Parker MEGGITT

vibro-meter

VM solutions portfolio

SENSORS AND MEASUREMENT CHAINS FOR TURBOMACHINERY

Contents

Enabling Engineering Breakthroughs that Lead to a Better Tomorrow

vibro-meter legacy

QUALITY AND RELIABILITY

Parker Meggitt (Meggitt SA) is recognised for higher quality standards.

First certified to ISO 9000 in 1995, we have been regularly recertified since. Our latest ISO 9001:2015 quality management and ISO 14001:2015 environmental management certificates were awarded by AFNOR Certification. The ISO 14001:2015 is complemented by our recent ISO 45001:2018 certification. In addition, for specific vibro-meter products:

- A large number are Ex certified so that they can be used in hazardous areas (potentially explosive atmospheres), for example, installed on gas turbines.
- A number are SIL safety certified so that they can be used in safety-related applications (functional safety contexts), for example, critical protection systems.

Ex

SIL Safety

FOR 70 YEARS, VIBRO-METER PRODUCTS AND EXPERTISE HAVE ENABLED SUPERIOR SOLUTIONS FOR THE SENSING AND MONITORING OF VIBRATION, PRESSURE AND AIR GAP IN CRITICAL PLANTS AND EQUIPMENT.

Our sensors and measurement chains are used in various industries where the health of rotating machinery, especially large, critical machines is a major concern. They are installed on thousands of machines worldwide and help to monitor and protect these important assets every single day.

We make it our business to provide the best solutions for your measurement and monitoring requirements in order to project your investment. This allows you to reach higher levels of reliability, machine availability and output.

Today, our products are trusted by OEMs globally and have been qualified and adopted as standard-fit components on machinery used in Power Generation, Oil & Gas and other industrial applications.

vibro-meter product portfolio

FROM
SENSORS TO **DECISIONS**

Our comprehensive range of sensors and measurement chains can be used with our monitoring system hardware and software (or third-party systems) in order to provide complete solutions for the monitoring and protection of critical machines and processes.

From standard environments to extreme conditions, our sensor catalogue includes the right choice for your application.

