Driven by Heart.
Focused on Performance.

TX Marine Messsysteme GmbH
Sandkamp 18 | 25368 Kiebitzreihe | Germany

www.txmarine.com

Dear customers and partners,

Over the past year, we have been working intensively on new business ideas, which are now embedded in a clear structure and will be introduced step by step into the market as products and services. July marks an important milestone for TX Marine: we are introducing our new corporate identity with a refreshed logo and our new slogan.

While our core focus remains **engine performance monitoring**, we have sharpened and streamlined our portfolio. Some products have been consciously phased out, new and exciting solutions and representations have been added, and we have developed innovative service concepts that will be presented successively in the coming months.

A significant part of our offering is dedicated to **ship efficiency**, supported by solutions such as flow measurement, and shaft power monitoring. In addition, we are strengthening our **condition monitoring** capabilities, laying the foundation for data driven decisions and **predictive maintenance** concepts on board. At the same time, we are boldly exploring new fields such as **safety equipment**, inspired by intensive brainstorming with our team and partners.

In parallel, we are continuously expanding our international network of partners to provide our customers with tailored solutions and services along their routes, e.g. calibration of equipment. This close cooperation enables us to combine local expertise with robust technology and service, wherever our customers operate.

With the introduction of our new CI in July, a new chapter also begins in our company management. As the next generation, I, **Nadine Paschen**, am now taking the helm and continuing TX Marine's journey with fresh ideas, clear focus and great respect for what has been built over the past decades.

Our direction is set:

Driven by Heart.
Focused on Performance.

Nadine Paschen (2nd Generation)
Owner-manager

Our Products

- Power & Propulsion
- Fuel & Flow Measurement
- Condition Monitoring
- Hull & Biofouling
- Emission & Discharge
- Software & Data Integration

Our Service

- Ultrasonic thickness measurement (UTM)
- Speed / Power Trial
- ROV Inspection
- Calibration

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Engine Performance Monitoring

Getting from A to B on time can be a real challenge in wind and weather. At sea, a well coordinated team on a reliable ship is the be all and end all of safe and efficient operations.

Just like the sensory impulses our body sends us to tell us how fit we are and how high our load is, the measured values from modern analysis tools give you a clear picture of the condition of your propulsion system. They turn your engine room into a “sensory organ” for the ship, providing continuous feedback instead of relying on gut feeling alone.

The main engine is the heart of the vessel and requires special care. When the individual component groups are well coordinated and continuously monitored, you can not only improve performance, but also increase lifetime and efficiency and get the very best out of your machinery. Stable operation, fewer unplanned stops and optimized fuel consumption are the direct result of transparent data.

With automated recording and intelligent processing of measured values, meaningful reports and internal documentation can be generated at the push of a button. Maintenance can be planned at an early stage, integrated into your schedule in good time and aligned with your operational profile instead of fixed intervals. This reduces downtime and helps you use resources where they bring the greatest benefit.

Let’s get the best out of your engine together. The recording and processing of the following engine related measured variables form the basis for our analysis:

- Shaft torque
- Shaft speed
- Shaft power
- Cylinder pressure
- Combustion characteristics

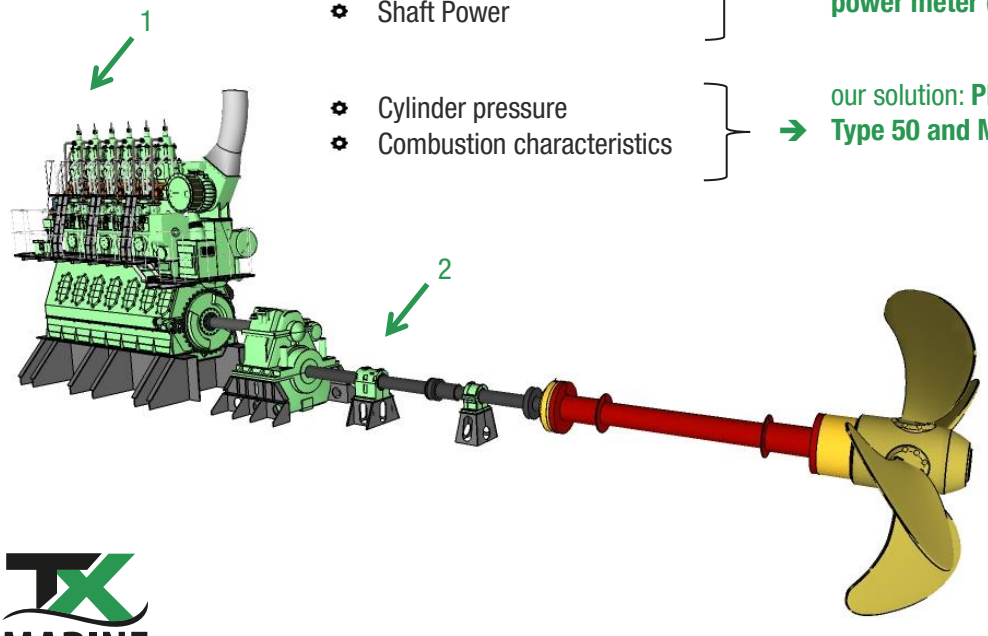
Together, these parameters describe both the mechanical load on the propulsion system and the quality of combustion in each cylinder. This allows targeted optimization of fuel consumption, emissions, and engine lifetime, so that you reach your destination safely, efficiently and on time – even under demanding conditions.

- Shaft Torque
- Shaft Speed
- Shaft Power

→ our solution: **TORXmeter® digi shaft power meter (2)**

- Cylinder pressure
- Combustion characteristics

→ our solution: **PMImkII electr. indicator, Type 50 and MSI-3 mechn. indicator (1)**



TX MARINE

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

TORXmeter® digi

IMPA: 652854 | Item No. 6000010011973

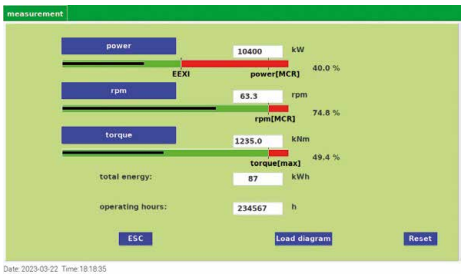
Shaft power meter

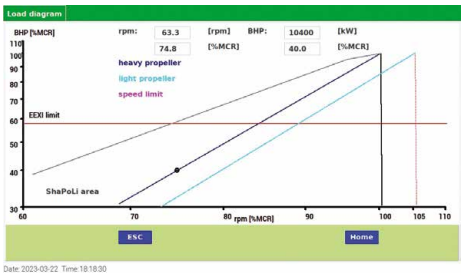
Application:

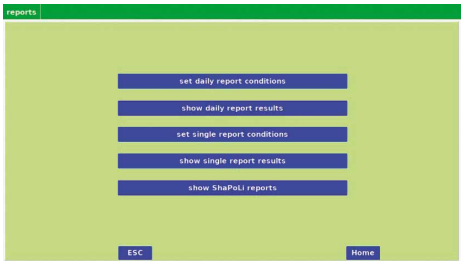
The shaft power measurement system measures the power transmitted through a shaft, enabling the measurement of actual engine power delivered to the propeller.

Shaft power is an essential input (KPI) for ship performance monitoring systems and ship efficiency. Actual shaft power measurements levels provide an accurate reference point to assist with the assessment of:

- Engine performance monitoring
- Hull and Propeller condition
- Specific fuel oil consumption
- Operational efficiency planning
- Ship condition changes





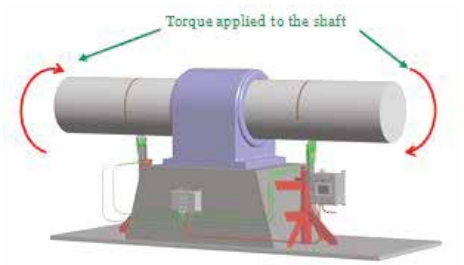


Features:

- Easy to install via ship's crew (training video available)
- Easy operation
- PC software for displaying measuring data
- No electronic parts on the rotating shaft
- Full contactless
- Maintenance free
- Can be Installed in 1 day
- All Components can be replaced individually
- Easy error diagnosis via email due to fault indicators on the components and NMEA protocol
- Zeroing (new calibration) can be done by ship's crew

Measurement principle:

For the measurement of torque (twist angle) the system has two EXFR sensors (each with two sensor heads) and two EXFR sensor belts installed on the shaft. The two sensors detect the twisting of the shaft during operation of the engine through extremely fast response (EXFR) magnetic scanning of the magnetic pattern of the 2 installed belts. The sensors use the magnetic pole changing and the zero crossing (change of the magnetic fields) between the two EXFR sensor belts for angle measurement.

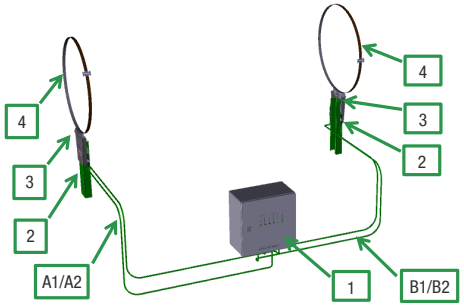


TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

TORXmeter® digi

Scope of supply

No. 1 Control unit with small display inside
No. A1/A2 Pre-wired cable between Control Unit and EXFR sensors mkII (appr. 7,5 m)
No. B1/B2 Pre-wired cable between Control Unit and EXFR sensors mkII (appr. 7,5 m)
No. 2 2 x Welding brackets (bracket must be welded to ships structure –No.4)
No. 3 2 x Sensor holder with pre-mounted 2 x 2 EXFR sensors mkII (A1/A2) (B1/B2)
No. 4 2 x EXFR sensor belts mkII
No. 5 PC Software for setup parameter, display of measurement data and calibration (no picture)
No. 6 “Torsional vibration” viewer of raw data and twist (no picture)



Technical Specification:	
Sensor Accuracy:	<0,1 % (Shaft Torque, Shaft RPM, Shaft Power) <0,1 %+Ke (Shaft Torque) (Ke means total error in shaft modulus constant and shaft diameter)
System Accuracy:	<0,1 % (Shaft Power, Shaft RPM)
Shaft diameter:	200 mm up to 3000 mm
Speed Range:	Up to 1200 rpm
Data & Performance Output:	Output via RS485 (NMEA183) protocol 1/s; Baud rate 4800 up to 38400 Output for °twist/°crankshaft; resolution <2°; binary 14 bytes Alarm output (Overload and system failure) 4-20mA output and MODBUS on request
Data storage:	Mini SD card on control board
Communication:	Setup via Laptop of all parameters via software and USB connection Small coloured display for setup and displaying measurement data
Update:	via USB connection
Option:	Repeater Display, ShaPoLi Display, Fuel Display

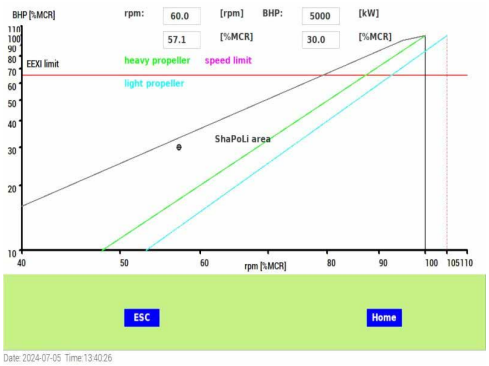
Shaft Power Limitation (ShaPoLi)

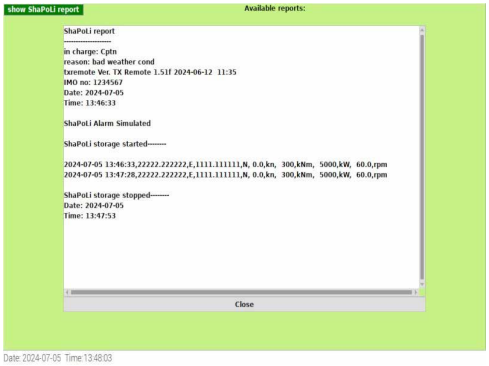
The TXM ShaPoLi system Shaft Power Limitation solution as optional equipment for the TORXmeter® shaft power meter or any other manufacturer for shaft power meter. The system is a highly accurate and cost-effective measurement system in comparison with other power limitation solutions, e.g., engine power limitation (EPL).

