ExBin-D Transducers for ExPro-B... sensors (probes)
ExPro-B... Thermostats / humidistats (°C, % rH)

Transducers:
ExBin - D
ExBin - D - 2
ExBin - D.. - CT
Sensors (probes):
ExPro - BT...
ExPro - BF...
ExPro - BTF...

Subject to change!

Electrical, explosion proof transducers only connectable to
ExPro-B... thermostats and humidistats
24 VAC/DC supply, output potential free switching contact
PTB-certified in acc. with ATEX directive 94/9/EC for zone 1, 2, 21, 22.

Compact. Easy installation. Universal. Cost effective. Safe.

Transducer

Type	Supply	Installation area	Connectable probes	Function of sensors	Output switch	Max. ratings	Wiring diagram
ExBin - D	24 VAC/DC	zone 1, 2, 21, 22	ExPro-BT / -BF / -BTF	°C, % rH, combination °C/% rH	pot. free contact	250 VAC, 0.1 A / 30 V, 0.5 A	SB 1.0
ExBin - D - 2	as above but with second switching output						SB 2.0
ExBin - D... - CT	as above with aluminium housing and Amercoat painting (sensor connection and cable glands nickel-plated, screws in stainless steel)						

Connectable sensors (compulsory for ExBin-D... transducer) – see separate data sheet

Type	Function	Mearsuring range	Length of sensor	Connectable to	Installation sensor	Installation transducer
ExPro - BT...	temperature	−40...+125 °C*	50/100/150/200 mm	ExBin-D..., RedBin-D...	zone 1, 2, 21, 22	zone 1, 2, 21, 22 (ExBin...)
ExPro - BF...	humidty	0...100 % rH	50/100/150/200 mm	ExBin-D..., RedBin-D...	zone 1, 2, 21, 22	zone 1, 2, 21, 22 (ExBin...)
ExPro - BTF...	combination temp./humidity	−40...+125 °C* / 0...100 % rH	50/100/150/200 mm	ExBin-D..., RedBin-D...	zone 1, 2, 21, 22	zone 1, 2, 21, 22 (ExBin...)

* 50 mm length −40...**+80** °C

Sensor length

Application / product variations

ExBin-D... transducer

ExPro-B... sensors

Example: room sensor

Example: duct sensor

ExBin-D...-CT (Amercoat version)

Description

The **ExBin-D..** transducer generation from together with direct coupled **ExPro-B.. probes** are a revolution for thermostats and / or humidistats in HVAC systems, in chemical, pharmaceutical, industrial and Offshore- / Onshore plants, for use in hazardous areas zone 1, 2 (gas) and zone 21, 22 (dust).

Highest protection class (ATEX) and IP66 protection, small dimension, universal functions and technical data guarantee safe operation even under difficult environmental conditions.

The switching points are scalable within the maxium ranges. The integrated display is for actual value indication which can be switched off.

All sensors are programmable on site without any additional tools.

ExBin-D-2 transducer are additionally equipped with a secondary switching output, which can be parameterized independently.

Highlights transducer

- For all type of gas, mixtures, vapours and dust for use in zone 1, 2, 21 and 22
- No addional Ex-i module required
- No intrinsically safe wiring / installation between panel and sensor required
- No intrinsically safe wiring / installation and no space in the panel required
- Integrated Ex-e junction box
- Power supply 24 VAC/DC
- Output potential free switching contact
- Display with backlight, can be switched off
- Scalable switching characteristics
- Compact design and small dimension (L × W × H = 180 × 107 × 66 mm)
- Robust aluminium housing in protection class IP66
- Down to −20°C ambient temperature applicable
- Password locking
- Optional second switching output
- CT versions have an excellent resistance to chemicals and seawater

Highlights sensor

- For all type of gas, mixtures, vapours and dust for use in zone 1, 2, 21 and 22
- Plug-and-socket connection to ExBin-D... transducer, removable
- The ExPro-B.. probe appropriates the function (temperature, humidity or combination)
- Mounting of ExPro-B.. probe (front/back side) appropriates use for duct or room application

Schischek GmbH Germany, Mühlsteig 45, Gewerbegebiet Süd 5, 90579 Langenzenn, Tel. +49 (0)9101 9081-0, Fax +49 (0)9101 9081-77, E-Mail info-de@schischek.com

