159 [6.26]	259 [10.20]						
		25 ¹⁾	149 [5.87]	294 [11.58]						
		25 ²⁾	172 [6.77]	325 [12.80]						
		32	161 [6.34]	371 [14.61]						

1) Type 4WEH 22..

2) Type 4WEH 25..

3) Without mating connector

4) 3-spool position valve

Directional spool valves type W.H, WM.H and WEH with inductive position switch type QM

Mounting options – 3-spool position valve with one solenoid (dimensions in mm [*inch*])

Monitored spool position	Ordering code	Size	Solenoids on												
			Side A (EA, FA...)				Side B (EB, FB...)				Side A (EA, FA...)				
			Spring-centered				Spring-centered				Pressure-centered				
			L1 ³⁾	L2 ³⁾	L3	L4	L1 ³⁾	L2 ³⁾	L3	L4	L1 ³⁾	L2 ³⁾	L3	L4	
"a" (Position switch on side B)	QMAG24	10		211 [8.31]	57 [2.24]										
		16		259 [10.20]	55 [2.16]							259 [10.20]	81 [3.19]		
		25 ¹⁾		294 [11.58]	47 [1.85]										
		25 ²⁾		325 [12.80]	72 [2.83]								325 [12.80]	107 [4.21]	
		32		371 [14.61]									371 [14.61]	120 [4.72]	
"b" (Position switch on side A)	QMBG24	10					157 [6.18]				111 [4.37]				
		16					159 [6.26]				155 [6.10]				
		25 ¹⁾					149 [5.87]				192 [7.56]				
		25 ²⁾					172 [6.77]				225 [8.86]				
		32					161 [6.34]				287 [11.30]				
Zero position (Position switch on side A or B) 1 position switches	QM0G24 ⁵⁾	10		211 [8.31]	57 [2.24]		157 [6.18]				111 [4.37]				
		16		259 [10.20]	55 [2.16]		159 [6.26]				155 [6.10]	259 [10.20]	81 [3.19]		
		25 ¹⁾		294 [11.58]	47 [1.85]		149 [5.87]				192 [7.56]				
		25 ²⁾		325 [12.80]	72 [2.83]		172 [6.77]				225 [8.86]	325 [12.80]	107 [4.21]		
		32		371 [14.61]	76 [2.99]		161 [6.34]				287 [11.30]	371 [14.61]	120 [4.72]		

¹⁾ Type 4WEH 22..

²⁾ Type 4WEH 25..

³⁾ Without mating connector

⁵⁾ 2-spool position valve

Directional spool valves type Z4WEH with inductive position switch type QM

Ordering code



Types of actuation

Electro-hydraulic	= WEH
Hydraulic	= WH
Size 10 (component series 4X)	= 10
Size 16	= 16
Size 25	= 22

Basic data sheets:	
Size 10	24753
Size 16	24761
Size 25	24768

Further details in the plain text

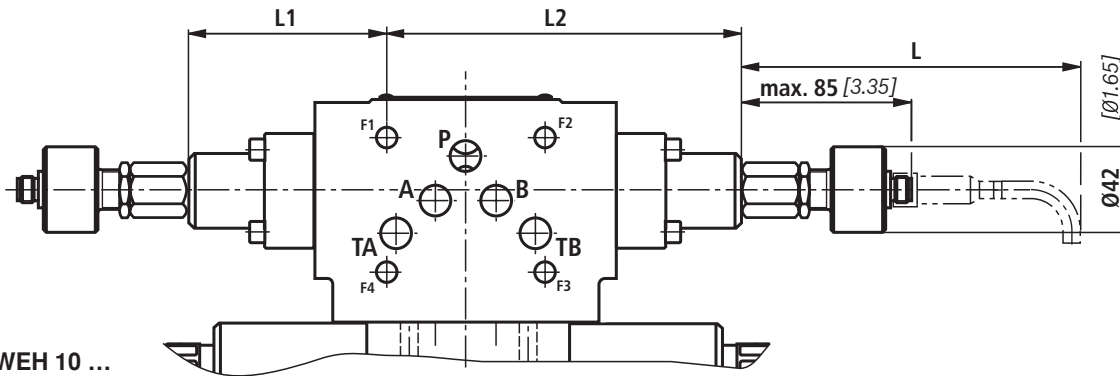
Inductive position switch
without position switch

no code =	without position switch
QMAG24 =	Monitored spool position "a"
QMBG24 =	Monitored spool position "b"
QMABG24 =	Monitored spool position "a" and "b"
QM0G24 =	Monitored rest position (only size 16 and 25 and only with symbol "E62")

Order example:

Z4WEH 10 D24-4X/4KEG24N9ETK4QMAG24/...

Unit dimensions: Size 10 (dimensions in mm [inch])



Type Z4WEH 10 ...

Mating connector (separate order, see page 29)	Material no.	L in mm [inch] ¹⁾	L1 in mm [inch]	L2 in mm [inch]
			Mating connector straight	R900031155
Mating connector angled	R900082899	117 [4.61]		
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]		

¹⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

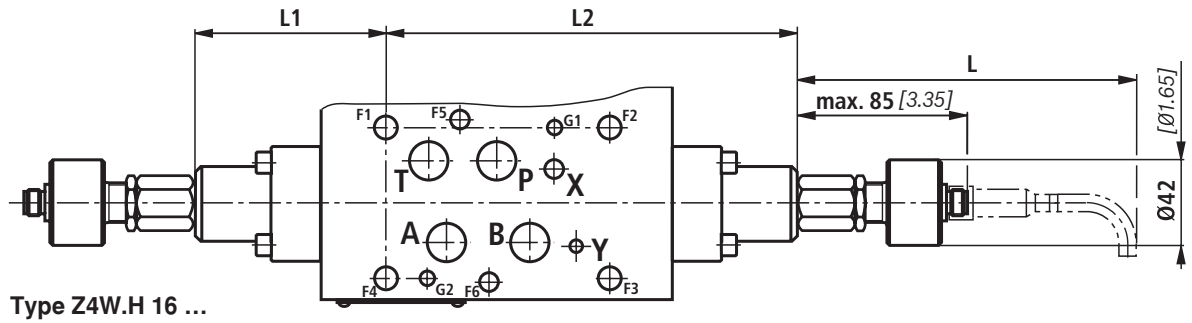
Contact assignment see page 28.

