MONITRAN

SENSING THE FUTURE

General & Special Purpose
Vibration Sensors

Automotive

B & M

Heavy Industry

Mining

Paper Making

Petrochemical

R & D

Utilities

Windfarms

T: +44 (0)1494 816569 ● **F:** +44 (0)1494 812256 ● **E:** info@monitran.com ● **www.monitran.com**

Monitran's general purpose accelerometers fall into two categories: those for vibration analysis, which have AC outputs and are suitable for use with hand-held and on-line vibration analysers; and those for machine protection, which have DC outputs and are ideal for direct input to a PLC or other industrial controller.

For more specialised applications we have sensors with dual outputs; for acceleration and temperature, for velocity and acceleration, plus triple output devices for velocity, acceleration and envelope g. Also, available are dedicated sensors for AC velocity, high temperature applications, modal analysis and tri-axial measurements.

Key to Sector Icons

Automotive

Buildings & Maintenance

Heavy Industry

Mining

Paper Making

Petrochemical

Research & Development

Utilities (gas, water, electricity)

Windfarms

Selection Tips

These tips will help you identify the most effective sensor types for your task but with such a wide and varied offering we welcome your enquiry to our technical sales team who will enable you to pinpoint the perfect match for the task in hand.

What do you need to do?
For vibration analysis and condition monitoring, sensors with an AC or charge output are most suitable. For continuous monitoring and machine protection you will need sensors with a DC output.

In which application are the sensors to be used?
Each accelerometer is coded with one or more icons indicating the most suitable applications.

How will you connect the accelerometer to your measuring system?
Monitran's sensors either have 'plug and socket' connections or are supplied with integral cables.

Which orientation do you need?
For many models there is a choice of top or side entry, with the latter having a lower profile and therefore making them ideal when space is at a premium.

Are the sensors to be installed in a hazardous area?
Many of our sensors are available in ATEX- or IECEx-approved versions and are suitable for use in flammable gas or dust hazard areas, for example in petrochemical and underground environments.

Are the sensors to be used in mining operations?
We can supply top or side entry ATEX or IECEx Group I sensors for mining or tunnelling environments.

How is it best to mount your sensors?
The mounting method will be governed by the nature of the machine or structure to which the sensor will be fixed and the permanence of its installation. Bearing this in mind, mounting methods include male studs, female threads, epoxy adhesive or magnetic attachment. The Quickfit option (with a wide range of adaptors available) is particularly useful for sensors with stiff integral cables.

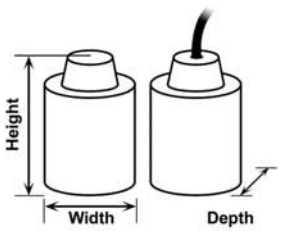
Sensitivities and ranges?
For any given application you need to select a suitable sensitivity and output range. Most sensors have standard sensitivities and ranges, which are given in this brochure, but please refer to our datasheets for other sensitivity/range options.

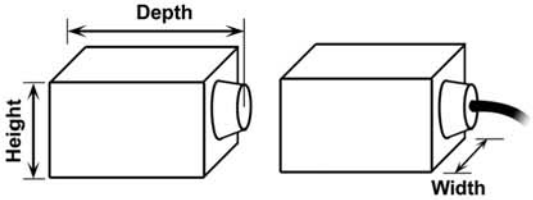
What frequency range?
Most of our sensors operate in the range 1Hz to a few kHz but if you need to measure seismic vibrations or movements within large structures you will need a Low Frequency sensor which measures, and produces an output, down to DC (0Hz). For very high speed machines, consider a charge output sensor which, with the right charge amplifier, will respond at very high frequencies.

Environmental protection needed?
All sensors have a high resistance to liquid penetration with fully submersible to IP68 versions available for deep water applications.

Which temperature range do you need?
Most of our sensors will work in sub-zero temperatures and most can handle any heat generated by the machinery to which they are attached. For hotter environments we can supply sensors which will operate in temperatures as high as 250°C.

Dimensions:





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MTN/1135C

The MTN/1135C is a small footprint, general purpose accelerometer with an isolated AC output and overbraided cable, and is suitable for use in harsh environments where space is at a premium.

It has a frequency response of 0.8Hz to 12kHz @ 3dB points, requires a constant current supply of 0.5 to 8mA and has a standard sensitivity[1] of 100mV/g up to 100g, with other sensitivity/range combinations available upon request.

Dimensions[3] (mm): 16 x 16 x 25

Weight[2]: 30g
Entry: Side
Sealing[4]: IP67

-55 to 140°C

AC

MTN/1830

The MTN/1830 is a low profile, general purpose accelerometer with an isolated AC output and is suitable for use in harsh environments with restricted headroom.