Technical data	ExBin-D...
Power supply	24 VAC/DC ± 20% (19,2…28,8 VAC/DC) 50…60 Hz
Current, power consumption	150 mA, ~ 4 W, internal fuse 500 mAT, without bracket, not removable
Galvanic isolation	supply – output 1,5 kV
Electrical connection	terminals 0,14…2,5 mm² at integrated Ex-e junction box
Cable entry	2 × M16 × 1,5 mm Ex-e approved, cable diameter ~ Ø 5…10 mm (**..-CT** in nickel-plated)
Protection class	Class I (grounded)
Display	LCD with backlight, display for configuration, user guidance, parameter and actual value indication via LEDs
Control elements	3 buttons for configuration
Housing protection	IP66 in acc. to IEC 60529
Housing material	Aluminium casting, coated (**..-CT** = version in Amercoat marine painting, seawater-resistant)
Dimensions / weight	L × W × H = 180 × 107 × 66 mm / ca. 950 g
Ambient temperature/-humidty	−20…+50 °C / 0…95 % rH, non condensed
Storage temperature	−40…+70°C
Sensor connection	**only for ExPro-B.. probes!** via plug-and-socket connection at front or back side of the transducer, to appropriate the use for room or duct mounting. **Attention:** only one ExPro-B.. probe can be connected to one transducer!
ExPro-B.. sensors	please have a look on the separate data sheet for ExPro-B... sensors
Measuring range	−40…+125 °C / 0…100 % rH, non condensed
Response time of sensor	T90 ~ 3 s
Accuracy temperature	± 0,2 % of end value + accuracy of ExPro-B... sensor ± 0,3 % at 25 °C ± 0,025 °C / °C
Accuracy humidity	± 0,2 % of end value + accuracy of ExPro-B... sensor 10…90 % rH ± 2% and < 10 % rH and > 90 % rH ± 4%
Non linearity and hysteresis	± 0,1 % (± 0,1 % of end value + accuracy of ExPro-B.. sensor)
Setting range hysteresis	0,5 °C…20,0 °C (factory setting 1,0 °C), 0,5 % rH…20,0 % rH (factory setting 5,0 % rH)
Start delay	5 s
Stability	long term stability < 0,2 % / year, temperature influence < 0,02 % / K, supply voltage influence < 0,01 %
Output switch	potential free switching contact
Ratings load max.	0,5 A at 30 VAC/DC / 0,1 A at 250 VAC / 0,1 A at 220 VDC
Rating power max.	40 W, 10 W per channel
Ratings load min.	10 mW / 0,1 V / 1 mA
Mechanical life	10×10^6
Electrical life (rated load)	100×10^3
Wiring diagram (SB)	SB 1.0 (ExBin-D) / SB 2.0 (ExBin-D-2)
Installation area transducer	in Ex-area zone 1, 2, 21, 22

Explosion proof	ExBin-D..	
PTB-tested	PTB 09 ATEX 2011	94/9/EC (ATEX)
Approval for gas	II2(1)G Ex emb[ia] IIC T6	for zone 1, 2
Approval for dust	II2(1)D Ex tD A21 [iaD] IP66 T80°C	for zone 21, 22
CE-Mark	CE No. 0158	
EMC directive	2004/108/EC	
Low voltage directive	2006/95/EC	
Protection type	IP66 in acc. to EN 60529	
Elect. safety	Protection class I (grounded),	
	Over voltage category II acc. to. EN 61010-1	

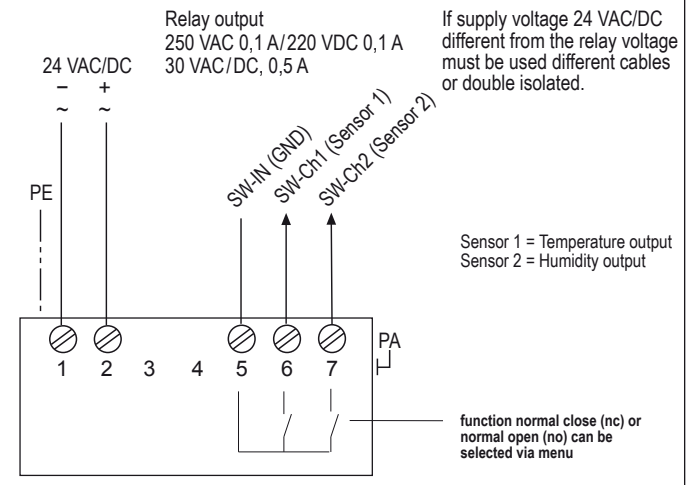
Accessories	
MKR	Mounting bracket for round ducts up to Ø 600 mm
MFK	Mounting flange for probe positioning

