

SMX.pt-ea1

Pressure sensors

KEY FEATURES

- Based on STW's in-house developed and manufactured thin-film sensing elements for measurement of high pressures and temperatures
- Packaged in robust high-grade stainless-steel housings
- For permanent installation on-engine or for use with portable devices, for continuous or periodic monitoring of cylinder pressure
- Suitable for applications in engine R&D, power and cogeneration plants, aboard ships and boats and on locomotives and compressor sets
- Predestined for predictive maintenance applications
- Digital signal processing with high data output rate and several drift compensation features (e.g. temperature compensation, static or dynamic zero-point correction)
- Configuration and diagnosis via STW's openSYDE software platform

TECHNICAL DATA

- Measuring range: 0 ... 300 bar
- Overload: 400 bar
- Bursting pressure: > 800 bar
- Installation torque: 25 Nm
- Temperature range membrane: -40 ... +400 °C / -40 ... +752 °F
- Cable length: 350 mm, other lengths on request
- M10 x 1 or M14 x 1.25 plug threads for insertion into cylinder head bores

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TECHNICAL DATA

Sensor

Parameter	Value
Pressure range	0 ... 300 bar relative, others on request
Overload pressure static	400 bar
Bursting pressure	> 800 bar
Output signal	4 ... 20 mA (standard variant with 3 wire current output) 1 ... 5 V (optional variant with voltage output) CAN (redundant digital output with reduced data rate) For environments where high EMC load and inductive interferences are expected, the version with current output signal is recommended.
Measurement deviation	< 1 % FS (-40 ... +200 °C / -40 ... +392 °F)
Signal processing data rate	128 kHz
Signal output filtering	Bessel filter 4 th order, $f_{-3dB} = 40$ kHz
Signal input to output delay	44 μ s (constant)
Temperature range sensor	-40 ... +250 °C / -40 ... +482 °F
Temperature range membrane	-40 ... +400 °C / -40 ... +752 °F
Temperature range electronics	-40 ... +85 °C / -40 ... +185 °F
Temperature range cable	-40 ... +200 °C / -40 ... +392 °F

Power Supply

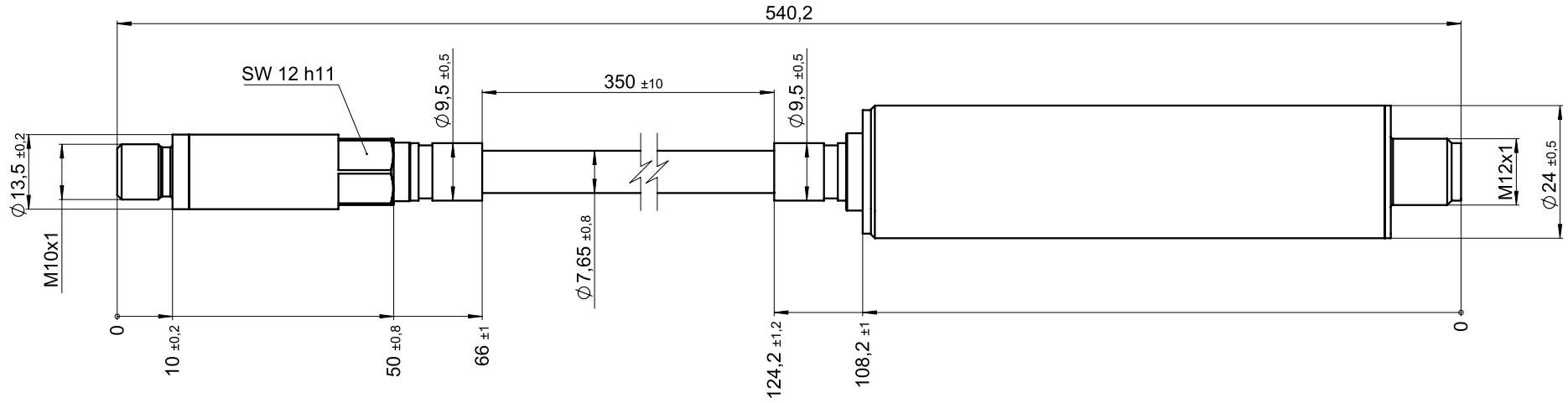
Parameter	Value
Supply voltage	9 ... 32 V DC
Power consumption	< 1 W (typ. 70 mA @ 12 V, 35 mA @ 24 V)
Electrical connection	M12, 5-pole connector