The system is developed according to the latest EEXI Implementation Guidelines, published by the International Association of Classification Societies (IACS) in Rec. No. 172, which refers to the MEPC.335 (76). Our system is the reduced solution with an alarm on the bridge and, afterwards, manual power limitation by the nautical personnel.

The system constantly displays the actual shaft power. Any override of power limitation is visually and acoustically indicated on the bridge in the form of an alarm, forcing the ship's master or officer in charge of navigational watch (OICNW) to manually reduce the power to reach the limits again. However, if unlimited power is necessary and confirmed with valid reason, the event is logged in a safe format. This logged data can always be viewed subsequently.

When ordering the system, TX Marine Messsysteme GmbH will ask for a questionnaire. This is used to the setup of the Display with ShaPoLi solution and the completion of the OMM (onboard management manual), which is also a part of the scope of supply. In this questionnaire, all necessary data are requested.





Scope of supply:

1. TXM ShaPoLi Display WH (Wheelhouse)
2. Additional hardware for integration of nautical data or shaft power sensors. Possible additional equipment:
   a. 5NMEA Multiplexer
   b. 8NMEA Multiplexer
   c. BRC Baud rate converter

PMImkII

IMPA: 652641 | Item No. 10001000011129

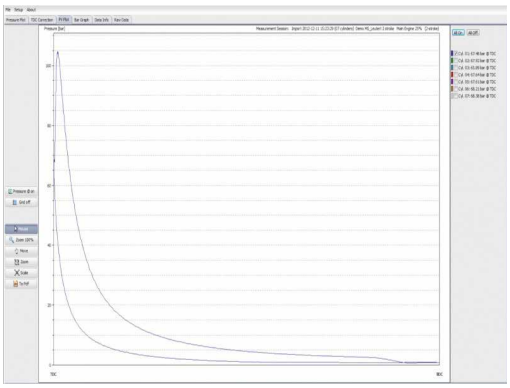
Electronic engine indicator

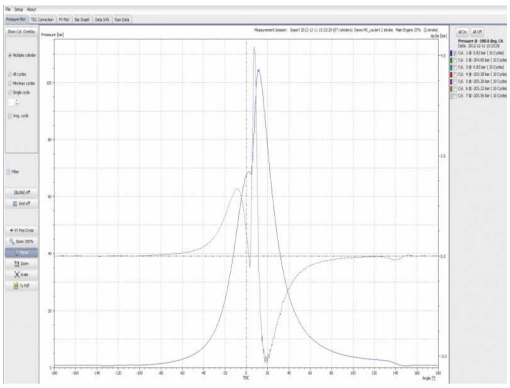
Application:

Precise digital pressure measurement for two and four stroke Diesel engines.

Features:

- No need to install a TDC Sensor
- Easy handling and Plug ‘n’ play installation of the Soft-and hardware results in less user related problems
- Long life components
- Usage of a high-quality sensor
- Integrated rechargeable batteries
- Software for analysis of measurement data, storage and send via email
- **Start-up service and assistance for the first measurement via mail**





The pressure sensor is temporarily connected to the engine’s indicator valve, allowing cylinder pressure to be measured under real operating conditions. During the measurement series, all key data can be monitored in real time on the LC display of the PMImkII handheld unit.

Once the series is complete, the data sets are stored in the internal memory and transferred to a PC via the USB interface. The PC software then provides powerful tools to evaluate, visualize and manage the measurements – from individual cycles.

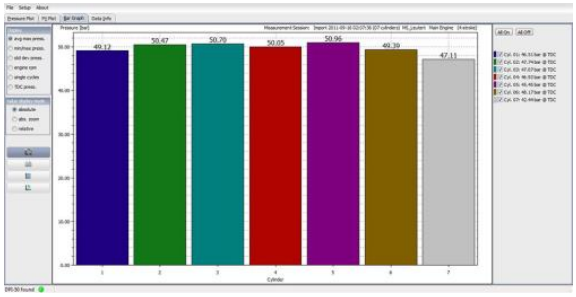
To connect the pressure sensor, the engine to be analysed must be equipped with standard indicator valves (Thompson connection). This ensures a quick, repeatable setup and makes the system suitable for regular condition checks as part of your maintenance strategy.

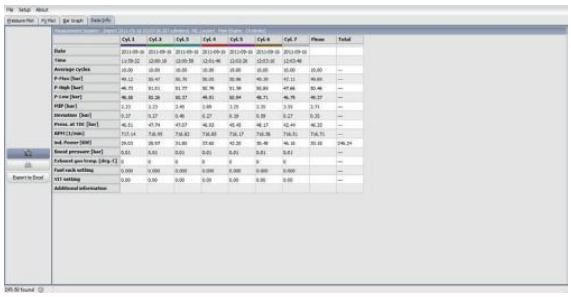
Analysing Software:

The PMI software transforms raw cylinder pressure data into clear, actionable insights for efficient engine operation. Intuitive interfaces and powerful analysis tools support crews and superintendents in making faster, more informed decisions.

Key features include:

- **Intuitive analysis screens:** Pressure plots, PV diagrams, bar graphs, and raw data views present complex combustion processes in a clear and easy-to-understand format
- **Automatic and manual TDC correction:** Fast and reliable adjustment for all cylinders or individually, ensuring accurate power calculations
- **Advanced combustion analysis:** Visualization of peak pressure, compression, and combustion timing enables quick identification of irregularities
- **Direct cylinder comparison:** Overlay functions and bar charts highlight deviations instantly, supporting optimal load balancing
- **Comprehensive data access:** Key parameters such as Pmax, MIP, RPM etc for in-depth diagnostics and trend monitoring
- **Efficient reporting:** Easy export to Excel, PDF, or dpz formats for seamless sharing with shore-based experts
- **Integrated device management:** Configuration of engine parameters, display settings, and synchronization for smooth onboard operation





TX Marine supports you from commissioning to continuous performance monitoring. We assist with system setup, initial data evaluation, and offer ongoing expert analysis to detect trends early and support long-term efficiency and maintenance strategies.

Technical Specification:	
Pressure range:	0 to 300 bar
Engine range:	50 to 5.000 rpm
Accuracy:	< 0.5 %
A/D sampling precision:	16 bits (0.0092 bar / sample)
Memory capacity:	50 engines
Battery type:	Standard AA, rechargeable
Battery capacity:	> 6 hrs (charging via USB)
Display:	20 x 4 alphanumeric characters, backlight, high Contrast
Standard connection:	W 27 x 1/10“
Operating temperature:	0 to 55 °C (Handheld unit); 0 to 350 °C (Pressure sensor)
Dimensions:	211 x 100 x 45 mm (Handheld unit) Ø = 60 mm, L = 210 mm (Pressure sensor)
Weight:	380 g (Handheld unit); 830 g (Pressure sensor)

TX MARINE
TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Engine Performance – Pressure Sensors

IMPA: 652641

Cylinder pressure sensors are essential components for monitoring and optimizing marine engines. They measure the pressure in the cylinder during the combustion process and provide real-time data that fine-tunes engine performance and increases efficiency. These sensors make it possible to precisely analyze the combustion processes, which helps to reduce fuel consumption, minimize emissions and extend the service life of the engine. Cylinder pressure sensors are essential in modern shipping to meet the high demands of environmental standards and economic efficiency.

Cylinder Pressure Sensor IMES

Example CPS-03

Area of application:	On-line combustion control for diesel and gas engines to increase engine performance and optimized engine control. Extremely robust against high dp/dt and vibrations. Protection class IP69.Closed control loop for combustion engines.
Measuring range:	0…300 bar (others on request)
Static overpressure:	1200 bar and 1600 bar
Electrical connection:	Plug DIN M12 / MIL-C-26482
Thread:	M10 x 1
Certifications:	DNV, Bureau Veritas, ABS, Class Nk, Lloyd's Register, Korean Register, RINA

imes
the cylinder pressure people

All sensors offer the following:

Signal range output 4-20mA option 0.5-4.5V

Frequency range:	2 or 10 kHz (others on request)
Accuracy error:	< 1% full scale
Max. Temperature (measuring cell):	300°C (short term 1min 350°C
Thermal shock:	1500 RPM pmi = 10 bar < +/- 0.5 bar

Cylinder Pressure Sensor Kistler

Type 6613CG2

This type is particularly suitable for 2-stroke engines <300 1/min, the inline charge amplifier runs with a time constant of >100 s which offers a fully suitable frequency bandwidth for all types of measurement tasks.

Type 6613CG1

Recommended for 4-stroke engines, this type has a time constant of >10 s, which is suitable for all types of measurements for 4-stroke engines with >300 1/min.

KISTLER
measure. analyze. innovate.

Measuring range:	0…250 bar
Electrical connection:	Plug DIN M12x1
Marine approval:	DNV, BV ABS, LR, CSS
ATEX:	II 3G Ex nA IIC T3 Gc
IECEx:	IECEx nA IIC T3 Gc

All sensors offer the following:

Output current:	4…20mA , signal range: 12,5mA
Upper cut-off frequency:	10 kHz
Change in sensitivity:	200 +/- 150 °C <+/- 2,5
Operating Temperature range sensor front:	-20…350°C

LEUTERT

Type 50

IMPA: 652638 | Item No. 1000100011447

Mechanical Indicator (System Maihak)

Application:

Precise pressure measurement for two and four stroke Diesel engines.

Measuring principle:

A metal stylus draws a clear pressure-diagram whicht records the pressure curve within the engine cylinders as influenced by the piston stroke. The recording drum can be moved by means of a string, which is pulled manually or by the engine. If the drum is driven by the engine, the diagram may be planimetered.

Technical Specification:			
Measuring range:	140 bar, 160 bar, 200 bar, 250 bar, 300 bar		
Engine range:	up to n = 300 rpm or max. dp/dt = 9 x 10^3 bar/sec		
Max. diagram:	50 mm / 80 mm (height / length)		
Drum diameter:	50 mm	Weight:	1,5 kg (without wooden box); 4,4 kg (with wooden box)
Paper size:	180 mm x 65 mm		
Dimensions:	165 mm x 130 mm x 90 mm	Standard connection:	W 27 x 1/10“

MSI-3

IMPA no 652632 Item no 1000100010437

Peak Pressure Indicator

Application:

Designed for displaying the maximum value of firing pressure of two- or four-stroke engines.

Features:

- Easy handling
- High accuracy in all speed ranges
- Insensitive to vibration
- Light weight
- Measuring range up to 300 bar
- Extremely robust, low maintenance
- Pressure gauge in safety construction

Technical Specification:			
Measuring range:	0 to 160 bar, 0 to 250 bar and 0 to 300 bar		
Engine range:	Up to 2.500 rpm		
Permissible Temperature:	Ambient -20 to 60 °C		
Error margin:	± 1.6 %	Weight:	3.0 kg with wooden box
Dimension:	210 mm x 155 mm x 60 mm		
Standard connection:	W 27 x 1/10“		

Performance Software and Hardware

The ship must follow a time table. The route is planned, the captain is checking the weather conditions and planning his voyage from port to port.

