Dialog User Level (continued)

Dialog item	Value	Function/Description
Only models with analog output:		
A02*	0 ... xxx	Scale the analog output - start value (e. g. 0 bar = 4 mA)
A0F*	0 ... xxx	Scale the analog output - end value (e. g. 400 bar = 20 mA) (output signal start value always corresponds to the display initial value, e. g. 0 bar = 4mA) Maximum turn-down 4 : 1, i.e. at values below 25 % of the measuring range the analog output is switched off
nAX	0 ... xxx	Display of peak value „Max“ (xxxx: = max. 125 % f. s.)
CLr		Delete the maximum value memory no = no deletion YES = delete value
Err		Error display: OK = no error nAX = exceeding pos. measuring range n In = exceeding neg. measuring range SEn = sensor error SP1 = error switching output 1 SP2 = error switching output 2 dAt = data error (EEProm) PrC = program error CAL = calibration error ano = error analog out

☞	**IMPORTANT**
When changing units from psi to bar or bar to psi, the switching point values must be changed accordingly. * Flashing of the mean segment signals a negative setting value.	

Operating Instructions

Dual pressure switch Switch 2000
Dual Temperature Switch TempSwitch 2000

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Software-Version: V 2.1 and higher

Specifications are subject to changes without notice!

1 Intended Applications

The dual pressure switch monitors system pressures and has up to two switching outputs and one analog output.
The dual temperature switch monitors media temperature into which the probe is immersed and has up to two switching outputs and one analog output.

DANGER

The switch may only be used in the specified fields of application.

The temperature ranges must be within the permissible limits. The stated pressures and electrical load values must not be exceeded.

Observe also the applicable national safety instructions for assembly, commissioning and operation of the switch.

The switch is not designed to be used as the only safety relevant element in pressurized systems according to PED 97/23/EC.

2 Safety Instructions

The safety instructions are intended to protect the user from dangerous situations and/or material damage.

In the operating instructions the seriousness of the potential risk is designated by the following signal words:

DANGER

Refers to imminent danger to men.

Nonobservance may result in fatal injuries.

WARNING

Refers to a recognizable danger.

Nonobservance may result in fatal injuries, and destroy the equipment or plant parts.

CAUTION

Refers to a danger.

Nonobservance may result in light injuries and material damage to the switch and/or to the plant.

IMPORTANT

Refers to important information essential to the user.

Disposal

The switch must be disposed of correctly in accordance with the local regulations for electric/electronic equipment.

The switch must not be disposed of with the household garbage!

Barksdale
CONTROL PRODUCTS

3 Standards

The standards applied during development, manufacture and configuration are listed in the CE conformity and manufacturer's declaration.

4 Warranty/Guaranty

Warranty

Our scope of delivery and services is governed by the legal warranties and warranty periods.

Terms of guaranty

We guaranty for function and material of the dual pressure and temperature switch under normal operating and maintenance conditions in accordance with the statutory provisions.

Loss of guaranty

The agreed guaranty period will expire in case of:

- incorrect use,
- incorrect installation or
- incorrect handling or operation contrary to the provisions of these operating instructions.

No liability is assumed for any damage resulting therefrom, or any consequential damage.

5 Installation/Commissioning

DANGER

Only install or uninstall the switch when deenergized (electrically and hydraulically/ pneumatically).

Pressure connection and electrical connection must be carried out by trained or instructed personnel according to state-of-the-art standards.

The switch must only be installed in systems where the maximum pressure P_{max} or the maximum temperature T_{max} is not exceeded (see type label).

WARNING

Be aware of the fact that in case of operation with higher temperatures the casing surface may become very hot!

CAUTION

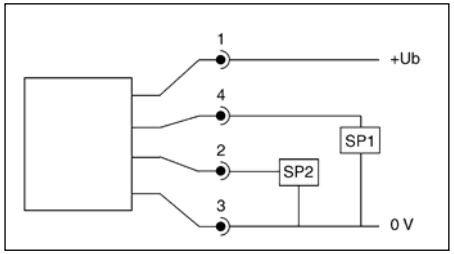
Mount the pressure switch from bottom to the fitting with a wrench hex 36 (1/4“) resp. 19 with 45 Nm torque.