Mechanical Data

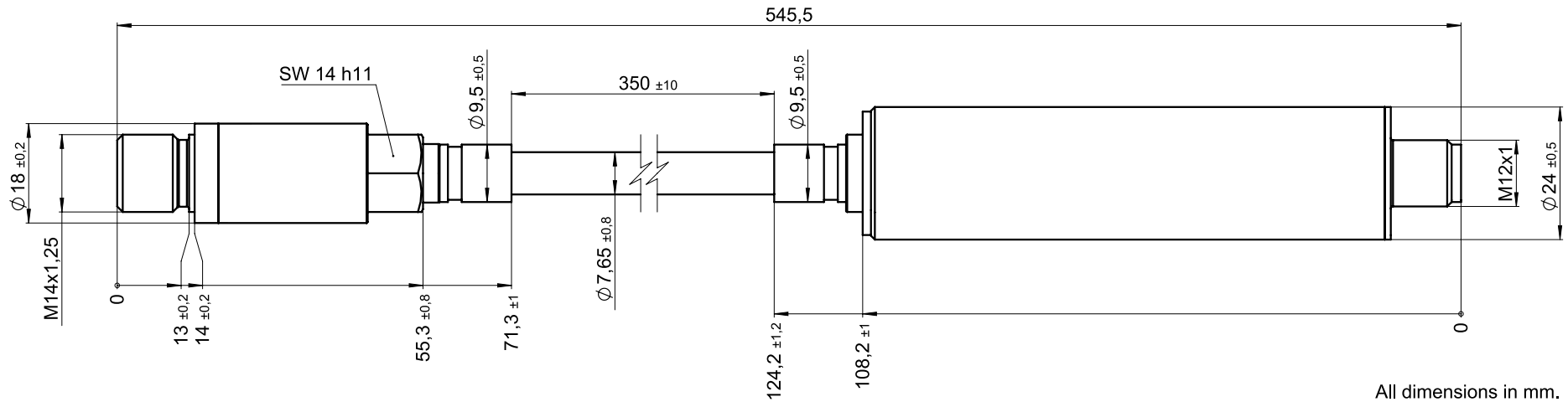
Item	Property
Material housing	Stainless steel
Pressure connection	M10x1 or M14x1.25
Wrench size sensor	12 mm (M10x1) / 14 mm (M14x1.25)
Installation torque	25 Nm
Cable length	350 mm (other lengths on request)
Diameter protective metal hose	7,65 mm \pm 0,7 mm
Protection class	IP67
Flame protection	Yes
Weight	M10x1: 212 g \pm 10 g M14x1.25: 254 g \pm 10 g

