

Screw-in temperature sensor/switch with display

- Indication, monitoring, transmitting and On/Off control in one device
- Extra-large display
- Menu-guided parametrisation
- Complete control loop with external setpoint

Type 8400 can be combined with...



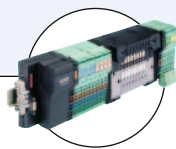
Type 6213

Solenoid valve



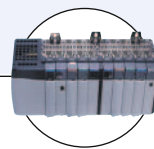
Type 2301 (8693)

Control Valve
ELEMENT



Type 8644-P AirLINE PLC

Valve island with
electronic I/O



This intelligent sensor/switch with an extra-large display is specifically designed to switch a valve and to establish a monitoring system or an ON/OFF control loop.

Compact and wall versions are available. The wall-mounted version must be inserted into a holder previously mounted on a wall, and it must be associated with a remote temperature sensor.

The switching points can be programmed with the 3 key pads or optionally, with input 4...20 mA, from an external PLC over a 4...20 mA loop.

As an option, the process value can additionally be transmitted to the PLC (4...20 mA).

The connection of the 8400 to the process in the piping is made using standard fittings.

General data

Materials

Housing	PC, +20% glass fibre
Front panel folio / Screws	Polyester / Stainless steel
Cable plug, Multipin	PA
Wall-mounted holder	PVC
Materials wetted parts	
Sensor element	Stainless steel
Seal	FKM

Sensor element Pt100


Screw-in thread G, NPT, Rc 1/2"

Electrical connections Cable plug: EN 175301-803
Multipin: swivel M12, 5-pin or M12, 4-pin or 8-pin

Voltage supply cable max. 100 m, shielded, 0.14...0.5 mm² max.
5 Ω max. cable impedance (Wall-mounted version)

Complete device data (pipe + electronic module)

Pipe diameter	Any pipe with sensor connection 1/2"
Measuring range	
Compact version	-40...+125°C (-40...+257°F) (with ambient temperature between 0 and +40°C (-32 and 104°F))
Wall-mounted version	-40...+90°C (-40...+194°F) (with ambient temperature above +40°C (104°F)) -40...+125°C (-40...+257°F)
Medium temperature	+125°C max. (257°F)
Fluid pressure max.	PN16
Switching accuracy	±0.5°C (0.9°F) (0...+80°C (+32...+176°F)) ±1.5°C (2.7°F) (outside of 0...+80°C (+32...+176°F))
Repeatability	≤ ±0.4%

Electrical data	
Power supply	12...30 V DC, filtered and regulated
Outputs	
Compact version	
Transistor (configurable)	NPN and PNP, open collector, 5...30 V DC, 700 mA max., protected against short circuits
Relay (configurable)	3A/250 V AC or 3A/30 V DC 3A/48 V AC or 3A/30 V DC ¹⁾
Process value (option)	4...20 mA, galvanic insulation Loop resistance: 1000 Ω at 30 V DC, 800 Ω at 24 V DC, 500 Ω at 18 V DC
Wall-mounted version	NPN and PNP, 700 mA, 30 V DC max.
Input external setpoint	
Compact version	4...20 mA, galvanic insulation, max. input impedance: 250 Ω
Current consumption	
Compact version	Max. 80 mA (no load)
Wall-mounted version	Max. 50 mA (no load)
Response time (10...90%)	7 s (for one step increment from 0...+100°C (+32...+212°F))
Reversed polarity of DC	Protected
Environment	
Ambient temperature	-20...+60°C (+4...+140°F)
Relative humidity	≤ 80%, without condensation
Standards, directives and certifications	
Protection class	IP65 with connector plug-in
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of 2014/68/EU directive*
Pressure	

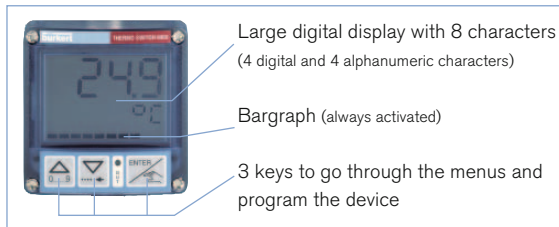
¹⁾ Valid for: external setpoint input and process value output

* For the 2014/68/EU pressure directive, the device can only be used under following conditions (depending on max. pressure, pipe diameter and fluid).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32 or PN*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PN*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PN ≤ 10 or PN*DN ≤ 5000

Main Features

Display



Software main features

- International measuring units
- 10-segment bargraph
- Temperature adjusting for a better accuracy
- Simulation mode to test the programming of the switching points, in dry conditions