It has a frequency response of 2Hz to 9kHz, requires a constant current supply of 0.5 to 8mA and has a standard sensitivity[1] of 100mV/g up to ±80g, with other sensitivity/range combinations available upon request.

Dimensions[3] (mm): 19 x 50 x 19

Weight[2]: 110g
Entry: Side
Sealing[4]: IP67

-10 to 140°C

AC

General Purpose - Monitoring

MTN/1185 FAMILY

The MTN/1185 family members are general purpose accelerometers with DC outputs, and are ideal for machine protection.

Sensors are available with connectors or integral cables (C) and sealed to IP67. Intrinsically safe (I), for petrochemical and mining applications, and submersible, IP68(W) versions are also available.

The table below presents the options.

All sensors are top entry and have a frequency response of 2Hz to 1kHz, and operate in the temperature range -25 to 90°C (120°C optional). All have a maximum sensitivity[1] range of 0 to 100mm/s. Minimum sensitivity ranges are shown in the table.

MTN/	Sealing[4]	Minimum Range (mm/s)	Dimensions[3] (mm) W x D x H	Weight[2] (gm)	ATEX group
1185	IP67	0 to10mm/s	28 x 28 x 57	150	
1185C	IP67	0 to 10mm/s	28 x 28 x 43	150	
1185IW	IP68	0 to 20mm/s	28 x 28 x 75	150	II
1185W	IP68	0 to 10mm/s	28 x 28 x 75	150	
1185IC	IP67	0 to 20mm/s	28 x 28 x 43	150	II
M1185IC	IP67	0 to 20mm/s	28 x 28 x 43	150	I

-25 to 90°C

DC

MTN/1187 FAMILY

The MTN/1187 family members are general purpose accelerometers with DC outputs proportional to RMS acceleration and are ideal for machine protection.

Sensors are available with connectors or integral cables (C) and sealed to IP67. Intrinsically safe (I), for petrochemical and mining applications, and submersible, IP68(W) versions are also available.

The table below presents the options.

All sensors are top entry, have a frequency response of 2Hz to 1kHz, operate in the temperature range -25 to 90°C and have sensitivities[1] in the range of 0 to 1g (RMS) 0 to 20g (RMS).

Please refer to the data sheets.

MTN/	Sealing[4]	Dimensions[3] (mm) W x D x H	Weight[2] (gm)	ATEX group
1187	IP67	28 x 28 x 57	150	
1187C	IP67	28 x 28 x 43	150	
1187IW	IP68	28 x 28 x 75	150	II
1187W	IP68	28 x 28 x 75	150	
1187IC	IP67	28 x 28 x 43	150	II
M1187IC	IP67	28 x 28 x 43	150	I

-25 to 90°C

DC

MTN/**1600** & **1600C**

The MTN/1600 and 1600C are dedicated velocity sensors with isolated AC outputs and suitable for use in harsh environments.

Both require a constant current supply of 0.5 to 8mA, have standard sensitivities[1] of 4mV/mm/s and frequency responses of 5Hz to 4kHz.

Weight[2]: 100g

Dimensions[3] (mm): 46 x 46 x 76.7 (W x D x H)

Sealing[4]: IP67

-25 to 90°C

Velocity

Mounting options

- *Top Entry sensors are available with ¼ inch female, male stud and QuickFit mounts.*
- *Side Entry sensors are available with ¼ inch female, M6 and M8 bolt mounts*
- *Magnetic and adhesive mounts are also available.*

MTN/**1105CE**

The MTN/1105CE is a high temperature*, top entry accelerometer with an in-line charge amplifier.

The standard sensitivity[1] is 50pC/g, giving 100mV/g at the output of the amplifier, and the frequency response is 0.8Hz to 12kHz @ 3dB points.

Weight[2]: 100g

Dimensions[3] (mm): 25 x 25 x 37 (W x D x H)

Sealing[4]: IP67

Charge amplifier: In-line encapsulated

* Many of our general purpose sensors operate up to 140°C

-55 to 250°C

AC

MTN/**1800**

The MTN/1800 is a lightweight, high sensitivity accelerometer for modal analysis.

Its standard sensitivity[1] is 1000mV/g in the range ±10g, though other sensitivities and ranges are available upon request.

The sensor requires constant current supply of 0.5 to 8mA and its frequency response is 5Hz to 12kHz.

