

PRELIMINARY



KMW

Z01

Cylinder pressure sensors

KEY FEATURES

- Based on KMW in-house developed and manufactured thin-film sensing elements and processing electronics modules connected via stainless-steel armoured cable
- Packaged in robust high-grade stainless-steel housings
- For permanent installation on-engine or for use with portable devices for 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
- 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 optional software package for CAN possible

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: ca. 100 cm, other lengths on request
- M10 x 1 or M14 x 1.25 male threads for insertion into cylinder head bores

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TECHNICAL DATA

Sensor

Parameter	Value
Pressure range	0 ... 300 bar R , 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 4 th order, $f_{-3dB} = 50$ 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 ... +70 °C / -40 ... +158 °F
Temperature range cable	-40 ... +200 °C / -40 ... +392 °F

Power Supply

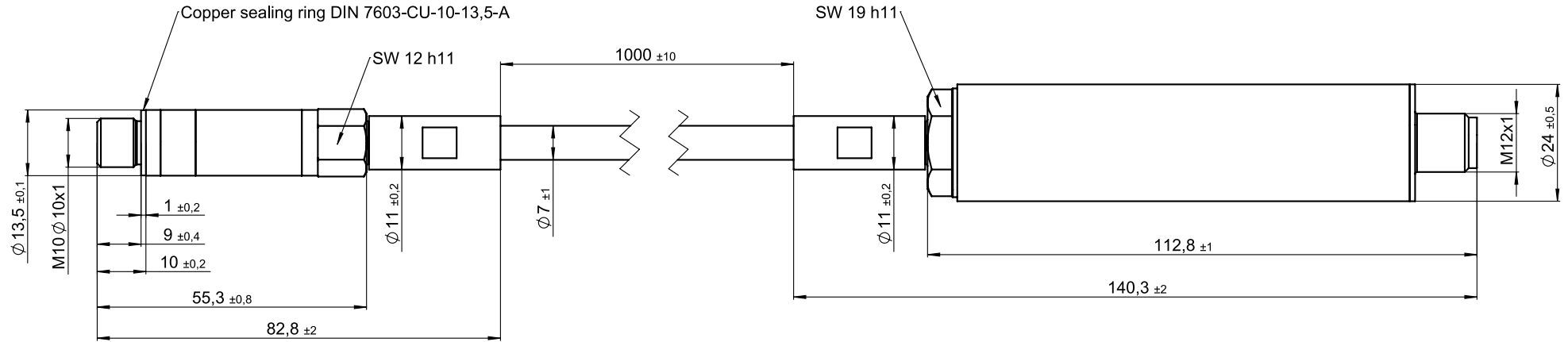
Parameter	Value
Supply voltage	9 ... 32 V DC
Power consumption	< 1 W (typ. 70 mA @ 12 V, 35 mA @ 24 V)
Electrical connection	M12, 5-pole connector

Mechanical Data

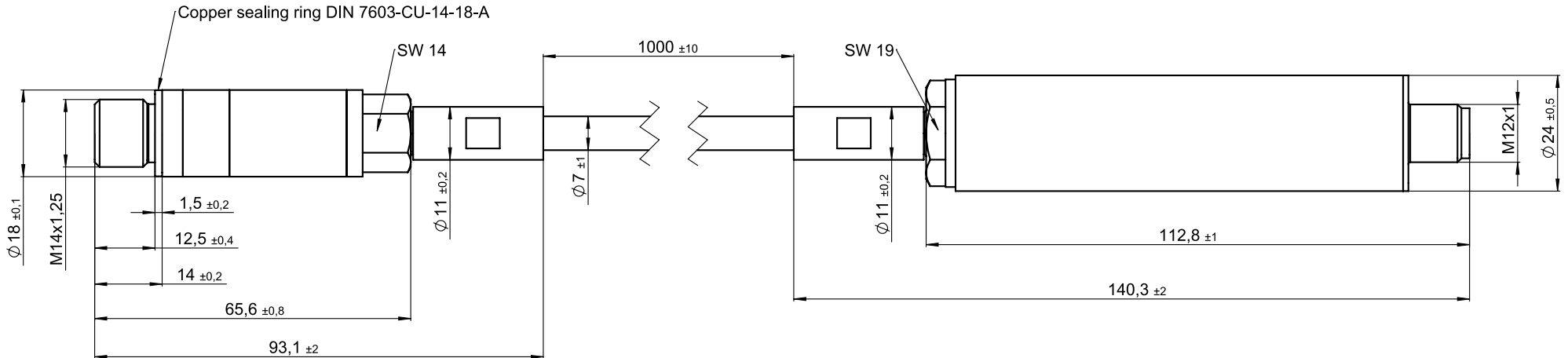
Item	Property
Material housing	Stainless steel
Pressure connection	M10x1 or M14x1.25
Wrench size sensor	12 mm (M10x1) / 14 mm (M14x1.25)
Installation torque	25 Nm
Cable length	1 m (other lengths on request)
Diameter protective metal hose	6 mm
Protection class	IP67
Flame protection	Yes
Weight	M10x1: 212 g \pm 10 g M14x1.25: 254 g \pm 10 g

