

E.6

hex 22

High Performance

2 switching outputs

Electronic pressure switches, High-Performance series

hex 22 with two switching outputs



- Outstanding overpressure protection (up to 4 x)
- Ideal choice for mobile hydraulic applications
- Long service life even under high pressure change rates
- Wetted parts made of stainless steel and titanium ensuring excellent media compatibility
- All welded design, no elastomeric seal
- Silicon-on-sapphire technology (SoS) for highest reliability, accuracy and reliable process monitoring
- Very low temperature error and very good long-term stability
- Adjustment of switching point and hysteresis at factory

For versions with 1 switching output,
please refer to chapter E.5, page 122

Electronic pressure switches, High-Performance series

Technical details

	0540 NO / NO 0541 NC / NC 0542 NO / NC			0544 NO / NO 0545 NC / NC 0546 NO / NC	
Number of transistor outputs:	2 PNP outputs (High Side N-channel MOSFET)			2 NPN outputs (Low Side N-channel MOSFET)	
Supply voltage:	9.6 - 32 VDC				
Idle power consumption:	< 15mA				
Standard adjustment range p_{nom} :	0 – 10 bar	0 – 25 bar	0 – 100 bar	0 – 250 bar	0 – 600 bar
Overpressure protection p_u ¹⁾ :	40 bar	100 bar	400 bar	1,000 bar	1,650 bar
Burst pressure ¹⁾ :	80 bar	200 bar	800 bar	2,000 bar	2,000 bar
Mechanical life expectancy:	10,000,000 switching cycles at rise rates to 5,000 bar/s at p_{nom}				
Permitted pressure change rate:	≤ 5,000 bar/s				
Switching point adjustment range:	2 ... 100 % of the nominal pressure range (Full Scale, FS), programmable at factory				
Hysteresis:	0.2 ... 99.8 % of the nominal pressure range (FS), programmable at factory (set to 5% FS as standard)				
Accuracy:	±0.5 % of the nominal pressure range (FS) at room temperature, ±0.25 % BFSL				
Resolution:	0.1 % of the nominal pressure range (FS)				
Switching delay:	ON (0 ... 0.5 s) / OFF (0 ... 2 s) delay in increments of 1 ms, irrespective of switching point, programmable at factory (specify value when Ordering, otherwise default value of 0 s is set)				
Output:	0.5 A transistor output with short-circuit and overvoltage protection				
Operating mode:	with hysteresis or window function (see page 101), programmable at factory				
Long term stability:	±0.1 % FS p. a.				
Repeatability ²⁾ :	±0.1 % FS				
Temperature error ²⁾ :	±0.02 % / 1 K FS				
Compensated temperature range:	-20 °C ... +80 °C (-4 °F ... +176 °F)				
Temperature range media:	-40 °C ... +125 °C (-40 °F ... +257 °F)				
Temperature range ambient:	-40 °C ... +100 °C (-40 °F ... +212 °F)				
Wetted parts material:	Stainless steel 1.4305 (AISI 303) and titanium				
Housing material:	Stainless steel 1.4305 (AISI 303)				
Insulation resistance:	> 100 MΩ (35 VDC)				
Switching time:	< 2 ms				
Vibration resistance:	20 g at 4 ... 2000 Hz sine wave; DIN EN 60068-2-6				
Shock resistance:	half sine wave 500 m/s ² ; 11 ms; DIN EN 60068-2-27				
Protection class:	Refer to the electrical connections (p. 128)				
EMC:	EMC 2014/30/EU, EN 61000-6-2:2005, EN 61000-6-3:2007				
Protection against reverse polarity, short-circuit and over voltage surges:	built-in				
Weight:	approx. 80 g (DIN 175301 approx. 110 g, cable version approx. 135 g)				

¹⁾ Within the compensated temperature range.

²⁾ Static pressure, dynamic value is 30 to 50 % lower. Values refer to the hydraulic/pneumatic part of the electronic pressure switch.