Weight[2]: 9g

Dimensions[3] (mm): 14 x 14 x 14 (W x D x H)

Sealing[4]: IP65

-55 to 120°C

AC

MTN/**P05**, **P50**, **P100** & **P1100**

The P05, P50, P100 and P1100 sensors are charge output accelerometers and are ideal for R&D and certain monitoring applications. The smallest members of this family have increased high frequency response needed for very fast rotating machinery.

All require the use of a charge amplifier (for example, the MTN/CA003).

MTN/	Sensitivity[1] (pC/g)	Frequency range*	Acceleration Range	Dimensions[3] (mm)	Weight[2] (gm)	Sealing[4]
P05	5	1Hz to 30kHz	±2,000g	9.5 x 9.25 x 11	7	IP65
P50	50	1Hz to 10kHz	±1,000g	19 x 19 x 24	35	IP66
P100	20	1Hz to 30kHz	±800g	15 x 15 x 24	30	IP65
P1100	1100	1Hz to 10kHz	±100g	32 x 32 x 42	250	IP65

* Depends on charge amplifier

-55 to 250°C

AC

For further information please go to **www.monitran.com**

MTN/**7000, 7010** & **7020**

The MTN/7000, 7010 and 7020 are special purpose, low frequency accelerometers with output response starting at DC (0Hz).

All three sensors are available with frequency response ranging from DC to 250Hz (for ±1g) and DC to 1kHz (for ±50g) – please refer to the 7000 series data sheet - and the standard sensitivities[1] are 50mV/g and 100mV/g with others available upon request.

MTN/	Dimensions[3] (mm) W x D x H
7000	25 x 25 x 25
7010	34 x 34 x 28
7020	25 x 25 x 33

Weight[2]: 40g

Sealing[4]: IP65

Entry: Side

DC Supply: 10 to 24V at 7mA

-20 to 85°C

AC

MTN/**7100, 7110** & **7120**

The MTN/7100, 7110 and 7120 are special purpose, low frequency accelerometers with output responses starting at DC (0Hz) for strain gauge amplifiers.

All three sensors are available with frequency response ranging from DC to 250Hz (for ±1g) and DC to 1kHz (for ±50g) – please refer to the 7000 series data sheet - and the sensitivity[1] range is 0.6 to 20mV/g depending on range.

MTN/	Dimensions[3] (mm) W x D x H
7100	25 x 25 x 25
7110	34 x 34 x 28
7120	25 x 25 x 33

Weight[2]: 40g

Sealing[4]: IP65

Entry: Side

DC Supply: 10 to 24V at 7mA

-20 to 85°C

AC

MTN/**1310**

The MTN/1310 is a side entry, tri-axial accelerometer with overbraided cable.

The standard sensitivity[1] from the in-line charge amplifier is 10mV/g with a frequency response of 1Hz to 10kHz.

Weight[2]: 35g

Dimensions[3] (mm): 19.5 x 19.5 x 26 (W x D x H)

Sealing4: IP67

Entry: Side

-55 to 250°C

AC

MTN/**7200, 7210** & **7220**

The MTN/7200, 7210 and 7220 are special purpose, two-wire, low frequency accelerometers with output responses starting at DC (0Hz).

All three sensors are available with frequency response ranging from DC to 250Hz (for ±1g) and DC to 1kHz (for ±50g) – please refer to the 7000 series data sheet - and the output is 4-20mA for the full range with 12mA at 0g.

MTN/	Dimensions[3] (mm) W x D x H
7200	25 x 25 x 25
7210	34 x 34 x 28
7220	25 x 25 x 33

Weight[2]: 40g

Sealing[4]: IP65

Entry: Side

DC Supply: 10 to 24V at 7mA

-20 to 85°C

AC

MTN/**1186, 1186C** & **1186W**

The MTN/1186 family members are top entry, dual output sensors, ideal for machine protection and data collection.

As standard, velocity (mm/s) is output as 4-20mA DC and acceleration is output as 100mV/g AC, with alternative sensitivities available upon request.

Sensors are available with connectors or integral cables (C) and sealed to IP67 or 68(W). The table below presents the options.

All sensors have a frequency response of 2Hz to 1kHz for the velocity output and 2Hz to 8kHz (±10%) for the AC output and have a maximum sensitivity[1] range of 0 to 100mm/s.

MTN/	Dimensions[3] (mm) W x D x H	Sealing[4]
1186	28 x 28 x 57	IP67
1186C	28 x 28 x 43	IP67
1186W	28 x 28 x 75	IP68

Weight[2]: 150g

-25 to 90°C

DC & AC

MTN/**1188** & **1188C**

The MTN/1188 and 1188C are dual output sensors ideal for machine protection and data collection.

