

# Sensor systems

## Type Differential pressure transducer



### For the differential pressure recording and control in combination with EASYLAB

Differential pressure transducers based on the static measurement principle for the room or duct pressure control in combination with EASYLAB controllers TCU3 or LABCONTROL controllers TCU-LON-II

- Suitable for air and non-aggressive media
- For use in laboratories, clean rooms in the pharmaceutical and semiconductor industries, operating theatres, intensive care units, and offices with very demanding control requirements
- Constructions with calibration certificate to meet GMP requirements

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#### Application

#### Application

- Differential pressure transducer for the LABCONTROL system
  - For the room or duct pressure control in combination with EASYLAB controllers TCU3 or with TCU-LON-II
  - For the room and duct pressure monitoring in combination with monitoring systems TPM
  - For use in laboratories, clean rooms in the pharmaceutical and semiconductor industries, operating theatres, intensive care units, and offices with very demanding control requirements
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#### Description

#### Variants

- 699: Measuring range  $\pm 50$  or  $\pm 100$  Pa
- 699-LCD: Measuring range  $\pm 50$  or  $\pm 100$  Pa, with differential pressure display
- GB404: Measuring range  $\pm 100$  Pa
- GB604-CAL: Measuring range  $\pm 100$  Pa, with calibration certificate to meet GMP requirements (Good Manufacturing Practice)

- Choose a sufficient measuring range above/below the setpoint pressure

#### Maintenance

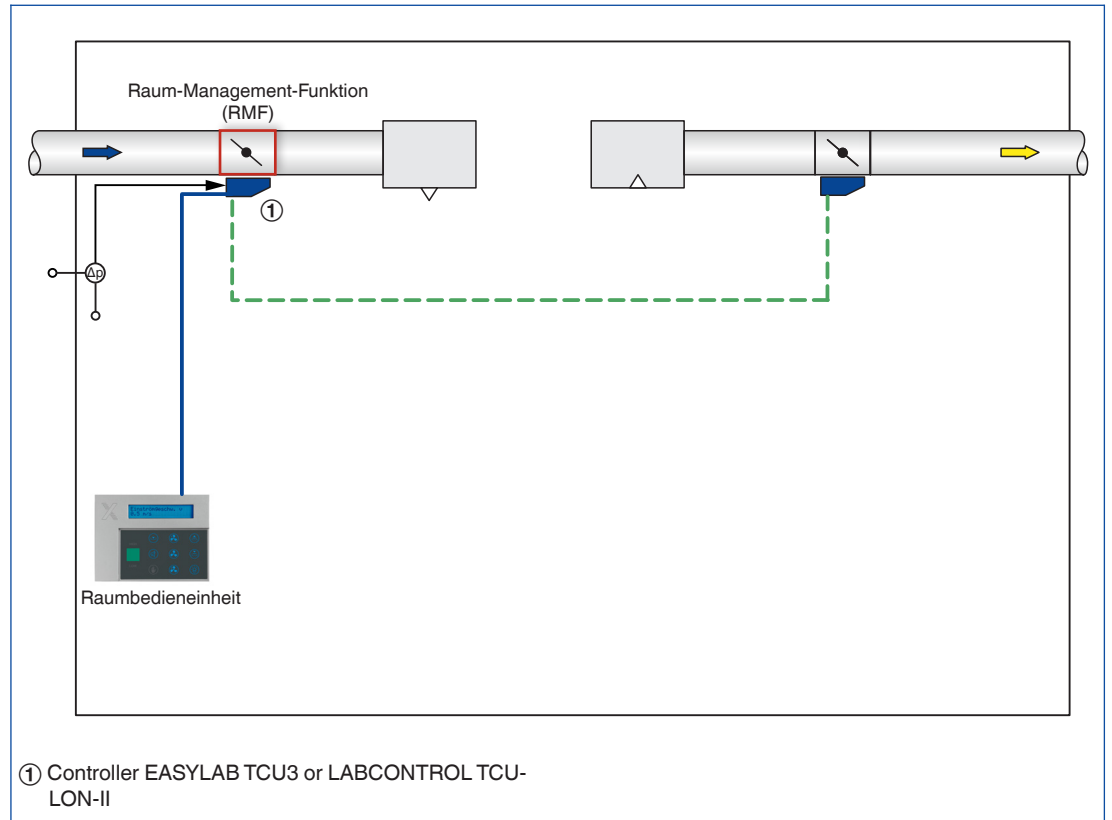
- Zero point correction once per year is recommended

**Functional description**

Static differential pressure transducers function according to the static differential pressure measurement principle. The sensor is a cylinder that consists of two chambers (one for positive pressure and one for negative pressure) separated by a diaphragm. If there is equal pressure in both chambers, the diaphragm is in

the middle between the chambers and is not deformed. If there is a pressure difference, the diaphragm deforms towards the chamber with the negative pressure. The degree by which the diaphragm deforms is a measure for the differential pressure. This is why the voltage signal is proportional to the differential pressure.