Switching logics see page 20 to 22.

Mounting options:

Monitored spool position	Ordering code	End switch on side		
		"a"	"b"	"a" and "b"
"a"	QMAG24		X	
"b"	QMBG24	X		
"a" and "b"	QMABG24			X
"0"	QM0G24			X

Unit dimensions: Size 16 and 22 (dimensions in mm [inch])



Mating connector (separate order, see page 29)	Material no.	L in mm [inch] ¹⁾	L1 in mm [inch]		L2 in mm [inch]	
			Size 16	Size 25	Size 16	Size 25
Mating connector straight	R900031155	186 [7.32]	82 [3.23]	62 [2.44]	182 [7.17]	215 [8.46]
Mating connector angled	R900082899	117 [4.61]				
Mating connector with potted-in cable (3 m)	R900064381	156 [6.14]				

¹⁾ With mating connector, 10 mm [0.39 inch] removal space and minimum bending radius for the connection line

Contact assignment see page 28.
Switching logics see page 20 to 22.

Mounting options:

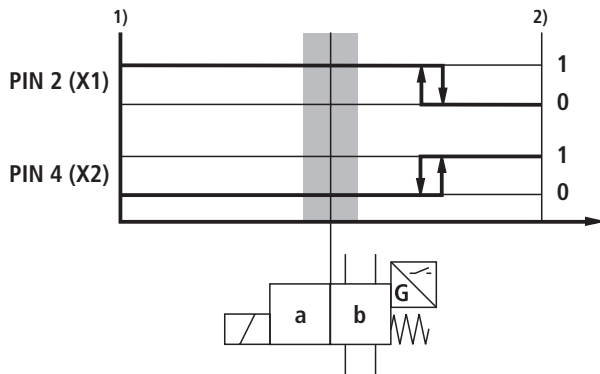
Monitored spool position	Ordering code	End switch on side		
		"a"	"b"	"a" and "b"
"a"	QMAG24		X	
"b"	QMBG24	X		
"a" and "b"	QMABG24			X
"0"	QM0G24			X

Switching logics: Inductive position switch type QM

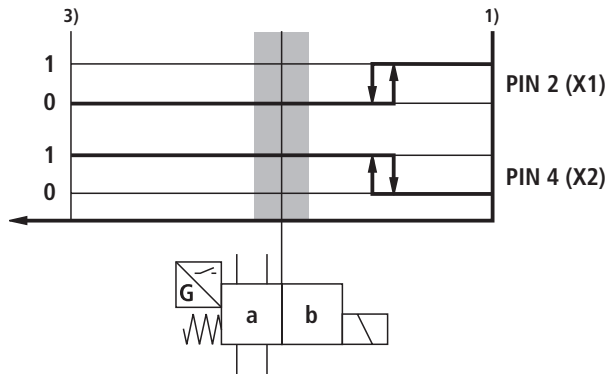
- For directional seat valves type SED, SEW, SH, SP, SMM and SMR
- For directional spool valves type WE, Z4WE, Z4WEH10.-5X

Depending on the spool position to be monitored, the switching outputs X1 and X2 have the following function:

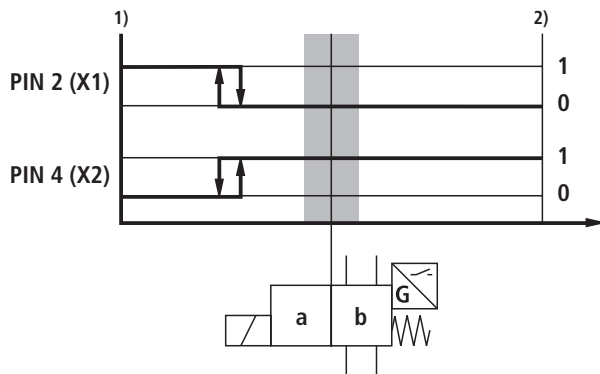
Design QMA
(Position switch on side B, monitored spool position "a")



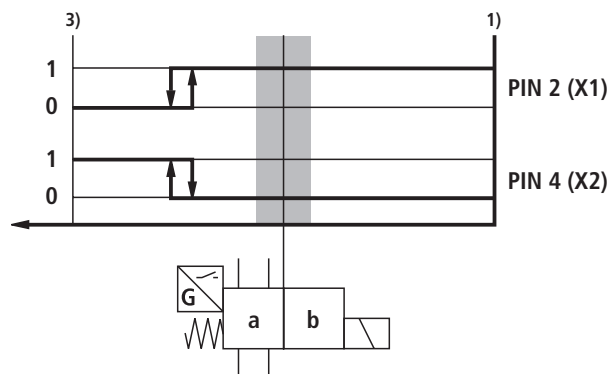
Design QMA⁴⁾
(Position switch on side B, monitored spool position "a")



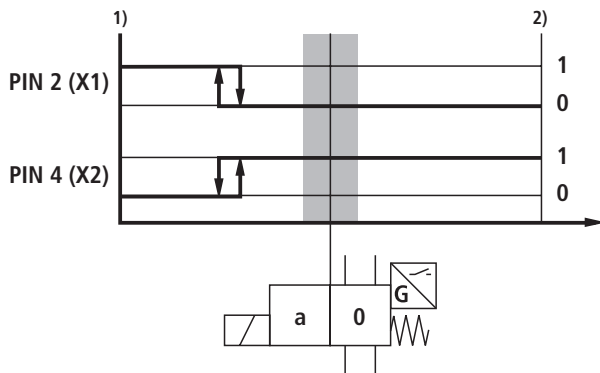
Design QMB
(Position switch on side B, monitored spool position "b")



