

Installation pressure sensor TBLZ-1/2-23-aa

GOLD/COMPACT Air/MIRUVENT

1. General

The pressure sensor is used in systems where the aim is to achieve a variable flow by keeping the pressure in the duct system constant.

The pressure sensor is also used in ventilation systems where it is desirable to achieve a constant airflow (MIRUVENT).

The pressure sensor can also be used for the defrosting function for rotary heat exchangers, monitoring prefilters, monitoring standard filters or for the ReCO₂ function.

The pressure sensor is similar to the ones used for flow measurement and filter monitoring in Swegon's air handling units.

Description

The encapsulated pressure sensor is available in two variants, one with a function selector switch (variant 1) and one with a DIP switch (variant 2).

Variant 1 is used for GOLD and COMPACT Air, while variant 2 is only used for GOLD.

Both variants contain a temperature-compensated differential pressure sensor and two identical modular connectors for bus communication.

The pressure sensor comes with a hose (length = 2 metres), connection nipples with passage (70 mm) and cable for communication with the air handling unit. The cable length is 1–15 metres, depending on the ordered length. The cable can be extended using the accessory TBLZ-2-13 if necessary.

The communication cable carries the supply voltage and signal transfer.

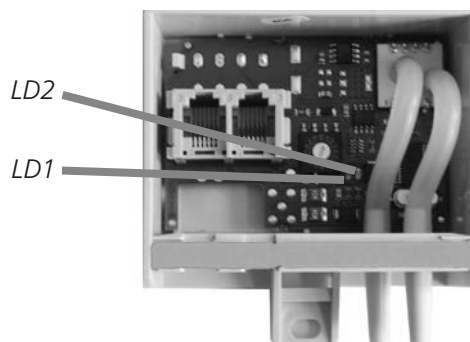
Function

The pressure sensor receives its identity and its bus address, depending on the position of the function selector switch/DIP switch. The pressure sensor transmits its current pressure value via bus.

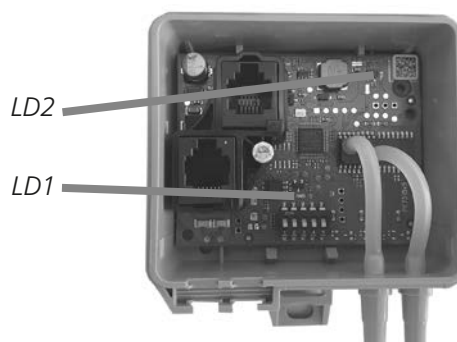
Indications, LEDs

(see also the illustrations to the right)

- LD1 Indicates 24 V DC to the PCB with a solid green light.
- LD2 Indicates that communications are working with a flashing yellow light



Variant 1, pressure sensor with function selector switch



Variant 2, pressure sensor with DIP switch

2. Installation

Install the pressure sensor in a suitable location, according to sections 2.1-2.5.

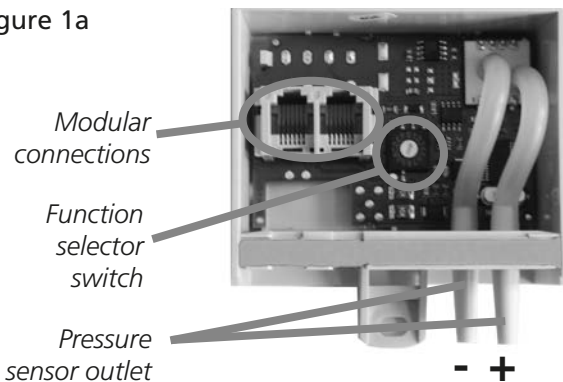
The function of the pressure sensor is not affected by the installation position. The pressure sensor must, with regard to the protection class, not be installed with pressure connections upwards.

Connect the pressure sensor connections to the measurement tappings in the air handling unit/power roof ventilator or on ducts. Note the plus and minus symbols on the pressure sensor's outlets.

Variant 1.