A WORLD LEADER IN SENSING AND MONITORING SOLUTIONS FOR THE ENERGY INDUSTRY

Sensing

Absolute vibration

Dynamic pressure

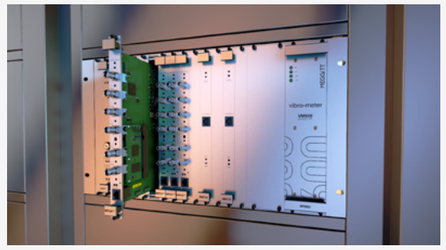
Air gap

Speed/Relative vibration

Sensors and measurement chains

Machinery Protection & Condition Monitoring

Rack-based monitoring systems



VM600^{Mk2}

Distributed monitoring system

VibroSmart®

Asset Management

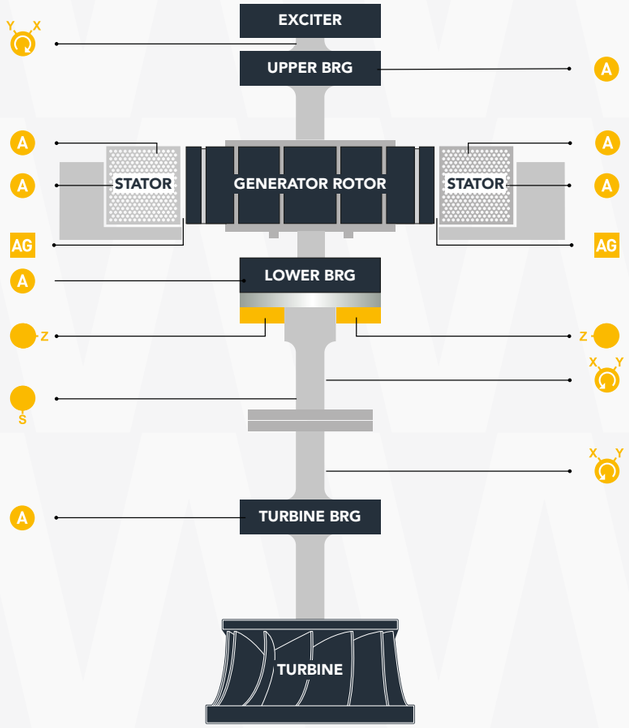
Data analysis and visualisation

VibroSight
Machinery Protection & Condition Monitoring Software

VibroSight®

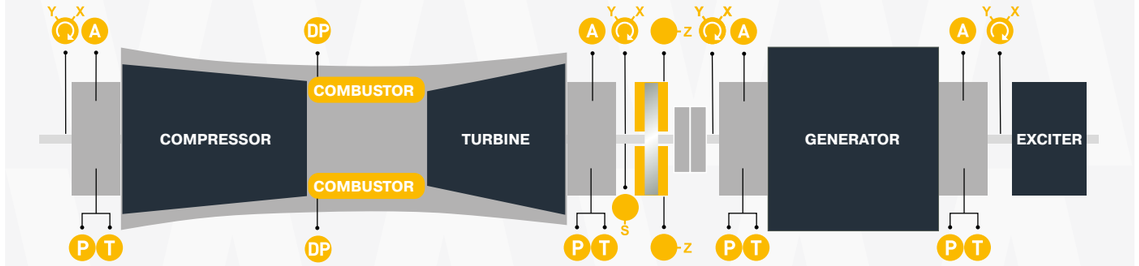
sensors for **critical applications**

HYDRO TURBINE

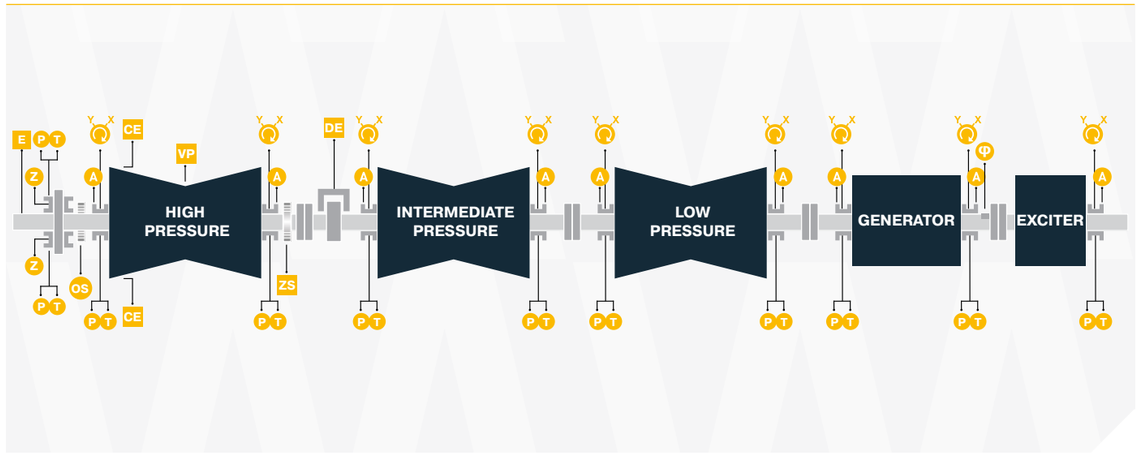


- Absolute vibration
- Air gap
- Shaft relative vibration [x,y]
- Thrust bearing
- Thrust/axial position
- Speed/phase reference

GAS TURBINE



STEAM TURBINE



- Absolute vibration
- Lube oil pressure*
- Bearing temp
- TSI-specific measurements
- Conventional measurements
- Thrust/axial position
- Speed/phase reference
- Shaft relative vibration [x,y]
- Thrust bearing
- Dynamic pressure [combustion chamber]
- Overspeed
- Zero speed
- Valve position
- Lube oil temperature *
- Eccentricity
- Differential Expansion
- Case Expansion
- Speed/phase reference

*Although our products do not provide temperature or pressure sensors for lube oil, our monitoring systems can integrate these readings.

sensors for **critical applications**

The CA series of vibration sensors are high-temperature, piezoelectric-based accelerometers designed for the long-term measurement and monitoring of absolute vibration in the most severe of environments.

CA accelerometer based solutions enable high performance at higher temperatures

An external IPC signal conditioner is required to convert the low-level charge signal (pC/g) output by a CA sensor into a current or voltage signal suitable for transmission to the monitoring system. This separation of electronics enables the sensor's high performance at higher temperatures.

KEY FEATURES

- Available in standard versions and in Ex versions certified internationally for use in hazardous areas
- Suitable for high-temperature environments (up to 700°C) and safety-related applications such as IEC 61508 SIL 2 or ISO 13849 PL c Cat 1 certified measurement chains
- Qualified by major OEMs for industrial vibration monitoring

HIGH-TEMPERATURE VIBRATION SENSORS

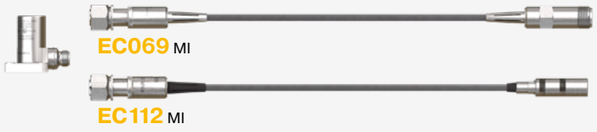
*Please note that only the specified configuration of sensors is SIL2 compliant.

HIGH-TEMPERATURE VIBRATION SENSORS AND THEIR MEASUREMENT CHAINS

Sensor	Sensor and cable	Extension cable	Signal conditioner	Transmission cable	Galvanic separation

CA134

- 10 pC/g
- up to 500 g
- −253 to 500 °C
- 0.5 to 6000 Hz



EC069 MI

EC112 MI

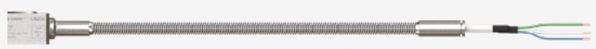
Sheath cable

EC119 (390) Softline, K205A, −54 to 200°C, with flexible leaktight protection

EC153 Softline, K205A, up to 200°C

CA202

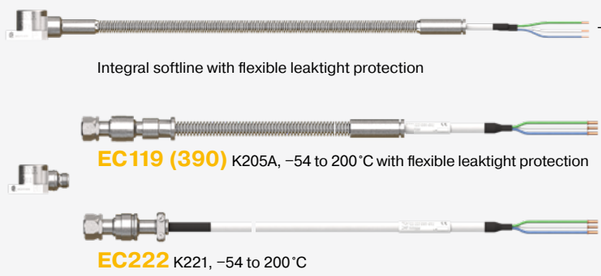
- 100 pC/g
- up to 400 g
- −55 to 260 °C
- 0.5 to 6000 Hz



Integral softline with flexible leaktight protection

CA280

- 100 pC/g
- up to 500 g
- −60 to 260 °C
- 0.5 to 6000 Hz



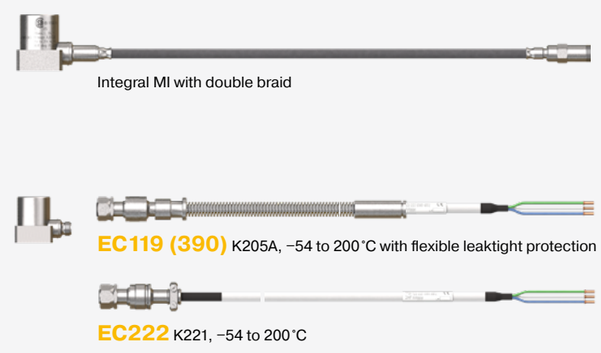
Integral softline with flexible leaktight protection