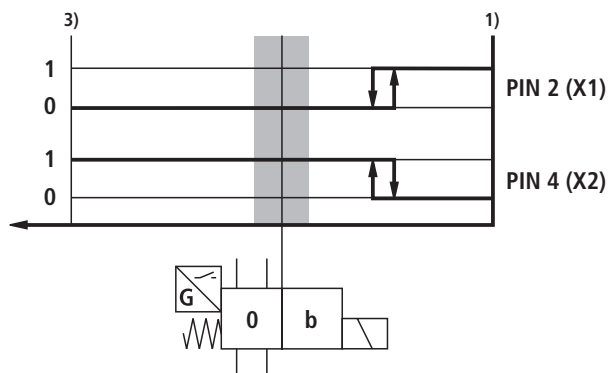
Design QMB⁴⁾
(Position switch on side B, monitored spool position "b")



Design QM0⁴⁾
(Position switch on side B, monitored rest position)



Design QM0⁴⁾
(Position switch on side A, monitored rest position)



- 0 Open
- 1 Closed (24 V)

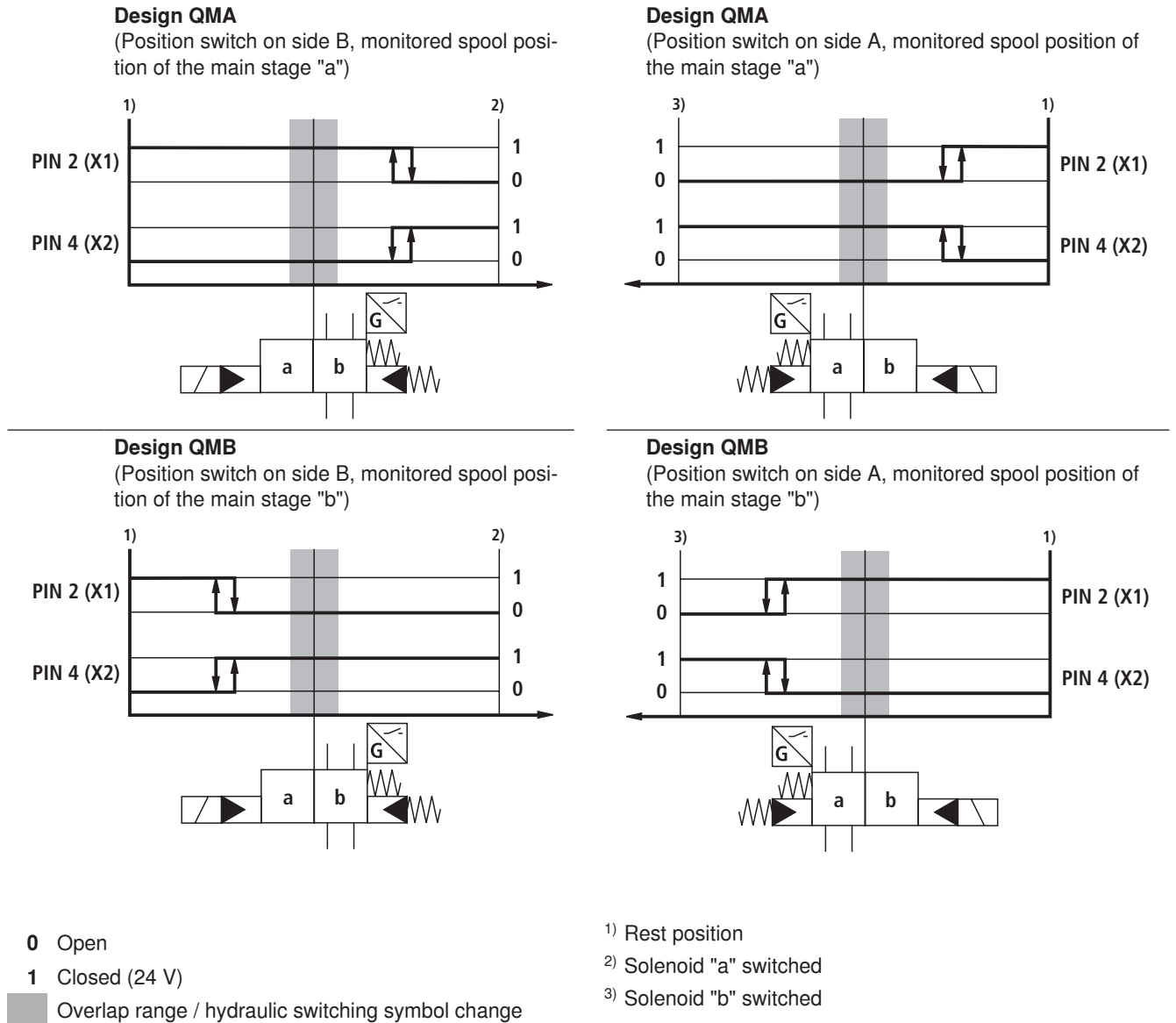
Overlap range / hydraulic switching symbol change

- 1) Rest position
- 2) Solenoid "a" switched
- 3) Solenoid "b" switched
- 4) Not for type Z4WEH10.-5X

Switching logics: Inductive position switch type QM

– For directional spool valves type WEH, Z4WEH (except for Z4WEH10.-5X)

Depending on the spool position to be monitored, the switching outputs X1 and X2 have the following function:



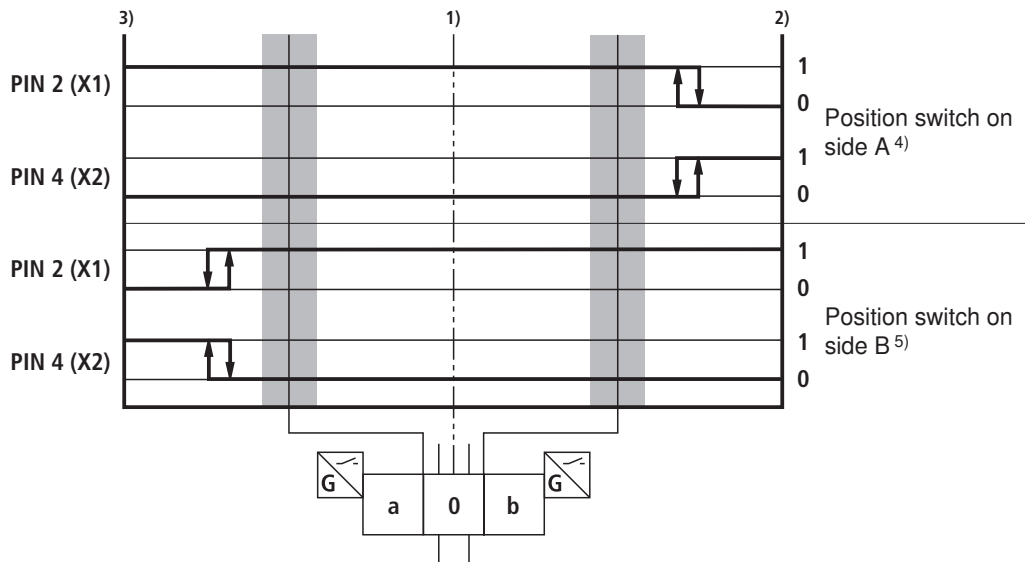
Switching logics: Inductive position switch type QM

– For directional spool valves type WEH, Z4WEH (except for Z4WEH10.-5X)

Depending on the spool position to be monitored, the switching outputs X1 and X2 have the following function:

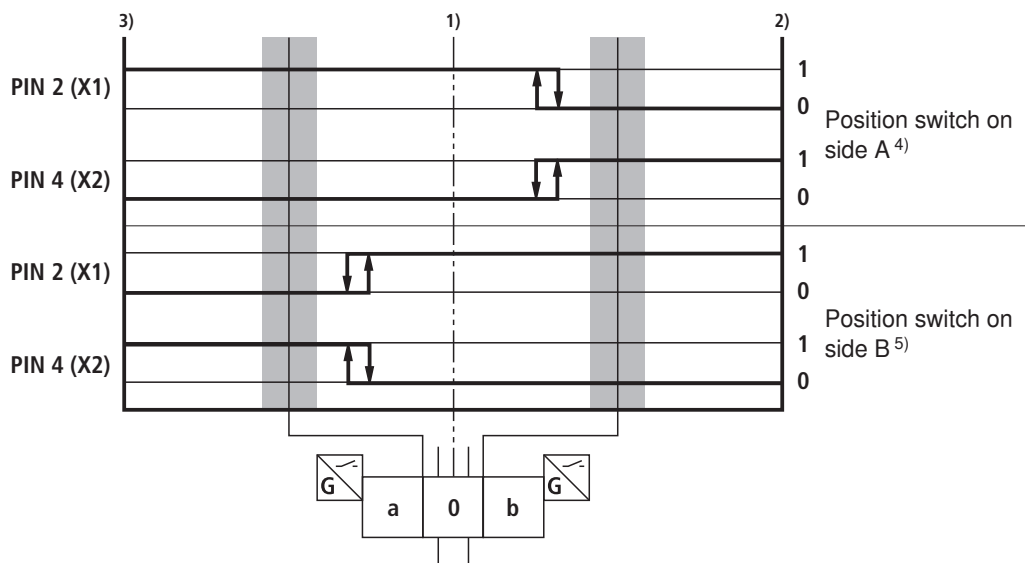
Design QMAB

(Position switch on side A and B, monitored spool position "a" and "b")



Design QM0

(Position switch on side A and B, monitored rest position)



0 Open

1 Closed (24 V)

Overlap range / hydraulic switching symbol change

1) Rest position

2) Solenoid "a" switched

3) Solenoid "b" switched

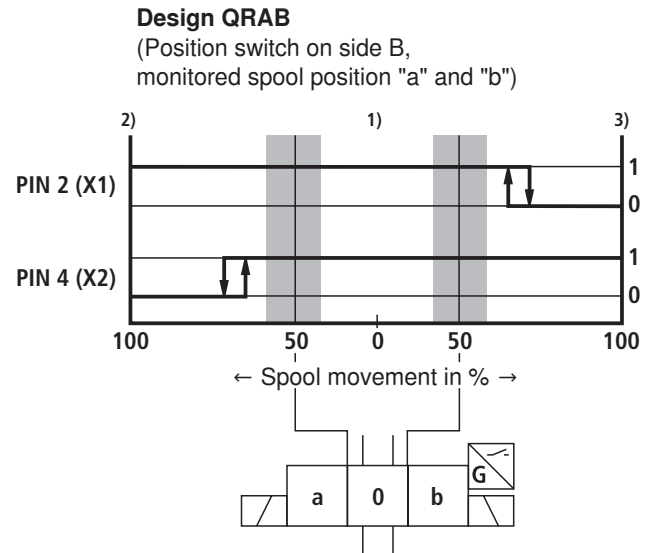
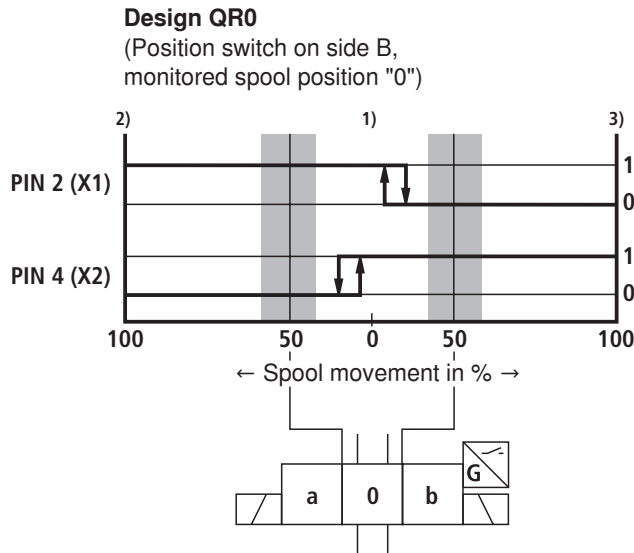
4) No signal change at the position switch side B with spool position "a"

