

### PRODUCT OVERVIEW

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## CP700 series dynamic pressure sensors



### Next-generation combustion monitoring

With sensors operating successfully for decades out in space, on aircraft or in the world's hottest gas turbines, the ability of Meggitt Vibro-Meter® to develop solutions with outstanding performance and reliability in harsh environments doesn't need to be demonstrated anymore.

In the same vein, the CP700 series of dynamic pressure sensors and the IPC707 signal conditioner from Meggitt's Vibro-Meter® product line are designed to enable the next generation of high-performance gas-turbine combustion monitoring and control solutions that must deliver greener, more efficient power generation with reduced fuel consumption and lower emissions.

### Outstanding performance

With a higher operating temperature, increased sensitivity to pressure, a synthetic single-crystal sensing element with no pyroelectric effects and a robust design featuring compensation for acceleration, the CP700 series sets the bar even higher in terms of dynamic pressure sensor specifications. Quite simply, it outperforms our earlier dynamic pressure sensors while costing less.

### Trustworthy design

The CP700 series sensors use the same design and structure as our well-proven and popular CP230 series sensors, thereby eliminating the potential risks associated with a new design. Similarly, the simple design and ease of manufacturing produces inherently reliable sensors that allow high-volume manufacturing in a short period of time without compromising the quality of the product.

### Higher temperature

Vibro-Meter® has been producing sensors and monitoring systems for very high-temperature applications for more than 65 years and the CP700 series sensors, with a maximum continuous operating temperature of 700 °C (1290 °F), continue to show that we have mastered all of the design, production and test processes necessary to deliver the best possible solutions to our customers.

Importantly for machinery owners and operators, the high-temperature capability of CP700 series sensors allows installation closer to the required measurement points, eliminating side effects due to extension tubes or equivalent design compromises.

### Higher sensitivity

The CP700 series of dynamic pressure sensors are more than twice as sensitive as the CP500 series sensors which allows for higher signal granularity and an improved signal to noise (SNR) ratio.

### Longer MTBF

Thanks to the simple design and structure of the CP700 series sensors, the calculated MTBF is increased by almost a factor of four compared to the CP500 series (that is, 880 000 hours compared to 250 000 hours). Further, the actual observed MTBF for the CP230 series sensors, upon which the design of the CP700 series is based, is an order of magnitude better than the CP500 series (that is, 2 800 000 hours compared to 540 000 hours).

### Customisable form factor

The compact design of the CP700 series sensors allows high levels of customisation regarding final sensor dimensions. More specifically, different mounting adaptors can be more easily incorporated in order to support different pressure measurement apertures.

### Reliability in the extreme

The CP700 series sensors are compatible with the IPC707 signal conditioner, which was developed in accordance with the IEC 61508 "functional safety" and ISO 13849 "safety of machinery" standards. This ensures increased system reliability and availability in standard (non-safety related) applications and makes CP700 and IPC707 measurement chains suitable for functional safety applications up to SIL 2.

### CP700 series dynamic pressure sensor features and benefits

Operating temperature:	Up to 700 °C (1290 °F)
Sensitivity:	217 pC/bar (15 C/psi)
Sensing element:	Synthetic single-crystal with no pyroelectric effects
Design/construction:	Proven, compact design (CP230 series based) with acceleration compensation

### CP700 series sensor comparison table

Sensor	Operating temperature (max.)	Sensitivity	Acceleration compensation	Calculated MTBF (hours)	IPC707 diagnostics compatible	Functional safety	Price	Value
<b>CP700 series</b>	700 °C (1290 °F)	217 pC/bar (15 pC/psi)	Yes	≈880 000	Yes	SIL 2 and PL c Cat 1 with IPC707	€ / \$	€€ / \$\$
<b>CP500 series</b>	560 °C (1040 °F)	≥90 pC/bar (6.2 pC/psi)	CP5x5 only	≈250 000	No	No	€€ / \$\$	€ / \$

### Complete solutions

Complete turnkey solutions for gas-turbine combustion monitoring from Meggitt Vibro-Meter® include dynamic pressure measurement using CP700 series and IPC707 measurement chains, machinery protection and/or condition monitoring systems such as VM600 or VibroSmart®, and the powerful VibroSight® software. Alternatively, CP700 series and IPC707 measurement chains can be included with other monitoring systems.

### Certifications

Certified for use in hazardous areas (potentially explosive atmospheres): ATEX Ex ia and Ex nA (Europe), cCSAus/CSA Ex ia and Ex nA (North America), and IECEx Ex ia and Ex nA (International).

### Trusted by the biggest names in the industry

Over 65 years of sensor and systems expertise means that our solutions are trusted by original equipment manufacturers (OEMs) globally and have become standard-fit components on machinery used in Power Generation, Oil & Gas and other industrial applications.