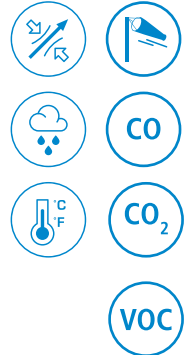


DATA SHEET

# Si-CPE320

## Multifunction panel transmitter



1 x input for external probe



Touch display



3 x analogue outputs



IP 66, VHP\* resistant

### FEATURES

- Wireless communication with mobile app (optional)
- Visual channel alarms + acoustic alarm
- Frontal pressure ports for easy calibration



Sauermann Control



For **clean rooms**, **regulated environments** and **industrial VAC applications** where an efficient regulation/monitoring of the air parameters is needed, our Si-CPE320 transmitters provide reliable measurements and allow achieving compliance with the strictest regulations.

**This multifunction panel transmitter has the following main features:**

- An integrated high accuracy differential pressure sensor (-250 to 250 Pa / -1.0 to 1.0 inH<sub>2</sub>O)
- A touch display
- 3 x analogue outputs and 1 x RS485 interface with Modbus RTU protocol
- 1 x input for probes
- Data recording with the possibility of downloading them via Sauermann Control software/app
- Possibility to edit the channel names
- IP66 stainless steel housing
- Optional wireless communication module

### EXAMPLES OF APPLICATION



Critical environments that require accurate monitoring of differential pressure and other key air parameters (clean rooms, operating rooms, labs, production sites...)



Air parameters monitoring (in glove boxes, fume hoods, isolation cabinets, liquid filling machines...)



Monitoring the differential pressure, relative humidity/temperature and environmental CO<sub>2</sub> levels in laboratories where incubators are used

\*Vaporized hydrogen peroxide


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## TECHNICAL FEATURES FOR INTERNAL DIFFERENTIAL PRESSURE SENSOR

Measuring range (configurable)	-250 to 250 Pa / -1.0 to 1.0 inH <sub>2</sub> O
Measurement units	Pa (default), inH <sub>2</sub> O, mmH <sub>2</sub> O, inwc, mbar, daPa, kPa, ±0.3% of measured value ±0.3 Pa (-50 to 50 Pa) / ±0.3% of measured value ±1.2x10 <sup>-3</sup> inH <sub>2</sub> O (-0.20 to 0.20 inH <sub>2</sub> O) ±0.50% of full scale (-100 to 100 Pa / -0.40 to 0.40 inH <sub>2</sub> O) ±0.50% of full scale (-250 to 250 Pa / -1.00 to 1.00 inH <sub>2</sub> O)
Accuracy*	
Zero drift	Temperature drift: 0.02% FS/K, referring to 20 °C / 50% RH (68 °F / 50% RH)
Resolution	Selectable, depending on the measuring unit
Auto-calibration	Manual or automatic (configurable)
Allowed overpressure	25,000 Pa (100 inH <sub>2</sub> O)
Response time	1/e (63 %) 0.3 s
Type of fluid	Air and neutral gases

\*All accuracies indicated in this document were stated in laboratory conditions and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

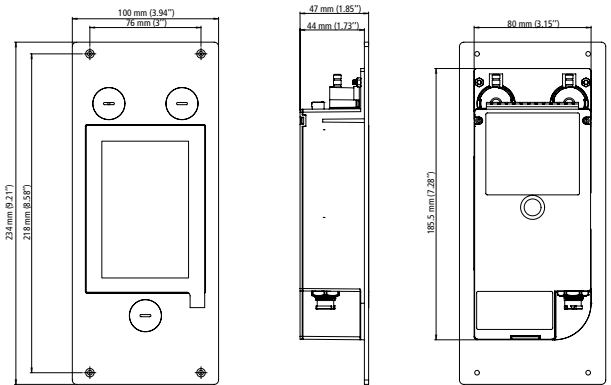
## GENERAL FEATURES

Power supply	24 V <sub>AC</sub> / V <sub>DC</sub> ±10% Warning: risk of electric shock 
Outputs	3 x 0/4-20 mA or 3 x 0-5/10 V (4 wires) Common mode voltage Maximum load: 500 Ω (0/4-20 mA) Minimum load: 1 KΩ (0-5/10 V)
Galvanic isolation	On the output
Consumption with probe and without option	15 VA
Electrical connections	Screw terminal block for cables from 0.05 to 1.5 mm <sup>2</sup> or from 30 to 16 AWG Carried out according to the code of good practices
Communication RS485	Modbus RTU protocol, configurable communication speed from 2400 to 115,200 Bauds
Wireless communication (option)	Range frequency from 2402 MHz to 2480 MHz with a transmission power of 0 dBm. Range up to 15 m (50 ft), depending on smartphone radio strength. Minimum required versions: Android 5.0, iOS 12.4, BLE 4.0
Audible alarm	Buzzer (60 dB at 10 cm)
Environment and type of fluid	Air and neutral gases
Conditions of use (°C/%RH/m)	From -10 to 50 °C (14 to 122 °F) In non-condensing condition From 0 to 2000 m (0 to 6561')
Storage temperature	From -10 to 70 °C (14 to 158 °F)
Security	Protection class 2 - Pollution degree 2 - Overvoltage category 2
European directives	2014/30/EU EMC - 2014/35/EU Low Voltage - 2014/53/EU (RED) - 2015/863 EU (RoHS 3) - 2012/19/EU WEEE