5) No signal change at the position switch side A with spool position "b"

Switching logics: Inductive position switch type QR

– For directional spool valves type WE (size 6 and 10)

Depending on the spool position to be monitored, the switching outputs X1 and X2 have the following function:



Note!

"QRAB" design as NC contact not suitable for safety circuits! Replacement: Version "QSABG24W"

0 Open

1 Closed (24 V)

Overlap range / hydraulic switching symbol change

1) Central position

2) Solenoid "a" switched

3) Solenoid "b" switched

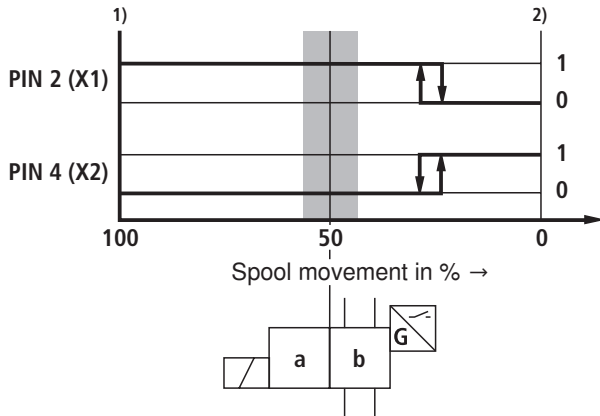
Switching logics: Inductive proximity sensor type QS

– For directional spool valves WE (size 6 and 10)

Depending on the spool position to be monitored, the switching outputs X1 and X2 have the following function:

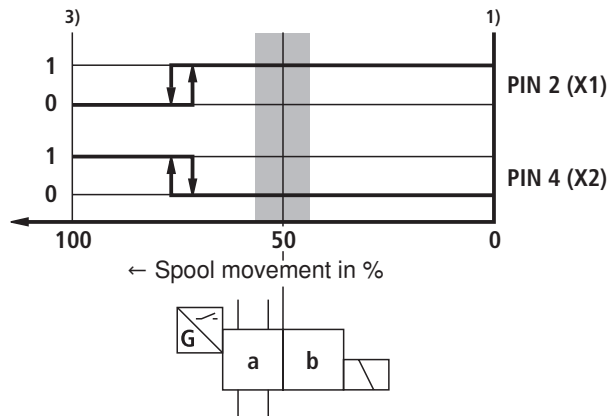
Version QSAG24W

(Position switch on side B, monitored spool position "a")



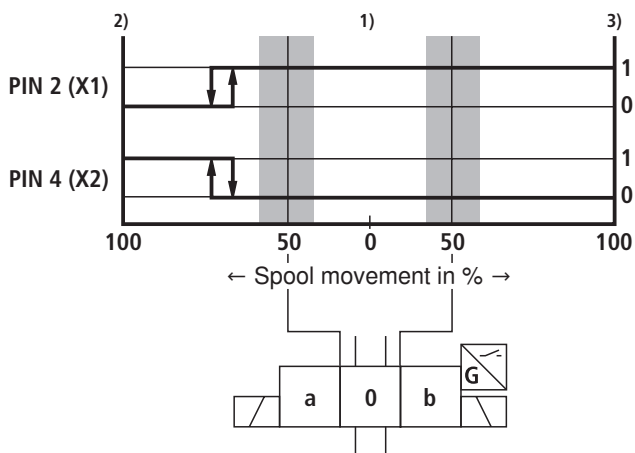
Version QSBG24W

(Position switch on side A, monitored spool position "b")



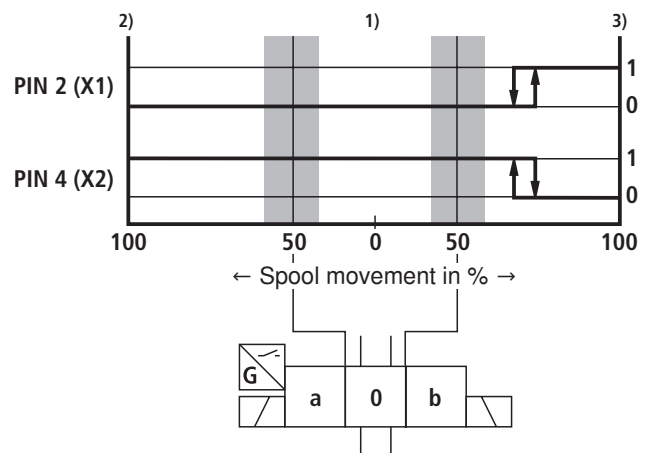
Version QSAG24W

(Position switch on side B, monitored spool position "a")



Version QSBG24W

(Position switch on side A, monitored spool position "b")