Electrical wiring

ExBin-D.. transducer required a 24 VAC/DC power supply. The supply has to be connected at terminal 1 (–/~) and 2 (+/~). The electrical wiring must be realized via integrated Ex-e junction box in acc. to ATEX. Type of protection for the terminals is „Ex-e“. If supply voltage 24 VAC/DC different from the relay voltage must be used different or double isolated cables.
Attention: Do not open covers when circuits alive!

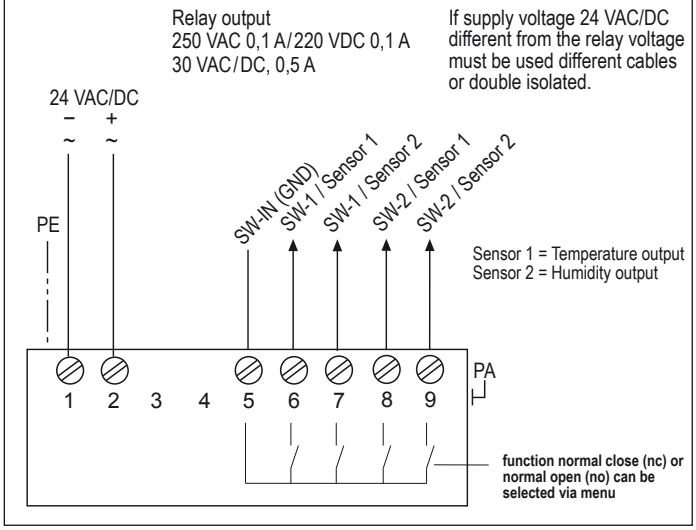
Wiring diagram ExBin-D

ExBin-D **SB 1.0**

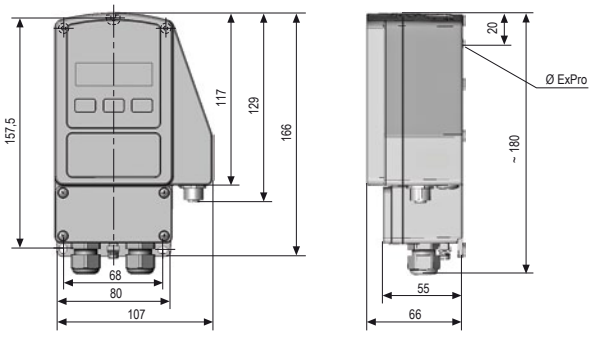


Wiring diagram ExBin-D-2

ExBin-D-2 **SB 2.0**



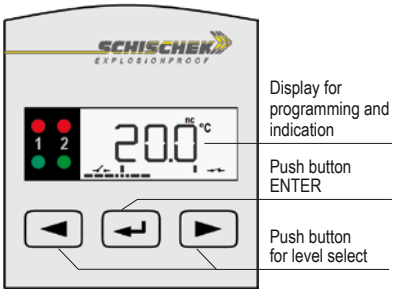
Dimensions/Drillings



Parameter

Before starting parametrisation of **ExBin-D...** transducer an **ExPro-B...** sensor must be connected. ExPro-B... sensors are available as ExPro-BT... for single thermostat, as ExPro-BF... for single humidistat and as ExPro-BTF... with combined thermostat and humidistat. All types are connectable to an ExBin-D... transducer but only one sensor to one transducer. In acc. with the sensor type you need to set parameter for one or two switching ranges.

Display and buttons



Change operation-/parametrisation mode

To change from operation to parametrisation mode push the enter button ↵ for minimum 3 seconds. Back over the menu save.

Indication of data logging

The blinking unit in the display shows that datas received and the device is working.

Sensor malfunction

A sensor malfunction is indicated through red blinking LEDs and the text „SENS“ in the display. The switching outputs will it indicate, too. In this case the connector between the tranducer and the sensor should be checked first.

Password input

The default / delievery setup is **0000**. In this configuration the password input is not activated. To activate a password, go to menu point 20, change the 4 digits into your chosen numbers (e.g. 1234) and press Enter.
Please keep your password in mind for next parameter change!
Due to a new parameter setup the password is requested.

Important information for installation and operation

A. Installation, commissioning, maintenance
The cable has to be drawn through the cable gland. After electrical connection the cable gland must be fixed tighten. IP66 must be fulfilled. In acc. with operation ExBin sensors are maintenance free. Nevertheless maintenance must comply with regional standards, rules and regulations. The sensors must not be opened by the customer. For outdoor installation a protective housing against rain, snow and sun should be applied. For electrical connection use the internal approved Ex-e junction box.
Attention: Note the explosion proof rules before opening the internal junction box. Cut off the power supply.
B. Supply and contact
Wires from safety extra low voltage must be separated from others. Only at 24 VAC/DC supply and signal wires in one cable is permitted. All others use separate or double isolated cables. Install overload protection fuse < 10 A.
C. ExPro-B... sensors
ExPro-B... sensors are supplied with an intrinsically safe circuit from the ExBin-D... transducer. Unused connectors must be covered by a protective cap.
D. Long cabling
For using long signal wires, shielded cables are recommended. The shield must be connected to the ExBin-D... transducer inside the terminal box.
E. Separate ground wires
Use for supply and signal wires a separate ground.

Values intrinsically safe (IS) for ExPro-B... sensors

Digital ExPro-B... sensor

Uo = 7,9 V
Io = 6,4 mA
Po = 12,7 mW
Ci = 0 nF
Li = 0 mH
Co(IIC) = 5 mH
Lo(IIC) = 1,5 µF

Parametrisation and commissioning of ExBin-D (-2) tranducers after an ExPro-B... sensor ist connected

Preparation of parametrisation / operation

Operation ⇄ Parametrisation, push ↵ for 3 sec.
If password (PW) protection is active: put PW in, push ↵

Change operation- / parametrisation mode

To change from operation to parametrisation mode push "enter" button ↵ for minimum 3 seconds. Back over the menu save.

Menu	Function	Enter	Indication	Select	Enter	Next indication	Next selection	Enter	Next menu
Menu 1	no function – menu skip								
Menu 2	**unit sensor 1** select physical unit	↵	Menu 2 °C	◄ ►	↵ °C, °F				►
Menu 3	**set 1, sensor 1** select switching point 1	↵	Menu 3 20.0 °C	◄ ►	↵ adjust set 1				►
Menu 4	**set 2, sensor 1*** select switching point 2	↵	Menu 4 30.0 °C	◄ ►	↵ adjust set 2				►
Menu 5	**hysteresis, sensor 1** select hysteresis	↵	Menu 5 Δ 1.0 °C	◄ ►	↵ adjust hysteresis				►
Menu 6	**mode, sensor 1** select switching charateristic	↵	Menu 6 no UP	◄ ►	↵ norm. open (no), norm. closed (nc)	Menu 6 nc NC	◄ ►	↵ select normal sensor interval	►
Menu 7	**unit sensor 2** select physical unit	↵	Menu 7 %rF	◄ ►	↵ % rF, % rH				►
Menu 8	**set 1, sensor 2** select switching point 1	↵	Menu 8 50.0 %rF	◄ ►	↵ adjust set 1				►
Menu 9	**set 2, sensor 2*** select switching point 2	↵	Menu 9 80.0 %rF	◄ ►	↵ adjust set 2				►
Menu 10	**hysteresis, sensor 2** select hysteresis	↵	Menu10 Δ 5.0 %rF	◄ ►	↵ adjust hysteresis				►
Menu 11	**mode, sensor 2** select switching charateristic	↵	Menu11 no Mid	◄ ►	↵ norm. open (no), norm. closed (nc)	Menu11 nc NC	◄ ►	↵ select normal sensor interval	►
Menu 12	no function – menu skip								
Menü 13	**lamp** select backlight	↵	Menu13 ON	◄ ►	↵ on, off				►
Menu 14	no function – menu skip								
Menu 15	**security** select password	↵	Menu15 0000	◄ ►	↵ enter password				►
Menu 16	**save** select save data	↵	Menu16 YES	◄ ►	↵ no, yes, return, default setting				►