TECHNICAL DRAWING

Z01-M10

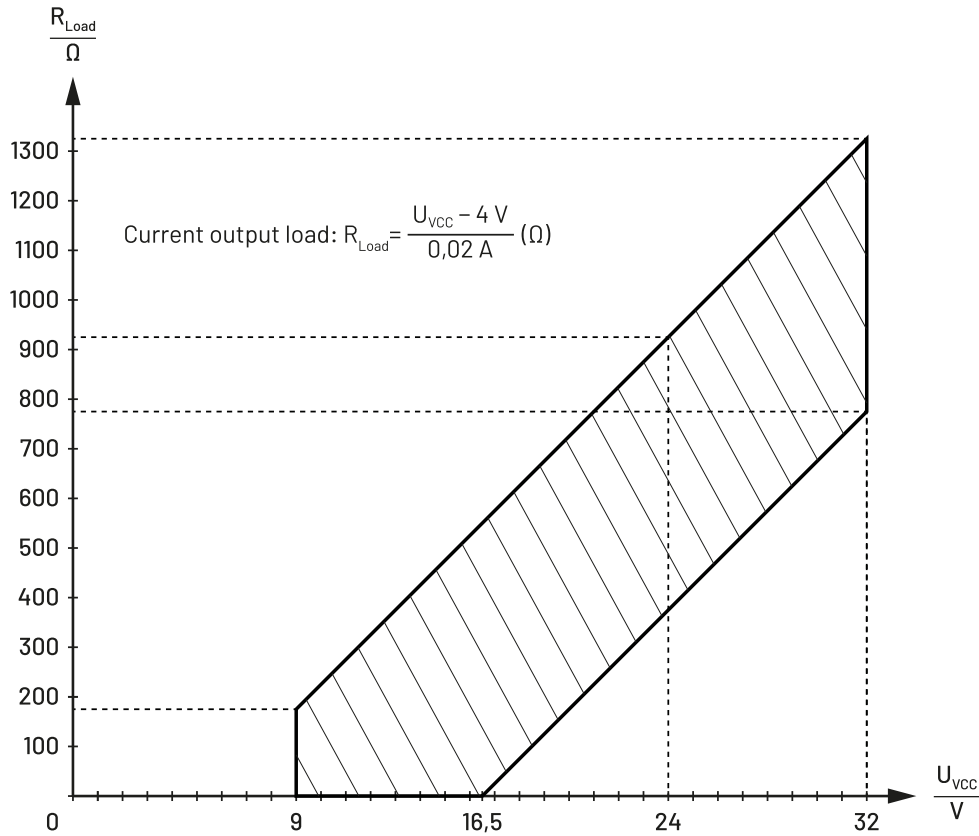


Z01-M14



TECHNICAL DATA

Operating area for current output



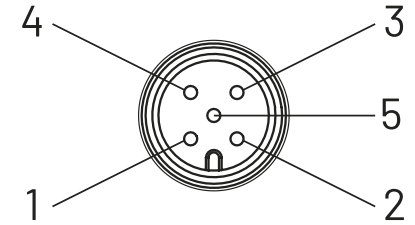
Output load requirements:

- Current variant:
 - R_{Load} see output load diagram
 - $C_{Load} < 10 \text{ nF}$
- Voltage variant:
 - $R_{Load} > 10 \text{ k}\Omega$
 - $C_{Load} < 1 \text{ nF}$

PIN ASSIGNMENT

Pin assignment sorted by pin numbers

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



Recommended terminal layout

3-wire technology