As standard, acceleration (g RMS) is output as 4-20mA DC and AC acceleration is output as 100mV/g AC, with alternative sensitivities available upon request.

Both sensors are Top Entry with the MTN/1188 having a connector and the 1188C having an integral overbraided cable.

Both have a frequency response of 2Hz to 1kHz for the velocity output and 2Hz to 8KHz at ±10% for the AC output and have a maximum sensitivity[1] range of 0 to 20g RMS.

MTN/	Dimensions[3] (mm) W x D x H	Sealing[4]
1188	28 x 28 x 57	IP67
1188C	28 x 28 x 43	IP67
1188W	28 x 28 x 75	IP68

Weight[2]: 150g

-25 to 90°C

DC & AC

MTN/1185TC

The MTN/1185TC is a dual output accelerometer (velocity and temperature) and is ideal for machine maintenance applications.

It outputs a DC current in the range 4-20mA in proportion to RMS velocity (mm/s) and its frequency response is 2Hz to 1kHz.

Weight[2]: 150g

Dimensions3 (mm): 28 x 28 x 43 (W x D x H)

Sealing[4]: IP67

Entry: Top

-20 to 85°C

DC Velocity & °C

MTN/1181

The MTN/1181 is a versatile, triple output sensor ideally suited to R&D T&M and building management systems.

Output 1 is 0 to 10V DC proportional to RMS velocity with a standard sensitivity[1] of 0 to 25mm/s but with other sensitivities available upon request. Its frequency range is 10Hz to 1kHz.

Output 2 is 0 to 10V DC proportional to Envelope g, with a standard range of 0 to 10g but with other ranges available upon request.

Output 3 is AC, with a standard sensitivity of 100mV/g but with other sensitivities available upon request.

DC Supply: 15 to 24V at 10mA

Weight[2]: 400g

Dimensions[3] (mm): 46 x 46 x 76.7 (W x D x H)

Sealing[4]: IP67

0 to 90°C

Velocity, g (Env) & AC

MTN/1100STC, 1100T, 1100TC & 1100TW

The MTN/1100T family members are dual output devices (acceleration and temperature) with isolated AC (g) and temperature outputs, and are suitable for use in a wide range of industrial applications.

Sensors are available with top or side entry (S), with connectors or integral cables (C) and sealed to IP67 or 68(W).

The table below presents the options.

All family members have a frequency response of 0.8Hz to 12kHz @ 3dB points, require a constant current supply of 0.5 to 8mA and have a standard sensitivity[1] of 100mV/g and 10mV/°C, with other sensitivities available upon request.

MTN/	Entry	Sealing[4]	Temperature Range	Dimensions[3] (mm) W x D x H	Weight[2] (gm)
1100STC	Side	IP67	-55 to 120°C	25 x 53x 29	170
1100T	Top	IP67	-55 to 120°C	25 x 25 x 51	110
1100TC	Top	IP67	-55 to 120°C	25 x 25 x 41	110
1100TW	Top	IP68	-25 to 90°C	25 x 25 x 67	120

-55 to 120°C

AC & °C

Notes

1. *Sensitivity is at 80Hz and 21°C (±10%). Also, for DC output devices the sensitivity relates to an output of 4-20mA equal to the velocity or RMS acceleration range*
2. *Weight excludes cables and connectors*
3. *Dimensions are for the body only. Also, different body shapes may be available. Please refer to the datasheet sheet (available online at www.monitran.com)*
4. *The sealing rating excludes any mating connector*
5. *W sensors have a maximum operating temperature of 90°C*

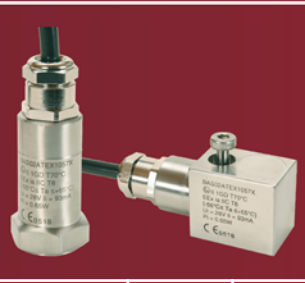
ATEX and IECEx Approved Sensors

Many of our accelerometers and velocity transducers are available in versions approved for use in hazardous areas, both gas and dust hazards using Intrinsically Safe protection. Select Group II sensors for petrochemical and dust and Group I for mining applications. Please consult our sales office or technical support for assistance.

Not found what you're looking for?

Monitran also offers a full custom design service.
For more information please call us on +44(0)1494 816569

*MTN/**1100** FAMILY*



The MTN/1100 family members are general purpose accelerometers with isolated AC outputs, ideal for vibration analysis and for use in harsh environments.

Sensors are available with top or side entry (S), with connectors or integral cables (C) and sealed to IP67. Intrinsically safe (I), for petro-chemical and mining applications, and submersible, IP68 (W) versions are also available. The table below presents the options.