EC119 (390) K205A, −54 to 200 °C with flexible leaktight protection

EC222 K221, −54 to 200 °C

CA303

- 50 pC/g
- up to 100 g
- −55 to 500 °C
- 5 to 3000 Hz



Integral MI with double braid

EC119 (390) K205A, −54 to 200 °C with flexible leaktight protection

EC222 K221, −54 to 200 °C

EC119 (390) Softline, K205A, −54 to 200°C, with flexible leaktight protection

EC222 Softline, K221, −54 to 200°C

CA901

- 10 pC/g
- up to 200 g
- −196 to 700 °C
- 3 to 3700 Hz

Integral MI

EC119 (390) Softline, K205A, −54 to 200°C, with flexible leaktight protection

EC222 Softline, K221, −54 to 200°C

IPC707

Signal conditioner

- Frequency range: 0.5 to 20000 Hz
- Configurable high-pass and low-pass filters
- Optional integrator to produce a velocity output
- Current or voltage output signal
- Available in standard and Ex versions
- Optional diagnostic circuitry (built-in self-test (BIST))
- Versions with diagnostics are SIL 2 certified
- DIN-rail mounting and removable screw-terminal connectors

Current (2-wire) signal transmission:

K209 cable for standard environments

K210 cable for hazardous areas

Voltage (3-wire) signal transmission:

K309 cable for standard environments

K310 cable for hazardous areas

ABA17x

Industrial housings

- Robust stainless steel housing
- Lockable hinged door with sealing gasket
- Device-mounting plate with DIN rails
- Cable-entry with openings and plugs
- Protection ratings: IP66 and NEMA 4X in addition to 4, 12 and 13
- Available in standard and Ex versions
- ABA171 for up to 2 signal conditioners, ABA172 for up to 4 and ABA173 for up to 8
- Wide range of cable fittings (stuffing glands)

GSI127

Galvanic separation unit

- 4 kV_{RMS} galvanic separation
- Galvanically isolated power supply to sensor/measurement chain
- Current input with I to V conversion to support current signal transmission over longer distances – up to 1000 m
- Voltage input with V to V conversion to support voltage signal transmission
- Also compatible with industry-standard IEPE sensors and 4 to 20 mA loop-powered sensors/transmitters
- Available in standard and Ex versions
- High rejection of frame voltage
- Diagnostic circuitry (built-in self-test (BIST)) and SIL 2 certified
- DIN-rail mounting and removable screw-terminal connectors

- Sensitivity
- Dynamic measurement range
- Operating temperature
- Frequency response

MI = mineral insulated

sensors for **critical applications**

For applications that do not require the high-temperature capabilities of the CA series, these vibration sensors provide more cost-effective and easier to install solutions.

CE-based solutions provide high performance at high temperatures

The CE series of sensors are piezoelectric-based accelerometers that come with either integrally attached electronics for higher temperature applications or integrated electronics for lower temperature applications. These sensors are suitable for the measurement and monitoring of vibration in harsh environments, such as gas or steam turbines, compressors, pumps and fans.

The SE120 is a high-sensitivity piezoresistive accelerometer suitable for the measurement and monitoring of vibration at lower frequencies in harsh environments, such as hydro turbines and fans.

KEY FEATURES

- Available in standard versions and in Ex versions certified internationally for use in hazardous areas
- Attached or integrated electronics so installation is easier (no external signal conditioners and simpler cabling)

VIBRATION SENSORS WITH ATTACHED OR INTEGRATED ELECTRONICS

VIBRATION SENSORS WITH ATTACHED OR INTEGRATED ELECTRONICS AND THEIR MEASUREMENT CHAINS

Sensor

CE134

- 5 µA/g
- up to 400 g
- −55 to 350 °C
- 5 to 10000 Hz

CE281

- 10 µA/g
- up to 200 g
- −55 to 260 °C
- 3 to 7000 Hz

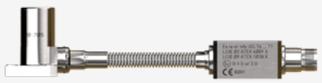
CE311

- 50 µA/g
- up to 40 g
- −40 to 125 °C
- 2 to 8000 Hz

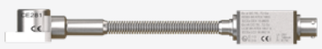
SE120

- 2 mA/g
- up to 4 g
- 0 to 75 °C
- 0.2 to 350 Hz

Sensor and cable

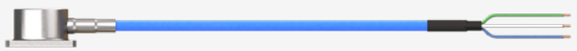


Integral softline armoured with attached electronics



Integral softline armoured with attached electronics

Integral softline armoured



Integral softline

Extension cable

EC175 Softline, K219, −40 to 125°C, armoured, with threaded or bayonet connector

EE139 Softline, K210, −40 to 70°C, armoured, with threaded or bayonet connector

EE143 Softline, K210, −40 to 70°C, armoured with threaded or bayonet connector

Junction box

JB105 and JB116

Junction boxes

Mechanical and environmental protection (IP65 protection rating)

Available in standard and Ex versions

JB105 in aluminium for standard environments

JB116 in polyester for hazardous areas

Fully insulated and corrosion resistant

Wide range of cable fittings (stuffing glands)

Transmission cable

Current (2-wire) signal transmission:

K209 cable for standard environments

K210 cable for hazardous areas

Galvanic separation

GSI127

Galvanic separation unit

4 kVRMS galvanic separation

Galvanically isolated power supply to sensor/measurement chain

Current input with I to V conversion to support current signal transmission over longer distances – up to 1000 m

Voltage input with V to V conversion to support voltage signal transmission

Also compatible with industry-standard IEPE sensors and 4 to 20 mA loop-powered sensors/transmitters

Available in standard and Ex versions

High rejection of frame voltage

Diagnostic circuitry (built-in self-test (BIST)) and SIL 2 certified

DIN-rail mounting and removable screw-terminal connectors

- Sensitivity
- Dynamic measurement range
- Operating temperature
- Frequency response

sensors for **critical applications**

For vibration monitoring of low-speed rotating machinery.

CV and VE velocity sensors enable high performance at low frequencies

Designed for the long-term measurement and monitoring of absolute vibration at lower frequencies, including hydro turbine and fan applications.