Pressure sensor with function selector switch

Figure 1a



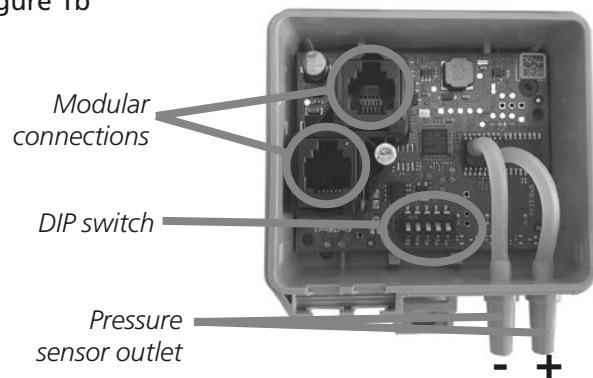
The measuring tubes for the sensor should be installed so that they are positioned lower than the sensor in question. If the measuring tubes are positioned higher than the sensor, there is a risk of condensation accumulating in the sensor and damaging it.

Open the cover on the pressure sensor by pushing in the locking hooks and lifting upwards. The pressure sensor's function is set via the function selector switch or DIP switch (use a small screwdriver), see Figures 1a and 1b.

Variant 2.

Pressure sensor with DIP switch

Figure 1b



Function	Mode, function selector switch
ReCO2 (GOLD)	0
Fan 1 (GOLD/COMPACT Air)	1
Fan 2	2
Filter 1 (standard)	3
Filter 2 (standard)	4
Supply air duct	5
Extract air duct	6
Monitoring rotary heat exch.	7
Supply air pre-filter	8
Extract air pre-filter	9
Supply air end filter	A
Purging air flow. rotary heat exch. ¹⁾	B
Plate heat exchanger	C
RX/HC defrosting ²⁾	D
Air Quality Control ²⁾	E
Spare	F

¹⁾ Requires part no. 816300-01

²⁾ Requires part no. 816753-01

Function	Switch no. (1=ON 0=OFF)				
	1	2	3	4	5
ReCO2	0	0	0	0	0
Fan 1, RX/PX/CX size 070-120, SD size 004-120	1	0	0	0	0
Fan 2, RX/PX/CX size 070-120, SD size 004-120	0	1	0	0	0
Filter 1 (standard), RX/PX/CX size 070-120, SD size 004-120	1	1	0	0	0
Filter 2 (standard), RX/PX/CX size 070-120, SD size 004-120	0	0	1	0	0
Fan 1 and filter 1, RX/PX/CX size 004-060 ¹⁾	1	0	0	0	0
Fan 2 and filter 2, RX/PX/CX size 004-060 ¹⁾	0	1	0	0	0
Supply air duct	1	0	1	0	0
Extract air duct	0	1	1	0	0
Monitoring rotary heat exch.	1	1	1	0	0
Supply air pre-filter	0	0	0	1	0
Extract air pre-filter	1	0	0	1	0
Supply air end filter	0	1	0	1	0
Purging air flow. rotary heat exch. ²⁾	1	1	0	1	0
Plate heat exchanger	0	0	1	1	0
RX/HC defrosting ²⁾	1	0	1	1	0
Air Quality Control ²⁾	0	1	1	1	0
Spare	1	1	1	1	0

¹⁾ Requires part no. 826882-01

²⁾ Requires part no. 826881-01

For COMPACT Air, connect the pressure sensor (variant 1 only) to an optional Internal EIA-485 bus contact on the air handling unit's control unit. This should be done by means of the supplied cable.