* avaible for 2-stage version only (ExBin-D-2)

Schischek GmbH Germany, Mühlsteig 45, Gewerbegebiet Süd 5, 90579 Langenzenn, Tel. +49 (0)9101 9081-0, Fax +49 (0)9101 9081-77, E-Mail info-de@schischek.com

Using the menu 6 „mode“

First of all the user has to define the device normal range. For example:

- The device should indicate (green LED) if the temperature is under the setpoints, mode „down-range“ has to be selected. With other words: the measure value is normally under the setpoints.
- The device should indicate (green LED) if the temperature is over the setpoints, mode „up-range“ has to be selected. (The measure value is normally over the setpoints.)
- The device should indicate (green LED) if the temperature is between the setpoints, mode „mid-range“ has to be selected. (The measure value is normally between the setpoints.) This mode is only for 2-stage devices available (ExBin-D-2).

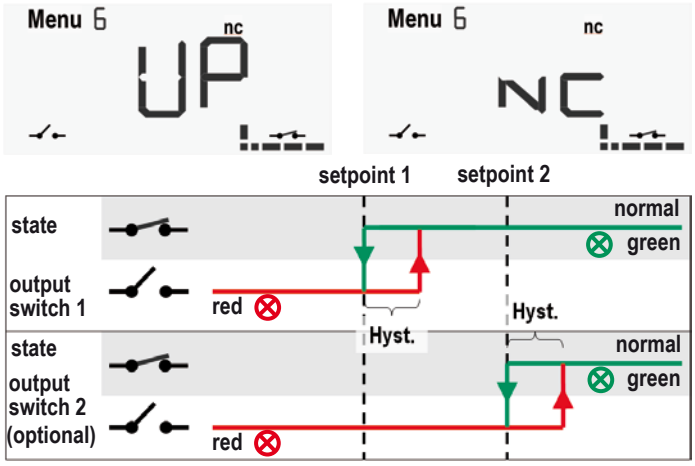
In the second step the switching charateristic of the output relay has to be selected:

- „normally closed“ (nc): if the measure value is in the nomal range (see above), the corresponding relays were closed.
- „normally open“ (no): if the measure value is in the nomal range (see above), the corresponding relays were open.

A detailed description of all possible settings, you find in the following section.

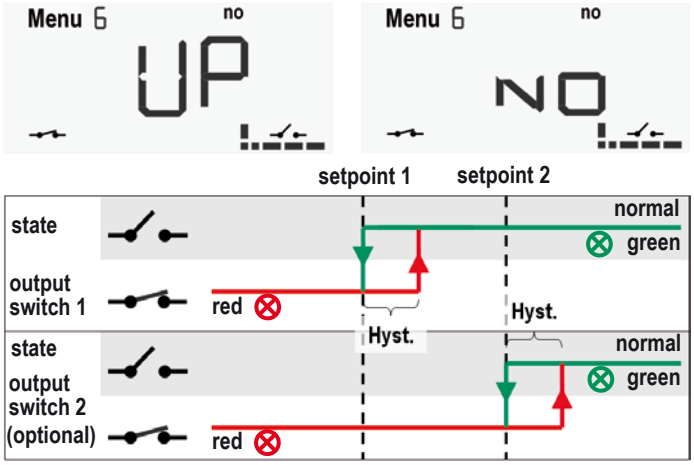
Switching characteristic „**up**-range“ – „**n**ormally **c**losed“

„Up-range“: the normal range is above setpoint 1 and setpoint 2



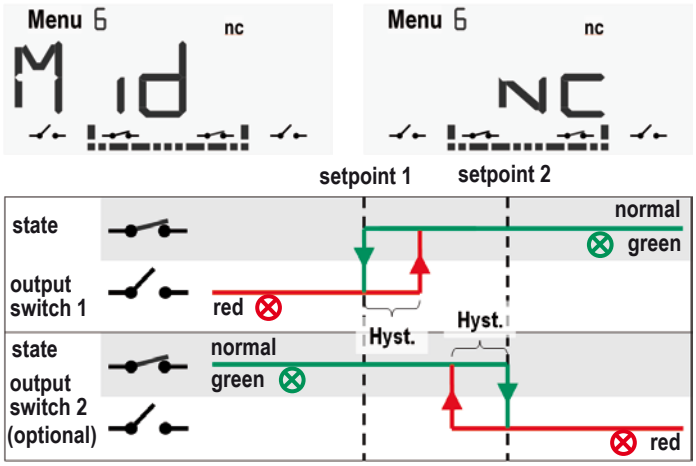
Switching characteristic „**up**-range“ – „**n**ormally **o**pen“