The CV and VE series of moving-coil velocity sensors have the advantages of being self-powered and providing a strong output signal in native velocity units (mm/s), so the signal-to-noise ratio is excellent, and no integration is required.

KEY FEATURES

- Velocity sensors using the moving-coil principle provide a high signal-to-noise ratio in the low frequency range
- CV sensors are Ex certified for use in hazardous areas

VIBRATION SENSORS WITH VELOCITY OUTPUT

VIBRATION SENSORS WITH VELOCITY OUTPUT AND THEIR MEASUREMENT CHAINS

Sensor

VE210

- 50 µA/mm/s or 50 mV/mm/s
- up to 100 mm/s
- −25 to 80 °C
- 0.5 to 400 Hz

CV213 and CV214

- 20 mV/mm/s
- up to 1000 mm/s
- −29 to 204 °C (CV213)
- −29 to 121 °C (CV214)
- 10 to 1000 Hz

CV211

- Typical 23 mV/mm/s (2 mm pp)
- −65 to 120 °C
- 10 to 1000 Hz

SIL 1 CAPABLE

Sensor and cable

EC439 RADOX® with or without protection for current (2-wire) signals

EC440 RADOX® with or without protection for voltage (3-wire) signals

ED120 with or without protection (up to 204°C)

ED121 without protection (up to 121°C)

Junction box

JB105 and JB116

Junction boxes

Mechanical and environmental protection (IP65 protection rating)

Available in standard and Ex versions

JB105 in aluminium for standard environments

JB116 in polyester for hazardous areas

Fully insulated and corrosion resistant

Wide range of cable fittings (stuffing glands)

TSG series

Transmitters

Provides a 4 to 20 mA current output proportional to vibration

Also provides a buffered raw voltage output corresponding to the sensor signal

Range selectable 10 to 30 mm/sec

Frequency 10 to 1000 Hz

Input from velocity or IEPE sensors

1 or 2 channel versions

Transmission cable

Current (2-wire) signal transmission:

K209 cable for standard environments

K210 cable for hazardous areas

Voltage (3-wire) signal transmission:

Note: VE210 only.

K309 cable for standard environments

K310 cable for hazardous areas

Galvanic separation

GSI127

Galvanic separation unit

4 kVRMS galvanic separation

Galvanically isolated power supply to sensor/measurement chain

Current input with I to V conversion to support current signal transmission over longer distances – up to 1000 m

Voltage input with V to V conversion to support voltage signal transmission

Also compatible with industry-standard IEPE sensors and 4 to 20 mA loop-powered sensors/transmitters

Available in standard and Ex versions

High rejection of frame voltage

Diagnostic circuitry (built-in self-test (BIST)) and SIL 2 certified

DIN-rail mounting and removable screw-terminal connectors

- Sensitivity
- Dynamic measurement range
- Operating temperature
- Frequency response

sensors for **critical applications**

The CP series of dynamic pressure sensors are high-temperature, piezoelectric-based pressure sensors designed for the long-term measurement and monitoring of combustor pulsations and combustion dynamics in gas turbines.

CP sensors use patented acceleration-compensated designs to enable the highest temperatures and pressure sensitivities in the industry

KEY FEATURES

- Available in Ex versions certified internationally for use in hazardous areas
- Suitable for high-temperature environments (up to 700°C) and safety-related applications such as IEC 61508 SIL 2 or ISO 13849 PL c Cat 1 certified measurement chains
- Allows high-temperature lean-combustion monitoring – the key to reducing NOx and other emissions

DYNAMIC PRESSURE SENSORS FOR COMBUSTION MONITORING

DYNAMIC PRESSURE SENSORS FOR COMBUSTION MONITORING AND THEIR MEASUREMENT CHAINS

Sensor	Sensor and cable	Extension cable	Signal conditioner	Transmission cable	Galvanic separation

CP103

- 232 pC/bar
- up to 20 bar
- up to 250 bar
- −54 to 650 °C
- 2 to 10000 Hz

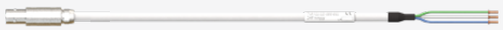
Integral MI with or without protection (overbraid), terminated with a vibro-meter high-temperature or LEMO connector

EC119 (390) Softline, K205A, −54 to 200°C, with flexible leaktight protection

CP211

- 25 pC/bar
- up to 250 bar
- up to 350 bar
- −54 to 650 °C
- 2 to 15000 Hz

Integral MI, terminated with a vibro-meter high-temperature or LEMO connector

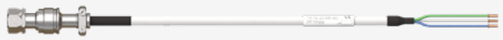


EC153 Softline, K205A, up to 200°C

CP235

- 750 pC/bar
- up to 5 bar
- up to 100 bar
- −55 to 520 °C
- 2 to 10000 Hz

Integral MI with protection (overbraid), terminated with a vibro-meter high-temperature connector



EC222 Softline, K221, −54 to 200°C

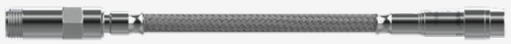
CP700

- 229 pC/bar
- up to 20 bar
- up to 100 bar
- −55 to 700 °C
- 10 to 10000 Hz

Integral MI with protection (overbraid), terminated with a vibro-meter high-temperature connector

CP751

- 137 pC/bar
- up to 50 bar
- up to 350 bar
- −40 to 700 °C
- 2 to 10000 Hz



Integral MI with protection (overbraid), terminated with a vibro-meter high-temperature connector

IPC707

Signal conditioner

- Frequency range: 0.5 to 20000 Hz
- Configurable high-pass and low-pass filters
- Current or voltage output signal
- Available in standard and Ex versions
- Optional diagnostic circuitry (built-in self-test (BIST))
- Versions with diagnostics are SIL 2 certified
- DIN-rail mounting and removable screw-terminal connectors

Current (2-wire) signal transmission:

K209 cable for standard environments

K210 cable for hazardous areas

Voltage (3-wire) signal transmission:

K309 cable for standard environments

K310 cable for hazardous areas

ABA17x

Industrial housings

- Robust stainless steel housing
- Lockable hinged door with sealing gasket
- Device-mounting plate with DIN rails
- Cable-entry with openings and plugs
- Protection ratings: IP66 and NEMA 4X in addition to 4, 12 and 13
- Available in standard and Ex versions
- ABA171 for up to 2 signal conditioners, ABA172 for up to 4 and ABA173 for up to 8
- Wide range of cable fittings (stuffing glands)

GSI127

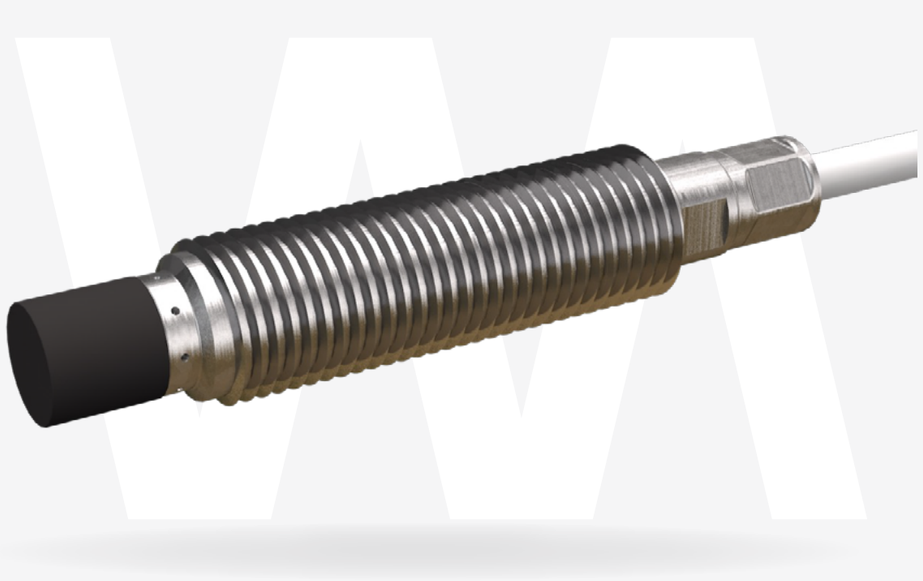
Galvanic separation unit

- 4 kVRMS galvanic separation
- Galvanically isolated power supply to sensor/measurement chain
- Current input with I to V conversion to support current signal transmission over longer distances – up to 1000 m
- Voltage input with V to V conversion to support voltage signal transmission
- Also compatible with industry-standard IEPE sensors and 4 to 20 mA loop-powered sensors/transmitters
- Available in standard and Ex versions
- High rejection of frame voltage
- Diagnostic circuitry (built-in self-test (BIST)) and SIL 2 certified
- DIN-rail mounting and removable screw-terminal connectors

- Sensitivity
- Dynamic measurement range
- Operating temperature
- Frequency response

MI = mineral insulated

sensors for **critical applications**



PROXIMITY SENSORS FOR RELATIVE VIBRATION AND OTHER MEASUREMENTS

The TQ series of proximity sensors are rugged sensors that use the eddy-current principle in order to allow the contactless measurement of relative vibration, position and other measurements in harsh environments.

TQ-based solutions enable comprehensive measurements including radial vibration, axial position, rotational speed and phase reference (1/REV pulse)

A TQ-based measurement chain consists of a proximity sensor, an optional extension cable and an IQS signal conditioner, configured for the particular application. The signal conditioner is required to perform all required signal processing and provide a current or voltage signal suitable for transmission to the monitoring system.

TQ-based measurement chains are ideally suited to the measurement and monitoring of relative vibration and axial position for rotating machine shafts, such as those found in steam, gas and hydraulic turbines, as well as in generators, turbo-compressors and pumps.They can also measure rotational speed and/or provide phase reference (1/REV pulse) signals.

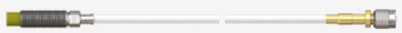
KEY FEATURES

- Available in standard versions and in Ex versions certified internationally for use in hazardous areas
- Broad family of sensors with different measurement ranges (sensitivities), mounting options (standard, reverse or right-angle) and pressure capabilities (up to 100 bar)
- Suitable for safety-related applications such as IEC 61508 SIL 2 or ISO 13849 PL c Cat 1 certified measurement chains
- Conforms to API 670 5th edition

PROXIMITY SENSOR
MEASUREMENT CHAINS

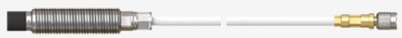
Sensor	Sensor and cable	Extension cable	Signal conditioner	Transmission cable	Galvanic separation

TQ401
- 8 mV/µm or 2.5 µA/µm (2 mm)
- Standard
- –40 to 180 °C
- Ø 5 mm



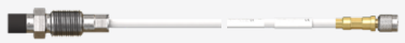
Integral coaxial cable with or without protection

TQ902
- 8 mV/µm or 2.5 µA/µm (2 mm)
- 4 mV/µm or 1.25 µA/µm (4 mm)
- Standard
- –40 to 180 °C
- Ø 8 mm



Integral coaxial cable with or without protection

TQ912
- 8 mV/µm or 2.5 µA/µm (2 mm)
- 4 mV/µm or 1.25 µA/µm (4 mm)
- Reverse
- –40 to 180 °C
- Ø 8 mm



Integral coaxial cable with or without protection

TQ922
- 8 mV/µm or 2.5 µA/µm (2 mm)
- 4 mV/µm or 1.25 µA/µm (4mm)
- Standard
- –25 to 140 °C
- Ø 12.7 mm
- up to 100 bar

Integral coaxial cable with or without protection

TQ932
- 8 mV/µm or 2.5 µA/µm (2 mm)
- 4 mV/µm or 1.25 µA/µm (4mm)
- Reverse
- –25 to 140 °C
- Ø 12.7 mm
- up to 100 bar