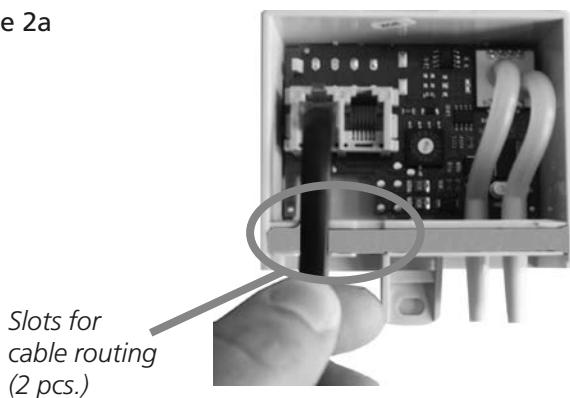
For the GOLD version E/F/G, connect the pressure sensors to optional contacts marked Com 6 – Com 11, however duct pressure sensors for pressure regulation are exceptions and must be connected to optional contacts marked Com 1 – Com 3. This should be done by means of the supplied cable.

It is not important which of the pressure sensor's contactors is used. The reason why there are two connections is to make it possible to connect several pressure sensors in series.

The cable is routed in the intended slot in the enclosure, see Figures 2a and 2b, and the cover on the pressure sensor is closed. **NOTE!** For variant 2, make sure that the cable is placed correctly in the slot so that it ends up under the dog. Otherwise, the cable may be clamped and damaged by the cover, see also Figure 2c below.

Variant 1.
Pressure sensor with function selector switch

Figure 2a



Variant 2.
Pressure sensor with DIP switch

Figure 2b

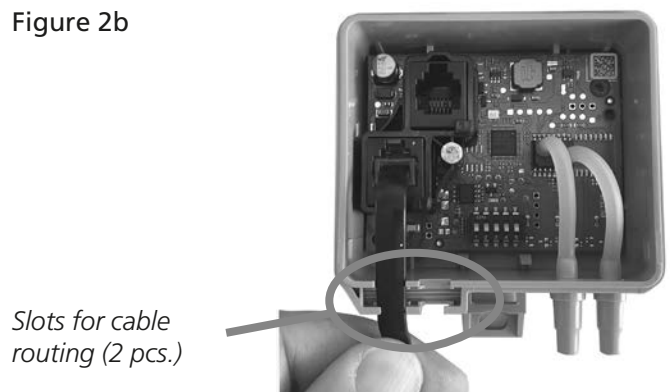


Figure 2c



Note: Make sure that the cable is placed correctly in the slot so that it ends up under the dog. Otherwise, the cable may be clamped and damaged by the cover.

2.1 Pressure regulation (GOLD/COMPACT Air) and flow regulation (MIRUVENT)

GOLD/COMPACT Air

In order to achieve correct pressure regulation, a measuring nipple must be placed at least 2/3 out in the duct system.

E.g.: If the total length of the supply air duct is 30 metres, the measuring nipple must be placed 20 metres from the air handling unit.

The pressure sensor is normally mounted by the air duct.

The pressure sensor should measure the difference in pressure between the duct pressure and the atmospheric pressure. Connect the hoses as shown in Figure 3, depending on the duct system.

Variant 1, pressure sensor with function selector switch (GOLD and COMPACT Air)

The function selector switch on the pressure sensor should be set to position 5 for sensors measuring in the supply air duct, and to position 6 for sensors measuring in the extract air duct.

Variant 2, pressure sensor with DIP switch (GOLD only)

The DIP switch on the pressure sensor is set according to the table below:

Function	Switch no. (1=ON 0=OFF)				
	1	2	3	4	5
Supply air duct	1	0	1	0	0
Extract air duct	0	1	1	0	0

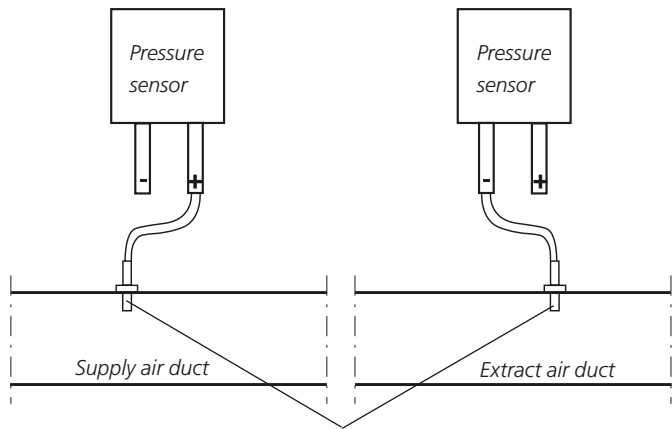
Set the air handling unit for pressure regulation (see the Operation and Maintenance Instructions, section Air flow).