0 Open

1 Closed (24 V)

Overlap range / hydraulic switching symbol change

1) Rest position

2) Solenoid "a" switched

3) Solenoid "b" switched

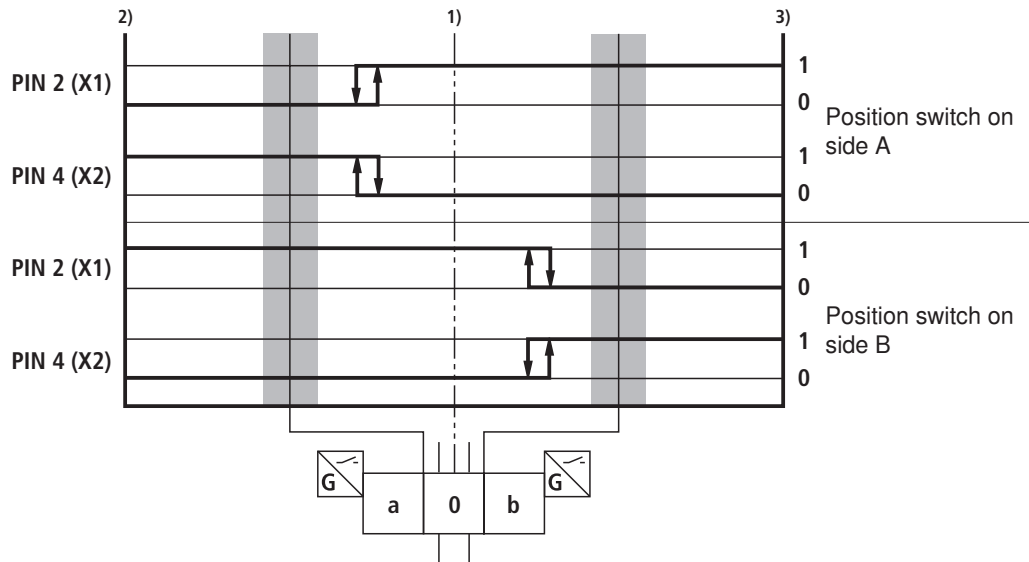
Switching logics: Inductive proximity sensor type QS

– For directional spool valves type WE (size 6 and 10)

Depending on the spool position to be monitored, the switching outputs X1 and X2 have the following function:

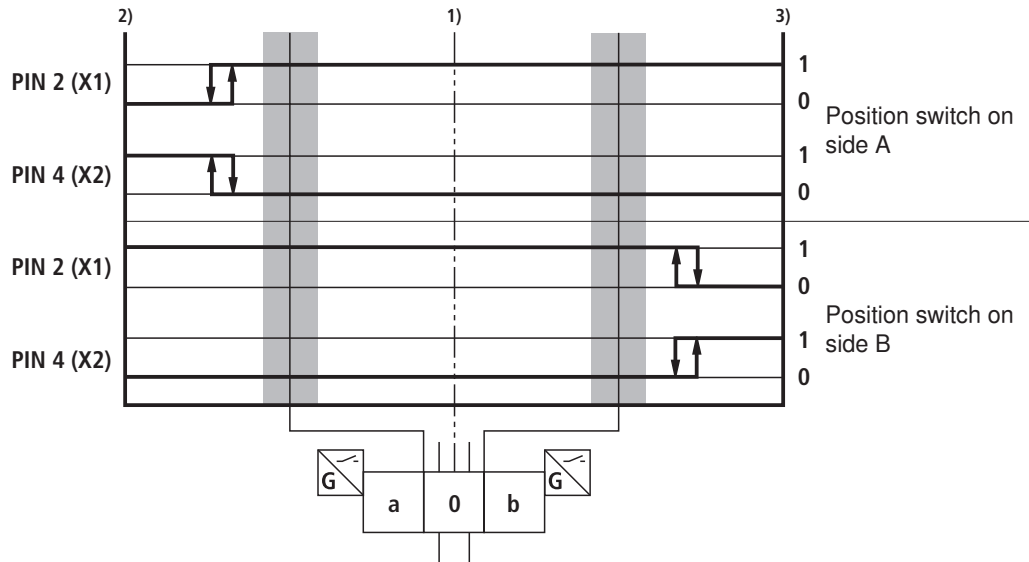
Version QS0G24W

(Position switch on side A and B, monitored spool position "0")



Version QSABG24W

(Position switch on side A and B, monitored spool position "a" and "b")



0 Open

1 Closed (24 V)

Overlap range / hydraulic switching symbol change

1) Rest position

2) Solenoid "a" switched

3) Solenoid "b" switched

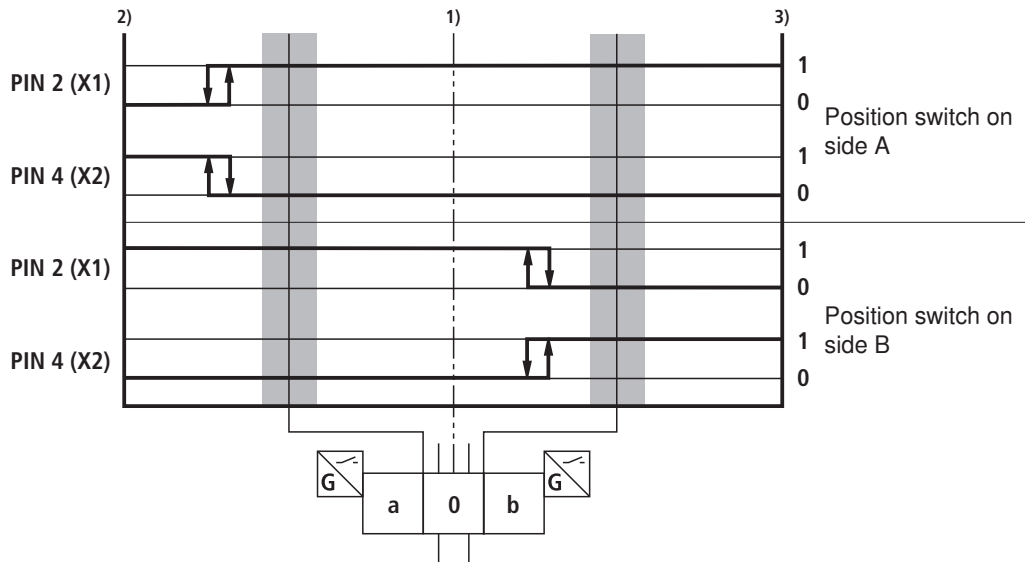
Switching logics: Inductive proximity sensor type QS