Integral coaxial cable with or without protection

TQ942
- 8 mV/µm or 2.5 µA/µm (2 mm)
- 4 mV/µm or 1.25 µA/µm (4 mm)
- Right-angle (90°) mount
- –40 to 180 °C
- Ø 8 mm

Integral coaxial cable with or without protection

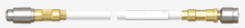
TQ403
- 1.33 mV/µm or 0.417 µA/µm (12 mm)
- Standard
- –40 to 180 °C
- Ø 18 mm

Integral coaxial cable with or without protection

TQ423
- 1.33 mV/µm or 0.417 µA/µm (12 mm)
- Standard
- –25 to 140 °C
- Ø 25 mm
- up to 100 bar

Integral coaxial cable with or without protection

JB118 Junction box or IP172 interconnection protection (for mechanical and environmental protection of connections)



EAxxx Extension cables (EA401, EA902 or EA403)

KS107 Flexible conduit

SG1xx Cable feedthroughs (SG101, SG102 and SG164)

- Sensitivity (and dynamic measurement range)
- Mounting
- Operating temperature
- Tip diameter
- Pressure capability (at sensor tip)

IQS900
Signal conditioner

- Frequency range: DC to 20000 Hz
- Current or voltage output signal
- Available in standard and Ex versions
- Optional diagnostic circuitry (built-in self-test (BIST))
- Versions with diagnostics are SIL 2 certified
- TQ9xx, EA90x and IQS900 are fully API 670 5th edition compliant
- Raw output signal and Test input functionality
- DIN-rail mounting and removable screw-terminal connectors

IQS910
Signal conditioner (based on IQS900)

- Frequency range: DC to 15000 Hz
- 4 to 20 mA current-loop output signal
- Available in position measurement and vibration measurement versions
- Vibration measurement version implements special “peak-meter” vibration processing to provide a slowly-varying DC signal corresponding to measured AC vibration
- Note: Other features and specifications as per the IQS900

Current (2-wire) signal transmission:

K209 cable for standard environments

K210 cable for hazardous areas

Voltage (3-wire) signal transmission:

K309 cable for standard environments

K310 cable for hazardous areas

ABA17x
Industrial housings

- Robust stainless steel housing
- Lockable hinged door with sealing gasket
- Device-mounting plate with DIN rails
- Cable-entry with openings and plugs
- Protection ratings: IP66 and NEMA 4X in addition to 4, 12 and 13
- Available in standard and Ex versions
- ABA171 for up to 2 signal conditioners, ABA172 for up to 4 and ABA173 for up to 8
- Wide range of cable fittings (stuffing glands)

GSI127
Galvanic separation unit

- 4 kVRMS galvanic separation
- Galvanically isolated power supply to sensor/measurement chain
- Current input with I to V conversion to support current signal transmission over longer distances – up to 1000 m
- Voltage input with V to V conversion to support voltage signal transmission
- Also compatible with industry-standard IEPE sensors and 4 to 20 mA loop-powered sensors/transmitters
- Available in standard and Ex versions
- High rejection of frame voltage
- Diagnostic circuitry (built-in self-test (BIST)) and SIL 2 certified
- DIN-rail mounting and removable screw-terminal connectors

PA15x
probe mounting adaptors

designed to work with any TQ912 sensor (reverse mount)

- 2 or 4 mm
- Ø 8 mm

EA902 Extension cable

sensors for **critical applications**

AIR-GAP MONITORING SYSTEM

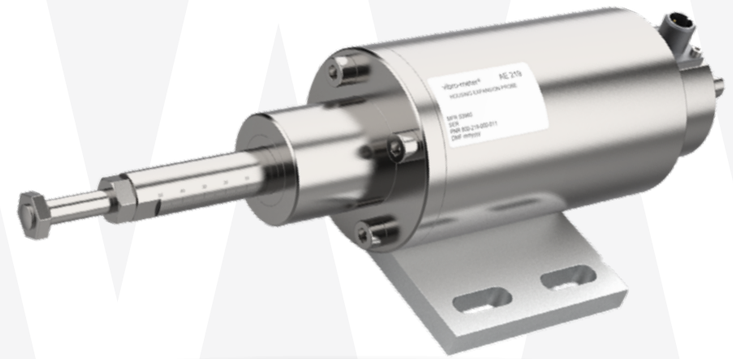
Electric-field (capacitance) technology for the contactless measurement of air gap in hydroelectric generators, and other large alternators and motors.

LS12x / ILS73x air-gap measurement systems provide three voltage output signals (pole profile, rotor profile and minimum gap) and one current output signal (pole profile, rotor profile or minimum gap) for signal transmission over longer distances.

The minimum gap provides the minimum air gap value for all poles of the rotor – without any post-processing – and is typically connected directly to a monitoring system for simple and reliable protection.

KEY FEATURES

- Easy, fast and reliable installation with enhanced filtering of noise and spikes (induced by high excitation currents)
- Minimum gap signal for direct protection
- Accurate and precise results over the full measurement and temperature ranges



HOUSING EXPANSION PROBES

LVDT technology for the contactless measurement of absolute housing expansion on medium to large thermal machines such as gas turbines and steam turbines.