**Principle of operation – room pressure control**



**Static differential pressure transducer 699**

Supply voltage	24 V AC $\pm$ 15 % or 13.5 – 33 V DC
Power rating	1 VA
Output signal	0 – 10 V DC, 1 mA max.
Media	non-aggressive gases
Measuring range	$\pm$ 50 Pa factory set, can be changed to $\pm$ 100 Pa
Measurement accuracy	$\pm$ 2 % of full scale
Overload protection	for negative pressure measurement: –400 Pa at P1, for positive pressure measurement 10000 Pa at P1
Connections for tubes	$\varnothing$ 6.2 mm (for flexible tubes 6 mm)
Operating temperature	0 – 70 °C (non-condensing)
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54 (with cover)
EC conformity	EMC according to 2004/108/EC
Dimensions (B x H x T)	92 x 75 x 48 mm
Weight	0.1 kg

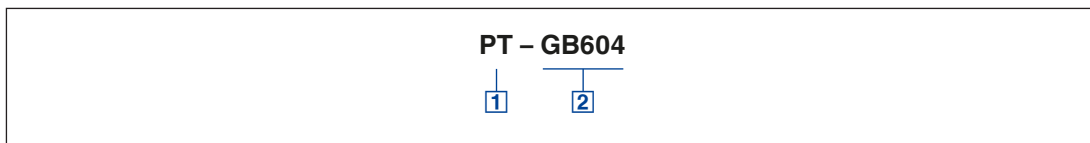
**Static differential pressure transducer GB604**

Supply voltage	24 V AC, 24 V DC $\pm$ 10 % (switching is possible)
Power rating	1.8 VA
Output signal	0 – 10 V DC; 2 mA max.
Media	non-aggressive gases
Measuring range	$\pm$ 100 Pa
Measurement accuracy	$\pm$ 0.5 % of full scale
Maximum operating pressure	70 kPa
Connections for tubes	for flexible tubes 4 mm
Operating temperature	–20 to 65 °C
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC according to 2004/108/EC
Dimensions (B x H x T)	122 x 120 x 58 mm
Weight	0.3 kg

Differential pressure transducer for the LABCONTROL system, for the measurement of room or duct pressure.

When the transducer is connected to a room controller, the supply air or extract air flow is controlled based on the differential pressure.

## Differential pressure transducer



### **1** Type

**PT** Differential pressure transducer

### **2** Variants

**699** Measuring range  $\pm 50$  or  $\pm 100$  Pa

**699-LCD** Measuring range  $\pm 50$  or  $\pm 100$  Pa, with pressure display

**GB604** Measuring range  $\pm 100$  Pa

**GB604-CAL** Measuring range  $\pm 100$  Pa, with calibration result

### Order example: **PT-GB604-CAL**

**Measuring range**

$\pm 100$  Pa, with calibration certificate

**Differential pressure transducer 699**



**699**

**Application**

- Differential pressure transducer for the LABCONTROL system
- For the room or duct pressure control in combination with EASYLAB controllers TCU3 or with TCU-LON-II
- For the room and duct pressure monitoring in combination with monitoring systems TPM

**Variants**

- 699: Measuring range  $\pm 50$  or  $\pm 100$  Pa
- 699-LCD: Measuring range  $\pm 50$  or  $\pm 100$  Pa, with differential pressure display

**Special characteristics**

- Supply voltage: A.C. or D.C. voltage (ideal for

**Differential pressure transducer GB 604 MF**



**EASYLAB with EM-TRF-USV)**

- Adjustable measuring ranges
- Short circuit proof and with reverse voltage protection

**Parts and characteristics**

- Plastic casing
- Connections for tubes
- Push button for zero point reset
- Adjustable measuring ranges
- 699-LCD: Differential pressure display

**Construction features**

- Fixing points at the outside, for mounting to a wall or ceiling

**Materials and surfaces**

- Transparent plastic casing

**GB604**

**Application**

- Differential pressure transducer for the LABCONTROL system
- For the room or duct pressure control in combination with EASYLAB controllers TCU3 or with TCU-LON-II
- For the room and duct pressure monitoring in combination with monitoring systems TPM

**Variants**

- GB604: Measuring range  $\pm 100$  Pa
- GB604-CAL: Measuring range  $\pm 100$  Pa, with calibration certificate to meet GMP requirements (Good Manufacturing Practice)

**Special characteristics**

- Supply voltage: A.C. or D.C. voltage, switching between A.C. and D.C. is possible

**Parts and characteristics**

- Plastic casing
- Zero point potentiometer

**Construction features**

- Fixing points at the inside, for mounting to a wall or ceiling
- Capacitive stainless steel measuring cell

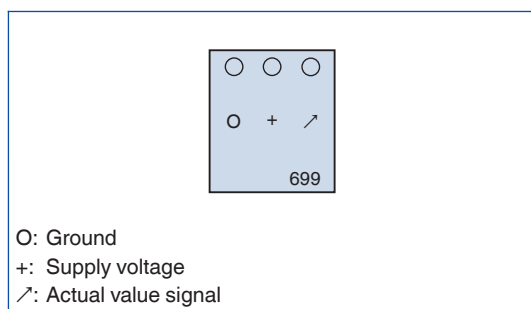
**Materials and surfaces**

- Plastic casing, light grey

#### Installation and commissioning

- Choose a suitable installation location (reference room with stable pressure)
- Ensure sufficient cross section and careful placing of the measuring tubes
- Connect the differential pressure transducer to the controller or monitoring system
- Supply voltage from the EASYLAB TCU3 controller or TCU-LON II (supply voltage for the differential pressure transducer must be equal to the supply voltage provided by the controller)
- Consider the warm-up time of the sensor
- Do not install the sensor near sources of interference such as transformers, senders, motors, or heat sources
- Choose a stable installation location as shocks or vibration may distort the output signal
- Installation should be vertical, with connections pointing downwards; this installation position corresponds to the factory setup for calibration; it also prevents the ingress of condensate from the pressure tubes.
- Zero point correction required

#### 699, Terminal connections



#### GB604, Terminal connections