The desired pressure setpoint can be set and the pressure reading can be viewed on the air handling unit's air diffuser.

MIRUVENT

For installation and connection, see the function guide for MIRU.

Figure 3



Note: In some cases you might need to cut the measurement tappings to shorten them. They should not protrude more than 10 mm from the inner wall inside the duct.

2.2 Defrosting function, rotary heat exchanger

Install the pressure sensor at a suitable location next to the air handling unit's junction hood (GOLD RX, sizes 04-08), in the heat exchanger section (GOLD RX, sizes 14-80), on the outside of the heat exchanger section (GOLD RX, sizes 100-120) or on the top of the air handling unit (COMPACT Air).

Connect the pressure sensor outputs to the nipples on the air handling unit that is normally used for adjusting the pressure balance of the heat exchanger. No such nipples are mounted for COMPACT Air, rather nipples must be mounted according to Figure 7 for these air handling units.

The nipple that measures pressure at the extract air fan is connected to minus on the pressure sensor, and the nipple that measures pressure at the filter is connected to plus, see Figures 4, 5, 6 and 7.

Variant 1, pressure sensor with function selector switch (GOLD and COMPACT Air)

The function selector switch on the pressure sensor is set to position 7.

Variant 2, pressure sensor with DIP switch (GOLD only)

The DIP switch on the pressure sensor is set according to the table below:

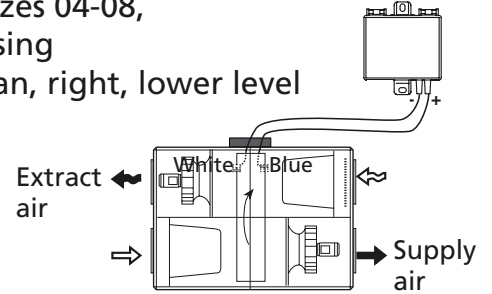
Function	Switch no. (1=ON 0=OFF)				
	1	2	3	4	5
Monitoring rotary heat exch.	1	1	1	0	0

Set the air handling unit for defrosting (see the Operation and Maintenance Instructions, section Heat exchanger).

In order for the pressure sensor to obtain the correct reference pressure for the heat exchanger, calibrate after installation (see the Operation and Maintenance Instructions, section Calibrating the heat exchanger).

Set the desired pressure increase limit (default setting, 50 Pa) for the defrosting function according to the Operation and Maintenance Instructions, section Alarm limits.

Figure 4
GOLD RX, sizes 04-08,
common casing
Supply air fan, right, lower level



GOLD RX, sizes 04-08,
common casing
Supply air fan, left, upper level

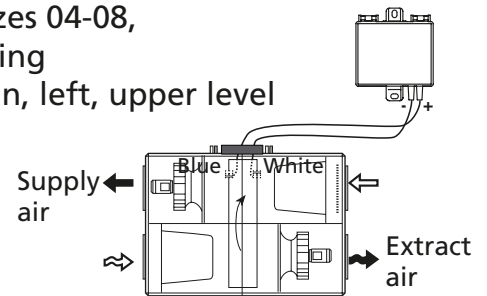
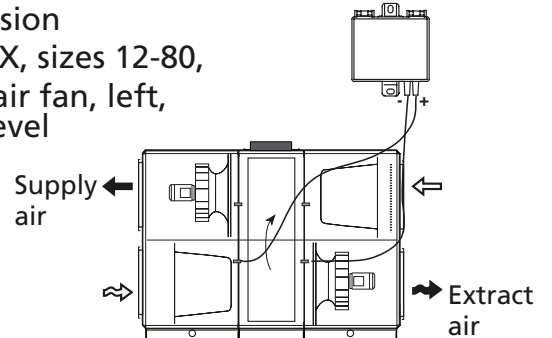


