

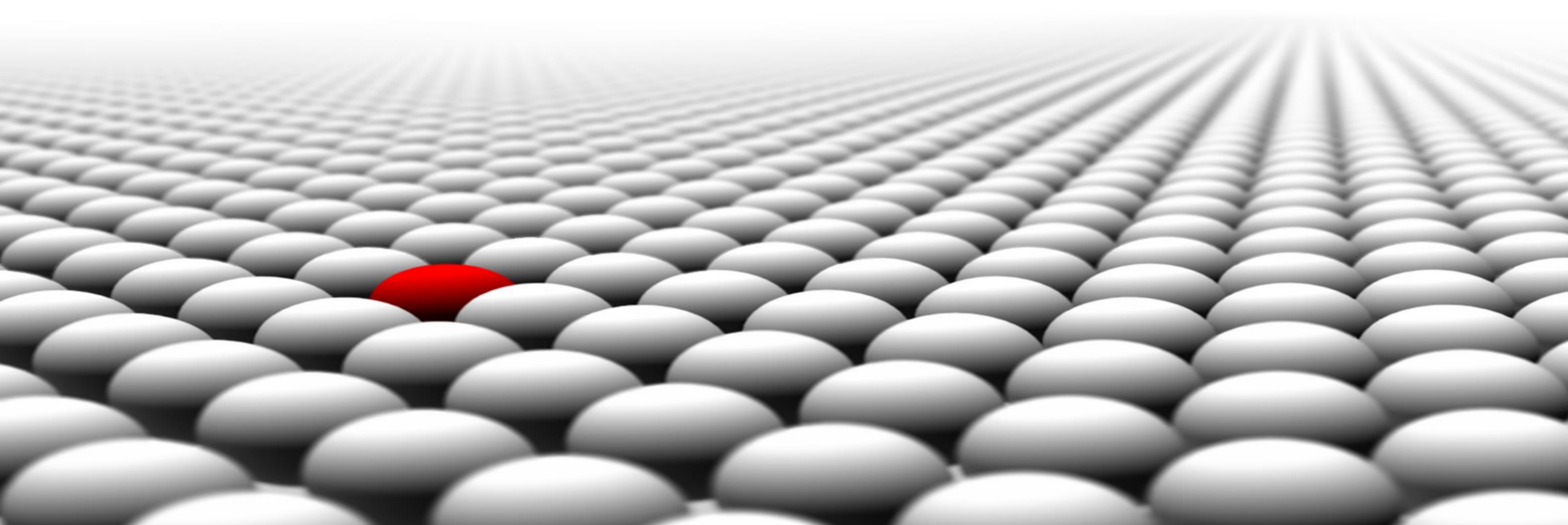
LASERPOINT

THE POINT OF DIFFERENCE IN PHOTONICS

New & patented Optical Pressure sensor for HARSH environment

Sergio Pellegrino

EPIC Members New Product Release
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LASERPOINT
THE POINT OF DIFFERENCE IN PHOTONICS

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New & patented Optical Pressure sensor for HARSH environment

Laser Point manufactures a wide portfolio of laser power and energy meters able to perform laser measurements with high accuracy up to multi-kilowatts optical power level. Laser Point provides, unique in the market and patented, Hi-Tech solutions to measure ultrafast lasers down to picosecond and femtosecond pulse duration and high repetition rates up to MHz range.

In these last years Laser Point has started a challenging product diversification path based on strong proprietary knowhow on fiberoptic technologies, that brought to development a family of novel **Optical Pressure sensors for HARSH environment**.

Laser Point allow for the complete design and development of our products, from their thermal modelling to the 3d CAD design.

The results of our work are the several patents on laser measurement devices from 2011 to 2018 and our ISO 9001 certification on our entire development and manufacturing process.

New & patented Optical Pressure sensor for HARSH environment

Laser Point is introducing to the market of plastic extrusion and injection moulding a conceptually new, world wide patented, Optical Pressure sensor for the measurement of high pressure in harsh environments (up to 1000 bar, up to 300 °C):

HARSHMAXⁱ

New & patented Optical Pressure sensor for HARSH environment

HARSHMAX system overview (sensor and electronics):



New & patented Optical Pressure sensor for HARSH environment

HARSHMAX competitive advantages:

Patented: (granted in US, Canada, Europe, Brazil, China, Japan): pressure measurements performed by optical means without contact between internal mechanical parts as it happens in piezoelectric sensors: no mechanical stress for superior reliability.

Eco-friendly: fully RoHS compliant, unique in the market. No need for mercury, oil or other toxic elements, typically found in piezoelectric sensors.