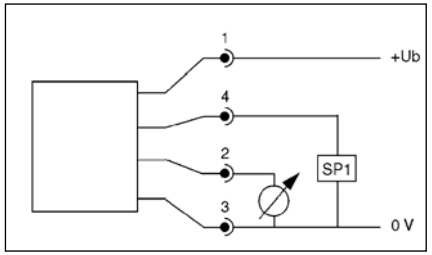
Do not put the switch into operation when the switch itself or the connection cable is damaged. Jolts and heavy vibrations must be avoided during transport. Even if the switch casing remains undamaged, inside parts may be damaged and cause malfunctions.

Electrical connection is to be carried out dependent on the type of switch (see type label) according to the chart below. Wrong assignment of the connections may cause malfunctions or incorrect switch outputs.

Plug M 12x1 4/5-pin 	**Model with 1 switching output**	**Model with 2 switching outputs**	**Model with 1 switching output and 1 analog output**	**Model with 2 switching output and 1 analog output**
Pin 1 brown	+Ub (15 ... 32 V DC) (15 ... 28 V DC)*	+Ub (15 ... 32 V DC) (15 ... 28 V DC)*	+Ub (15 ... 32 V DC) (15 ... 28 V DC)*	Ub (15 ... 32 V DC) (15 ... 28 V DC)*
Pin 2 white	-	SP2 (0.5 A max.) (0.4 A)*	Analog	Analog
Pin 3 blue	0 V	0 V	0 V	0 V
Pin 4 black	SP1 (0.5 A max.) (0.4 A)*	SP1 (0.5 A max.) (0.4 A)*	SP1 (0.5 A max.) (0.4 A)*	SP1 (0.5 A max.) (0.4 A)*
Pin 5 grey	-	-	-	SP2 (0.5 A max.) (0.4 A)*

* cULus version





WARNING

Check the switch regularly for functioning.
If the switch does not work properly, stop operation immediately!

IMPORTANT

Only TempSwitch 2000
When the rotatable display is adjusted, the switch has to be fixed with the threaded pin at the front side with a 3 Nm torque.

6 Maintenance/Cleaning

The switch requires no maintenance.

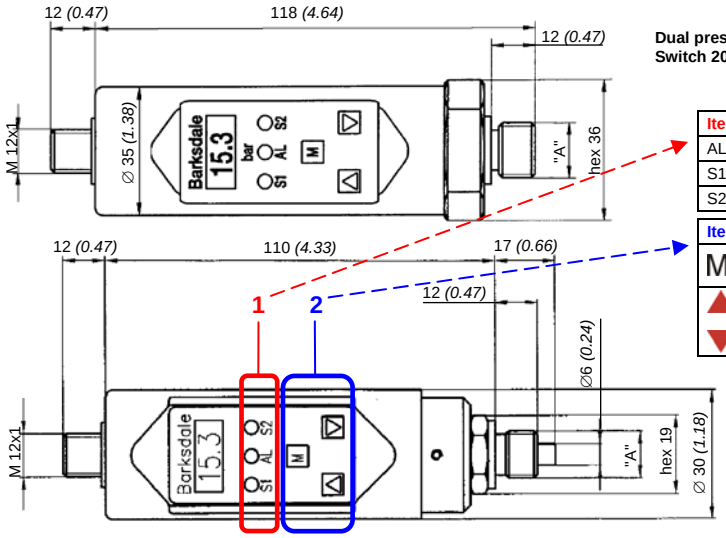
CAUTION

The plastic film keys may be damaged by the use of unsuitable cleaning agents. Do not use any cleaning agents containing solvents or abrasive additives.

7 Technical Data

	Switch 2000	**TempSwitch 2000**
Measuring element	Piezoresistive pressure sensor with internal special steel diaphragm	Pt 100 (class B) according to DIN IEC 751
Measuring ranges	0 ... 10 bar to 0 ... 600 bar 0 ... 150 psi to 0 ... 9000 psi relative pressure	0 ... +100 °C to -30 ... +150 °C +32 ... +212 °F to -22 ... +302 °F
Display	3-digit 7-segment LED display, red, digit height 10 mm	
Transistor switching outputs PNP	1 or 2 x NO/NC function (programmable), adjustable switching time delay 0 ... 9.9 s	
Operating temperature range	-10 ... +70°C / +14 ... +158 °F	
Media temp. range	-25 ... +100°C / -13 ... +212 °F	-30 ... +150°C / -22 ... +302 °F
Process connection (fitting "A" without adapter)	G 1/4 1/4" – 18 NPT 7/16 – 20 SAE	G 1/4 1/4" – 18 NPT
Protection system/class	Nema 4, IP65/III	
Electrical connection	4-pin plug, M 12x1	
Auxiliary power	15 ... 32 V DC / 15 ... 28 V DC (cULus version)	
For further technical data and options please refer to the data sheets		