– For directional spool valves WE (size 6 and 10)

Depending on the spool position to be monitored, the switching outputs X1 and X2 have the following function:

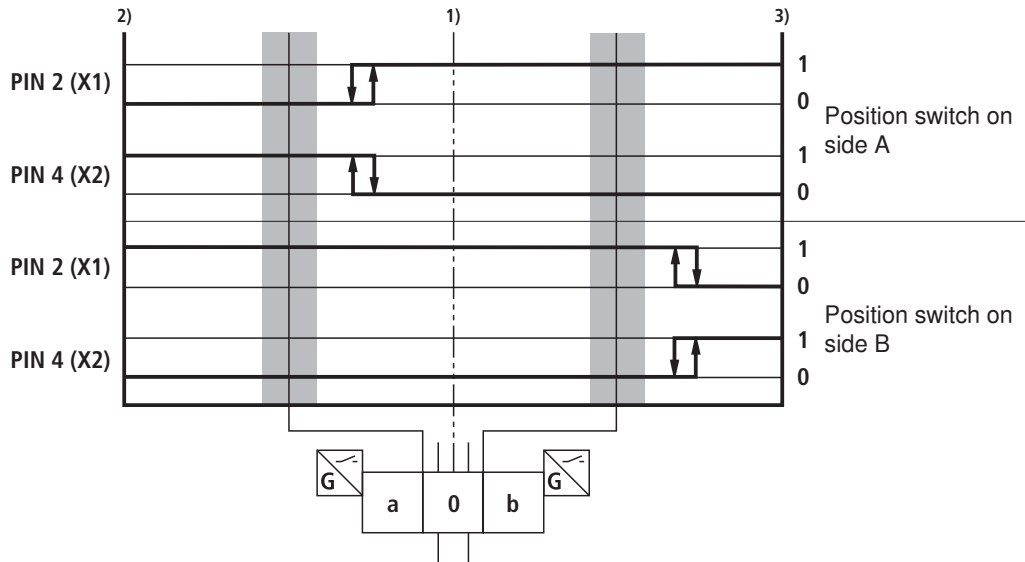
Version QS0AG24W

(Position switch on side A and B, monitored spool position "a" and "0")



Version QS0BG24W

(Position switch on side A and B, monitored spool position "b" and "0")



0 Open

1 Closed (24 V)

Overlap range / hydraulic switching symbol change

1) Rest position

2) Solenoid "a" switched

3) Solenoid "b" switched

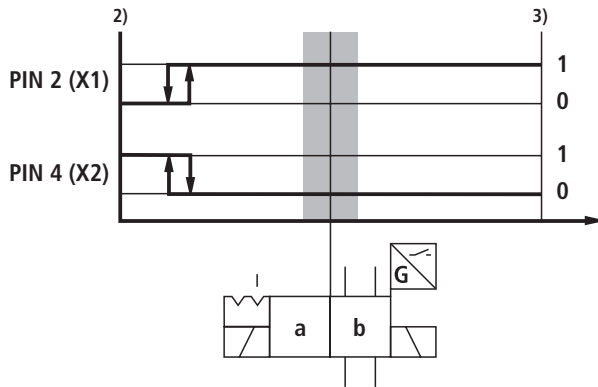
Switching logics: Inductive proximity sensor type QS

– For directional spool valves type WE (size 6 and 10)

Depending on the spool position to be monitored, the switching outputs X1 and X2 have the following function:

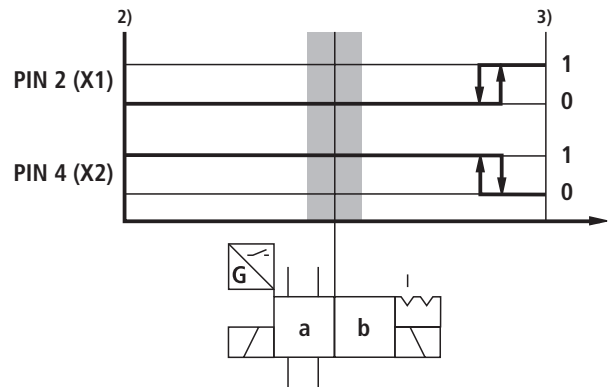
Version OF...QSAG24W

(Position switch on side B, monitored spool position "a")



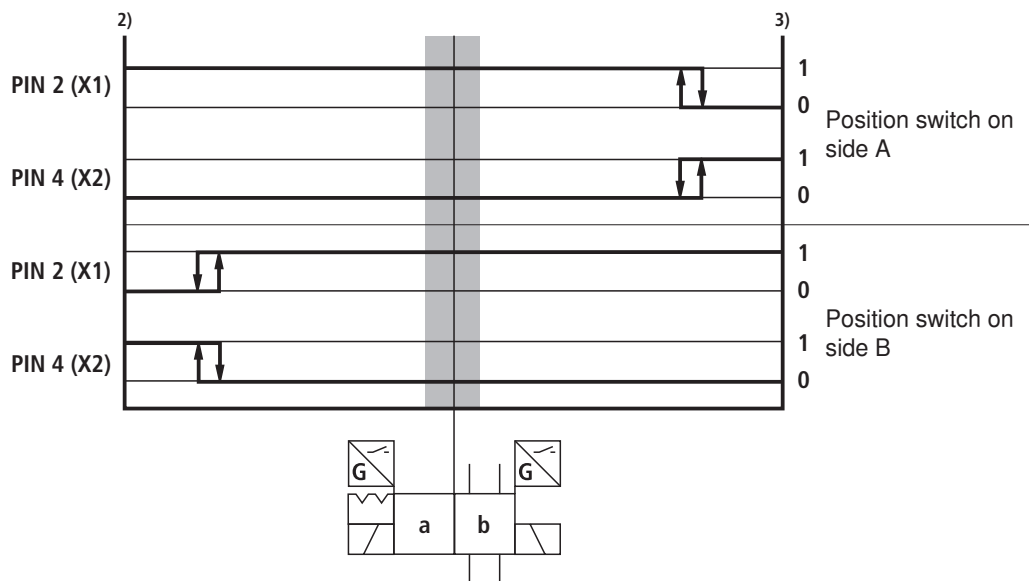
Version OF... QSBG24W

(Position switch on side A, monitored spool position "b")