TECHNICAL DRAWING

SMX.pt-ea1 M10



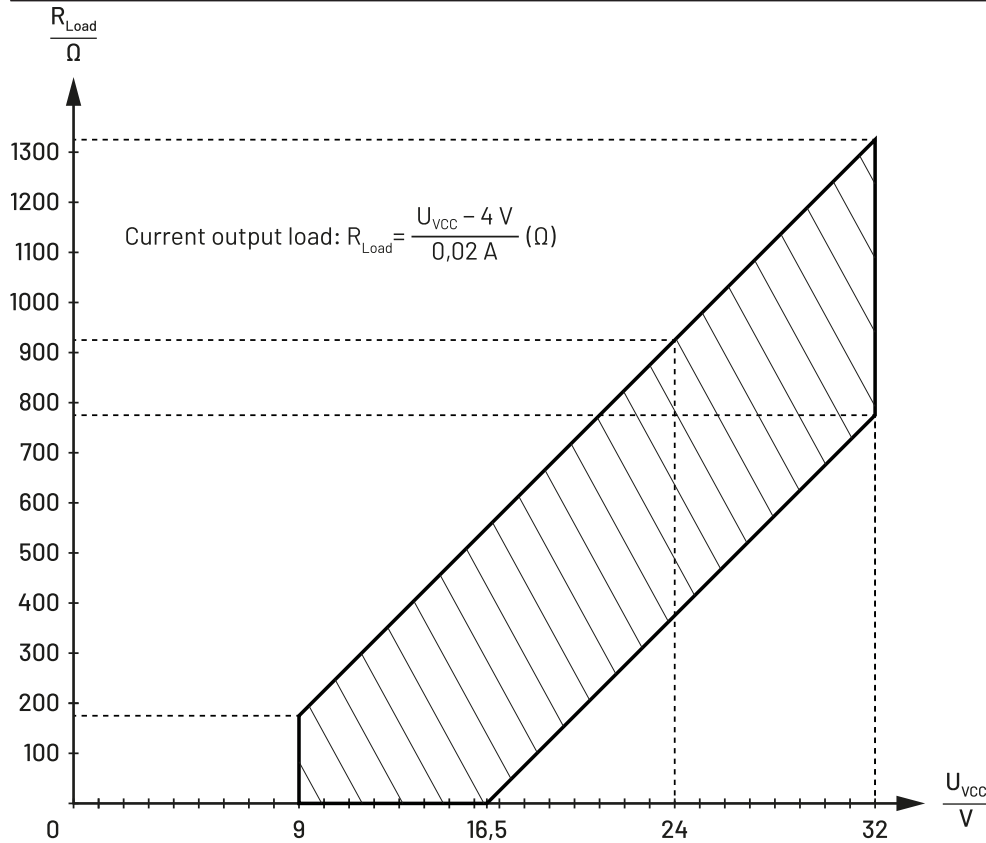
SMX.pt-ea1 M14



All dimensions in mm.

TECHNICAL DATA

Operating area for current output



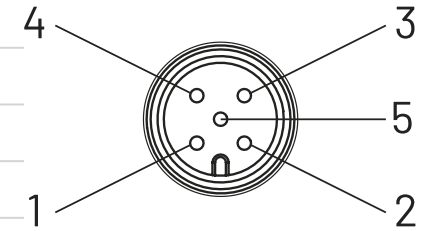
Output load requirements:

- Current variant:
 - R_{Load} see output load diagram
 - C_{Load} < 10 nF
- Voltage variant:
 - R_{Load} > 10 kΩ
 - C_{Load} < 1 nF

PIN ASSIGNMENT

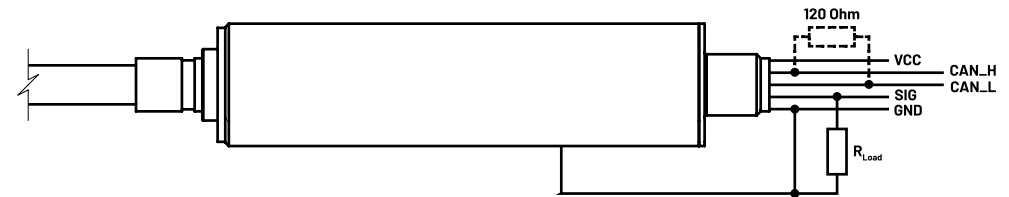
Pin assignment sorted by pin numbers

Pin	Name	Description
1	VCC	Power supply
2	SIG	Analog out
3	GND	Common Ground
4	CAN_H	CAN bus (high)
5	CAN_L	CAN bus (low)




Recommended terminal layout

3-wire technology and CAN



QUALIFICATION

Compliance Information

Standard	Description
ISO/IEC 17050-1	 Conformity pending
DNV	Certification pending