Passive head: no electronics inside the sensor head for better reliability. Sensor head is just made of stainless steel and optical fiber, all suitable for operation in HARSH environments with high temperature and high pressure conditions (up to 1 kBar, up to 300°C). Insensitive to Electro-Magnetic Interference (EMI).

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HARSHMAX competitive advantages:

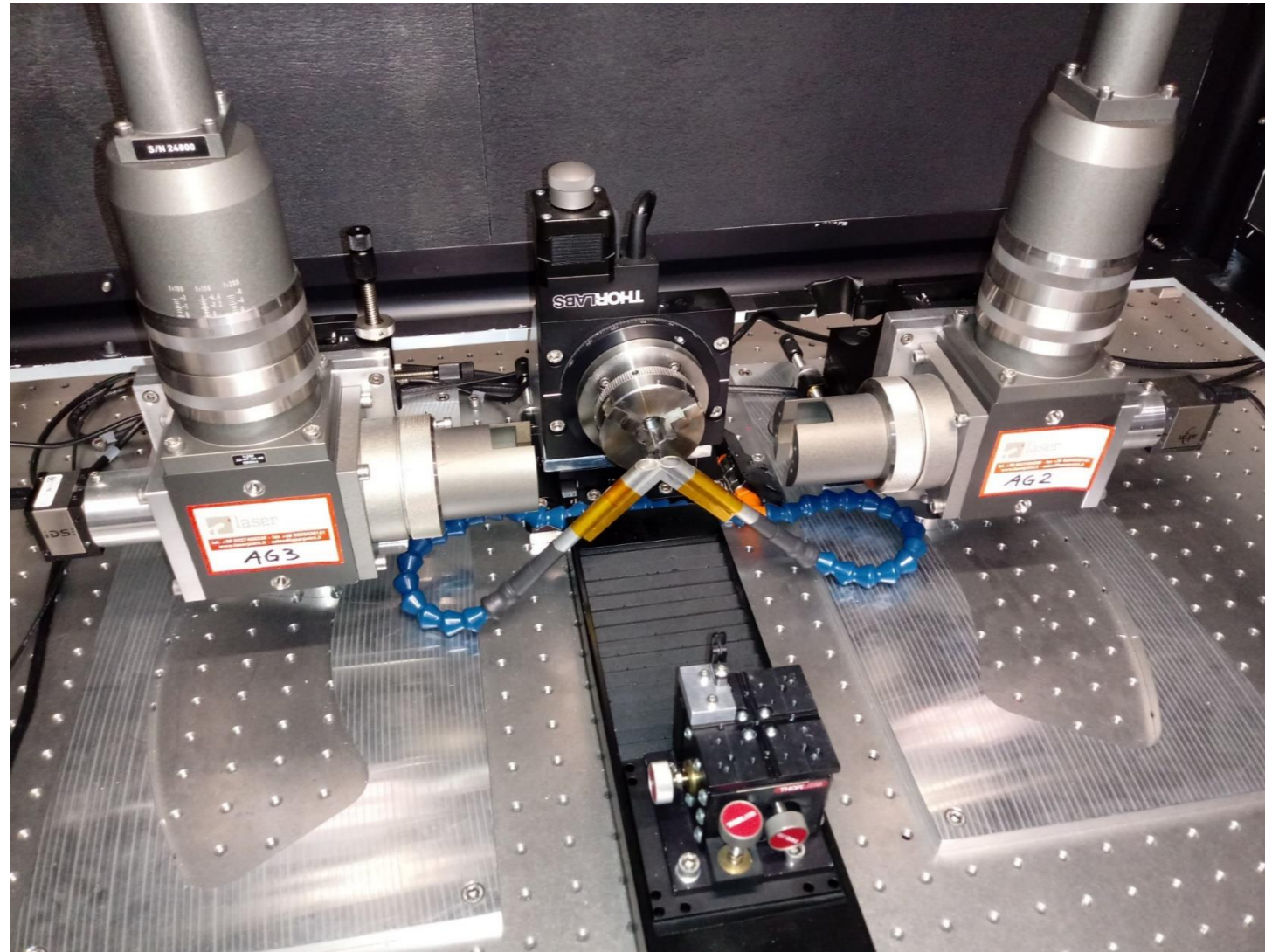
Remote Electronics: an Optical Fiber is used to transmit the pressure signal far from the HARSH environments such as extrusion machines. Electronics can be placed in a safe distance up to dozens of kilometers from the sensor head.

Low Maintenance Cost: thick deformable pressure sensing diaphragm allows for longer operating lifetime. Absence of toxic materials in the sensor head guarantees no contamination in the extrusion chamber. No need for electronics replacement when changing the sensor head.

