

PRODUCT OVERVIEW

CP700 series and IPC707 dynamic pressure measurement chains



CP700 series
dynamic pressure sensor



IPC707
signal conditioner

Next-generation combustion monitoring

The CP700 series of dynamic pressure sensors and the IPC707 signal conditioner from Meggitt's Vibro-Meter® product line enable the next generation of combustion monitoring solutions. CP700 series sensors generate a charge-based signal proportional to dynamic pressure which the IPC707 converts into a current or voltage signal suitable for input to a machinery monitoring system for machinery protection, condition monitoring and/or control applications.

In addition to being a highly-configurable device, the IPC707 features optional diagnostic circuitry (that is, built-in test equipment (BITE)) that automatically detects and remotely indicates problems with the measurement chain (sensor, cabling and the IPC707 signal conditioner itself).

Benefits

Highest-quality sensors

The CP700 series are high-temperature, high-sensitivity dynamic pressure sensors using a synthetic single-crystal in a compact, proven design that ensures outstanding performance, reliability and security of supply. Importantly, the high-temperature capability allows installation closer to the required measurement points, thereby eliminating side effects due to extension tubes.

Reliability in the extreme

Developed in accordance with the IEC 61508 "functional safety" and ISO 13849 "safety of machinery" standards, the IPC707 signal conditioner combines enhanced reliability and significant risk reduction in order to ensure increased system reliability and availability. As a result, measurement chains using a CP700 series sensor and an IPC707 are suitable for functional safety applications up to SIL 2.

Next-generation combustion monitoring

CP700 series and IPC707 dynamic pressure measurement chains enable the next generation of high-performance gas-turbine combustion monitoring and control applications that must deliver greener, more efficient power generation with reduced fuel consumption and lower emissions.

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.



CP700 series dynamic pressure sensor features and benefits

Operating temperature:	Up to 700 °C (1290 °F) Higher temperatures allow installation closer to the required measurement points.
Sensitivity:	217 pC/bar (15 C/psi) Higher sensitivities increase the signal to noise (SNR) ratio.
Sensing element:	Synthetic single-crystal with no pyroelectric effects
Design/construction:	Proven, compact design (CP230 series based) with acceleration compensation Compact design allows easier customisation and supports mounting adaptors. Acceleration compensation minimises the sensitivity to vibration.

CP700 series sensor comparison table

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

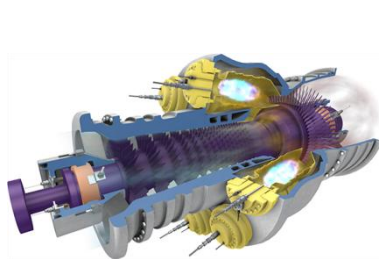
How our diagnostic (BITE) technology works

The output from an IPC707 with diagnostics consists of a dynamic measurement component (AC) and a quasi-static diagnostic component (DC) that is updated to indicate the integrity of the measurement chain. For example, a DC value of 13 mA_{DC} or 8 V_{DC} indicates normal operation, while other values indicate problems. Refer to the *IPC707 signal conditioner product overview* (external link) for further information.

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.

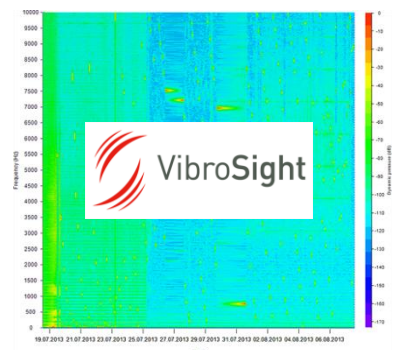
Gas turbine



Measurement chains



Monitoring system



VibroSight® software with
combustion monitoring package
(Spectrogram plot)

Certifications

- Ex certified for use in hazardous areas (potentially explosive atmospheres).
- SIL 2 (IEC 61508) and PL c Cat 1 (ISO 13849) certified for use in functional safety contexts.

PRODUCT OVERVIEW

CP700 series and IPC707 dynamic pressure measurement chains
2 / 2