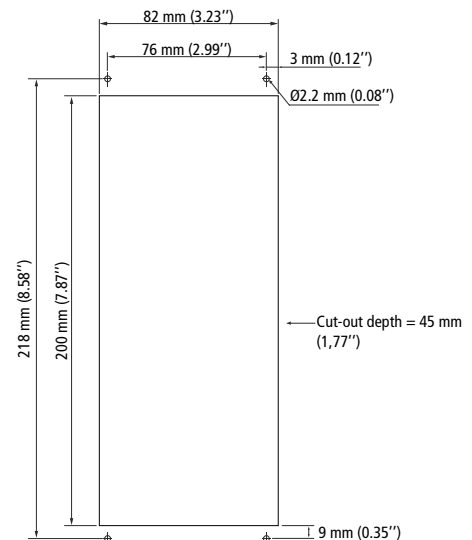
## FEATURES OF THE HOUSING

Front face	Brushed stainless steel 316 L
Back housing	ABS V0
Protection	IP66 in front face, resistant against VHP
Display	Graphic touchscreen Size: 480 x 272 pixels
Height of the digits	14 mm (0.56")
Back fittings	Barbed fitting Ø 5.2 mm (Ø 0.2")
Weight	684.4 g (1.5 lb)

## DEVICE DIMENSIONS









## MOUNTING TEMPLATE



## POSSIBLE OPTIONAL MEASUREMENTS

The following **probes and modules** are available as an option for Si-CPE320 transmitters. For further details please see the probes technical data sheet for class 320 transmitters.

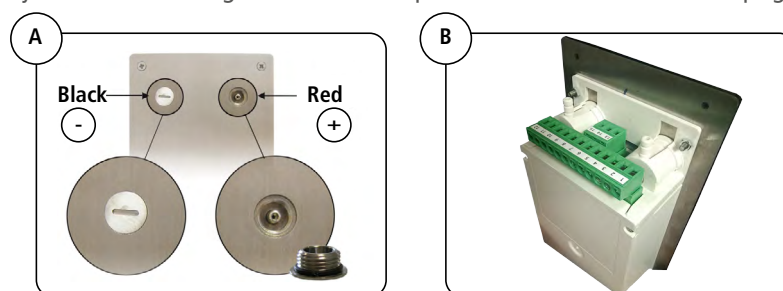
Parameter	Measuring ranges	Calculated parameters
 <b>Relative humidity / temperature probe</b>	0 to 100 %RH and -40 to 150 °C (-40 to 302 °F) (depending on the connected probe)	Dew point: -50 to 100 °C <sub>td</sub> (-58 to 212 °F <sub>td</sub> ) Wet-bulb temperature: -50 to 100 °C <sub>tw</sub> (-58 to 212 °F <sub>tw</sub> ) Frost point: -50 to 100 °C <sub>tf</sub> (-58 to 212 °F <sub>tf</sub> ) Enthalpy: 0 to 15,000 kJ/kg Absolute humidity: 0 to 1000 g/m <sup>3</sup> Mixing Ratio: 0 to 1000 g/kg
 <b>Temperature probe</b>	-80 to 150 °C (-112 to 302 °F)	N/A
 <b>Air velocity / temperature probe</b>	0 to 30 m/s (0 to 5905 fpm) and 0 to 50 °C (32 to 122 °F)	Air flow: 0 to 999,999 m <sup>3</sup> /h (0 to 588,577 cfm) Air change rate: 0 to 1000 ACH
 <b>CO probe</b>	0 to 500 ppm	N/A
 <b>CO<sub>2</sub> probe</b>	0 to 10,000 ppm	N/A
 <b>VOC probe</b>	TVOC: 0 to 1000 ppb CO <sub>2</sub> eq: 400 to 2000 ppm	N/A

## INNOVATIONS

### Selectable pressure connections

The Si-CPE320 transmitter have a two adjustable pressure connections system in front face (A) coupled with two pressure connections at the back (B).

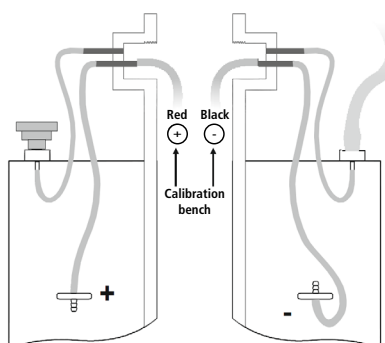
When installing the transmitter, this system allows to configure the differential pressure connections with a set of plugs (supplied with the transmitter).



### Front face calibration

This system allows to isolate the back pressure connections and then to access the sensitive element (on the front face) of the Si-CPE320 transmitter.