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0540 / 0541 / 0542 / 0544 / 0545 / 0546

Electrical connectors and threads



M12 – DIN EN 61076 - 2 - 101 A

Pin	Assignment
1	U_{V+}
2	U_{Out2}
3	Gnd
4	U_{Out1}

IP67
 $x \sim 54$ mm
 $d \sim \varnothing 22$ mm
Connection code: 002

ISO 15170 - A1 - 4.1

Pin	Assignment
1	U_{V+}
2	Gnd
3	U_{Out1}
4	U_{Out2}

IP67, IP6K9K
 $x \sim 65$ mm
 $d \sim \varnothing 27$ mm
Connection code: 004

Deutsch DT04 - 4P

Pin	Assignment
1	Gnd
2	U_{V+}
3	U_{Out2}
4	U_{Out1}

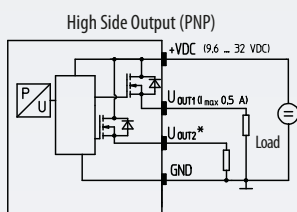
IP67, IP6K9K
 $x \sim 74$ mm
 $d \sim \varnothing 23$ mm
Connection code: 008

Cable connection

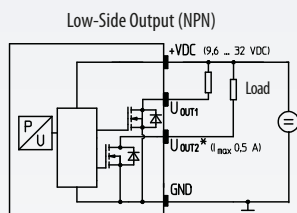
Pin	Assignment
red	U_{V+}
white	U_{Out2}
black	U_{Out1}
blue	Gnd

IP67
 $x \sim 44$ mm (+ 20 mm bend relief)
 Cable length ~ 2 m
 $d \sim \varnothing 22$ mm
Connection code: 011

Connection diagrams



Pin assignment depending on electrical connections
 * U_{Out2} only for 054x



Pin assignment depending on electrical connections
 * U_{Out2} only for 054x

Technical modifications and errors excepted.

Thread code: 41

Thread code: 03

Thread code: 04

Thread code: 09

Thread code: 30

Thread code: 20

Thread code: 21

Thread code: 42



0540 / 0541 / 0542 / 0544 / 0545 / 0546

Article matrix for electronic pressure switches

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	Type	Adjustment range	Pressure connection	Pressure unit	Electrical connection
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Type					
PNP output (High Side), NO / NO	0540				
PNP output (High Side), NC / NC	0541				
PNP output (High Side), NO / NC	0542				
NPN output (Low Side), NO / NO	0544				
NPN output (Low Side), NC / NC	0545				
NPN output (Low Side), NO / NC	0546				

Max. Overpressure ²⁾	Burst pressure	Adjustment range ¹⁾	
40 bar	80 bar	0 - 10 bar (approx. 145 PSI)	101
100 bar	200 bar	0 - 25 bar (approx. 362 PSI)	251
400 bar	800 bar	0 - 100 bar (approx. 1.450 PSI)	102
1,000 bar	2,000 bar	0 - 250 bar (approx. 3.620 PSI)	252
1,650 bar	2,000 bar	0 - 600 bar (approx. 8.700 PSI)	602

Pressure connection	
G 1/4 – DIN EN ISO 1179-2 (DIN 3852-11), form E	41
G 1/4 – DIN 3852-A	03
NPT 1/8 (max. 250 bar)	04
NPT 1/4	09
M10x1 zyl. DIN 3852-A (max. 250 bar)	30
7/16 – 20 UNF (max. 250 bar)	20
9/16 – 18 UNF	21
M14x1,5 – DIN EN ISO 9974-2 (DIN 3852-11), form E	42

Pressure unit	
bar	B

Electrical connection	
M12x1 - DIN EN 61076-2-101-A	002
Bayonet ISO 15170-A1-4.1 (DIN 72585-A1-4.1)	004
Deutsch DT04-3P	008
Cable connection (length of cable 2 m standard)	011

Article number	054X	XXX	XX	B	XXX
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¹⁾ Please state switching point and hysteresis when ordering.

²⁾ Static pressure, dynamic pressure 30 to 50% lower. Values refer to the hydraulic or pneumatic part of the electronic pressure switch.