Figure 5
GOLD RX, sizes 04-08,
split version
GOLD RX, sizes 12-80,
Supply air fan, left,
upper level



GOLD RX, sizes 04-08,
split version
GOLD RX, sizes 12-80,
Supply air fan, right,
lower level

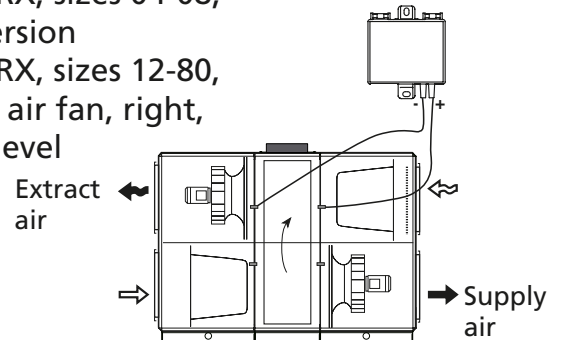


Figure 6

GOLD RX, sizes 100-120,
Supply air fan, left,
upper level

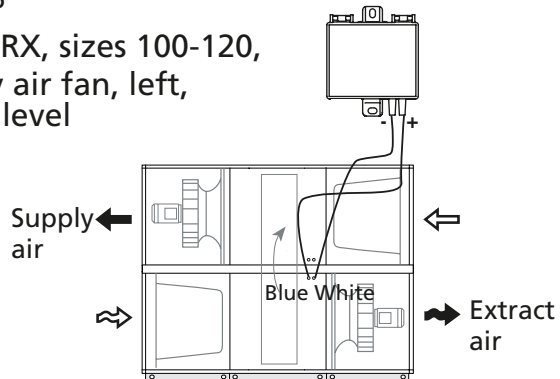
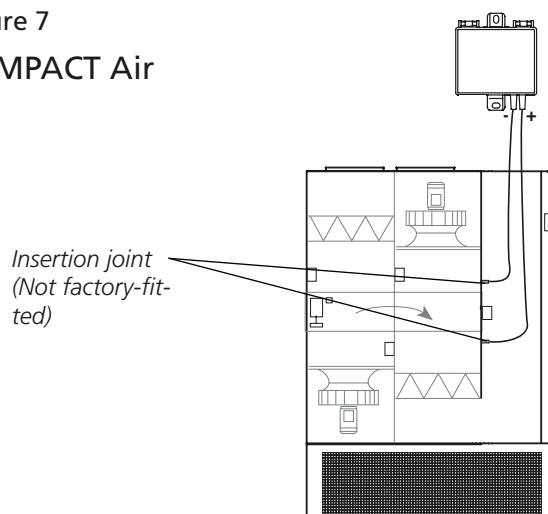
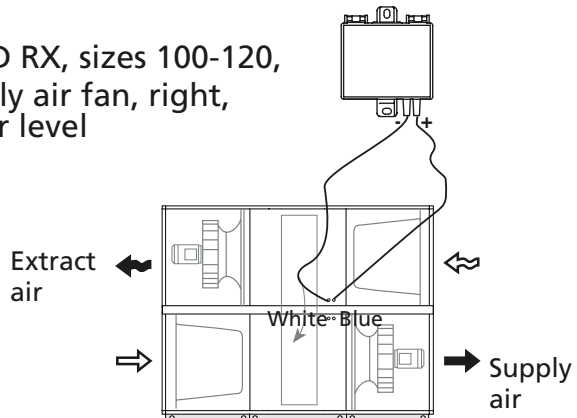


Figure 7

COMPACT Air



GOLD RX, sizes 100-120,
Supply air fan, right,
lower level



2.3 ReCO₂ (Only GOLD RX/CX)

The pressure sensor is used to ensure the outdoor air flow during ReCO₂ control.