Without dismantling the transmitter, this system allows the calibration by connecting the transmitter to a differential pressure generator and a calibration bench. The calibration is easier and faster.



### Front face computer connection



## Alarms

The Si-CPE320 multifunction panel transmitter have visual and audible alarms that are independent and configurable. Available settings are the followings:

- Time-delay duration: from 0 to 600 s
- Threshold values
- Action of the alarm: rising edge, falling edge or monitoring
- Audible alarm activation (buzzer)

## Integration of pressure measurement

The differential pressure sensor is very sensitive and reacts very quickly to pressure changes.

When measuring in unstable air movement conditions, the pressure measurement may fluctuate.

The integration coefficient (from 0 to 9) makes an average of the measurements; this prevents any excessive oscillations and ensures a stable measurement.

## OUTPUTS DIAGNOSTICS

With this function, you can check with a multimeter (or on a regulator/display, or on a PLC/BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 0 mA, 4 mA, 12 mA and 20 mA

## SELF-CALIBRATION

Si-CPE320 transmitters have a temperature compensation system from -10 to 50 °C (14 to 122 °F) and a self-calibration system to guarantee an excellent long-term stability, along with a great measurement accuracy.

**Self-calibration principle:** the microprocessor of the transmitter drives a solenoid valve that compensates any long-term drifts of the sensitive element. The compensation is made by regular adjustment of the zero. The differential pressure measurement is then made regardless of the environmental conditions of the transmitter.

**Solenoid valve lifetime:** 100 million cycles

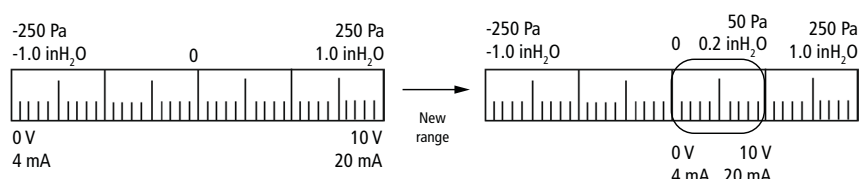
**Benefit:** no zero-point drift

**Self-calibration frequency:** can be disabled or set from 1 to 60 min. During the first ignition of the device, the self-calibration frequency is increased during 1 hour in order to provide a pressure measurement with no zero-point drift.

## CONFIGURABLE ANALOGUE OUTPUTS

Range with centre zero (-250/0/250 Pa or -1.0/0/1.0 inH<sub>2</sub>O), with offset zero (-30/0/70 Pa or -0.1/0/0.3 inH<sub>2</sub>O) or standard range (0/100 Pa or 0/0.4 inH<sub>2</sub>O), it is possible to configure your own intermediate ranges. The minimum configurable range is 10% of the full scale.

**Configurable ranges according to your needs: outputs are automatically adjusted to the new measuring ranges**



## ACCESSORIES

Designation	Sales reference	Description
Si-ACC-WLM	28007	Wireless communication module for the configuration of class 320 transmitters using the iOS/Android mobile app. For installation in already delivered Si-CPE320 transmitters.
Si-ACC-USB-CC	27998	USB-mini DIN interface for connecting of the class 320 transmitters to the configuration PC software.
KI-AL-750-A	24709	Class 2 power supply. DIN rail mounting. Input voltage: 230 V <sub>AC</sub> . Output voltage: 24 V <sub>DC</sub> . Nominal power 18 VA, intensity 750 mA.
KI-AL-1000-C	13973	Class 2 stabilized power supply. Mounting with integrated brackets. Input voltage: 230 V <sub>AC</sub> . Output voltage: 24 V <sub>DC</sub> . Nominal power: 24 VA. Intensity: 1 A.



Only the accessories supplied with the device must be used.

## KIT CONTENT

- Terminal blocks for power connection, and output connections
- 1 x front pressure connector cap with a pierced hole in the middle
- 1 x silicone cap for closing a rear pressure connector
- Protective cap for frontal interface connection
- Protective cap for the external probe connector

## CERTIFICATION

**Certificate:** transmitters are supplied with an individual adjusting certificate and can be supplied with a calibration certificate as an option.

## DESIGNATION

Designation	Sales reference	Description
Si-CPE320	27980	Multifunction panel transmitter with integrated high accuracy differential pressure sensor (-250 to 250 Pa / -1.0 to 1.0 inH <sub>2</sub> O), touchscreen. 3 x analogue outputs and 1 x RS485 interface with Modbus RTU protocol. 1 x input for probes. IP66 stainless steel. Optional wireless communication module.
Si-CPE320-W	27981	Multifunction panel transmitter with integrated high accuracy differential pressure sensor (-250 to 250 Pa / -1.0 to 1.0 inH <sub>2</sub> O) and wireless interface, touchscreen. 3 x analogue outputs and 1 x RS485 interface with Modbus RTU protocol. 1 x input for probes. IP66 stainless steel.

More information  
about this product