Operating and display elements/Dimensions Dimensions (*example*) in mm (*inch*)



Dual pressure switch Switch 2000

Item 1: LEDs	
AL	(yellow) – alarm
S1	(green) – switching point 1
S2	(green) – switching point 2

Item 2: Plastic film keys	
M	Dialog item "change to value/to function", acknowledge inputs
▲ ▼	Change dialog items/functions, change numerical values

Dual Temperature Switch TempSwitch 2000

8 Operation

The switch must be installed and operated only by authorized persons. Do not use any hard objects for making entries. After being switched on the Switch 2000 / TempSwitch 2000 runs through a self-test. Operation via three plastic film keys is menu-driven. These keys must **not** be touched with hard objects! If an error is recognized during the self-test or during operation, this is signalled by the (yellow) flashing alarm LED (AL).
The error can be read out in the menu Err. The green LEDs S1 and S2 signal the activity of the two switching points.

9 Programming

1		After switching on with M change to the first dialog item.
2	Change dialog item	Select the desired dialog item with ▼ or ▲ (see chap. 10).
3	Activate dialog item Value input/function selection	Activate the desired dialog item with M to change the corresponding value or the desired function.
4	Change value	Select the individual digits with M. Change the numerical value with ▼ or ▲ and acknowledge with M. If the entered value is within the permissible range, the system changes to the dialog item after input of the last digit, otherwise the 1st digit will flash again.
5	Change function	Change the function with ▼ or ▲ and acknowledge with M.
	Activate key lock	Simultaneously press ▲ + ▼ for at least 5 s. The display must not change during this time. When key lock is activated LuO appears in the display e. g. u3.1*.
	Key lock active	Values or functions are displayed, but cannot be changed. LOK appears in the display when an attempt is made to make a change.
	Deactivate key lock	Simultaneously press ▲ + ▼ for at least 5 s. The display must not change during this time. When key lock is deactivated Lu2 appears in the display e. g. u3.1*.
	Return to measuring mode	If no entry is made for 2 minutes, the switch automatically returns to the measuring mode **without** accepting the entries.
	Terminate programming	Press M for at least 5 s to change to the measuring mode.

* Software versions no.

10 User Level Dialog Switch 2000/TempSwitch 2000

Dialog item	Value	Function/Description
ACt	0 ... 400	Display of the actually measured value
S1		Select the display unit — **Switch 2000**: nbr = mbar; bar = bar; PSH = psi x 10; PS1 = psi; hPo = hPa; nPo = mPa — **TempSwitch 2000**: °C = °Celsius; °F = °Fahrenheit
Und		Activation of the unit display on = unit display on (every 30 s) oFF = no unit display
SP1		u in = window technology; Err = error output Std = standard evaluation
on1*	0 ... xxx	Switch-on point for SP1; if the ON value is smaller than the OFF value the switching point evaluation is falling
OF1*	0 ... xxx	Switch-off point for SP1
dS1	0.0 s ... 9.9 s	Switch-on delay for SP1 in seconds
dr1	0.0 s ... 9.9 s	Switch-off delay for SP1 in seconds
iu1		Inversion of switching output SP1 HFS = high-level-fail-save (normally open function) LFS = low-level-fail-save (normally closed function)
Only models with 2nd switching contact:		
SP2		u in = window technology; Err = error output Std = standard evaluation
on2*	0 ... xxx	Switch-on point for SP2; if the ON value is smaller than the OFF value the switching point evaluation is falling
OF2*	0 ... xxx	Switch-off point for SP2
dS2	0.0 s ... 9.9 s	Switch-on delay for SP2 in seconds
dr2	0.0 s ... 9.9 s	Switch-off delay for SP2 in seconds
iu2		Inversion of switching output SP2 HFS = high-level-fail-save (normally open function) LFS = low-level-fail-save (normally closed function)