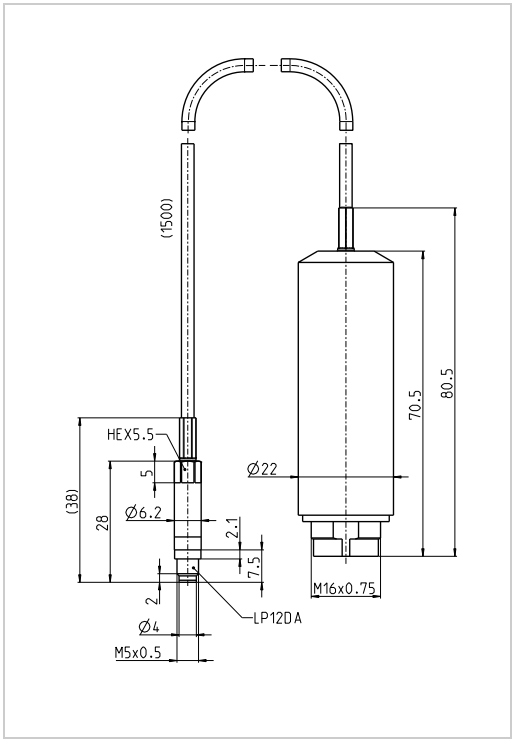
PRESSURE SENSOR FOR COMBUSTION ANALYSIS

Data Sheet

LP12DA

02/2019
AU2531E, Rev. 02

LP12DA



Scope of Supply

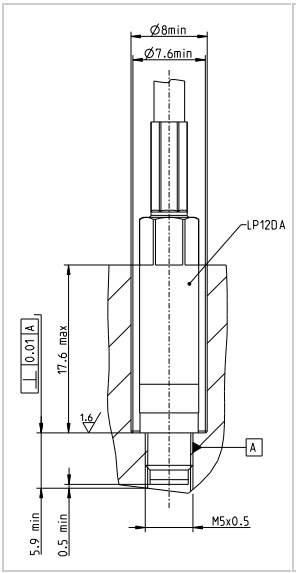
- Sensor LP12DA with cable and integrated amplifier
- Gasket SG44
- Empty 7-pin connector
- Protection cap
- Calibration sheet
- Documentation

The M5 low pressure indicating sensor LP12DA measures the absolute pressure in the intake or exhaust manifold of combustion engines. The sensor is available in different versions with the pressure ranges of 5, 10 and 30 bar. This piezoresistive sensor is used for precise measurement of static and dynamic pressure variations. Typical applications are gas-exchange analysis, precise friction analysis or turbo charger development. For measurements in the exhaust manifold a cooling adapter is necessary. The sensor is equipped with an integrated amplifier featuring digital thermal compensation.

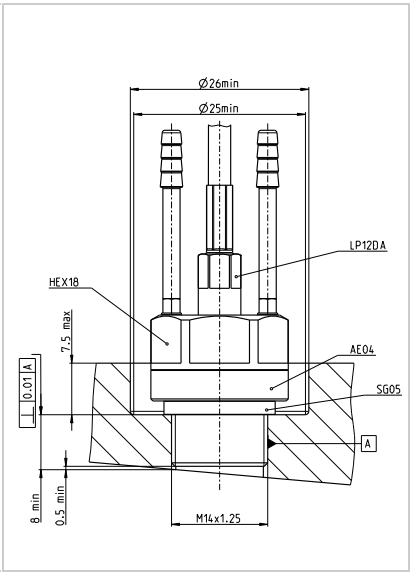
Type	Art. No.	Pressure range
LP12DA05	TIEZ1719A.01	0 ... 5 bar
LP12DA10	TIEZ1720A.01	0 ... 10 bar
LP12DA30	TIEZ1721A.01	0 ... 30 bar

Specifications

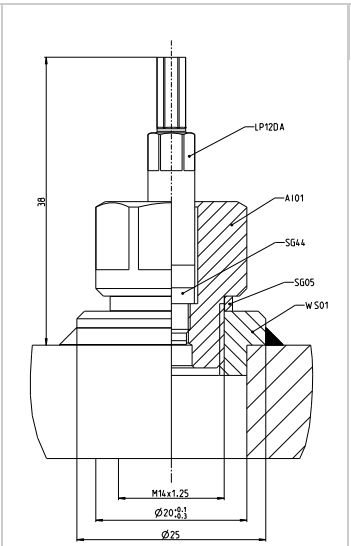
Measuring range			0 ... 5, 10, 30 bar	
Overload			50, 50, 90 bar	
Sensitivity ■ LP12DA05 ■ LP12DA10 ■ LP12DA30	 ≤ ≤ ≤		 2000 mV/bar 1000 mV/bar 333 mV/bar	
Linearity	≤	±	0.1 %	FSO
Frequency response	>		50 kHz	
Total error band (accuracy and temperature error)	<		1 %	FSO
Operating temperature range			- 50 ... 200 °C	
Compensated temperature range			- 40 ... 180 °C	
Thread diameter			M5 x 0.5	
Weight			4 grams	Sensor only
Mounting torque			2 Nm	using SF01
Amplifier output			0 ... 10 V	
Power supply			12 ... 32 V DC	
Media compatibility			Oil, fuel (diesel, gasoline, hfo, ...), gases, coolant	



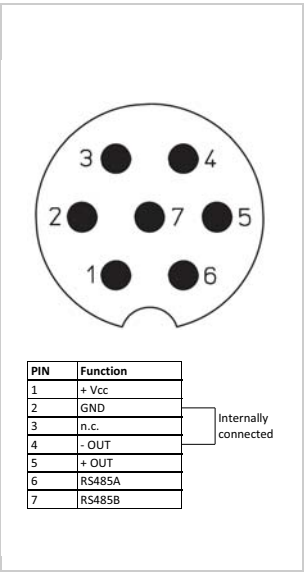
Direct installation of LP12DA



LP12DA mounted into cooling adaptor AE04



LP12DA with SG44 and WS01



PIN	Function
1	+ Vcc
2	GND
3	n.c.
4	- OUT
5	+ OUT
6	RS485A
7	RS485B

Internally connected

Pin assignment

Accessories

Measurement cable extension	CS10 (5 m) CS11 (10 m)	TILPCS10A.01 TILPCS11A.01
Power supply and cables	CX10 (connection to AVL X-ion) CY10 (connection y-cable) PY10 (y-cable for multiple supply) PS10 (power supply 24 V)	TIBU0244A.01 TILPYS10A.01 TILPPY10A.01 TILPPS10A.01
Gasket	SG44	TIYG3136A.01
Dummy	DL01	TIDL01A.01
Adapters	AI01 (mounting adapter) AE04 (cooling adapter)	TILPIA01A.01 TILPEA01A.01
Welding bung	WS01 (for AI01 and AE04)	TIYF0821A.01
Mounting tool	TT29 (flat wrench) TT64 (slotted box nut)	TIWG0371A.01 TIWG0631A.01
Mounting paste	SF01	TIHK0094A.01
Cooling system	ZP91.00/1-4 (230 V version) ZP91.00/1-8 (230 V version) ZP91.00/1-4 (115 V version) ZP91.00/1-8 (120 V version) ZP93/1-8 (230 V version)	TIZP91A.04 TIZP91A.08 TIZP91A.14 TIZP91A.28 TIZP93A.08

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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