

# PRESSURE SENSOR FOR COMBUSTION ANALYSIS

Data Sheet



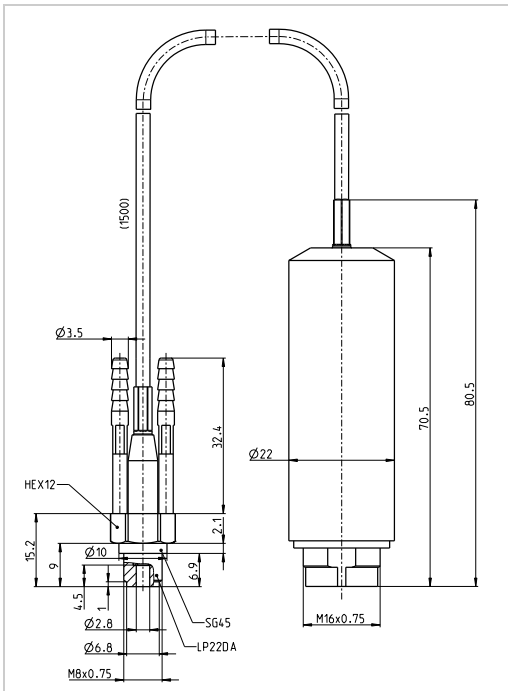
LP22DA  
TIEZ1821A.01

## LP22DA

TIEZ1821A.01



The M8 water-cooled low-pressure indicating sensor LP22DA measures the absolute pressure in the exhaust system of combustion engines. The sensor is available with the pressure range of 10 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. The integrated water-cooling allows mounting the sensor into very narrow spaces of the exhaust manifold. The sensor is equipped with an integrated amplifier featuring digital thermal compensation.

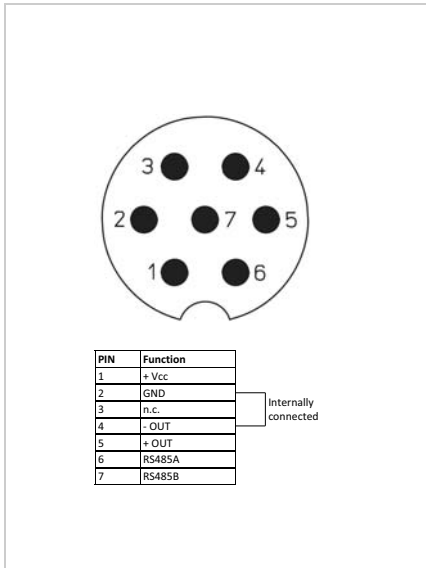


### Scope of Supply

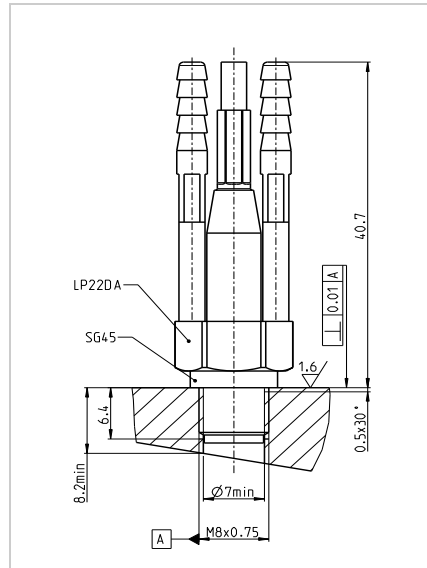
- Sensor LP22DA with cable and integrated amplifier
- Gasket SG45
- Empty 7-pin connector
- Protection cap
- Calibration sheet
- Documentation

### Specifications

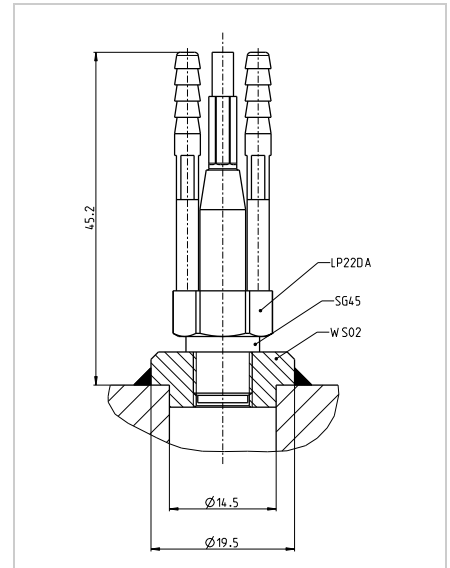
Measuring range	0 ... 10 bar	
Overload	50 bar	
Sensitivity	≤	1000 mV/bar
Linearity	≤ ±	0.1% FSO
Total error band (accuracy and temperature error)	<	1% FSO
Frequency response	>	50 kHz
Operating temperature range	<ul style="list-style-type: none"> <li>■ Sensor front end -40 ... 1100 °C</li> <li>■ Amplifier -40 ... 125 °C</li> </ul>	
Thread diameter	M8 x 0.75	
Weight	12 grams	Sensor only
Mounting torque	max. 6 Nm	using SF01
Amplifier output	0 ... 10 V	
Power supply	12 ... 32 V DC	
Media compatibility	Oil, fuel (diesel, gasoline, hfo, ...), gases, coolant	



Pin assignment



Direct installation of LP22DA



Installation using welding bung WS02

## 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	SG45	TIYS0892A.01
Dummy	DG09	TIWG0278A.01
Welding bung	WS02	TIYS0914A.01
Mounting adaptor	MA10	TIWG0677A.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 ZIZP91A.14 ZIZP91A.28 ZIZP93A.08

## Icons of strength / Measurement Task

	<p><b>Toughness / knock applications</b> Purpose: Specially designed to withstand under extreme and harsh conditions</p>	<p>Examples: Analysis of knocking combustion, operation under high engine loads, supercharged engines.</p>		<p><b>Gallium Orthophosphate GaPO4</b> Patented unique crystal material.</p>	<p>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.</p>
	<p><b>Precision / thermodynamic analysis</b> Purpose: Very highly accurate measurements for critical thermodynamic analysis.</p>	<p>Examples: Measurements for heat release and friction loss calculations</p>		<p><b>Double Shell™</b> Mechanically decouples the crystals from the housing for premium signal quality.</p>	<p>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</p>
	<p><b>Durability / endurance testing</b> Purpose: Specially designed to withstand under extreme and harsh conditions</p>	<p>Examples: Onboard monitoring of large marine or stationary engines</p>		<p><b>SDM Sensor Data Management</b> Increasing efficiency due to organized workflow.</p>	<p>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.</p>

## Contact Information

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