All family members have a frequency response of 0.8Hz to 12kHz @ 3dB points, require a constant current supply of 0.5 to 8mA and have a standard sensitivity[1] of 100mV/g and range of ±80g, with other sensitivity/range combinations available upon request.

MTN/	Entry	Sealing[4]	Temperature Range	Dimensions[3] (mm) W x D x H	Weight[2] (gm)	ATEX group
1100	Top	IP67	-55 to 140°C	25 x 25 x 51	100	
1100C	Top	IP67	-55 to 140°C	25 x 25 x 41	100	
1100S	Side	IP67	-55 to 140°C	25 x 53 x 30	170	
1100SC	Side	IP67	-55 to 140°C	25 x 48 x 30	170	
1100IS	Side	IP67	-55 to 140°C	23 x 53 x 30	170	II
M1100IS	Side	IP67	-55 to 140°C	23 x 53 x 30	170	I
1100ISC	Side	IP67	-55 to 140°C	23 x 48 x 30	170	II
M1100ISC	Side	IP67	-55 to 140°C	23 x 48 x 30	170	I
1100ISW	Side	IP68	-55 to 90°C	23 x 68.5 x 30	185	II
1100I	Top	IP67	-55 to 140°C	25 x 25 x 51	100	II
M1100I	Top	IP67	-55 to 140°C	25 x 25 x 51	100	I
1100IC	Top	IP67	-55 to 140°C	25 x 25 x 41	100	II
M1100IC	Top	IP67	-55 to 140°C	25 x 25 x 41	100	I
1100SW	Side	IP68	-25 to 90°C	25 x 68.5 x 30	185	
1100W	Top	IP68	-25 to 90°C	25 x 25 x 67	110	
1100IW	Top	IP68	-25 to 90°C	25 x 25 x 67	110	II

AC

*MTN/**1120I, 1120IC** & **1120SC***

The MTN/1120 is a small footprint, general purpose accelerometer with an isolated AC output, ideal for vibration analysis.

It is suitable for use in harsh environments, and is available with a connector or overbraided cable (C) and as Top or Side (S) entry. The table below refers.

It has a frequency response of 0.8Hz to 12kHz @ 3dB points, requires a constant current supply of 0.5 to 8mA and has a standard sensitivity[1] of 100mV/g up to 100g, with other sensitivity/range combinations available upon request.

MTN/	Entry	Dimensions[3] (mm) W x D x H
1120I	Top	19 x 19 x 35
1120IC	Top	19 x 19 x 34
1120SC	Side	19 x 19 x 24

Weight[2]: 45g
Sealing[4]: IP67

-55 to 140°C

AC

*MTN/**1130 & 1140***

The MTN/1130 and 1140 are small footprint, general purpose, top entry accelerometers with isolated AC outputs, ideal for vibration analysis and suitable for use in harsh environments and restricted spaces.

Both have a frequency response 0.8Hz to 12kHz @ 3dB points, require a constant current supply of 0.5 to 8mA and have a standard sensitivity[1] of 100mV/g up to 100g, with other sensitivity/range combinations available upon request.

MTN/	Dimensions[3] (mm) W x D x H
1130	15 x 15 x 31
1140	15 x 15 x 28

Weight[2]: 30g
Entry: Top
Sealing[4]: IP67

-55 to 140°C

AC

ABOUT MONITRAN

Established in 1986 and based near High Wycombe in the UK, Monitran is a world leader in the design, development and manufacture of sensors and systems for the measurement of vibration and displacement.

The company has the widest range of standard vibration and displacement products available from any single supplier. It also has an impressive track record of customising products for bespoke applications, with a remarkably short turn-around time.

With full ISO 9001:2000 approval, Monitran's products are used for monitoring vibrations in machinery such as pumps, motors, engines and drive trains in a diverse range of applications including automotive, aerospace, industrial processing, power stations and wind turbines. Indeed, the products are at home in any application where vibration or displacement provides an early indication of mechanical wear or that a structure's integrity has been compromised. They are also used in other vibration-related applications such as R & D, structural testing, equipment qualification, testing and calibration.

Monitran is a privately-owned independent company and at present all operations, including R & D, Sales and Manufacturing, are handled out of the single site a few miles to the west of London. The site is ideally situated for easy access to Heathrow, Gatwick, Stansted and Luton airports, as well as the M40, M4, M25 and M1 motorways, and national rail networks.

Monitran Ltd.
Monitor House
Hazlemere Road
Penn
Bucks
HP10 8AD
United Kingdom

T. +44 (0)1494 816569
F. +44 (0)1494 812256
E. info@monitran.com
W. www.monitran.com

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Recommended Distributor: