



**Monitran**  
Sensors for Industry



MTN/5000

**Microcontroller-based  
condition monitoring system**



# MTN/5000

## Microcontroller-based condition monitoring system

The MTN/5000 is a cost-effective, versatile and easy-to-use condition monitoring system for viewing the health of plant and equipment, raising alarms and indicating when further investigations may be warranted.

### Applications

Vibration monitoring and logging. Any sensor-based design e.g. temperature, pressure, voltage/ current/power.

### Technical

#### Analogue channels:

12

#### Sampling resolution:

12 bit

#### Sampling speed:

Up to 1,000,000 samples/sec

#### Input range:

Dependent on sensor

#### Screen:

3.5" (89mm) TFT Touchscreen

480 x 320 x 24 bit colour

#### Sample buffer:

12 x 100 samples

#### Input voltage:

24 VDC

#### Alarms:

12 (user configured 1 per channel)

#### Dimensions (enclosure only):

350 x 250 x 200mm

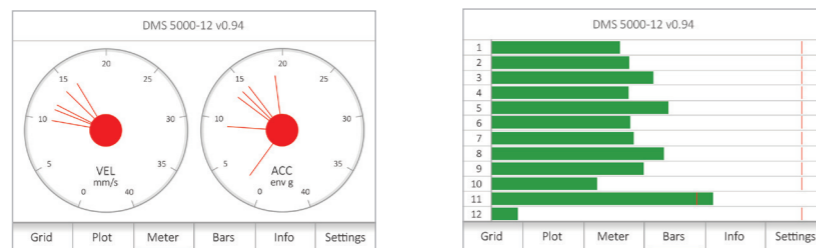
#### Dimensions (including glands):

372 x 250 x 200mm

### Options

#### Ethernet connectivity:

TCP/IP; Modbus



Housed in an extruded aluminium enclosure the system features a 3.5 inch TFT touch screen with a high-performance ARM Cortex-M3 processor. It has an easy-to-navigate menu that enables users to set data sampling periods, ranges and accuracy levels plus vibration threshold (alarm) levels on a channel-by-channel basis or across all 12 channels. In addition, the system has 12 digital I/O channels that can be used for multiple alarms or a communication channel. Integration is also possible via Ethernet plus the raw signals from the sensors are made available via BNCs for bearing analysis.

Primarily a supplier of cost-effective sensors, we are steadily increasing our portfolio of project management clients, providing sophisticated turnkey solutions, incorporating vibration sensors with monitoring and display hardware to integrate with other sensor types and customer control systems.

Our expert engineers and service specialists are on hand to provide guidance on product selection and help you integrate our sensors and monitoring solutions into your application.

The MTN/5000 is a mature and proven monitoring system, as its roots are in a number of high-profile turnkey projects Monitran has undertaken during recent years. A selection of these projects are shown opposite.



### Opposite

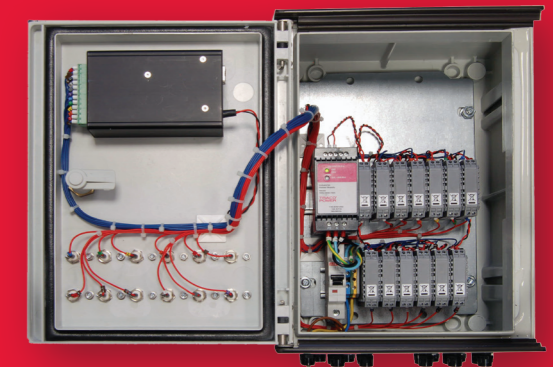
Screenshots depicting the different data display modes.

### Left

MTN/5000 exterior.

### Below

MTN/5000 interior.



### Ground vibration monitoring:

Construction activities such as hammering, drilling and piling can cause transient levels of shock and vibration to neighbouring property. These transient vibrations must be monitored and minimised in accordance with British Standards for safe levels of ground vibration during construction operation to ensure that no long-term structural damage is caused.

We were asked to develop a system for continuously monitoring the vibrations caused during the construction of an extension to a girls' school in London. The construction work, close to a row of old houses and their boundary walls required some very deep piling.

Our development team was able to combine state-of-the-art microcontroller technology with well-established field-tested sensors to provide a tailored solution to a challenging brief.

### Hovercraft vibration monitoring system:

The modern fully amphibious hovercraft is unique in its ability to travel over both water and flat land with equal facility and without any interruption during transition between the two.

We were approached with a view to providing an integrated engine and gearbox vibration monitoring system. The brief was to provide real-time condition monitoring direct to the pilot on a fleet of 12 vessels designed for coastguard use.

Our development team was able to combine microcontroller technology with well-established and field-tested sensors to provide a tailored solution to meet this challenging brief.

### Thames Barrier lift control:

Operated by the Environment Agency, the Thames Barrier is London's main defence against flooding.

We were asked to design, install and commission a system to monitor bearing movement and gate position. Critically, the system had to be a permanent fixture and would require equipment to be placed on the outer faces of the bearings where it would be subjected to the full force of a tidal river.

Several elements of the project required custom-built equipment and, additionally, we needed to assemble a team of skilled engineers trained and certified to work in confined spaces and on floating platforms.



**Monitran**  
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Monitran is a world leader in the design, development and manufacture of sensors and systems for vibration and displacement measurement.

For further information on our cost-effective and versatile MTN/5000 condition monitoring system please contact us using the details opposite.

Please also contact us or visit our website if you wish to learn more about our transducer ranges, which include accelerometers, velocity sensors, LVDTs and eddy current probes, or wish to discover more about our turnkey project capabilities.

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