The captain and crew now have a lot of work to do.

Due to the ever-increasing requirements of the international authorities, such as regulations like SOLAS, ISPS or MARPOL, a large number of reports have to be prepared and sent during ongoing operations.
Additionally, shipping companies, ship owners or charterers are required to provide a large number of key performance indicators to document the status of the ship and the sea voyage.

Through comprehensive data recording and visualization on board, important information can be collected and reports and the Key Performance Indicators (KPIs) can be easily generated and displayed. This not only simplifies the work on board, but also saves time and money. Especially when it comes to the constantly more stringent regulations on emissions, solutions are required.

With special monitoring systems, a wide variety of data can be collected on board, either manually or automatically, and a database can be generated. A comprehensive view of the ship is only possible if sufficient data is available, e.g., through permanent recording of measurement data and plausibility checks.

Here, the performance monitoring systems are the key components for all parties involved in ship operation, from the captain to the ship owner.

With our systems, all available data from on board can be collected.

The information can be used for a variety of purposes.

- Plan maintenance intervals and thereby save time and costs.
- To make optimal use of engine and propulsion systems and as a result save fuel.
- To make recommendations to the captain before the start of a voyage to run weather-optimized routes.
- Ensure your vessel complies with the new CII rules

This not only results in fuel and operating cost savings, but also in emission reductions due to the more efficiently operated ship

Efficient ship ahead!

Here we see ourselves as your supporter, to advise you to choose the best possible solution for you.

Flow measurement

On board of ships are a lot of flows in different areas which have to be used and monitored.

As medium there are liquids or gases which are measured, these are for example:

- Fresh water
- Bilge water
- Refrigerants
- Cylinder oil
- Fuel

Comprehensive and accurate fuel measurement in particular is becoming increasingly important on board.

Fuel costs are one of the biggest operating expenses in ship operation. Due to constantly rising fuel prices and stricter environmental guidelines, it is becoming increasingly important for shipping companies to permanently monitor and document fuel consumption. In this way, deviations can be detected in time and in advance actions can be taken. There are a variety of measurement methods to measure these consumptions. Not only the actual flow rate can be measured, but also temperatures and densities. Depending on the application and specification of the medium, the measuring devices can be selected.

By checking your on-board fuel systems, we can determine the best solution for you.

A flowmeter consists of two main components, the actual sensor and an evaluation unit, usually known as transmitter or transducer. In addition, a categorization is made between the version's compact devices or separate versions (measuring sensor separated from evaluation unit) and the accuracy class.

We can offer you the following measuring devices for the different purposes of use:

- Coriolis mass flow meter
- Ring piston volume flow meter
- Screw spindle volume flow meter
- Magnetic-inductive flow meter
- Ultrasonic flow meter
- Other types on request

Endress+Hauser

KEM

COLTRACO Ultrasonics | since 1987

AQUAMETRO

NITTOSEIKO

VSE flow®

Coriolis mass flow measurement – PROMASS

Endress+Hauser

The Promass series from Endress and Hauser is a long-established, highly accurate sensor. Insensitive to changing and demanding process conditions, it is suitable for the widest range of applications. With its compact transmitter, it offers high flexibility in operation and system integration: access from one side, a remote display, and improved connectivity options. Heartbeat Technology enables measurement reliability and the extension of recalibration cycles. The measuring principle works independently of physical medium properties such as viscosity and density. Highest measuring performance for liquids and gases under changing, demanding process conditions and Intelligent sensors with heartbeat technology.

Benefits:

Great applicability for a wide variety of media, such as Fuels (HFO, MDO, MGO) or gases (LNG)

- Direct mass flow measurement
- Complexity of the available measurands, e.g. Mass, density and temperature
- Measurement independent of inlet and outlet sections, flows, density and temperature
- Mass flow: measurement error ±0.05 %
- No moving parts
- Large measuring range for a wide variety of applications
- Integrated verification – Heartbeat Technology

Application:

For maritime applications, Promass offers an ideal solution, particularly in retrofit scenarios: in the event of a failure of existing mass flow meter or an exchange of a volumetric flow meters, we provide fast and straightforward replacement support. By supplying suitable pieces, e.g. Adapter flanges, we enable a simple, near plug-and-play installation without the need for extensive modifications.

Heartbeat Technology – Continuous Monitoring and Verification

Heartbeat Technology enables Endress+Hauser instruments to perform permanent self-diagnostics, in-situ verification and advanced monitoring, providing reliable measurements, reduced downtime and cost-efficient, predictive maintenance throughout the entire lifecycle.

Heartbeat Technology

Device properties

Max. Measuring deviation

Mass flow (liquid):	±0.10 % (standard), 0.05 % (option)
Volume flow (liquid):	±0,10 %
Mass flow (gas):	±0,25 %
Density (liquid):	±0.0005 g/cm^3

Measuring range

0...180.000 kg/h

Medium temperature range

Standard:	-50…+150 °C (-58…+302 °F)
Option:	-50…+240 °C (-58…+464 °F)
High-temperature option:	-50…+350 °C (-58…+662 °F)
Option:	-196 to +150 °C (-320…+302 °F)

Max. Process pressure

PN 100, Class 600, 63K

Wetted materials

Measuring tube:	1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)
Connection:	1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

Digital communication

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus RS485, PROFINET, PROFINET over Ethernet-APL, Ethernet/IP, OPC-UA

Shipbuilding approvals and certificates

LR approval, DNV approval, ABS approval, BV approval, CCS approval

Product range

Proline Promass F 300:	Measuring device with maximum accuracy, robustness and compact, access-optimized transmitter
Proline Promass E 300:	Mid-range Coriolis flowmeter with compact, access-optimized transmitter
Proline Promass E 100:	Mid-range Coriolis flowmeter with ultra-compact transmitter
Proline Promass X 300:	Four-tube measuring device for maximum flow rates with compact, access-optimized transmitter

CONTOIL®

IMPA: 752531

Volume flowmeters with the Rotary piston measuring principle, for measuring liquids.

AQUAMETRO OIL & MARINE

Application:

The CONTOIL® series is a wide range volume flow meter for efficient consumption measurement.

- **Line sizes:** DN 4 to DN 8 and DN 15 to DN 50
- **Flow range:** 4l/h to 600 l/h and 20 l/h to 30000 l/h
- **Temperature range:** –40 to 80°C and 130°C or 180°C

Product lines:
CONTOIL® VZF II with electronic display and outputs
CONTOIL® VZO with roller counter and outputs

Features:

- Marine approvals (CCS, DNV GL, LR, RMRS, RRR)

Measuring principle:

CONTOIL® flow meters work on the volumetric principle of rotary piston meters (positive displacement meters). The main features of this measuring principle are large measuring ranges, high accuracy, suitability for high viscosities and independence from power supply; flow disturbances do not influence proper operation. Rotary piston, guide roller and drive are the only moving parts in contact with the liquid. Their movement is transmitted by a magnetic coupling through a sealing plate. The hydraulic part is completely separated from the totalising module.

TX MARINE

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Portasonic® PLUS

Artikelnr.: 2000010012340

COLTRACO
Ultrasonics | since 1987

Portable ultrasonic clamp-on transit-time flow meter

Designed to measure, internally record, and export the flow rate within a pipe with precision and ease. It uses a customisable pre-programmed database to allow it to work with a wide variety of pipe materials and liquid types as a highly versatile monitoring solution that can be adapted for specific applications.

Overview:

- provides measurements to within ±0.5% of the true flow rate.
- Customisable, pre-programmed database
- Integrated ultrasonic thickness gauge
- Built-in signal oscilloscope – To provide sensor diagnostics and verify measurement process.
- 3 measurement methods – To allow for the most appropriate application on different pipe sizes.
- Two sensor options – To fit different pipe diameters
- System Integration with Datalogging and Export
- Recording the flow rate with a frequency of 1Hz as standard
- Can be non-invasively applied to almost any pipe as a continuous monitoring solution
- Can be use as permanent and portable monitoring solution, dependent on your needs.

Portasonic® PLUS can portray flow rate in one of three ways to optimise data utility:

- **Volumetric Flow Rate:** In litres per minute or gallons per minute, the volume of liquid transferred within a pipe. The standard measurement for most industrial applications.
- **Mass Flow Rate:** In kilograms per minute or lbs per minute, the mass of liquid transferred within a pipe, calculated by the device using density and flow rate. Commonly used in loading or unloading processes, e.g. fuel transfers.
- **Heat/Energy Flow Rate:** In kilowatts per hour or British Thermal Units (BTU) per second, the amount of thermal energy transferred by a pipe's contents. Commonly used for measurement in heating or coolant pipes.

Condition Monitoring and Predictive Maintenance

Planning and performing regular maintenance is important – but it is not always the most effective way to maintain critical equipment. On board, many instructions and maintenance programs are already in place, providing fixed intervals and standard procedures. However, is it really enough to rely solely on these programs?

Especially the operating equipment on board a vessel is sensitive to failures and defects, and maintaining it is demanding work. Proactive thinking, continuous monitoring and condition-based maintenance can significantly reduce unplanned problems and unexpected failures.

Condition monitoring is based on collecting real-time condition data from machinery and equipment. Predictive maintenance, on the other hand, focuses on the early detection of damage and trends to forecast future failures.

Permanently installed or periodically used measurement technology can be a very effective solution to detect deviations at an early stage and to avoid expensive repairs and costly failures of the propulsion system or other critical systems. Both condition monitoring and predictive maintenance increase the reliability of operating equipment and reduce downtime. This not only saves valuable resources, it also saves money.

The wide range of information already available on board can be used to assess the current condition and support maintenance planning. By implementing additional measurement technologies, damage and problems can be detected in time and targeted maintenance actions can be initiated to prevent failures. In many cases, such investments pay off within a short period of time.

We are well prepared in this field and can offer you, among others, the following solutions and instruments:

- Vibration diagnostics
- Crankshaft deflection and ovality measurement (analog and digital)
- Hatch Cover & Door Tightness Testing
- Inline Water in Oil
- Metal thickness gauges (for metal and glass reinforced plastics)
- Overspeed tester
- Pressure calibrator
- Temperature calibrator
- Oil sampling tester
- Oil condition sensors
- Oil mist detectors
- Videoscopes

If you are missing a specific instrument in this list, we will gladly support you in finding the right solution.
We will be happy to advise you on the possibilities of condition monitoring and predictive maintenance for your vessels.

Type 9080

Intelligent Trending Vibration & Bearing Condition Analyser with various kit options available. Analyses, Interprets and Trends Machine Condition

- Identify the vibration problem: 2/10Hz to 1kHz for a clearer understanding of unbalance, misalignment or looseness
- Vibration values are displayed with color coded alarm levels for ISO values
- User settable Alarm Levels for easy identification of the bearing condition displayed as a BDU (Bearing Damage Unit) value
- 1kHz to 10kHz covers the Bearing Condition to identify bearing wear, damage, lubrication issues etc.
- Identify complex issues: 800-line spectrum with zoom and cursor
- Load up routes for operatives to follow and trend lines show problems before they happen when using the accompanying VibTrend PC Software

VibTrend PC Software
Supplied as Standard with 9080 Kits with no ongoing subsription fees.
Store, analyse and report on all your vibration parameters in one place.
Create Routes for operatives to follow for easy vibration point and machine identification then send out e-mail notifications automatically once docked

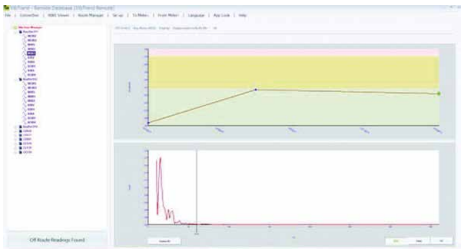
9080-Standard Includes:
A9018 accelerometer, curly cable and magnet & A9081A USB docking cradle in the A9087 carrying case with VibTrend Standard PC software (up to ten assets with ten measurement points per asset) without any ongoing subscription fees.

