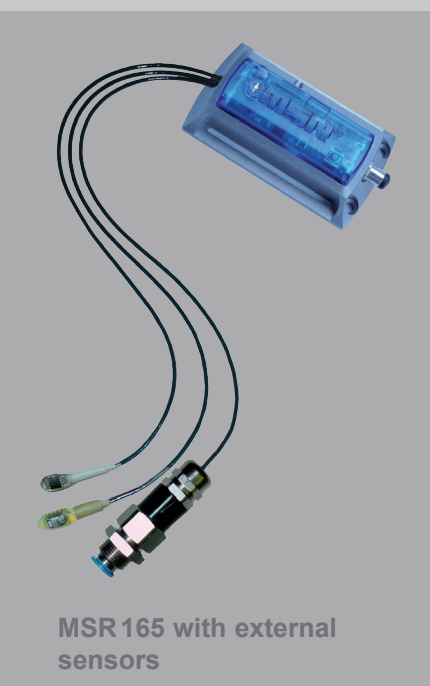
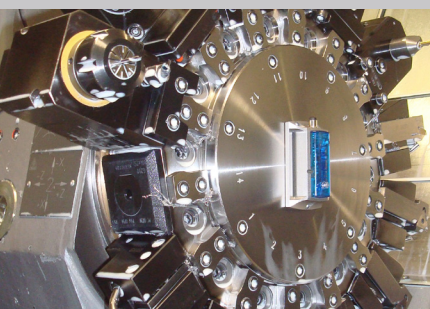


# MSR 165

## Data Logger for shock and vibration



MSR 165 with external sensors



**THE bestseller for transportation monitoring, fault diagnoses and load tests! The robust MSR 165 data logger is capable of taking 1600 acceleration (shock, vibrations) measurements per second in all three axes for up to five years.**

Shock monitoring is possible up to  $\pm 15g$  or up to  $\pm 200g$ , 32 measurement values are recorded even before the event takes place. The rechargeable 800mAh lithium-polymer battery allows the user to monitor shocks over a period of up to six months. For an even longer recording period of up to five years, the MSR 165 can be equipped with long-life batteries.

The installed memory is capable of storing over 2 million measured values, which is sufficient for more than 10.000 shocks. A microSD card ( $\geq 4GB$ ) can be used to increase the capacity of the data logger to over 1 billion measured values. All saved measurements can be quickly transferred to a PC or laptop via the USB interface. The basic specification of the MSR 165 includes a high resolution 3-axis acceleration sensor. In addition you can also record temperature, humidity, pressure, light and four analogue input signals.

### Technical data


<b>Housing:</b>	Anodised aluminium case, PC, encapsulated, waterproof (IP67).
<b>Size &amp; weight:</b>	39x23x72 mm, approx. 69g
<b>Medium:</b>	Air, various liquids
<b>Memory capacity:</b>	Over 2m measurement values, expandable to > 1bn.
<b>Colour:</b>	Blue, anthracite
<b>Key:</b>	Set bookmark or start and stop recording.
<b>Integrated sensor:</b>	3-axis digital accelerometer (13 Bit resolution)
<b>Working range:</b>	$\pm 15g$ or $\pm 200g$ , $-20...+65^{\circ}C$
<b>Accuracy:</b>	15g sensor: $\pm 0,15g$ ( $+25^{\circ}C$ ) 200g sensor: up to $15g \pm 2g$ ; up to $100g \pm 5g$ ; up to $200g \pm 10g$ (at $25^{\circ}C$ ).
<b>Measurement / storage rate:</b>	Up to 1600/s ( $\pm 15\%$ ).
<b>Power supply:</b>	Lithium-polymer battery (800 mAh), rechargeable via USB connection, recording period up to 6 months or replaceable batteries (Li-SOCl <sub>2</sub> , 3.6 V, 2 x 7700 mAh), for recordings up to 5 years.
<b>PC software:</b>	Free Setup, Reader, Viewer- & Online software (Windows XP/Vista/7/8)
<b>Interface:</b>	USB
<b>Operating conditions:</b>	Temperature $-20...+65^{\circ}C$
<b>Storage conditions:</b>	<ul style="list-style-type: none"> <li>Temperature <math>+5...+45^{\circ}C</math> (ideal storage condition for the battery)</li> <li>10...95% relative humidity, non-condensing</li> </ul>
<b>Standards:</b>	The MSR 165 complies with EU-Directives RoHS/WEEE.

### Measurement parameters for the additional sensors (internal and external)

In addition to 3-axis acceleration you can also simultaneously measure temperature, humidity, pressure and/or light using the MSR 165 data logger. There is a choice between internal and external sensors for these additional measurement parameters. The external sensors are available with cable lengths of 0.20 m, 1.0 m and 1.6 m.

Measured parameters	Working range	Accuracy	Measurement/storage rate
<b>Temperature</b>	int.: -20...+65 °C	±0.5 °C (-10...+65 °C)	1/s to every 12h
	ext.: -55...+125 °C	±0.5 °C (-10...+65 °C) ±2 °C (-55...+125 °C)	
<b>Relative humidity</b> with integrated temperature	0...100% rel. humidity int. -20...+65 °C ext. -20...+85 °C	±2% rel. humidity (10...85%, 0...+40 °C) ±4% rel. humidity (85...95%, 0...+40 °C)	1/s to every 12h
	<b>Air pressure</b> absolute, with integrated temperature	0...2000 mbar absolute int. -20...+65 °C ext. -20...+85 °C	
	0...14 bar absolute -20...+65 °C	±50 mbar (1...10 bar absolute, +25 °C)	
<b>Light</b>	0...65000 lx	max. sensitivity at 500 nm	1/s to every 12h

### Additional analogue inputs for connecting third-party sensors

MSR 165 Analogue	Inputs
Inc. alarm output and input for starting and stopping data recording.	<b>4 analogue inputs</b> with freely selectable input configuration: 0...20 mA; 4...20 mA; 0...3.0V; 0.5...4.5V; 0...5.0V; 1.0...6.0V; 0...10.0V; 0...12.0V; 0...24.0V <b>Measurement/storage rate:</b> 1/s (or 1000/s if the acceleration measurement rate is less than 1/s) up to every 12h <b>Resolution:</b> 12 Bit
 Light sensor not available, 2 external sensors possible.	

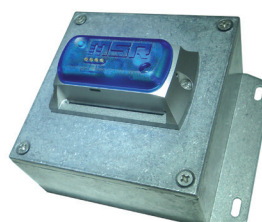
### Expanding the memory capacity with a microSD memory card

On request the MSR 165 can be supplied with an interface for plugging in a standard microSD card (one ≥4 GB microSD card is included). The microSD card increases the memory of the MSR 165 to over 1 billion and can be replaced during operation. Please note that this expansion slot with plugged-in microSD-card only meets the protection category IP60.



### Additional long-term power supply

For a longer recording period of up to five years, the MSR 165 can be equipped with replaceable batteries (3.6 V, 2 x 7700 mAh, Li-SOCl<sub>2</sub>). The batteries are stored in a splashproof cast aluminium case (122x92x70 mm, approx. 530 g).



### Contact us!

We would be pleased to provide you with prices and delivery terms!

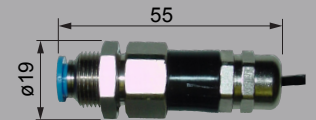
### Options:



External temperature sensor



External humidity sensor



External air pressure sensor



External light sensor

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