KEY FEATURES

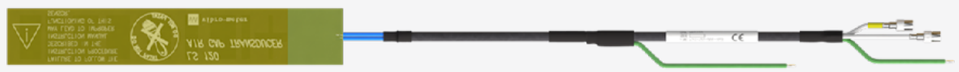
- Integrated electronics with a 4 to 20 mA output signal
- IP55 protection rating (splashproof)

AIR-GAP MONITORING SYSTEM

Sensor	Sensor and cable	Signal conditioner	Transmission cable

LS120

- 5 to 30 mm (linear)
- −15 to 125˚C



Integral coaxial cable

LS121

- 20 to 60 mm (linear)
- −15 to 125˚C

Integral coaxial cable

ILS73x

Signal conditioners

ILS730 for LS120
ILS731 for LS121

Three voltage output signals: pole profile, rotor profile and minimum gap

One current output signal: pole profile, rotor profile or minimum gap (factory configurable)

Aluminium enclosure

DIN-rail mounting and screw-terminal connectors

Voltage and current signal transmission

Kxxx multiwire transmission cable

HOUSING EXPANSION PROBES

Sensor	Sensor and Cable

AE219

- 0 to 50 mm (50 mm version)
- 0 to 100 mm (100 mm version)
- 0 to 100˚C

EC622 Polyurethane (PUR) cable without protection, IP67 cable boot
EC632 TEFLON® FEP cable with or without protection (overbraid), IP67 cable boot
EC318 RADOX® cable with or without protection (flexible hose)
EC319 RADOX® cable with or without protection (flexible hose), splashproof

- Dynamic measurement range
- Operating temperature

sensors for **other applications**

The CE6xx, PV6xx and CVS100 are general-purpose vibration sensors designed for the cost-effective measurement and monitoring of vibration in balance of plant (BOP) equipment such as compressors, gearboxes, motors, pumps and fans, as well as larger machinery such as hydro turbines.

The CE620, CE630 and CE687 are piezoelectric accelerometers that provide voltage (IEPE) and current (4 to 20 mA) outputs respectively, while the PV660 and PV685 are piezoelectric velocity sensors that also provide voltage and current outputs.

The CVS100 series of vibration switches allow cost-effective vibration monitoring for stand-alone machines and BOP equipment, such as fans, pumps, centrifuges, mills, gears, etc., on whose operation important installations or processes depend.

GENERAL-PURPOSE VIBRATION SENSORS

GENERAL-PURPOSE VIBRATION SENSORS

Piezoelectric accelerometers

Sensor	Cable

CE620 piezoelectric accelerometer with a voltage output

- 100 mV/g or 500 mV/g
- up to 80 g (100 mV/g versions)
- up to 16 g (500 mV/g versions)
- −55 to 120°C (100 mV/g version)
- −55 to 90°C (500 mV/g versions)
- 0.5 to 14000 Hz (100 mV/g versions)
- 0.2 to 3700 Hz (500 mV/g versions)

Note: Available as a sensor only or with an integral cable, in standard or Ex versions.

CE630 piezoelectric accelerometer with a voltage output, side connector

- 100 mV/g or 500 mV/g
- up to 80 g (100 mV/g versions)
- up to 16 g (500 mV/g versions)
- −55 to 120°C (100 mV/g versions)
- −55 to 90°C (500 mV/g version)
- 1 to 8000 Hz (100 mV/g versions)
- 0.2 to 3700 Hz (500 mV/g versions)

Note: Available as a sensor only, in standard or Ex versions.

CE687 piezoelectric accelerometer with a current output

- 4 to 20 mA proportional to 0 to 10 or 0 or 20 g
- −55 to 90 °C
- 3 to 10000 Hz

Available as a sensor only or with an integral cable, in standard versions only.

EC318 RADOX® cable with or without protection (flexible hose)
EC319 RADOX® cable with or without protection (flexible hose), splashproof
EC622 Polyurethane (PUR) cable without protection, IP67 cable boot
EC632 TEFLON® FEP cable with or without protection (overbraid), IP67 cable boot

Piezoelectric velocity sensors

Sensor	Cable

PV660 piezoelectric velocity sensor with a voltage output

- 4 mV/mm/s
- up to 1250 mm/s
- −55 to 120 °C
- 1.9 to 7000 Hz

Note: Available as a sensor only, in standard versions only.

PV685 piezoelectric velocity sensor with a current output

- 4 to 20 mA proportional to 0 to 20, 0 to 25, or 0 to 50 mm/s
- −55 to 90 °C
- 3 to 1000 Hz

Note: Available as a sensor only or with an integral cable, in standard versions only.

EC622 Polyurethane (PUR) cable without protection, IP67 cable boot
EC632 TEFLON® FEP cable with or without protection (overbraid), IP67 cable boot
EC318 RADOX® cable with or without protection (flexible hose)
EC319 RADOX® cable with or without protection (flexible hose), splashproof

Vibration switches

CVS100 series

Available in standard, Ex, M2 and LC versions

- 4 to 20 mA proportional to 0 to 10, 20 or 50 mm/s (standard, Ex)
- 4 to 20 mA proportional to 0 to 2, 5, 10, 20 or 50 mm/s (M2, LC)
- 4 to 20 mA proportional to 0 to 20, 50, 100, 200 or 500 µm (M2)
- −30 to 70 °C (standard, Ex)
- −20 to 70 °C (M2, LC)
- 10 to 1000 Hz

Integrates a vibration sensor, signal processing electronics and relays in a strong all-metal housing

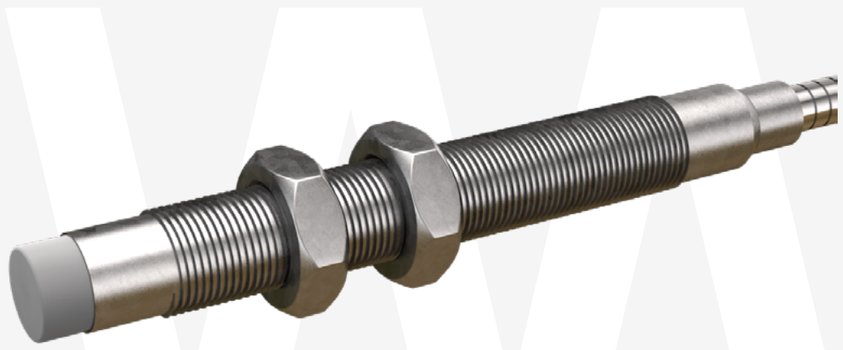
One or two direct alarms and trip relay outputs

Normally energized (NE) – fail safe – relays with configurable set points and time delays

4 to 20 mA current output for further signal processing

100 mV/g raw voltage output (standard, Ex)

- Sensitivity
- Dynamic measurement range
- Operating temperature
- Frequency response



The WW and RE series of proximity sensors are used in combination with a transmitter or converter for direct 4 to 20 mA current measurement of shaft vibration or relative displacement. Measurements are made according to the eddy-current principle.