„Up-range“: the normal range is above setpoint 1 and setpoint 2



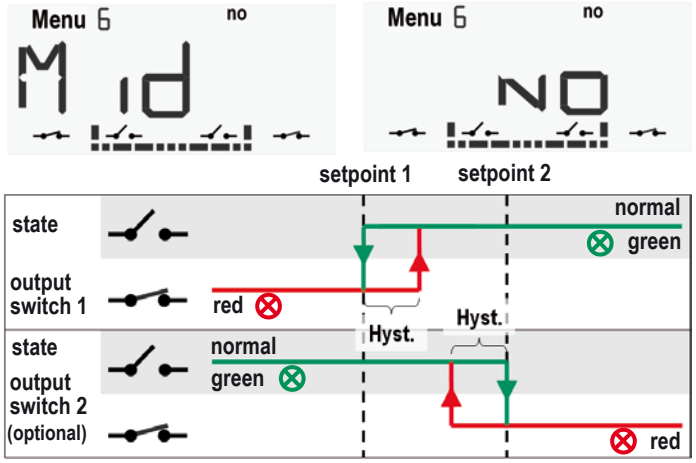
Switching characteristic „**mid**-range“ – „**n**ormally **c**losed“

„Mid-range“: the normal range is between setpoint 1 and setpoint 2 (for 2-stage devices only)



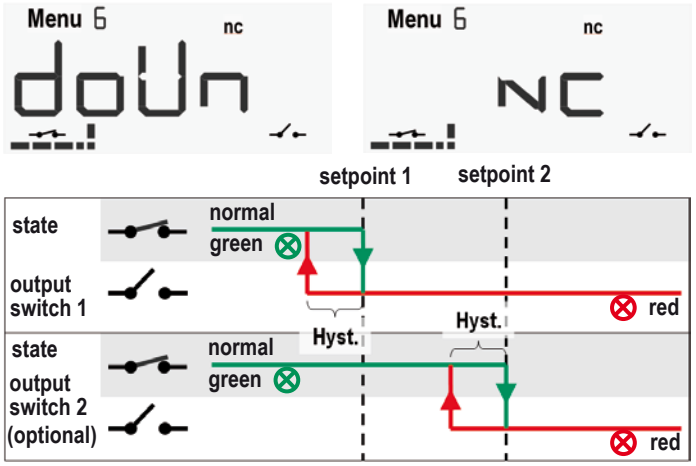
Switching characteristic „**mid**-range“ – „**n**ormally **o**pen“

„Mid-range“: the normal range is between setpoint 1 and setpoint 2 (for 2-stage devices only)



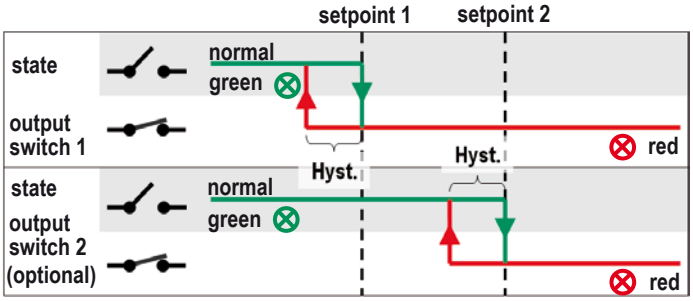
Switching characteristic „**down**-range“ – „**n**ormally **c**losed“

„Mid-range“: the normal range is under setpoint 1 and setpoint 2



Switching characteristic „**down**-range“ – „**n**ormally **c**losed“

„Mid-range“: the normal range is under setpoint 1 and setpoint 2



Schischek GmbH Germany, Mühlsteig 45, Gewerbegebiet Süd 5, 90579 Langenzenn, Tel. +49 (0)9101 9081-0, Fax +49 (0)9101 9081-77, E-Mail info-de@schischek.com