8400 with external setpoint

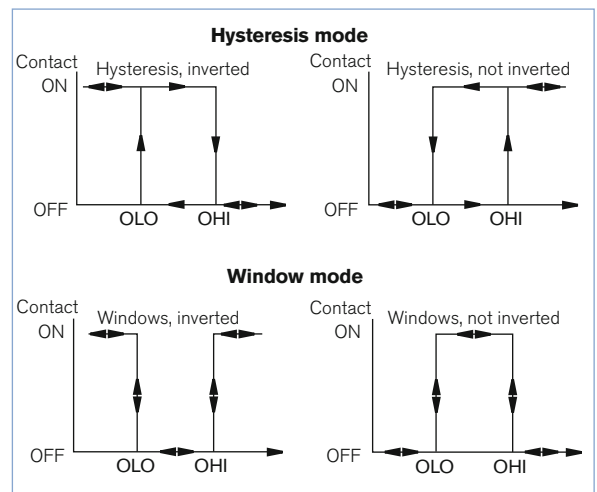
- The switching points are automatically adjusted by the 4...20 mA input signal originating from a PLC.
- On/Off relay output

8400 with process value option

- This version delivers a 4...20 mA electric signal whose value is the image of the measured temperature
- On/Off relay output
- 4...20 mA output
- External setpoint (4...20 mA input)

8400 with standard On/Off output

- 2 switching modes for the output, either hysteresis or window, inverted or not



- Programmable delay before switching
- Possible outputs depending on the version: relay, transistor NPN or transistor PNP

Design

The 8400 Temperature sensor is proposed in two versions:



A compact version, available in several variants.

- The 8400 Standard has a Pt100 with a 29.5 mm mounting length.

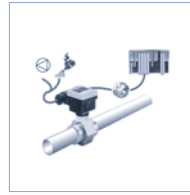
- The 8400 Extended has a Pt100 with a 100 or 200 mm mounting length. The adaptation of the 8400 will be done through the external thread or also with a compression fitting (no part of delivery). This allows variable mounting in bigger pipe diameters or tanks.



A wall-mounted version:

- The 8400 Wall has to be inserted into a holder previously mounted on a wall. It must be associated to a remote temperature sensor.

Typical application example



Monitoring of min./max. levels of temperature in a running process (compact INLINE control)