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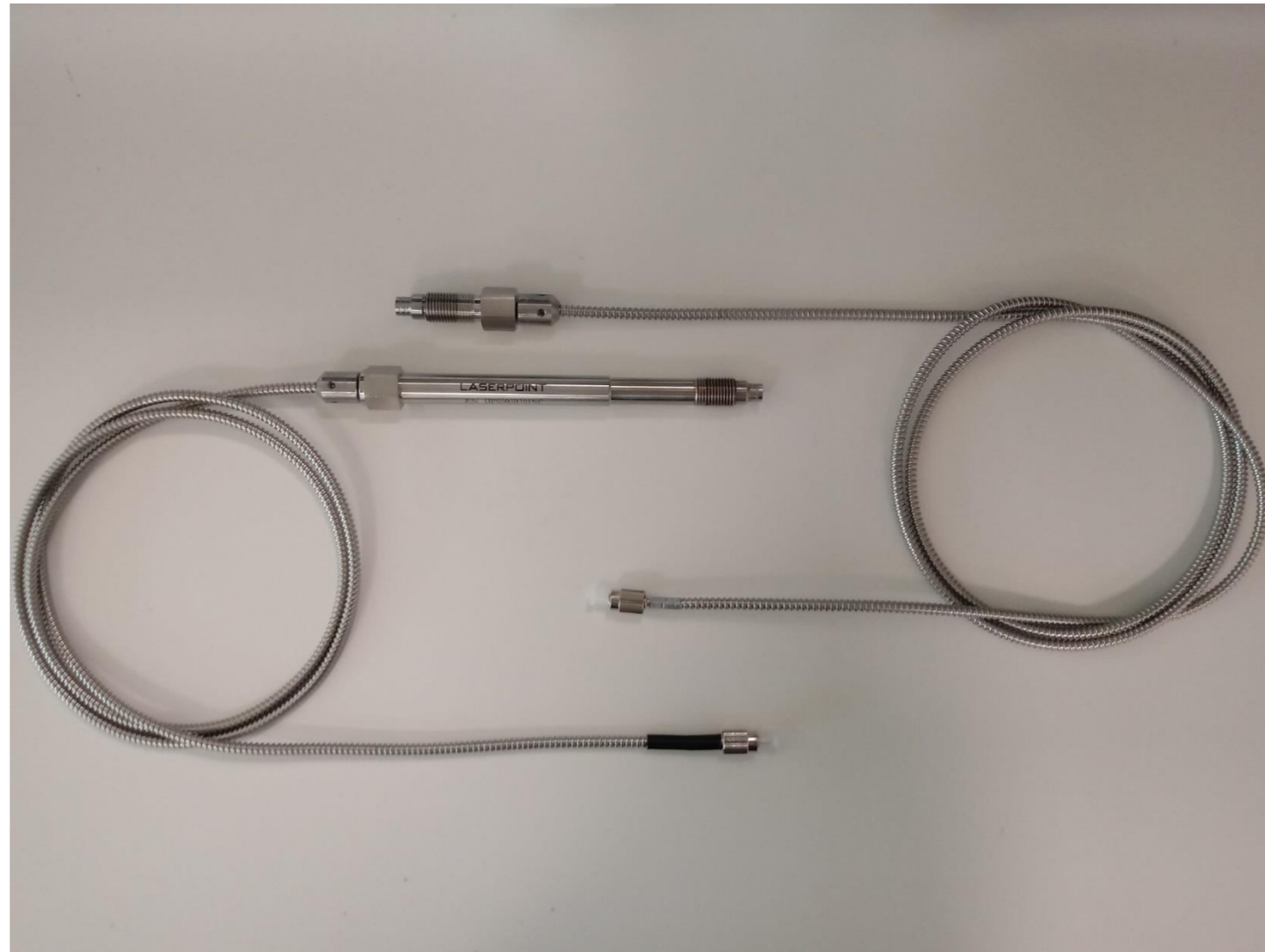
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HARSHMAX sensor laser welding technology:



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HARSHMAX sensor short and long body versions:



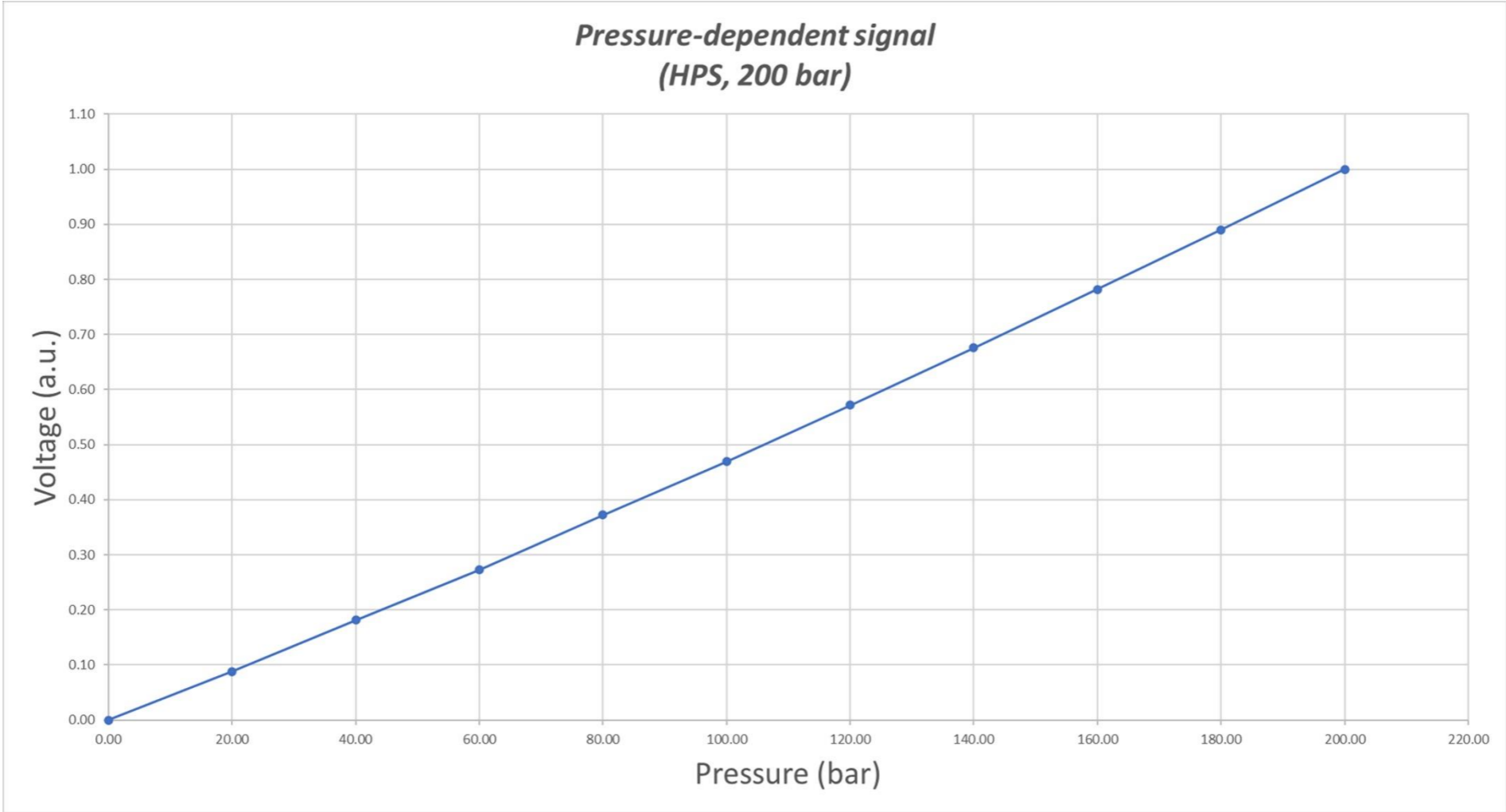
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HARSHMAX sensor specification table example, 200 bars model:

ORDERING CODE	HPS-B02-N	
PARAMETER	UNIT	VALUE
CALIBRATED RANGE	BAR/PSI	0-200/0-2900
PRESSURE OVERLOAD	BAR/PSI	300/4350
ACCURACY	%	< ± 0.5
END POINT LINEARITY	% FSO	± 1
REPEATABILITY	%	± 0.1
COMPENSATE SYSTEM TEMPERATURE RANGE	°C	25-300
MAX OPERATING DIAPHRAGM TEMPERATURE	°C	300
MAX OPERATING DIAPHRAGM TEMPERATURE (SHORT TERM < 15 min)	°C	350
OPERATING FREQUENCY RANGE	KHz	0-30
GENERAL CHARACTERISTICS	UNIT	VALUE
DIAPHRAGM MATERIAL		15-5PH
FITTING HOLE		½" 20 UNF
TIGHTENING TORQUE	Nm	35-40
SENSOR CONNECTOR		FC/APC OPTICAL CONNECTOR
PROTECTION DEGREE		IP65
DIMENSION	mm	Φ 18.5 x 185.4 mm
WEIGHT	g	230
FIBER LENGTH	mt	2

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HARSHMAX sensor Pressure vs Voltage output:



New & patented Optical Pressure sensor for HARSH environment

CONCLUSION

Laser Point is introducing to the market of plastic extrusion and injection moulding a conceptually new Optical Pressure sensor:

HARSHMAXⁱ

Patented

Eco-Friendly

Passive Head

Remote Electronics

Low maintenance Cost

THANK YOU

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