Install the pressure sensor at a suitable location inside (sizes 04-80), or on the outside (size 100-120) of the heat exchanger section.

Connect the pressure sensor output to the nipples on the GOLD unit that is normally used for adjusting the pressure balance of the heat exchanger.

Connect minus (-) on the pressure sensor to the nipple that measures pressure at the supply air fan, and plus (+) to the nipple that measures pressure at the filter, see Figures 8 and 9.

Variant 1, pressure sensor with function selector switch

Set the pressure sensor's function selector switch to position 0.

Variant 2, pressure sensor with DIP switch

The DIP switch on the pressure sensor is set according to the table below:

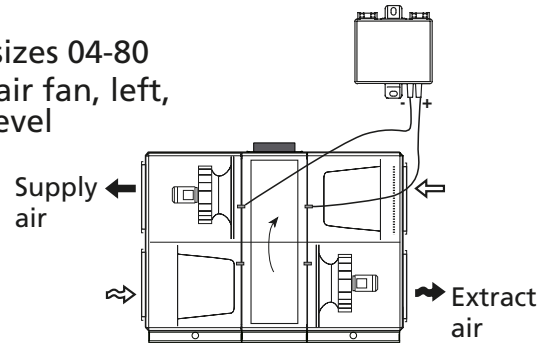
Function	Switch no. (1=ON 0=OFF)				
	1	2	3	4	5
ReCO ₂ (GOLD)	0	0	0	0	0

Set the GOLD unit to ReCO₂ control, see the Operation and Maintenance Instructions.

In order for the pressure sensor to obtain the correct reference pressure for the heat exchanger, calibrate after installation, see the Operation and Maintenance Instructions.

Figure 8

**GOLD, sizes 04-80
Supply air fan, left,
upper level**



**GOLD, sizes 04-80
Supply air fan, right,
lower level**

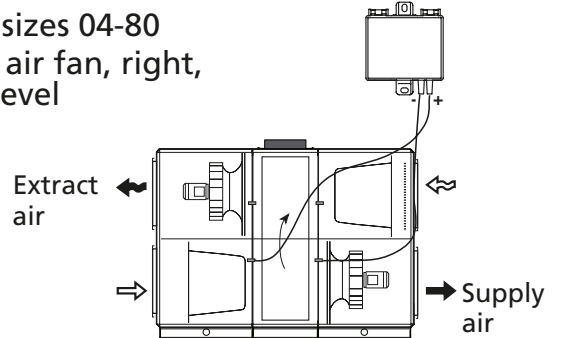
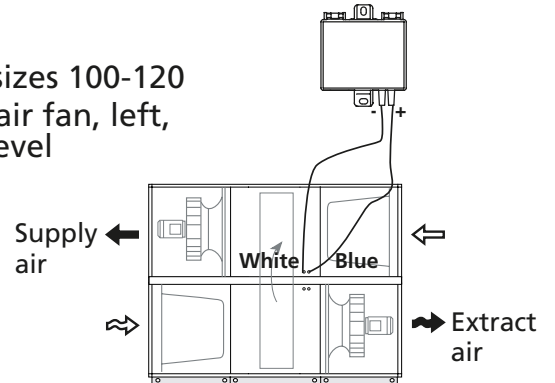
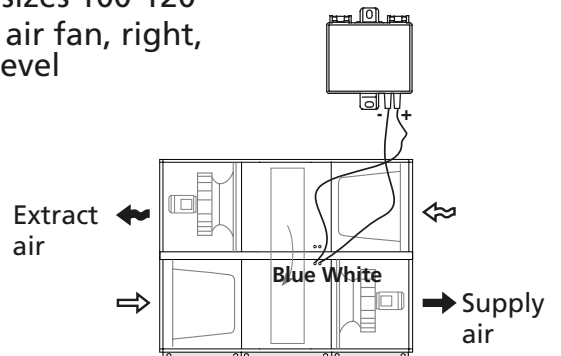


Figure 9

**GOLD, sizes 100-120
Supply air fan, left,
upper level**



**GOLD, sizes 100-120
Supply air fan, right,
lower level**



2.4 Prefilter (GOLD only)

Install the pressure sensor in a suitable location next to the filter or by the air handling unit's junction head.

