PRESSURE SENSOR FOR COMBUSTION ANALYSIS

Data Sheet

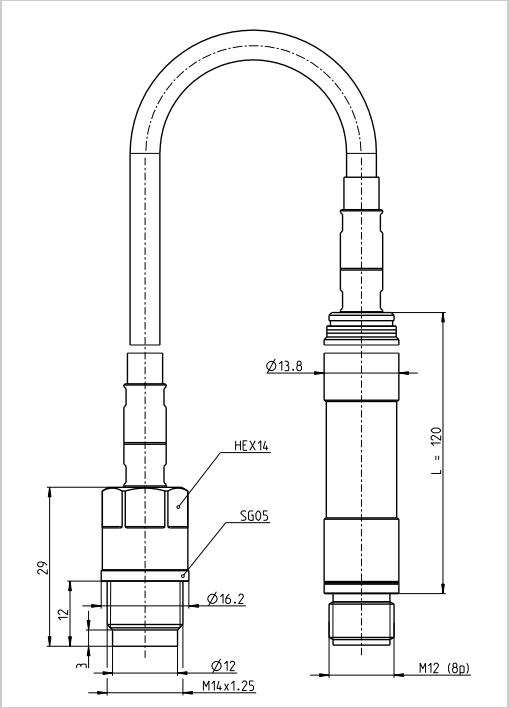
GO41DA

TIGG1241A.01 C-Type
TIGG1242A.01 V-Type

07/2016
AT3387E, Rev. 03

GO41DA

TIGG1241A.01 C-Type
TIGG1242A.01 V-Type



GO41DA is a durable M14 cylinder pressure sensor for monitoring or closed loop control in large-bore engines. The sensor can be used with various fuels such as diesel, heavy fuel oil or natural gas. It is equipped with a central preload element that makes this sensor suitable for permanent non-stop operation. The Double-Shell™ design decouples the piezoelectric elements from negative influences of mechanical stresses which can occur due to the mounting of the sensor into the engine. The sensor is equipped with an integrated amplifier.

Approved environmental and safety standards

Safety CE-approval	EMV EN61236 IEC 61010-1/EN 61010-1
Protection against media	IP67 AVL VP04
Environmental standard	ROHS lead free
Marine type approval	GL(D,EMC2)

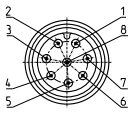
Specifications

Measuring range			0 … 250 bar	
Overload			300 bar	
Linearity	≤	±	0.5 %	FSO
Natural frequency			90 kHz	
Acceleration sensitivity	≤		0.002 bar/g	axial
Shock resistance	≥		2000 g	
Capacitance			7 pF	
Operating temperature range (1)			- 40 … 350°C	
Thermal sensitivity change	≤		0.5 %	20 … 350 °C and 0 … 250 bar
	≤	±	0.2 %	250 ± 100 °C and 0 … 250 bar typ.
Load change drift			1.5 mbar/ms	max. gradient typ.
Cyclic temperature drift (2)	≤	±	0.8 bar	
Thermo shock error Δp(3)	≤	±	0.4 bar	typ.
Thread diameter			M14 x 1.25	shoulder or front sealed
Cable connection			M12	multi-pin
Weight			250 grams	with cable and amp.
Mounting torque			20 … 25 Nm	

Scope of Supply

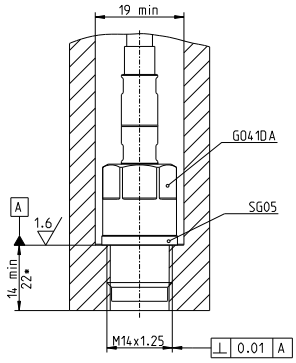
- Sensor GO41DA
- Gasket SG05
- Protection cap
- Spare gasket SG05
- Documentation

1) surface temperature around the HEX < 200 °C
2) at 7 bar IMEP and 1300 rpm, diesel
3) at 9 bar IMEP and 1500 rpm, gasoline

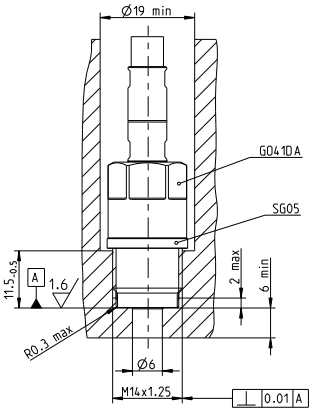


Pin	G041DAV	G041DAC
1	GND	GND
2	-	-
3	-	Current output
4	(Com. Input)*	(Com. Output)*
5	Voltage output	-
6	(Com. Output)*	(Com. Output)*
7	(Drift Comp. Off)*	(Drift Comp. Off)*
8	Power supply	Power supply

Pin layout of the in-line amplifier.
*) for programming purposes at factory site only



Shoulder sealed direct installation.
*) recommended



Front sealed direct installation.

Amplifier specification		
Bandwidth	20 kHz	at -3 dB
Engine speed range	15 … 3000 rpm	higher engine speeds on request
Drift compensation	cyclic	active above 13 bar, can be switched off
Time delay	none	analog between signal input and output
Shock resistance	200 g	
	V-Type (voltage output)	C-Type (current output)
Power supply	8 … 32 V DC	12 … 32 V DC
Sensitivity	13 mV/bar	50 µA/bar
Zero level	0.5 V	4 mA
Load resistor		500 Ω recommended
Operating temperature range	- 50 … 110 °C	- 50 … 110 °C

Accessories		
Gasket	SG05	TIBQ0230A.01
Gasket dismounting tool	TT14	TIWG0178A.01
Dummy	DG07	TIWG0189A.01
Dummy removal tool	TD01	TIWG0122A.01
Mounting tool	Mounting socket TT08 Torque wrench TT18	TIWG0277A.01 TIWG0209A.01
Mounting paste	SF01	TIHK0094A.01

Icons of strength / Measurement Task

Toughness / knock applications Purpose: Specially designed to withstand under extreme and harsh conditions	Examples: Analysis of knocking combustion, operation under high engine loads, supercharged engines.	Gallium Orthophosphate GaPO4 Patented unique crystal material.	Today, GaPO4 is by far the best suited piezoelectric material to be used in sensor applications. It has a combination of several unique properties that make it the first choice.
Precision / thermodynamic analysis Purpose: Very highly accurate measurements for critical thermodynamic analysis.	Examples: Measurements for heat release and friction loss calculations	Double Shell™ Mechanically decouples the crystals from the housing for premium signal quality.	Due to their high sensitivity, these elements are also susceptible to any other kind of applied pressure which would else cause a misreading of the combustion pressure
Durability / endurance testing Purpose: Specially designed to withstand under extreme and harsh conditions	Examples: Onboard monitoring of large marine or stationary engines	SDM Sensor Data Management Increasing efficiency due to organized workflow.	SDM guarantees end-to-end automated data transfer and thus ensures errorfree measurements. This solution covers the complete measurement chain running from the sensor to the software.

Contact Information

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