Further devices available in Pro and Plus versions with e.g. unlimited PC software or additional measurement parameters.

Typ 9080-EX
An explosion-proof, easy-to-use vibration analyzer and intelligent trend meter that records, analyzes and displays vibration signals at the touch of a button.

Certificates:
Explosion-proof. IEC Ex/ATEX Ex ib IIC T4 Gb
(-20°C < Ta < +40°C)
Certificates: IECEx BAS 16. 0131X Baseefa16ATEX0182X Version 2

Europe



TX MARINE TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

TPI Vibration Analysers – Simple and Cost-Effective Condition Monitoring

Key capabilities:

- Detect common faults such as bearing wear, imbalance, misalignment, looseness, and gearbox defects
- Frequency range 2 Hz to 1 kHz for analysis of imbalance, misalignment, and structural issues
- Extended range up to 10 kHz for detailed bearing condition monitoring (wear, damage, lubrication)
- High-resolution 800-line spectrum with zoom and cursor for advanced fault identification
- Early fault detection helps prevent unplanned downtime and reduces maintenance costs

Typical applications:

Pumps

Direct-coupled pumps mainly exhibit bearing wear and imbalance issues; alignment problems are less common due to fixed motor connection.

Motors

Motor-pump assemblies with couplings may show bearing damage, imbalance (e.g. due to impeller issues), and shaft misalignment between components.

Fans

Fans are prone to imbalance caused by dirt, damage, or lost balancing weights; bearing wear and bent shafts are also common fault sources.

Vibration Meters Overview

	9070	9071	9075	9080 Std	9080 Pro	9080 Plus	9080K1	9080K2	9084	9085
Display Type	OLED	OLED	Screenless & uses App	OLED	OLED	OLED	OLED	OLED	OLED	OLED
Storage Case Type Supplied	Nylon Belt Pouch	Nylon Belt Pouch	None	Padded Carrycase	Padded Carrycase	Padded Carrycase	Padded Carrycase	Padded Carrycase	Padded Carrycase	Padded Carrycase
IP Rating	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Embedded Accelerometer	Yes	No	Yes	No	No	No	No	No	No	No
Standard 100mV/g IEPE Accel with BNC connector	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No
Low power 30mV/g Accel with 5 Pin MS connector	No	No	No	No	No	No	No	No	Yes	Yes
Instantaneous Temperature	No	No	No	No	No	No	No	No	No	Yes
800 - Line FFT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISO standard Colour coded Unbalance, Misalignment & Looseness	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bearing Damage Units (BDU) with user settable alarm levels	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall 'g' value	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
"AA" Battery powered	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No
Wireless rechargeable battery with Charging Pad	No	No	Yes	No	No	No	No	No	Yes	Yes
Magnet attachment for accelerometer	Opt	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Magnet built into accelerometer	No	No	No	No	No	No	No	No	No	Yes
Extended 100mm Stinger attachment	Opt	Opt	Opt	Opt	Opt	Yes	Opt	Opt	Opt	No
1/4" Stud attachment capability	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Protective Rubber Boot	Opt	Opt	No	Opt	Opt	Inc	Inc	Inc	Inc	Inc
Strobe attachment capability	No	No	No	Opt	Opt	Inc	Inc	Inc	No	No
Bluetooth Audio Capability (using own headphones)	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bluetooth Ear Defenders Supplied	No	No	No	Opt	Opt	Opt	Opt	Inc	Opt	Opt
Local route based data transfer to & from VibTrend PC Software	No	No	Upg	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unlimited Asset Trending on VibTrend PC Software	No	No	Upg	Upg	Yes	Yes	Yes	Yes	Yes	Yes
Remote Databases on VibTrend PC Software	No	No	Upg	Upg	Yes	Yes	Yes	Yes	Yes	Yes
Global route based data Transfer to & from C-Trend II PC Software	No	No	Upg	Upg	Upg	Upg	Upg	Upg	Upg	Upg
EX Intrinsically Safe version Available	No	No	No	No	YES	No	No	No	No	YES
EX version Part Number					9080-Ex					9085-EX

Opt = Optional Upg = Upgradeable Inc = Included

Pumps

Motors

Fans

TX MARINE TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

ONLINE VIBRATION MONITORING

Online vibration monitoring delivers continuous real-time insight into machine health, enabling early fault detection and truly predictive maintenance. It helps prevent unexpected failures, reduce downtime, and keep critical equipment running reliably by permanently tracking vibration patterns. With insurers increasingly demanding continuous monitoring to validate equipment safety and reduce risk, online vibration monitoring has become a key element for meeting safety and compliance requirements. A combination of portable vibration monitoring and permanently installed systems provides comprehensive protection for your assets and supports optimal maintenance planning.

Advantages:

- Early detection of deviations and potential faults
- Longer service life of machinery
- Improved safety
- Optimized maintenance processes
- Cost savings, higher productivity and safer operation

Principle:

Sensors mounted at critical machine points measure vibration continuously and send data to a central monitoring or cloud software system, where it is analysed and evaluated.

DiBox

4-Channel Permanent Monitor and signal-acquisition unit for parametric machine evaluation, online recording and machine protection — including alarm-triggered shutdown. It calculates vibration parameters in real time, records time waveforms in 8 GB internal memory and transmits them to a database together with machine operating conditions. The Safety variant adds 4 freely configurable relays and 4 analog 0–20 mA / 0–10 V outputs for integration into machine-protection systems.

Key Features

- 4 dynamic + 4 static channels (dynamic e.g. IEPE/ICP vibration sensors, static e.g. 4–20 mA process signals as example temperature or rotational speed)
- 24 analyses with 3 thresholds each
- Sensor supply for ICP/IEPE sensors
- Ethernet and Wi-Fi connectivity
- 8 GB internal memory (microSD)
- OLED display with status LEDs
- Safety I/O with 4 relay and 4 analog outputs
- Multi-device sync for simultaneous measurements

TX MARINE
TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Variants:

DiBox 3520 — Online recorder

Periodic and alarm-triggered acquisition of parameter levels and time waveforms. 4 dynamic DC inputs with sensor-state monitoring, 4 static DC inputs (temperature, process), 3 digital inputs. Ethernet + Wi-Fi, ATC MESbus, MODBUS/TCP. OLED display, integrated web server. Multi-device synchronization.

DiBox 3521 — Safety monitor

All features of DiBox 3520 plus a fully configurable safety I/O stage: 4 relays NC/NO 24 VDC 1 A (device status, threshold violation) and 4 galvanically isolated 0–20 mA / outputs for integration into PLC, DCS or machine-protection systems.

Smart Sensor VE 3540

Compact MEMS-based smart sensor for continuous vibration, sound and temperature monitoring — with full-color status display, on-board memory and Power-over-Ethernet.

The sensor combines triaxial vibration, high-frequency Z-axis acceleration, microphone, magnetic field and contact / IR temperature in a single IP69 housing — small enough to mount directly on bearing housings, gearboxes and motors. Designed for permanent installation for different application.

Key features

- Triaxial MEMS vibration and high frequency Z axis
- Integrated microphone plus contact & IR temperature
- PoE Ethernet, 8 GB on board memory
- Full color status display and trigger I/O
  Functions & applications
- Permanent multi parameter monitoring of vibration, sound, magnetic field and temperature on pumps, fans, motors and gearboxes
- On board analyses and alarms with multiple thresholds
- Local status visualization (green / yellow / red)
- Optional advanced diagnostics and integration into PLC / cloud systems

Wireless Sensor VE 3506

Multi-sensor with vibration, ultrasonic, magnetic field and temperature in one rechargeable IP67 package — for route-based diagnostics, on-site balancing and permanent surveillance.
The sensor combines a triaxial low-noise MEMS accelerometer with an optional high-frequency Z-axis, MEMS microphone, magnetometer and temperature probe. Wi-Fi or PoE Ethernet, Modbus/TCP and a license-driven feature set make it the most flexible sensor in the product range.

Key features

- Triaxial MEMS vibration, optional high frequency Z axis
- Built in MEMS microphone (license), Wi Fi + PoE Ethernet
- Replaceable Li Ion battery for mobile use
- 8 GB on board memory (license)
- Multi plane balancing function (license)
- Analog & digital I/O for 4–20 mA, relay and Modbus/TCP integration

License options

- **Precision license:** higher sensitivity for very small vibration levels
- **Sound license:** noise, ultrasonic and cavitation detection via microphone
- **Memory license:** 8 GB buffer, autonomous data logging and upload
- **Monitor license:** continuous diagnostics with alarm triggered recording
- **Analog & digital output license:** 4–20 mA, PNP relay, Modbus/TCP
- **Precise digital sync license:** phase accurate rotor angle and signal capture

TX MARINE
TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

ViDI Cloud

Diagnostic cloud platform for the collection, automated analysis and visualization of vibration, temperature and process data from our measuring devices and third-party sensors — Industry 4.0 / IIoT ready.

ViDi Cloud organizes plants in a freely configurable structure, runs predefined analyses 24/7, and presents results through intuitive synoptic screens, charts and reports. Available as public SaaS (ViDi.cloud) or as a fully on-premise private server (ViDi.server) — without per-license fees, with unlimited users and devices.

Key features

- Cloud native diagnostics as SaaS or on prem with 24/7 access
- Comprehensive vibration analysis with advanced indicators and spectra
- Plant structure model with automated, ISO based status assessment
- Multi device data aggregation with live dashboards and one click reports
- Dynamic filter design for re analyzing stored time waveforms
- Role based user permissions and remote expert access

Deployment variants

ViDi.cloud — Public SaaS

Hosted by our partner VIBRO ENGINEERING ViDi service — no server, no IT setup. Devices connect via Wi-Fi, Ethernet or GSM and start delivering data after switch-on. Monthly subscription by storage volume and number of active analyses; unlimited users, transfers and connections. Free starter tier (up to 10 analyses · 100 MB).

ViDi.server — Private on-premise

Dedicated server or virtual machine installation for plants where data must stay inside the network. Modular architecture — services may be distributed across separate VLANs, with optional publishing of selected results outside. Runs on Windows 10 / Windows Server 2016 or later.

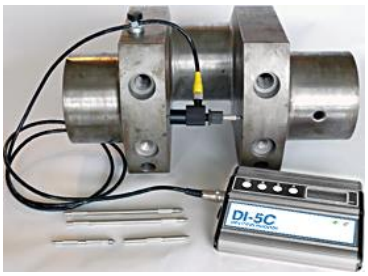
DI-5 / DI-5C

IMPA: 652851/652852 | Item No. 1000130010656

The DI 5C is a modern, digital crankshaft deflection indicator that turns a traditionally time consuming measurement into a fast, clean and highly repeatable process. It replaces old style dial gauges with an easy to use electronic system that delivers precise results and professional documentation at the click of a button.