Version OF...QSABG24W

(Position switch on side A and B, monitored spool position "a" and "b")



0 Open

1 Closed (24 V)

Overlap range / hydraulic switching symbol change

2) Solenoid "a" switched

3) Solenoid "b" switched

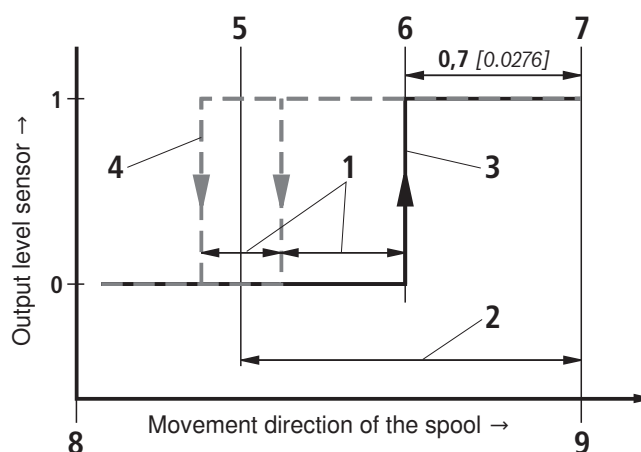
Switching logics: Inductive proximity sensor type QS

Note!

The inductive proximity sensor type QS is set so that when moving the control spool into the (safe) spool position to be monitored, there is a signal change from 0 to 1 at PIN 4 approx. 0.7 mm before the stroke end.

Upon switch-off, the signal change may be outside the overlap range of control spool and housing edge due to the hysteresis and the temperature drift, if applicable.

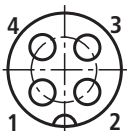
I.e. the monitoring is designed so that only the achievement of the spool position to be monitored and not the leaving of the safe area is determined; see graphic on the right.



- 1 Width depending on hysteresis and temperature drift
- 2 Spool position to be monitored (e.g. rest position)
- 3 Signal flow (in the spool position to be monitored)
- 4 Signal flow (leaving of the monitored spool position)
- 5 Beginning of the overlap
- 6 Switching point
- 7 Stroke end
- 8 Unswitched
- 9 Switched

Contact assignment

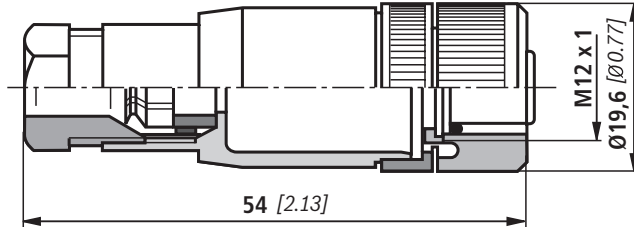
Connection voltage:	24 V, +20 %/-10 %, direct voltage
Current consumption:	Maximum 25 mA
Admissible residual ripple:	≤ 10 %
Load capacity:	Maximum 400 mA
Outputs 24 V:	PNP switching against "plus"; NC and NO contact
Contact assignment:	<p>1: +24 V (unswitched)</p> <p>2: NC contact 400 mA (closed in de-energized position – opens when the valve is switched)</p> <p>3: 0 V</p> <p>4: NO contact 400 mA (open in de-energized position – closes when the valve is switched)</p>



Mating connectors (dimensions in mm [inch])

Mating connector suitable for K24 4-pin, M12 x 1 with screw connection, cable gland Pg 9.

Material no. **R900031155**



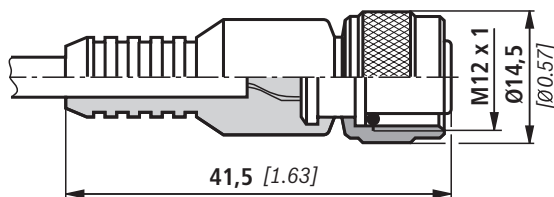
Mating connector suitable for K24-3m 4-pin, M12 x 1 with potted-in PVC cable, 3 m long.

Line cross-section: 4 x 0.34 mm²

Core marking:

1	Brown
2	White
3	Blue
4	Black

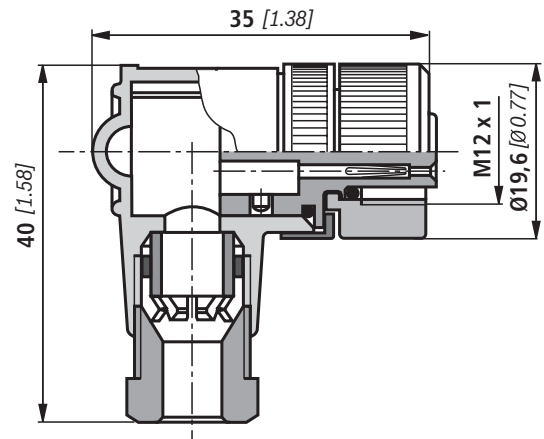
Material no. **R900064381**



Mating connector suitable for K24 4-pin, M12 x 1 with screw connection, cable gland Pg 9, angled.

Housing can be rotated by 4 x 90° in relation to the contact insert.

Material no. **R900082899**



For more information refer to data sheet 08006.

Notes

Notes

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Notes

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