

# 0540 / 0541 / 0542 / 0544 / 0545 / 0546

## Order matrix for electronic pressure switches

E.6

hex 22

**Silicon-on-Sapphire  
Sensor with Two  
Switching Functions**



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

Max. overpressure <sup>2)</sup>	Burst pressure	Adjustment range <sup>1)</sup>	
40 bar (580 psi)	80 bar (1,160 psi)	0 – 10 bar (0 - 145 psi)	101
100 bar (1,450 psi)	200 bar (2,900 psi)	0 – 25 bar (0 - 362.5 psi)	251
400 bar (5,800 psi)	800 bar (11,600 psi)	0 – 100 bar (0 - 1,450 psi)	102
1,000 bar (14,500 psi)	2,000 bar (29,000 psi)	0 – 250 bar (0 - 3,625 psi)	252
1,650 bar (23,930 psi)	2,000 bar (29,000 psi)	0 – 600 bar (0 - 8,700 psi)	602

### Pressure connection

1/4 BSPP – DIN EN ISO 1179-2 (DIN 3852-11) form E	41
1/4 BSPP – DIN 3852-A	03
NPT 1/8	04
NPT 1/4	09
M 10x1 cyl. DIN 3852-A	30
7/16-20 UNF	20
9/16-18 UNF	21
M 14x1,5 – DIN EN ISO 9974-2 (DIN 3852-11) form E	42

### Pressure unit

bar	B
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### Electrical connection

M 12 – DIN EN 61076-2-101 A	002
Bayonet ISO 15170-A1-4.1 (DIN 72585-A1-4.1)	004
Deutsch DT04-4P	008
Cable connection (length of cable 6.5 ft / 2 m standard)	011

<b>Order number:</b>	05XX	XXX	XX	B	XXX
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<sup>1)</sup> Please state switching point and differential when ordering.

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



E

## Technical details

### Silicon-on-Sapphire Sensor with Two Switching Functions

Type	<b>0540</b> NO / NO <b>0541</b> NC / NC <b>0542</b> NO / NC		<b>0544</b> NO / NO <b>0545</b> NC / NC <b>0546</b> 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:	< 15 mA				
Standard-Adjustment range p <sub>nom</sub> <sup>1)</sup> :	0 – 10 bar (0 – 145 psi)	0 – 25 bar (0 – 360 psi)	0 – 100 bar (0 – 1,450 psi)	0 – 250 bar (0 – 3,625 psi)	0 – 600 bar (0 – 8,700 psi)
Overpressure protection p <sub>u</sub> <sup>1)</sup> :	40 bar (580 psi)	100 bar (1,450 psi)	400 bar (5,800 psi)	1,000 bar (14,500 psi)	1,650 bar (23,930 psi)
Burst pressure <sup>1)</sup> :	80 bar (1,160 psi)	200 bar (2,900 psi)	800 bar (11,600 psi)	2,000 bar (29,000 psi)	2,000 bar (29,000 psi)
Mechanical life expectancy:	10,000,000 pulsations at rise rates to 72.5 psi/ms (5 bar/ms) at p <sub>nom</sub>				
Permitted pressure change rate:	≤ 72.5 psi/ms (≤ 5 bar/ms)				
Switching point adjustment range:	2 ... 100 % of the nominal pressure range (Full Scale, FS), programmable at factory				
Differential:	0.2 ... 99.8 % of the nominal pressure range (Full Scale, FS), programmable at factory (5 % of the switching point is set 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				
Long term stability:	±0.1 % FS p. a.				
Repeatability <sup>1)</sup> :	±0.1 % FS				
Temperature error <sup>1)</sup> :	±0.02 % / 1 K FS				
Compensated temperature range:	-4 °F ... +176 °F (-20 °C ... +80 °C)				
Temperature range media:	-40 °F ... +257 °F (-40 °C ... +125 °C)				
Temperature range ambient:	-40 °F ... +212 °F (-40 °C ... +100 °C)				
Wetted parts material:	Stainless steel AISI 303 (1.4305) and titanium				
Housing material:	Stainless steel AISI 303 (1.4305)				
Insulation resistance:	> 100 MΩ (500 VDC, Ri > 42 Ω)				
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 <sup>2</sup> ; 11 ms; DIN EN 60068-2-27				
Protection class:	Refer to the electrical connections				
EMC:	EMC 2014/30/EU, EN 61000-6-2:2005, EN 61000-6-3:2007				
Short-circuit, overvoltage and reverse polarity protection	Built-in				
Weight:	approx. 2.8 oz / 80 g (DIN 175301 approx. 3.8 oz / 110 g, cable version approx. 4.7 oz / 135 g)				

<sup>1)</sup> Within the compensated temperature range.