Key benefits

- **Precise condition monitoring**
  Measure crankshaft deflections with a resolution of 0.001 mm across a large measuring distance, giving you a clear picture of engine condition even at very small deviations.
- **Easy, clean operation**
  Four push buttons and a clear display guide the user through engine, cylinder and measurement settings. Values are stored simply by pressing “OK”, with no manual note taking or fragile dial indicators.
- **Portable and robust**
  The rechargeable battery and compact design make the DI 5C ideal for use on board ships and in power plants, wherever measurements are needed.



- **Digital documentation and trend analysis**
  Measurements can be downloaded via USB to a PC for storage, printing and comparison of engine wear over time. This supports predictive maintenance and simplifies reporting to owners, class and service partners.
- **Extended application with ovality kit**
  With the optional ovality kit, the DI 5C also measures cylinder liner wear and ovality. The supplied software visualises all results in clear graphs, enabling quick assessment and long term trend evaluation.

Online crankshaft deflection measurement – made simple

- The DI 5C guides the user step by step through the entire measurement process. Before starting, the operator selects engine number, cylinder, measurement direction and temperature using four clearly marked push buttons on the front panel. Each measured value is then stored instantly by pressing the OK button, eliminating manual note taking and reducing the risk of errors.
- During the job, the transducer remains mounted while the operator moves it from cylinder to cylinder within the generous measuring range, so no mechanical re adjustment is needed. Once all cylinders are measured, the stored data can be transferred via USB to a PC, where the DI 5C software organises, visualises and compares results over time. With the optional ovality kit, the same workflow is used to capture and analyse cylinder liner ovality, giving a complete, digital picture of engine condition.

TX MARINE
TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Analysis software

- **Easy data transfer**
  Measured deflection and ovality values are downloaded via USB to any Windows PC and can be exported directly to Excel for further processing and reporting.
- **Clear visualisation**
  The software organises measurements by engine and cylinder and presents them in tables and graphs, making trends and deviations easy to understand for engineers and superintendents alike.
- **Trend and comparison**
  By storing historic data, users can compare new measurements with previous results, identify developing problems early and support predictive maintenance decisions.
- **Integrated ovality evaluation**
  Measurements taken with the optional ovality kit are handled in the same software environment, providing a complete picture of crankshaft deflection and cylinder liner wear in one tool.

DI SERIES	DI-5	DI-5 Small	DI-5C	DI-5C Small
Memory & transfer to PC	No	No	Yes	Yes
Export as Excel	No	No	Yes	Yes
Measuring distance	89-565 mm	60-536 mm	89-565 mm	60-536 mm
Measuring range	+/- 2.048 mm	+/- 1.000 mm	+/- 2.048 mm	+/- 1.000 mm
Resolution	0,001 mm			
Zero balance range	+/- 2.048 mm	+/- 1.000 mm	+/- 2.048 mm	+/- 1.000 mm
Zero drift	0.001 mm / 5 minutes			
Instrument operating range	0-55°C / 32-130°F			
Transducer	89 mm	60 mm	89 mm	60 mm
Transducer operating range	0-80°C / 32-175°F			
Battery	3.6 V Lithium Ion, rechargeable			
Battery life	10 hours / charge, shelf life 5 years			
Extension bars (invar alloy)	10, 20, 40, 80 and 2x160mm			
Cable length	7 meters			
Gross weight	4 kg			
Dimension: Instrument	190 x 167 x 50 mm			
Transducer:	Ø 31 x 81 mm	Ø 22 x 56 mm	Ø 31 x 81 mm	Ø 22 x 56 mm
Case	300 x 280 x 140 mm			

TX MARINE
TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Thickness Measurement (Metal/GPR)

IMPA: 652735/652737

Ultrasonic Thickness Gauges

Application:
Multiple echo ultrasonic thickness gauges designed to monitor corrosion levels and check metal and GRP thickness without removing coatings.

- Constant monitoring of corrosion levels
- Perfect assistance for surveyor
- Underwater measurement possible
- “Flying thickness gauge” for high level corrosion without scaffolding or rope access

Features:

- Extremely rugged and robust
- Protective membranes to prevent probe wear
- Supplied in heavy duty hard durable carry cases
- 3-year warranty
- Intelligent Probe Recognition (IPR) for better performance
- Automatic Measurement Verification System (AMVS)
- Single crystal probe to avoid ‘V-beam’ error
- Measures all metal types
- All gauges comply with BS EN 15317:2013
- Ignores up to 20mm thick coatings
- No zeroing required
- Easy to use menus
- Single probe type for all applications

Marine Application Overview

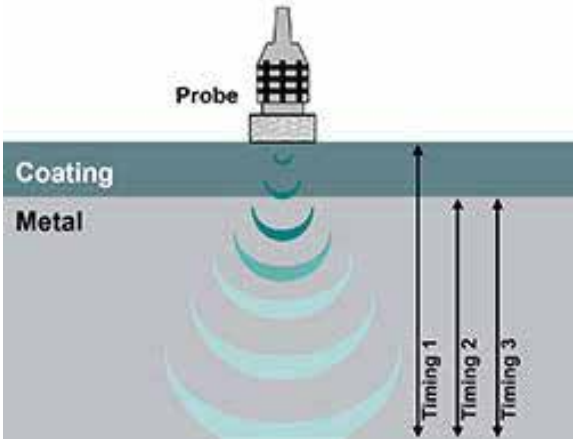
Small Craft Surveyors
Ultrasonic thickness gauges for small craft surveys, delivering accurate readings on thin, heavily corroded structures, with optional data logging and wireless upload for efficient reporting.

Shipping
Multiple-echo ultrasonic technology with single-crystal probes ensures reliable thickness measurements on corroded and pitted steel, as recommended by major classification societies.

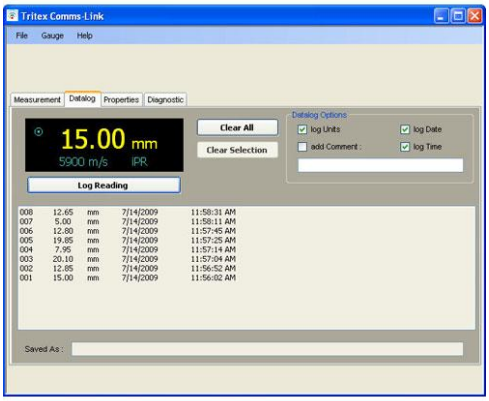
Rope Access
Rope-access-optimised gauges with chest-harness mounting, bright top display and smart cable routing enable hands-free operation, safe working and clear readouts in demanding environments.

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Measuring principle:
All ultrasonic thickness gauges should be calibrated to the velocity of sound of the material being measured. Coatings have a different velocity of sound than metal and it is important they are not included in the measurement.
A transmitted ultrasound pulse travels though both the coating and the metal and reflects from the back wall.
The returned echo then reverberates within the metal, with only a small portion of the echo travelling back through the coating each time. The timing between the small echoes gives us the timing of the echoes within the metal, which relate to the metal thickness. The returned echoes need not be consecutive as the gauge will interpret them automatically and calculate the thickness. A minimum of three echoes are checked each time.
This is referred to as the Automatic Measurement Verification System (AMVS).



TX MARINE
TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**



Communicator Software:
The software displays live measurement results onto a laptop or PC. It can be used with the Multigauge 5700, 5350 and 5750 even with the Multigauge 3000 and 4000 series. Templates can be pre-set as well data can be stored. It has also the option to store the time, date and an identifying label for each measurement. In addition, various settings within either gauge can be changed from the software to optimise performance.

Technical Specification:	
Sound Velocity Range:	From 1000 m/s to 8000 m/s (0.0394 in/µs to 0.3150 in/µs)
Probes:	Single crystal soft faced - 2.25 MHz, 3.5 MHz & 5 MHz (Metal thickness Measurement) Single crystal hard faced - 1 MHz (GRP or Plastic Thickness Measurement)
Measurement Range:	1 - 250 mm (0.04” - 10”) depending on probe used
Probe Sizes:	6 mm (0.25”), 13 mm (0.5”) & 19 mm (0.75”)
Measurement Mode:	Multiple Echo
Resolution:	0.1 mm (0.005”) or 0.05 mm (0.002”)
Accuracy:	± 0.1 mm (0.005”) or ± 0.05 mm (0.002”)
Display:	Colour LCD (5600 and 5700 Series), Red 4 character 7 segment LED (5500 series)
Storage Capacity:	32 Mb (only with datalogger function)
Data Transmission:	Wireless RF(only with datalogger function)
Coatings Range:	Up to 6mm (Standard Mode)*; up to 20mm (Coating Plus+)*
Batteries:	3 x disposable ‘AA’ alkaline batteries or rechargeable NiMH / NiCD
Battery Life:	Up to 50 hours continuous use using alkaline batteries
Gauge Dimensions:	147 mm x 90 mm x 28 mm (5.75” X 3.5” X 1”)
Gauge Weight:	325 g (11.5 ounces) including batteries
Environmental:	Case rated to IP65, RoHS and WEEE compliant
Operating Temp:	-10°C to +50°C (14°F to 122°F)
Storage Temp:	-10°C to +60°C (14°F to 140°F)

Overspeed Simulator / Tester (OTM)

IMPA: 652853 | Item No. 1000010010343

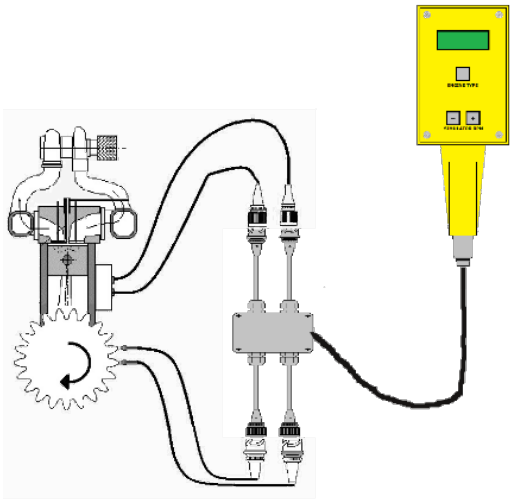
Testing of overspeed safety devises

Application:
Regular simulating and testing of engine shut down/engine over speed safety device to prevent a damage created by overspeed.

Features:

- True check of engine over speed safety device
- True Check of speed pickups & safety electronic
- Fully free programmable
- Ready for plug in (incl. customized adapters)
- Incl. check of output plausibility
- Simulating of over speed on idle incl. concurrent pickup test

Measuring principle:
The OTM receives its supply voltage from the on-board supply system. It permanently measures incoming signals from the speed pickups and shows them on the display. This value is compared with the motor data stored in the OTM (pulses per RPM/overspeed tolerances).
Already here errors in the speed pickups are recognized and alarmed. The OTM can send a freely adjustable speed value (considering the motor data) to the overspeed protection device.
I.e. it does not matter at which speed or at standstill the test is carried out, it is always tested at real switching threshold.
This ensures that the systems operate at the desired speeds.



Due to the freely adjustable speed values that the OTM sends to the motor electrics / electronics, other speed-dependent switching points can of course be tested in addition to the overspeed test (start speed / load-dependent pump controls etc.).

Marine Test Kit (MTS) Pressure and Temperature IKM

IMPA: 651631/651632 (pressure) | IMPA: 352509 (temperature)

IKM calibration sets for pressure and temperature – precise, reliable, with up to 3 years calibration validity.

Scope of delivery:

Temperature calibrator TC65

Environmental and regulatory requirements are important components of QA systems that we must implement on board.
must be implemented on board. Our portable temperature calibrators cover temperatures up to 650°C. Removable insert for more flexibility.

- Temperature range 30-650°C
- Accuracy 1 year ±1.5°C
- Accuracy 3 years ±3.5°C

Pressure calibrator 60 bar*

This pressure calibrator has been added to the existing range of pressure calibration products and can be used to calibrate pressure transmitters, pressure switches, indicators, recorders, and regulators.

- Range: -0.8 to 60 bar
- Fine adjustment
- Accuracy: 1 year ±0.2% FS
- Accuracy 3 years ±0.5% FS

Adapter sets

The set is supplied with adapters for BSP and NPT.

- Adapter set 1 contains four adapters from BSP to NTP
- Adapter set 2 contains three BSP-to-BSP adapters

Optional:

- Marine adapter, 40mm test flange
- Adapter kit 3, M16x2 F to 1/4" BSP M quick connector

*other pressure ranges on request

Marine Calibration Kit (MCK) Pressure and Temperature Sika

IMPA: 651631/651632 (pressure) | IMPA: 352509 (temperature)

All-in-one calibration with SIKA: pressure and temperature solutions for consistent, dependable results.

The Marine Calibration Kit (MCK) enables the user to perform temperature and pressure tests, measurements and calibrations for all types of instruments. The Marine Calibration Kit is very popular in the market due to its composition and handy case. It contains a complete pressure test set as well as a temperature test including all necessary accessories and certificates according to IMO regulations. The most requested and applicable marine calibration set is the TXM MCK 60/650.

The marine calibration set can be assembled according to your requirements; the following is an example:

Article description:	TXM 60/650 Marine calibration set
Item number:	1000090010488
Measuring range pressure:	-1/60 bar
Measuring range temperature:	650°C

Scope of delivery:

Temperature calibrator 230V 50 / 60Hz
Pressure tester (pneumatic) TP 60 bar
Analog pressure gauge -1 to 60 bar
Infrared thermometer
Test certificate for the temperature calibrator
Test certificate for analog pressure gauge
Robust Peli case
Seals
Accessories
adapter

Overview of all systems

Type	Pressure / Temperature
MCK 60/200	-1…60 bar / 200°C
MCK 60/650	-1…60 bar / 650°C
MCK 300/650	0…300 bar / 650°C
MCK 700/650	0…700 bar / 650°C
MCK 700/850	0…700 bar / 850°C

Oil Test

Oil condition sensor WIO

Continuous water-in-oil monitoring detects harmful moisture in lubricating and hydraulic oils in real time and protects engines and machinery from corrosion-related damage.

The water in oil sensor **measures water activity in the lube oil** of ship engines and other machinery, making it possible to detect harmful moisture levels in real time. In all these applications, it is crucial to know the water content of the oil to maintain safe and reliable operation.

The sensor is installed directly in the lubrication or hydraulic system and monitors the complete oil volume (or bypass flow) around the clock, instead of just small samples taken during manual checks.

Two freely adjustable alarm levels (High / High-High) provide early warning long before free water appears, allowing the crew to react in time and avoid costly failures. Robust IP65/IP66 design, calibration in real oil and multiple interfaces (potential-free relays, 4–20 mA, serial bus) ensure easy integration into existing alarm and automation systems.

By combining continuous monitoring, precise alarms and simple integration, the WIO system supports condition-based maintenance, extends oil and component lifetime and increases overall reliability of ship and plant operation.

PAJ WIO sensor versions (a small selection):

WIO200B standard version

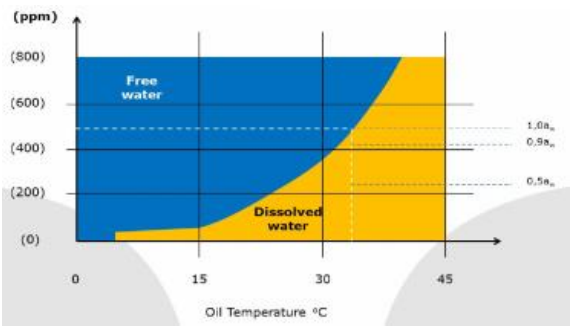
- 24VDC ± 10% power supply
- 2 x NC relay outputs 60VAC / 1A
- 1 galvanically isolated analog output 4 – 20mA
- fixed alarm points HA-0.50 aW, HHA 0.90 aW
- manual test function

WIO300 ball valve version

- 24VDC ± 10% power supply
- 2 x NC relay outputs 60VAC / 1A
- 2 x galvanically isolated analog output 4 – 20mA
- RS232 Modbus user interface
- adjustable alarm points for HA and HHA (aW / PPM)
- manual test function

PAJ Terminal boxes (for connection with the WIO sensors):

- 24VDC ± 10% power supply
- 2 x NC relay outputs 250VAC / 2A
- 1 galvanically isolated analog output 4 – 20mA
- 4-digit display for aw / ppm
- LED indicator for H / HH alarm
- Push-button function for H / HH alarm
- Acoustic indication for H / HH alarm



TX MARINE
TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Hatchcover and Door Thightness Testing

IMPA: 652778 | Item No. 2000010012145

COLTRACO Ultrasonics | since 1987

Portascanner Watertight PLUS

Portascanner Watertight PLUS is a handheld ultrasonic tester for fast, non-destructive verification of watertight and weathertight seals on hatch covers, watertight doors and cable transits. A single operator can test large areas quickly, without hose tests or water damage risk, and detect leaks as small as 0.06 mm with clear, quantitative results in decibels and %.

Key benefits

- **Proven compliance**
  ABS type approved and accepted by RINA, compliant with IACS requirements and DNVGL-CP-0484 for ultrasonic hatch cover testing.
- **Quantified, class-ready results**
  The instrument automatically calculates %OHV and shows whether a hatch is watertight or weathertight, supporting class and P&I documentation.
- **Fast, single-operator testing**
  Lightweight receiver, powerful ultrasonic generator and flexible sensor wand allow quick surveys even in hard-to-access areas.
- **Safe and clean method**

No need for hose testing, no cargo wetting; surveys can be carried out alongside loading or in port, improving safety and saving time

Technical Specifications

Dimensions	Main Unit: 229x85x35 mm (L x W x D)
	Generator: 147x89x54 mm (L x W x D)
	Sensor Wand: 230mm (L) x 35mm (Diameter)
Unit Weight	Main Unit: 400g (with batteries)
	Generator: 400g (with batteries)
Power Supply	Main Unit: 1x PP3 9V
	Generator: 2x PP3 9V
Battery Life	10 Hours Continuous Use
Sensor Type	35mm Flexible Sensor Wand
Sensor Connectivity	1.8m BNC Coaxial Cable
Generator Frequency	40KHz
Operating Temperature	-20°C to +70°C (-4°F to +158°F)
Display	55 x 28 mm Backlit LCD Display
Minimum Leak Detection	0.06 mm ±0.02mm Leak Diameter
Classifications & Approvals	RINA Classification Society Accepted, ABS Type Approved, NSN: 6625-99-2578336
Registrations	UKCA, CE, Coltraco is ISO 9001 and ISO 14001 Compliant
Warranty	Main Unit: 3 Years | Generator: 3 Years | Sensor: 1 Year
	Technical Support: Lifetime of the unit

Level Indicator

IMPA MSG P/N: 652776 | Item No. 2000010012301

Portalevel® MAX PLUS

COLTRACO Ultrasonics | since 1987

Portalevel MAX PLUS is a portable ultrasonic liquid level indicator for fast, non invasive checking of fire extinguishing cylinders on board ships and in industrial plants. One operator can locate the liquid level in a single cylinder in under 30 seconds, without disconnecting or weighing it, keeping the fire system fully operational during testing.

The instrument clearly shows whether the sensor is in the gas or liquid phase and offers several intelligent calibration modes to handle different cylinder types and agents such as CO2, FM 200 and NOVEC 1230. With an accuracy of about ±1.5 mm and UL listing with ABS/RINA approvals, it provides class ready documentation and a safe, efficient alternative to traditional weighing methods.

Battery-powered, lightweight and robust with IP65 housing, Portalevel MAX PLUS is ideal for service companies and operators who need quick, repeatable cylinder checks as part of their fire system maintenance.

Scope of supply

- **Portalevel® MAX PLUS:** Main Unit
- **Handheld Ultrasonic Sensor:** For transmitting ultrasound
- **Ultrasonic Couplant:** Ensure good contact between cylinder and sensor
- **Infrared Thermometer:** To measure cylinder surface temperature
- **Operating Instructions:** Provide guidance on how-to-use
- **Calibration Certificate:** Certify unit has been tested successfully
- **Robust Carrying Case:** To hold the equipment and accessorie
- **Additional Equipment available:** Extension Rod With Sensor

Technical Specifications

Dimensions	167x82x30 mm (L x W x D)
Unit Weight	300g (with batteries)
Accuracy	±1.5 mm (±1/16 inch)
Sensor Type	14mm diameter magnetically mounted
Sensor Frequency	1 MHz
Sensor Connectivity	1 m BNC coaxial cable.
Power Supply	1 x PP3 9V battery
Battery Life	10 hours continuous use
Display	55 x 28 mm backlit LCD
Operating Temperatures	-10 °C to +65 °C (14 °F to 149 °F)
IP Rating	IP65 Rating (Enclosure)
Classifications & Approvals	UL Listed, RINA Classification Society Approval
Registrations	CE, UKAS, Coltraco is ISO 9001 and ISO 14001 registered
Warranty	• Main Unit: 3-Year Warranty • Sensor: 1-Year Warranty • Technical Support: Lifetime of the unit

Oil mist detector

IMPA: 652641 | Item No. 10001000011129

Atmospheric Oil Mist Detection System

Application:
The Atmospheric Oil Mist Detection System is used to identify oil mist in confined areas such as:

- Engine rooms
- Pump rooms
- Bow Thrusters
- Purifier rooms
- Hydraulic pack areas
- Test cells

The Atmospheric Sensors are used with Multiplex (12 channel) or Triplex (3 channel) Monitors. The number of Sensor required, will depend on the size of the space being monitored.

Early detection of oil mist helps to safeguard personnel and equipment before a fire or even an explosion occurs.

Features:

- Traffic light system to easily identify an issue
- Tamper proof once alarm levels set
- Self-Diagnostic system detects fault or dirty Sensor
- Older models are fully upgradable to actual models
- Type approved

Measuring principle:
The equipment uses light scatter (nephelometry) technology. Light scatter has the advantage of being linear in output and has a true zero. This means it is possible to quantify the oil mist as a measurement in mg/l.

This allows the systems to:

- Deliver rapid response within 500 milliseconds of oil mist being detected
- Measure oil mist particles between 3 and 10 microns
- Quantify oil mist in mg/L
- Activate a relay when oil mist is detected

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Oil mist detector (QMI)

Engine Oil Mist Detection System

Application:
The Engine Oil Mist Detection System is used to identify increased levels of oil mist in engine crank spaces. The detectors are mounted on the crankcase and draw oil mist via a common suction rail using an independent fan.

The Engine Detectors are used with Multiplex 12 channel Monitor. The number of Detectors required is dependent on the number of crank spaces within the crankcase.

Monitoring any change in oil mist levels in the running engine's crankcase can help to quickly identify an issue that need to be investigated.

Features:

- Traffic light system to easily identify an issue
- Tamper proof once alarm levels set
- Self-Diagnostic system detects fault or dirty Sensor
- Older models are fully upgradable
- Type approved

Measuring principle:
The equipment uses light scatter (nephelometry) technology. Light scatter has the advantage of being linear in output and has a true zero. This means it is possible to quantify the oil mist as a measurement in mg/l.