The WW proximity sensors are used in combination with a TWW101 M1 transmitter in order to measure displacement (vibration).

The RE proximity sensors are used in combination with a RE101 / R102 transmitter in order to measure the relative position of a target (object).

The large measurement range of these sensors / measurement chains makes them ideal for monitoring differential expansion on steam turbines.

GENERAL-PURPOSE PROXIMITY PROBES

GENERAL-PURPOSE PROXIMITY PROBES

Sensor	Sensor and cable
WW018 • 0 to 10 mm • –20 to 145 °C	 **WWxxxxx** • length 4 or 9 m
RE022-002 / RE030-002 • 22/30 mm • –20 to 200 °C	

Transmiters

TIW series

Transmitter

Provides a TTL output of the detected pulses: 15 kHz max

Provides a 4 to 20 mA signal for the selected speed range

Two ranges available: 20000 rpm max.

Raw signal for sensor adjustment

TWW series

Transmitter

Provides a 4 to 20 mA signal proportional to shaft position

Ranges depend on specified sensor

Frequency DC to 2 Hz

RE series

Transmitter

Provides dual 4 to 20 mA signals or a 4 to 20 mA signal and a 4 mV/µm signal, depending on version

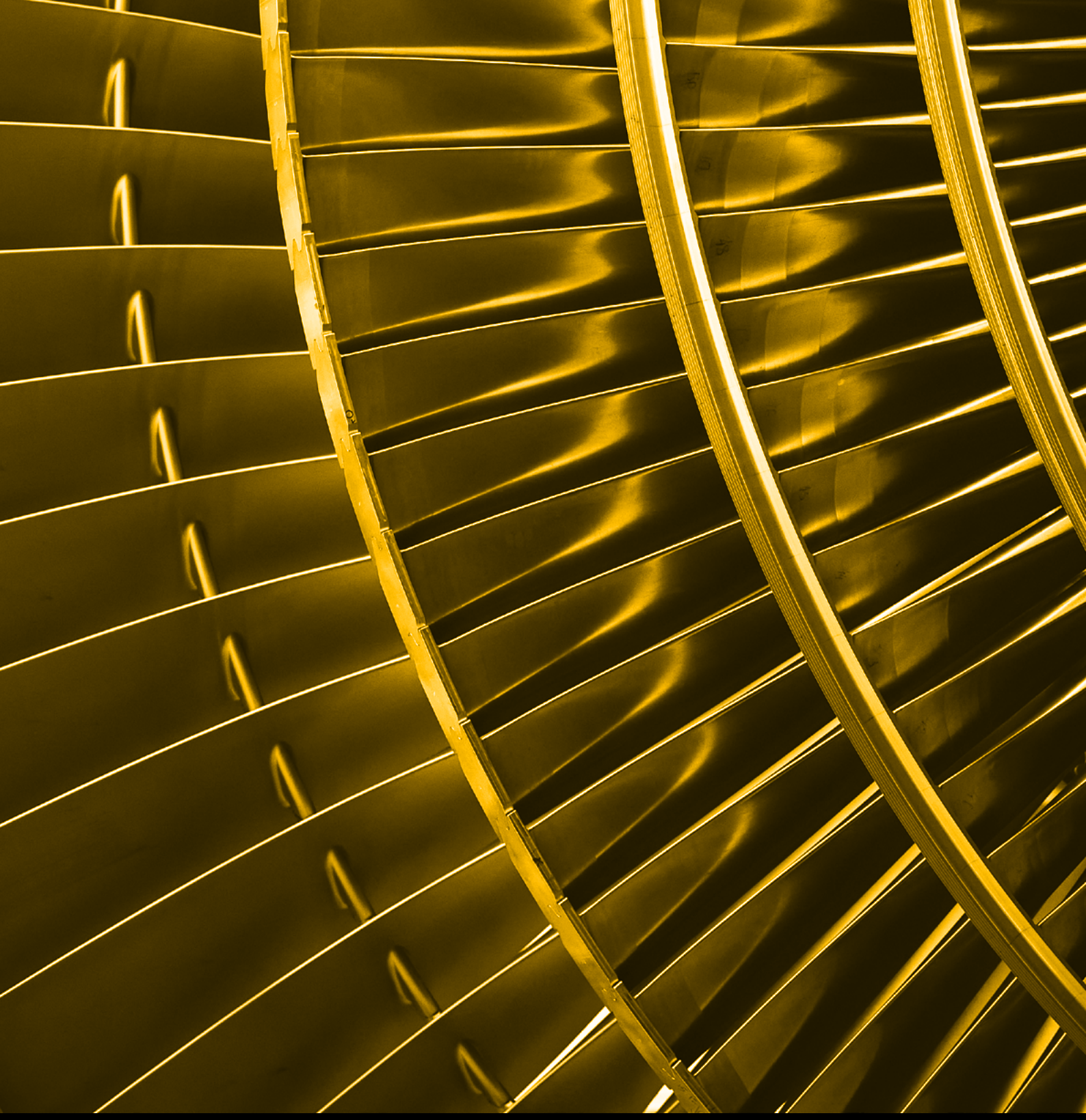
Additional 0.5 to 4.5 V_{DC} output corresponding to transfer function

Ranges depend on specified sensor: 22 or 30 mm

Frequency DC to 2 Hz

Transmiter	
	**TWWxxx** for shaft position **TIWxxx** for speed and/or reference signals
	**TWWxxx**
	**RE101-002** for shaft relative expansion

- Measurement range
- Operating temperature



Parker MEGGiTT

Enabling Engineering Breakthroughs

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