<sup>2)</sup> Static pressure. Dynamic value is 30 to 50 % lower. Values refer to the hydraulic/pneumatic part of the electronic pressure switch.

# E.6

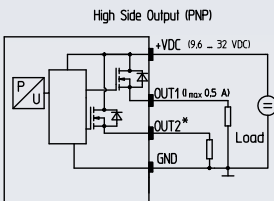
hex 22

**Silicon-on-Sapphire  
Sensor with Two  
Switching Functions**

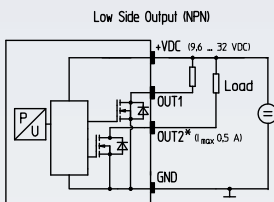


hex 22

### Connection diagrams



Pin assignment depending on electr. connection  
\*OUT2 only for 054x



Pin assignment depending on electr. connection  
\*OUT2 only for 054x

Technical modifications and errors excepted.



# 0540 / 0541 / 0542 / 0544 / 0545 / 0546

Electrical connectors and threads

### M 12 – DIN EN 61076-2-101 A

Pin	Assignment
1	Uv+
2	Out 2
3	Gnd
4	Out 1

IP67  
x ~ 54 mm  
d ~ Ø 22 mm  
**Order number: 002**

### ISO 15170-A1-4.1

Pin	Assignment
1	Uv+
2	Gnd
3	U <sub>out</sub>
4	nc

IP67, IP6K9K  
x ~ 65 mm  
d ~ Ø 27 mm  
**Order number: 004**

### DEUTSCH DT04-4P

Pin	Assignment
1	Gnd
2	Uv+
3	Out 2
4	Out 1

IP67, IP6K9K  
x ~ 74 mm  
d ~ Ø 23 mm  
**Order number: 008**

### Cable connection

Cable	Assignment
brown	Uv+
white	Out 2
black	Out 1
blue	Gnd

IP67  
x ~ 44 mm (+ 20 mm bend relief)  
Cable length ~ 6.5 ft (2 m)  
d ~ Ø 22 mm  
**Order number: 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**

# Accessories

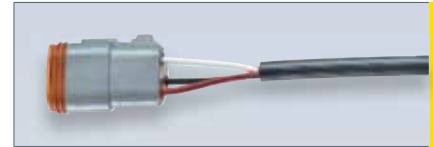
## Mating plugs

E.7

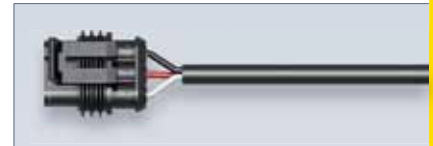
Accessories



<p><b>Deutsch DT06-3S (for DT04-3P)</b> 3 x 0.5 mm<sup>2</sup> PUR cable 6.5 ft (2 m), IP67</p>	<p>Suitable for connector code <b>010</b> <b>Deutsch DT04-3P</b></p>	<p>Order number: <b>1-1-36-653-160</b></p>
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<p><b>TE AMP Superseal 1.5<sup>®</sup>, 3-pin</b> 3 x 0.5 mm<sup>2</sup> Radox cable 6.5 ft (2 m), IP65</p>	<p>Suitable for connector code <b>007</b> <b>AMP Superseal 1.5<sup>®</sup></b></p>	<p>Order number: <b>1-1-32-653-158</b></p>
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<p><b>M12 DIN EN 61076-2-LF, 4-pin</b> 4 x 0.34 mm<sup>2</sup> PUR cable 6.5 ft (2 m), IP65</p>	<p>Suitable for connector code <b>002</b> <b>M12 DIN EN 61076-2-101 A</b></p>	<p>Order number: <b>1-1-00-653-162</b></p>
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<p><b>M 12x1 DIN EN 61071-2-101 D straight, 4-pin</b> Terminals for wire diameter 0.75 mm<sup>2</sup> (AWG 18)</p>	<p>Suitable for connector code <b>002</b> <b>M12 DIN EN 61076-2-101 A</b></p>	<p>Order number: <b>1-6-00-652-016</b></p>
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<p><b>Coupler socket M 12x1 DIN EN 61071-2-101 D Angled, 4-pin</b> Terminals for wire diameter 0.75 mm<sup>2</sup> (AWG 18)</p>	<p>Suitable for connector code <b>002</b> <b>M12 DIN EN 61076-2-101 A</b></p>	<p>Order number: <b>1-6-00-652-017</b></p>
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## Electronic pressure switches, High-Performance series



- 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 differential at factory