The pressure sensor measures the pressure drop of the filter, connect hoses according to Figure 10.

Variant 1, pressure sensor with function selector switch

Set the pressure sensor's function selector switch to position 8 for prefilter supply air, and to position 9 for prefilter extract air.

Variant 2, pressure sensor with DIP switch

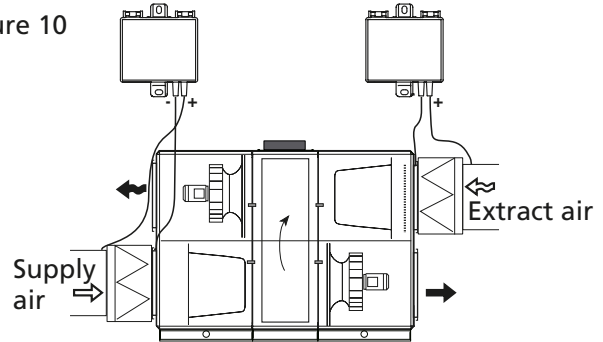
The DIP switch on the pressure sensor is set according to the table below:

Function	Switch no. (1=ON 0=OFF)				
	1	2	3	4	5
Supply air pre-filter	0	0	0	1	0
Extract air pre-filter	1	0	0	1	0

Set the air handling unit to prefilter monitoring, see the Operation and Maintenance Instructions.

Set the desired pressure drop increase (default setting 100 Pa) according to the Operation and Maintenance instructions.

Figure 10



The diagram shows both the extract and supply air prefilters. Prefilter can also be used only for supply air or extract air.

2.5 Standard filter (COMPACT Air only)

Install the TBLZ-1-23 pressure sensor next to the ordinary pressure sensor of the air handling unit. See Figure 11.

Drill the holes for the measurement tapplings, see figure. Note: The measurement tapping downstream of the filter (seen in the direction of airflow) must not block the space provided for opening the filter locking mechanism. Fit the measurement tapplings.

Connect the tube from the measurement tapping upstream of the filter (viewed in direction of airflow) to the plus connection on the pressure sensor and connect the tube from the measurement tapping downstream of the filter to the minus connection on the pressure sensor.

To view the position on function selector switch of the pressure sensor, see Figure 12.

Connect the communication cable between the TBLZ-1-23 pressure sensor and the ordinary pressure sensor of the air handling unit to optional modular connections.

Set the air handling unit for filter monitoring with pressure sensor. See the Operation and Maintenance Instructions.

Set the desired pressure drop increase before alarm (factory preset to 100 Pa) according to the Operation and Maintenance instructions.

2.6 Connection part no. 826882-01 (SV-4)

This pressure sensor has double connections for fan and filter respectively, and is used as the standard fan and filter pressure sensor on certain sizes/variants of GOLD.

The fan and filter pressure sensor serves one air flow path (filter and fan in supply air or extract air).

Hoses are connected to A (fan) and B (filter), see Figure 13.

To set the DIP switch, see the table in Section 2.