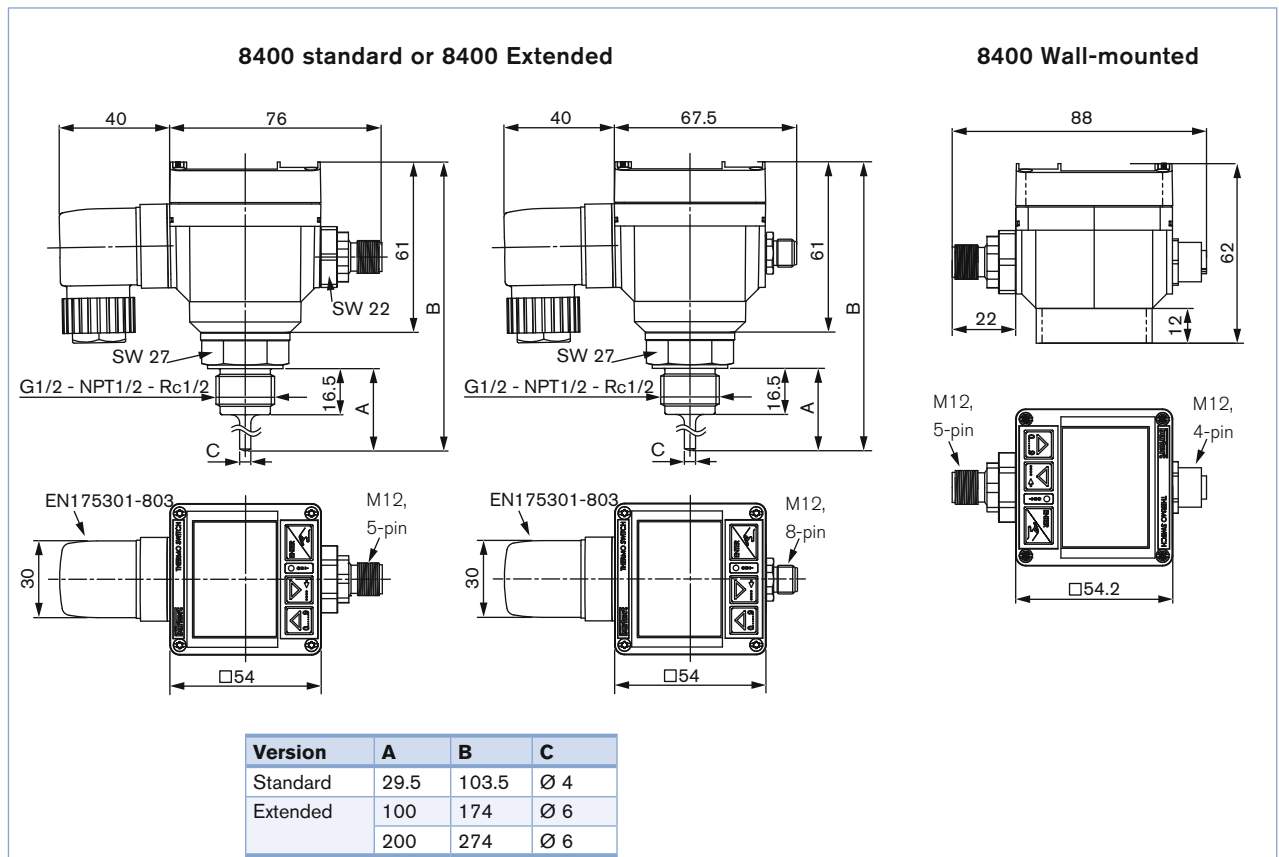


Continuous temperature control in a running process



On/Off temperature control of liquid processing in a programmable narrow band (remote control)

Dimensions



Ordering chart for Type 8400 (other versions on request)

Sensor version	Sensor element	Voltage supply	Screw-in thread	Input	Output	Connector	Item no.
Standard, compact	29.5 mm - ø 4 mm	12...30 V DC	G1/2"	-	NPN and PNP	5-pin swivel M12 plug (male)	436 501
					Relay	5-pin swivel M12 plug (male) and cable plug EN 175301-803*	436 503
				4...20 mA ¹⁾	4...20 mA ²⁾ + Relay	8-pin M12 plug (male) and cable plug EN 175301-803*	444 696
			NPT1/2"	-	NPN and PNP	5-pin swivel M12 plug (male)	436 507
					Relay	5-pin swivel M12 plug (male) and cable plug EN 175301-803*	436 509
				4...20 mA ¹⁾	4...20 mA ²⁾ + Relay	8-pin M12 plug (male) and cable plug EN 175301-803*	444 698
Rc1/2"	-	NPN and PNP	5-pin swivel M12 plug (male)	436 504			
		Relay	5-pin swivel M12 plug (male) and cable plug EN 175301-803*	436 506			
	4...20 mA ¹⁾	4...20 mA ²⁾ + Relay	8-pin M12 plug (male) and cable plug EN 175301-803*	444 697			
Extended, compact	100 mm - ø 6 mm	12...30 V DC	G1/2"	-	Relay	5-pin swivel M12 plug (male) and cable plug EN 175301-803*	550 053
				4...20 mA ¹⁾	4...20 mA ²⁾ + Relay	8-pin M12 plug (male) and cable plug EN 175301-803*	550 055
	200 mm - ø 6 mm		G1/2"	-	Relay	5-pin swivel M12 plug (male) and cable plug EN 175301-803*	550 054
				4...20 mA ¹⁾	4...20 mA ²⁾ + Relay	8-pin M12 plug (male) and cable plug EN 175301-803*	550 056
Wall-mounted	-	12...30 V DC	-	3-wired Pt100	NPN and PNP	5-pin swivel M12 plug (male) and 4-pin M12 plug (female)	448 862

¹⁾ Ext. Setpoint²⁾ Process value

^{*)} EN 175301-803: Europe /Asia (G / Rc) : M16 x 1.5 mm cable plug (female)
USA/ CDN (NPT): NPT1/2 cable plug (female)

The adaptation of the 8400 will be done through the external thread or also with a compression fitting (no part of delivery). This allows variable mounting in bigger pipe diameters or tanks.

Ordering chart for accessories (to be ordered separately)

Description	Item no.
5-pin M12 female cable connector with plastic threaded locking ring	917 116
5-pin M12 female connector moulded on cable (2 m, shielded)	438 680
4-pin M12 male cable connector with plastic threaded locking ring	448 856
4-pin M12 male connector moulded on cable (2 m, shielded)	448 857
8-pin M12 female cable connector with plastic threaded locking ring	444 799
8-pin M12 female connector moulded on cable (2 m, shielded)	444 800
Cable plug EN 175301-803 with cable gland (Type 2508)	438 811
Cable plug EN 175301-803 with NPT1/2" reduction without cable gland (Type 2509)	162 673

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In case of special application conditions,
please consult for advice.

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