This allows the systems to:

- Deliver rapid response within 500 milliseconds of oil mist being detected
- Measure oil mist particles between 3 and 10 microns
- Quantify oil mist in mg/L
- Activate a relay when oil mist is detected

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Videoscopes

IMPA 652757/652758/652759

TX Marine FVS – Professional Video Inspection

In all technical systems, wear, fatigue, ageing and corrosion reduce availability and efficiency. Regular visual inspection is essential, especially for engines, drive systems and their components. The FVS Videoscope enables fast, precise inspections without dismantling – directly on the installed equipment.

Key features

- Records videos and snapshots (JPEG & AVI, 640 × 480)
- Data storage on SD card (4 GB included)
- Outputs: mini USB and AV out (NTSC & PAL)
- Digital zoom, adjustable camera light intensity
- Field of view approx. 54–56°

Standard scope of supply

Handheld TXMFVK900 videoscope, 3.5“ TFT LCD monitor, 4 GB SD card, charger with adapter, USB/AV cable, cleaning kit, operating manual, transport case and 2 way camera Ø 6 mm, 2 m flexible cable (1 m or 3 m on request).

Optional: 28 mm camera with extra bright light and 20 m push rod on a reel for pipeline and other hard to reach inspections, viewing angle approx. 100°.

Fluke Videoscopes – Robust Inspection for Demanding Tasks

Fluke videoscopes complement our range wherever maximum robustness, image quality and documentation are required. Designed for harsh industrial and marine environments, they support maintenance teams with smart features for efficient, repeatable inspections.

Benefits at a glance

- High resolution image and video capture for clear fault documentation
- Rugged design for use on board and in industrial plants
- Flexible, interchangeable probes for different access situations
- Powerful LED illumination for dark and confined spaces
- Easy data transfer and reporting to support maintenance and audits

Typical scope of supply

- Fluke videoscope base unit with integrated display
- Standard industrial probe (e.g. 8.5 mm or 5.5 mm, specified length)
- Charger or power adapter
- USB cable for data transfer
- Neck strap or handle/strap accessories
- Transport case
- Quick reference guide/user manual

You can adjust probe diameter and length in the scope of supply to match the exact Fluke model you want to promote on the one pager.

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Emission measurement

Depending on the type of fuel used, ships emit a wide variety of exhaust-gases such as nitrogen oxides (NO_X), carbon dioxide (CO_2), sulphur dioxide (SO_2), but also soot and particulate matter. This has an impact on the environment and the climate

Regulations to protect against pollution of the marine environment by shipping were therefore international agreed already years ago (MARPOL). Due to these regulations' emission values are limited and therefore need to be monitored.

The environmental protection therefore increasingly becoming a focus for your shipping company!

An important factor in complying with the regulations is the maintenance and operation of the ships and thereby the prevention of environmental damage. If the equipment is maintained carefully, there are opportunities to reduce or save costs. The ship' s crew should therefore be provided with measuring equipment that enables emission values to be recorded and documented quickly.

Regular monitoring of the combustion on board can quickly identify problems in the combustion process. For example, by implementing inner-engine modifications on board, combustion can be improved and large investments in costly maintenance operations can be kept to a minimum. The combustion process can consequently be optimized and fuel consumption as well as specific emissions can be reduced. There are also regulations for exhaust gas cleaning systems (e.g. Catalyzers), which require a regular NOx Spot Check Test.

Furthermore, the measurement and documentation of emission values should make it possible to prove the level of operation of machinery within the permissible limits.

The composition of the ship's exhaust gases identifies problems with the heart - the engine!

Portable analyser's, for measuring exhaust emissions, are easy to use and quickly ready for use without extensive training.

Measured variables that can be determined are:

- Exhaust gas temperature
- O_2
- CO
- NO_X (NO / NO_2 separately)
- SO_2
- CO_2
- CH_4

These measuring devices allow to generate a report of the measured emissions by pressing a button and to document the compliance with the guidelines. As our systems are also certified by classification societies, the operator has an officially approved measurement result and report and can confirm that the maximum prescribed emissions have been complied with.

Invest in an analyser – and notice your emission footprint.

TX MARINE

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

testo 350 MARITIME

Portable exhaust gas analyser for marine diesel engines

The testo 350 MARITIME is a certified portable exhaust gas analyser designed specifically for emission measurements on marine diesel engines in accordance with MARPOL Annex VI and the NOx Technical Code 2008. It enables on board verification surveys, simplified tests after engine adjustments and regular checks of NOx limit values – without the need for a permanently installed CEMS.

Key benefits

- Ready to measure within a few minutes, even under harsh onboard conditions.
- Measures O_2, CO, CO_2 (IR), NO, NO_2 / NOx and SO_2 with highly accurate, long term stable sensors.
- Certified according to MARPOL Annex VI and NOx Technical Code 2008, with DNV and Class NK approvals and MED conformity for marine use.
- Pre calibrated, exchangeable gas sensors ensure high availability and reduce downtime.
- Robust analyser and accessories in a wheeled, shock resistant case for safe transport and storage on board.

Measuring principle

Exhaust gas is extracted via a special, easy to install probe in the uptake. The gas is led through a conditioned sampling system into the analyser, where electrochemical sensors and an infrared cell determine the individual components. All components, including probe and cables, remain protected in the transport case, which is designed for use at sea and allows measurement directly from the case.

Technical data (summary)

- **Operating temperature:** 5 to 45 °C; storage: –20 to 50 °C.
- **Power supply:** Li ion rechargeable battery and AC mains unit 100–240 V, 50–60 Hz; max. power consumption 40 W.
- **Dimensions and weight:** approx. 17 kg; case 565 × 455 × 265 mm.
- **Flue gas pressure:** max. +50 mbar / –300 mbar; pump flow approx. 1 l/min.
- **Measurement ranges:**
  - **Exhaust gas temperature:** –40 to +1000 °C
  - **O_2:** 0–25 Vol.%
  - **CO:** 0–3000 ppm
  - **NO:** 0–3000 ppm
  - **NO_2:** 0–500 ppm
  - **SO_2:** 0–3000 ppm
  - **CO_2 (IR):** 0–40 Vol.%.

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Hull & Biofouling

A clean underwater hull is essential for efficient vessel operation, reduced fuel consumption and lower emissions. However, marine growth develops gradually and is often only addressed once higher resistance, performance losses and increased operating costs have already become apparent.

Effective hull and biofouling management therefore combines two key aspects: **prevention of marine growth and transparent assessment of the actual hull condition.** This helps vessel operators and technical managers make better decisions on maintenance, cleaning intervals and long-term performance optimization.

TX Marine Messsysteme supports both perspectives with complementary solutions. Advanced ultrasonic antifouling systems focus on **prevention** by inhibiting **marine growth without chemicals**, while modern underwater inspection technologies focus on **visualization** through structured **underwater inspection** and **image based assessment** of fouling, coating condition and hull integrity.

Modern solutions support this approach through preventive measures against biofouling as well as underwater inspection, visualization and image-based evaluation of the hull condition. **The result is improved planning reliability, better documentation and a stronger basis for efficiency and sustainability initiatives.**

Focus topics

- **Prevention** – reducing the risk of marine growth at an early stage.
- **Fuel efficiency** – minimizing additional hull resistance and unnecessary energy losses.
- **CO2 reduction** – supporting lower emissions through improved hull performance.
- **Visualization** – making hull condition and fouling status visible below the waterline.
- **Image-based assessment** – using underwater image data for structured evaluation and comparison over time.
- **Maintenance planning** – enabling better decisions for cleaning, docking and performance management.

Shipsonic Ultrasonic Antifouling

Clean box-coolers, water intake pipes and hulls – without chemicals or copper

Shipsonic ultrasonic antifouling protects hulls, box coolers and seawater systems from marine growth by using targeted ultrasonic vibrations instead of biocides or coatings. Transducers mounted on the structure transmit high energy sound waves into the steel, preventing biofilm formation and stopping barnacles, mussels and algae from settling. The result is a cleaner surface, higher cooling efficiency and reduced fuel and maintenance costs – with zero environmental footprint.

How it works

The system operates in the ultrasonic range between roughly 18 and 45 kHz, continuously sweeping through the relevant frequencies to match each transducer's actual resonance. This maximises sound pressure level, the key parameter for effective antifouling, while keeping power consumption low – typical transducers deliver up to 80–120 W peak power but draw only around 8 W on average. Multiple transducer types can be installed on the same structure to create several resonance peaks and ensure full coverage, even in complex box cooler designs.

Benefits at a glance

- Environmentally friendly, purely physical antifouling – no biocides, no effluents.
- Continuous protection for hulls, box coolers, sea chests, strainers and seawater lines.
- One time dry installation, no docking required; systems are maintenance free in normal operation.
- High power, industrial grade transducers (80/100/120 W) with IP67/IP68 protection and patented welded ring mounting for reliable coupling.

System design & monitoring

Shipsonic's control cabinets follow a modular design and can drive up to 20 transducers per unit, each channel providing up to 125 W peak power. Every two transducers have their own power supply, power board and software module, so if one channel fails, the others continue working. Smart self-diagnostics monitor current pulses and detect issues such as poor contact or electronic faults, triggering alarms locally on the cabinet display and remotely via RS 485/PLC interfaces. All monitoring data can be logged for 7 years, giving operators full transparency over system status and antifouling performance.

TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Sentinus 2 - Underwater Data Collective ROV

Smarter Underwater Inspections, Better Data, Faster Decisions

Sentinus 2 is more than a conventional ROV – it combines intelligent underwater mobility with high quality data capture to simplify inspections and deliver efficient, repeatable, inspection ready results. Compared with standard ROVs, it enables faster large area surveys, reduces operator workload and provides structured visual data suitable for documentation, comparison and 3D modelling, making it a valuable tool for operators and technicians alike.

BLUE ATLAS ROBOTICS

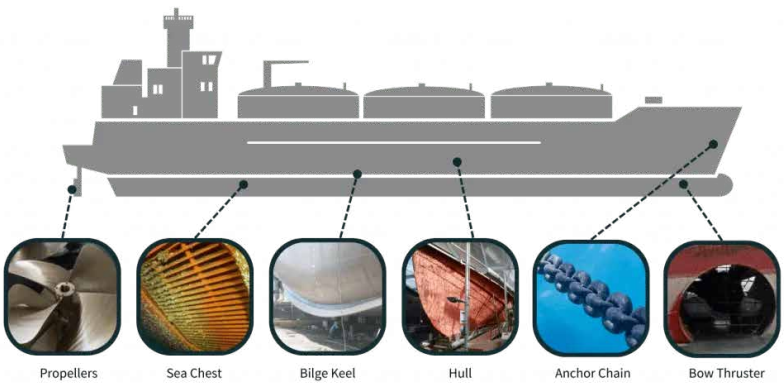
Advantages over conventional ROVs

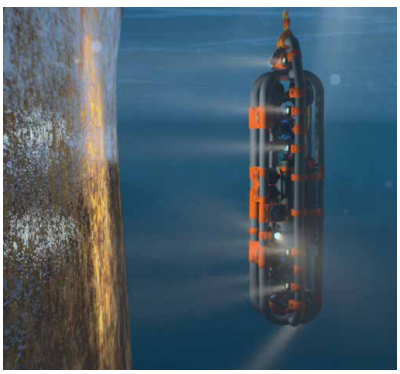
- **Faster area coverage** – large-area surveys with reduced inspection time.
- **Autopilot support** – stable inspection paths with less operator workload.
- **Sideways scanning** – optimized for parallel surface inspection of hulls and structures.
- **High-quality visuals** – multi camera imaging and strong lighting for clear documentation.
- **3D ready data** – footage suitable for photogrammetry, 3D models and trend comparison.
- **Operational flexibility** – works in complex orientations across diverse underwater structures.

