MEGGiTT
Vibro-Meter®

PRODUCT OVERVIEW

IPC707
signal conditioner

IPC707 signal conditioner with optional diagnostics

SIL Safety

For measurements that you can trust

The IPC707 signal conditioner from Meggitt's Vibro-Meter® product line converts the charge-based signal from piezoelectric sensors into a current or voltage signal suitable for input to a machinery monitoring system. It is a versatile and highly-configurable device that also supports optional diagnostic circuitry that automatically detects and remotely indicates problems with the measurement chain.

This next-generation signal conditioner uses innovative diagnostic technology that continuously runs health checks on the components of a measurement chain (sensor, cabling and the IPC707 signal conditioner itself) in order to update its output to indicate the integrity of the measurement chain or the source of detected problems.

Benefits

Trust your measurements

The output signal from an IPC707 with diagnostics automatically indicates the validity of the measurement, so that you always know when it is safe to run your machinery.

Suitable for safety-critical applications

Developed in accordance with the IEC 61508 "functional safety" and ISO 13849 "safety of machinery" standards, the IPC707 combines enhanced reliability and significant risk reduction, to help ensure increased system availability.

Easily upgrade measurement chains

The IPC707 is fully backward compatible with the IPC704 and can be used with most CAxxx vibration sensors and CPxxx dynamic pressure sensors so measurement chains can be easily upgraded.

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.

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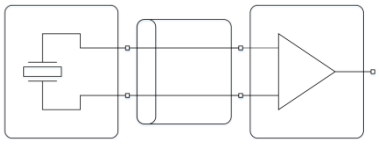
Signal conditioner features

Sensor compatibility	Piezoelectric-based sensors such as most CAxxx accelerometers and CPxxx dynamic pressure sensors
Filtering	Configurable high-pass and low-pass filters (independent of the configured transfer function)
Frequency range	0.5 to 20 000 Hz
Temperature range	−40 to 85 °C (−40 to 185 °F)
Velocity output	Optional integrator to produce a velocity output
Transfer function	0.1 to 110 µA/pC or mV/pC without integration. 981 to 98 100 µA/pC•s or mV/pC•s with integration.
Signal transmission	Current output for 2-wire signal transmission over longer distances (up to 1 km). Voltage output for 3-wire signal transmission over shorter distances.
Signal processing	New grounding concept for improved frame-voltage immunity
Diagnostics technology	Optional diagnostic circuitry (that is, built-in test equipment (BITE)) provides continuous feedback on the health of the measurement chain
IPC704 replacement	Form, fit and functionally equivalent replacement that matches or betters the outstanding measurement specifications of the IPC704

How it works

The output signal from an IPC707 with diagnostics consists of a dynamic measurement component (AC) and a quasi-static diagnostic component (DC). The IPC707's diagnostic circuitry continuously checks the integrity of the measurement chain and updates the nominal value of the diagnostic component (DC) to indicate its health:

IPC707 measurement chain



Sensor Cabling IPC707

Output signal = Measurement (AC) + Diagnostics (DC)

Output signal (with diagnostics)

13 mA_{DC} or 8 V_{DC}: Normal operation – the output from the measurement chain can be trusted

11 mA_{DC} or 6 V_{DC}: Problem with the sensor and/or cabling

10 mA_{DC} or 5 V_{DC}: Problem with the signal conditioner

<8 mA_{DC} or <3 V_{DC}: Other problem with the measurement chain or power supply

Certifications

- Certified for use in hazardous areas (potentially explosive atmospheres).
- Certified for use in functional safety contexts: SIL 2 in accordance with IEC 61508 and PL c Cat 1 in accordance with ISO 13849.
  Note: FMEDA (failure modes effects and diagnostic analysis) calculations are available from Meggitt SA.