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/s²; 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.

E.6

hex 22

High Performance

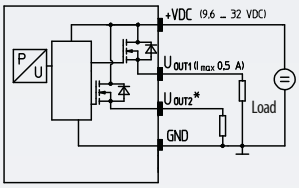
2 switching outputs

0540 / 0541 / 0542 / 0544 /0545 / 0546

Electrical connectors and threads

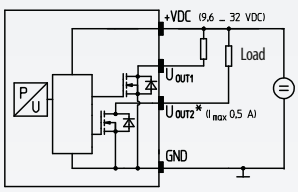
Connection diagrams

High Side Output (PNP)



Pin assignment depending on electrical connections
* U_{OUT2} only for 054x

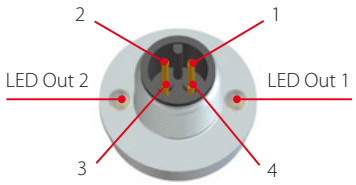
Low-Side Output (NPN)



Pin assignment depending on electrical connections
* U_{OUT2} only for 054x

Technical modifications and errors excepted.

M12 – DIN EN 61076 - 2 - 101 A



Pin	Assignment
1	U_{V+}
2	$U_{Out\,2}$
3	Gnd
4	$U_{Out\,1}$

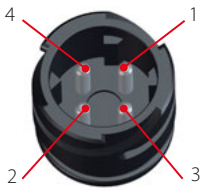
IP67

x ~ 54 mm

d ~ Ø 22 mm

Connection code: 002

ISO 15170 - A1 - 4.1



Pin	Assignment
1	U_{V+}
2	Gnd
3	$U_{Out\,1}$
4	$U_{Out\,2}$

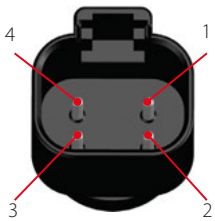
IP67, IP6K9K

x ~ 65 mm

d ~ Ø 27 mm

Connection code: 004

Deutsch DT04 - 4P



Pin	Assignment
1	Gnd
2	U_{V+}
3	$U_{Out\,2}$
4	$U_{Out\,1}$

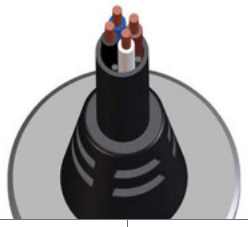
IP67, IP6K9K

x ~ 74 mm

d ~ Ø 23 mm

Connection code: 008

Cable connection



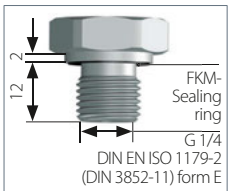
Pin	Assignment
red	U_{V+}
white	$U_{Out\,2}$
black	$U_{Out\,1}$
blue	Gnd

IP67

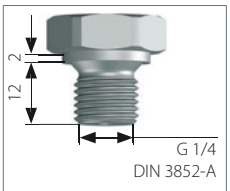
x ~ 44 mm (+ 20 mm bend relief)
Cable length ~ 2 m

d ~ Ø 22 mm

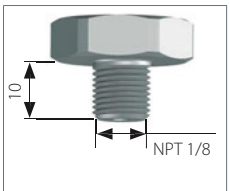
Connection code: 011



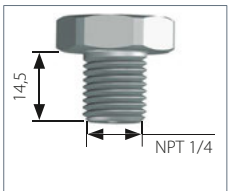
Thread code: 41



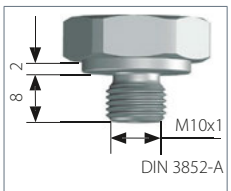
Thread code: 03



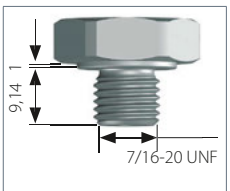
Thread code: 04



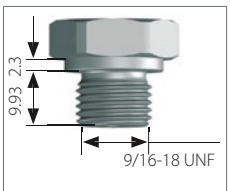
Thread code: 09



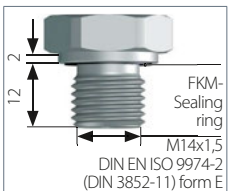
Thread code: 30



Thread code: 20



Thread code: 21



Thread code: 42

0540 / 0541 / 0542 / 0544 /0545 / 0546

Article matrix for electronic pressure switches

	Type	Adjustment range	Pressure connection	Pressure unit	Electrical connection

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

[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 electonic pressure switch.