Technical highlights

- Survey capacity of up to 3000 m^2 per hour.
- Lightweight 22 kg robot for easier deployment.
- Maximum depth rating of 100 m.
- 8 thrusters, 14 x 1500 lumen lights and onboard 2 TB SSD storage.
- Battery operation or continuous topside power, depending on configuration.
- Fiber-optic tether options from 100 m to 500 m on request

Combined with advanced AI-powered biofouling analysis in the HullVAR ecosystem, Sentinus turns underwater inspection video into quantitative hull performance insights – enabling early detection of biofouling, smarter cleaning decisions and data-driven optimization of fuel efficiency and CO_2 emissions.





TX MARINE
TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

HullVAR

Automated Biofouling Analysis for Better Hull Decisions

HullVAR is a cloud-based solution that transforms underwater inspection videos into standardized, objective biofouling assessments using advanced computer vision. By converting visual inspection data into structured reports, maps and statistical analysis, it helps operators and technical teams evaluate hull condition faster, more consistently and with less subjectivity.

HullVAR adds a data-driven layer to underwater inspections by supporting earlier detection of fouling, better comparison between surveys and more informed maintenance planning. This creates a stronger basis for efficiency measures, cleaning decisions and long-term hull performance management.

Benefits

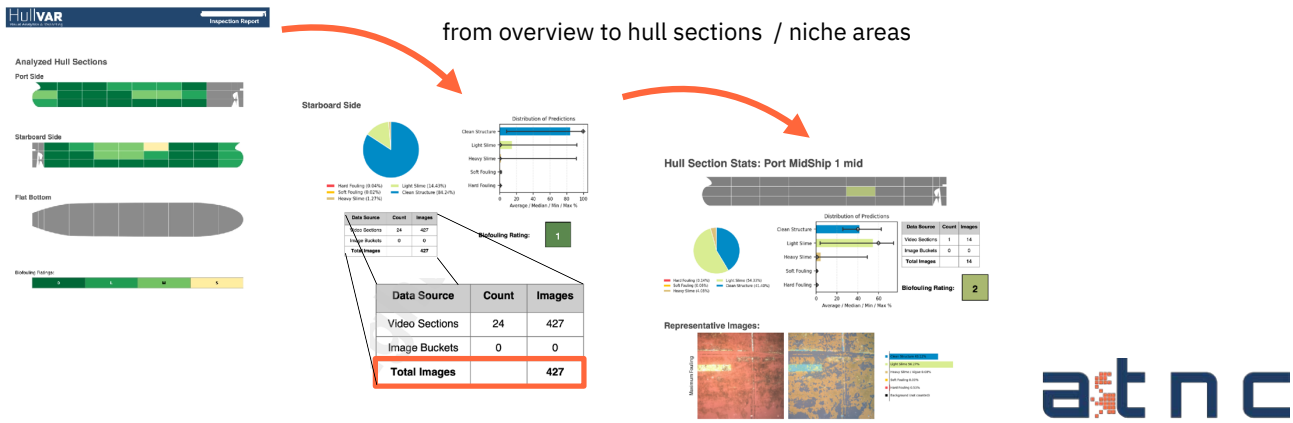
- **Automated analysis** – turns inspection video into structured biofouling assessments.
- **Objective reporting** – reduces dependence on subjective visual interpretation.
- **Comparable results** – supports consistent evaluation across repeated surveys.
- **Visual maps & statistics** – provides clearer insight into fouling distribution and severity.
- **Maintenance support** – improves the basis for cleaning and docking decisions.
- **Efficiency relevance** – links hull condition more closely to fuel and CO2 performance considerations.

Technical highlights

- Cloud-based analysis workflow for underwater hull inspection videos.
- Automatic image extraction from video streams for consistent inspection coverage.
- AI-supported detection and assessment of biofouling extent.
- Section-based outputs with graphs, visual maps and statistical analysis.
- Experimental capability to estimate excess fuel consumption and CO2 emissions based on biofouling analysis.

HullVAR helps transform underwater inspection footage into practical, decision-ready hull intelligence for more transparent maintenance planning and more efficient vessel operation.

The Report – Biofouling data you can trust.



TX Marine Messsysteme GmbH | Sandkamp 18 | 25368 Kiebitzreihe | Germany | sales@txmarine.com | **www.txmarine.com**

Marine service solutions

TX Marine offers specialised marine services that help improve safety, compliance, performance and technical transparency throughout the vessel lifecycle. From onboard calibration and underwater inspections to shaft power trials and steel thickness measurements, each service is designed to support reliable decision-making with professional equipment, experienced engineers and clear reporting.

Service portfolio

Calibration

Calibration for a wide range of onboard instruments, either on board or via workshop handling, with documented results and access to a worldwide partner and laboratory network.

Underwater drone inspection

ROV-based hull inspections combined with AI-supported biofouling assessment for standardised reporting, smarter cleaning decisions and measurable fuel-saving potential.

Ultrasonic thickness measurement (UTM)

Professional steel thickness surveys to assess corrosion, material loss and structural condition in tanks, hull structures and other critical ship areas.

Portable shaft power measurements / speed-power trials

Onboard measurement campaigns with calibrated equipment and experienced engineers, evaluated in strict accordance with ISO 15016:2015 for performance verification and IMO-relevant documentation.

Customer benefits

These services reduce uncertainty in technical operations by turning inspection and measurement data into actionable maintenance, compliance and performance decisions. The combination of portable equipment, marine field experience and global service capability allows support where vessels actually operate, without unnecessary delay or investment in dedicated in-house systems.

Marine Supply Range – IMPA Chapter 65 Measuring Tools

Product Family	IMPA Chapter	IMPA Subcategory	IMPA Code / Range
Measuring Tools	65	Thickness Gauges / Feeler Gauges	650551–650569
Measuring Tools	65	Pressure Gauges / Cylinder Gauges / Stands	651501–651645
Measuring Tools	65	Thermometers	651701–652561
Measuring Tools	65	Engine Indicator / Planimeter / Indicator Paper	652601–652671
Measuring Tools	65	Thickness Indicators	652721-652739
Measuring Tools	65	Detecting Instruments / Borescopes / Inspection Camera	652757-652759
Measuring Tools	65	Detecting Instruments / Ultrasonic Liquefied Gas Level Indicator	652776
Measuring Tools	65	Detecting Instruments / Flow Meter Ultrasonic Transist-time Fixed	652779
Measuring Tools	65	Detecting Instruments / Water-in-oil test / Lub oil test kits / Fuel oil test / Water in oil sensors /	652821- 652825
Measuring Tools	65	Detecting Instruments / Flow sensors	652836-652838
Measuring Tools	65	Detecting Instruments / Deflection indicator / Overspeed tester / shaft power / Sound level / Emission Analyzer	652851-652902

SHIPSERV Our ID 230280

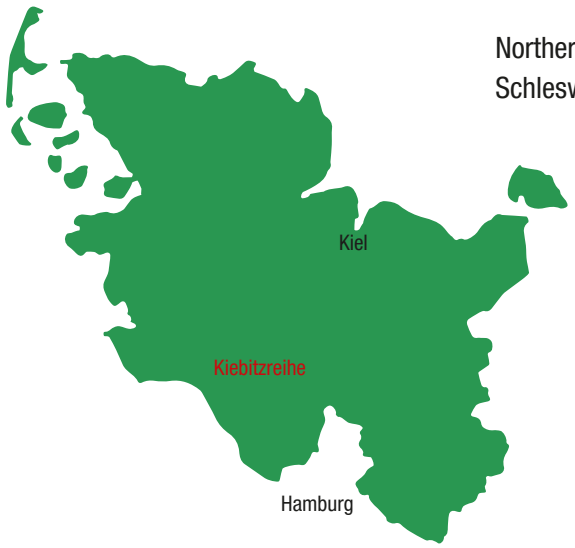
ProcureShip Our ID 2489

MESPAS Our ID U57-2WZ

Your challenge – Our expertise
Just one call away

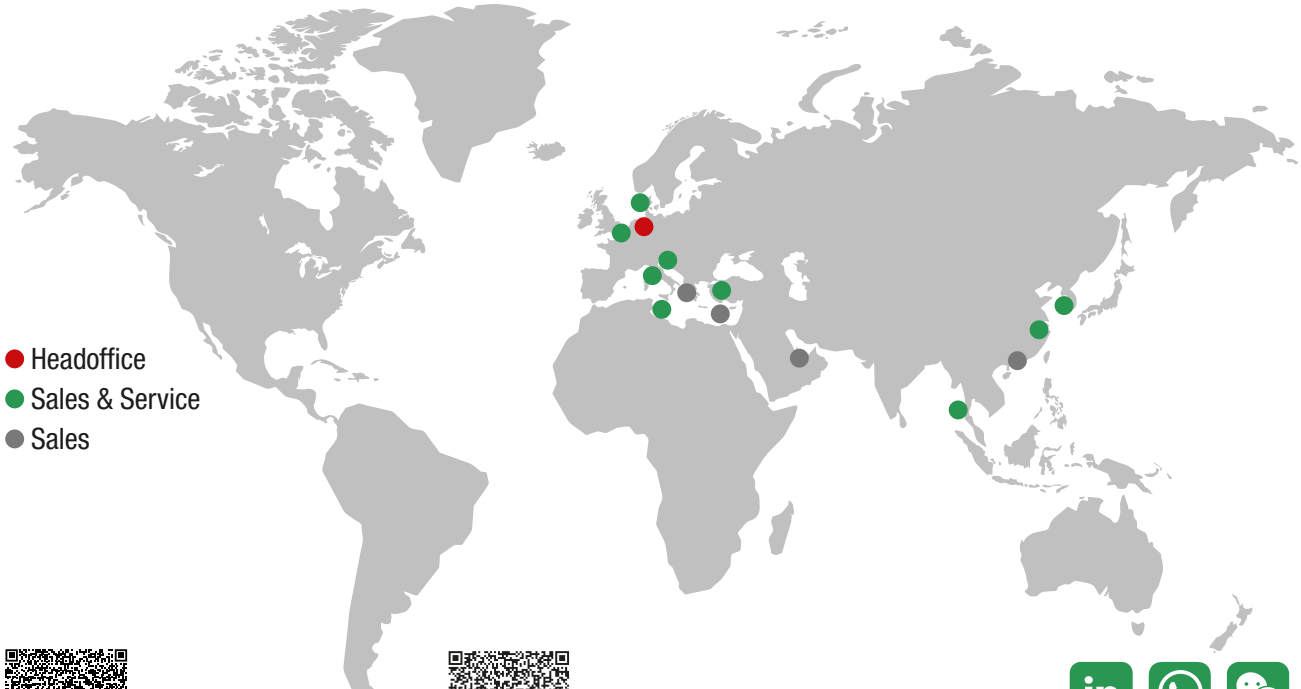
+ 49 4121 491 6890

TX Marine Messsysteme GmbH
Sandkamp 18 | 25368 Kiebitzreihe
Germany



Northern Germany
Schleswig-Holstein

- Belgium
- China
- Cyprus
- Croatia
- Denmark
- Germany
- Greece
- Hong Kong
- Italy
- Korea
- Malta
- Turkey
- U.A.E.
- Singapore



- Headoffice
- Sales & Service
- Sales

Nadine Paschen
Managing Director

Alexandra Leuschner
Sales Manager

www.txmarine.com