Figure 11

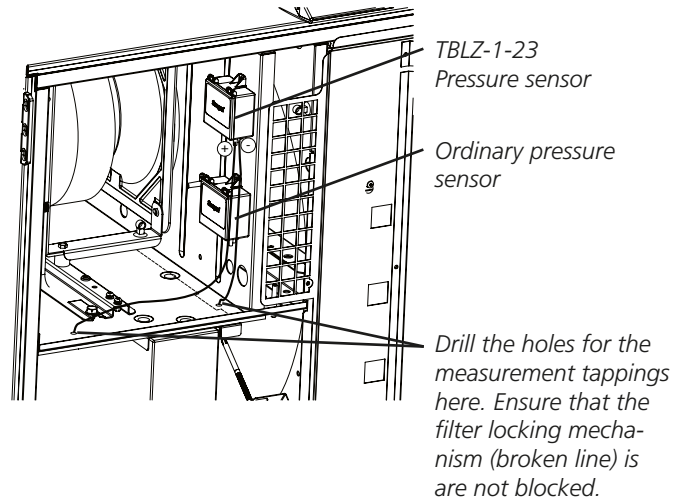


Figure 12

Air handling unit shown from the inspection side

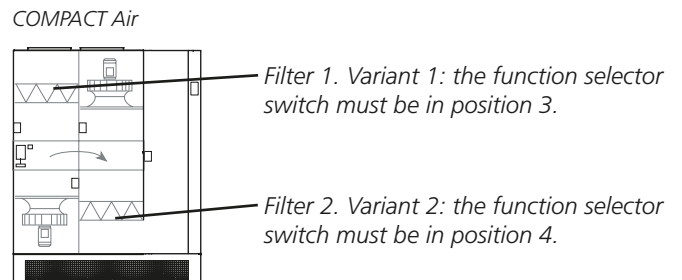
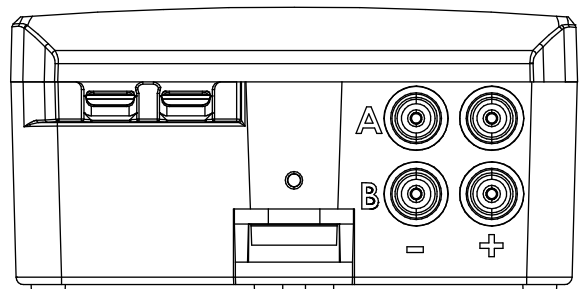


Figure 13

Shows the underside of the sensor



3. Data

3.1 Variant 1

Pressure sensor with function selector switch

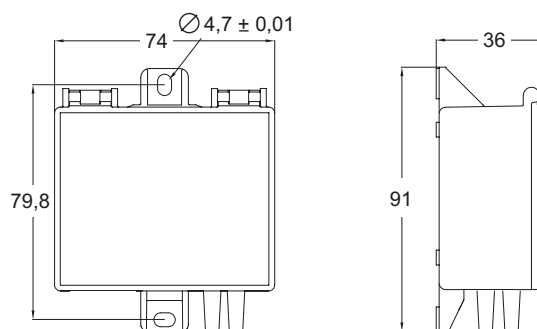
Connection port	2 x RJ 12 6/6
Supply voltage (Via modular connector)	24V DC
Ambient temp. storage	-50°C – 70°C, 10 – 95% RH
Ambient temp. normal	20°C – 50°C, 10 – 95% RH
Range of measurement	0 — 2500 Pa ¹⁾ , -1000 — + 1000 Pa ²⁾ , 0 — 500 Pa ³⁾
Measurement accuracy	0.5% x measured value + 2.5 Pa
Linearity	< +/- 1% full scale
Protection class	IP 54 according to EN60529
CE-approved to	EN 61000-6-2, EN 61000-6-3

¹⁾ Part. no. 816301-01

²⁾ Part. no. 816300-01

³⁾ Part. no. 816753-01

Dimensions



3.2 Variant 2

Pressure sensor with DIP switch

Connection port	2 x RJ 12 6/6
Supply voltage (Via modular connector)	24V DC
Ambient temp. storage	-50°C – 70°C, 10 – 100% RH
Ambient temp. normal	-40°C – 55°C, 10 – 100% RH
Range of measurement	0 — 2000 Pa ¹⁾ , -500 — +500 Pa ²⁾
Measurement accuracy	0.5% x measured value +/- 1.5 Pa at 25°C
Protection class	IP 54 according to EN60529
CE-approved to	EN 61000-6-2, EN 61000-6-3 Also approved according to BS 61000-6-3

¹⁾ Part. no. 826880-01 (SV-3) and 826882-01 (SV-4)

²⁾ Part. no. 826881-01 (SV-2)

Dimensions

