

MR3000BLA

Blasting Monitoring



The MR3000BLA is a new instrument dedicated to the monitoring of explosion-induced vibrations. The MR3000BLA is an all-in-one autonomous device integrated in a rugged casing for field measurements. The three channels for vibration and the channel for air overpressure make it perfect for a complete blasting monitoring.

The MR3000BLA linked with the SCS (Syscom Cloud Software) offers a near real-time reporting solution with graphical norm comparison.

In its standard configuration, the MR3000BLA is equipped with a 3G module for wireless data transfer.

Market Applications

- Blasting monitoring
- Mining
- Quarrying

MR3000BLA Blasting Monitoring

The MR3000BLA is a new device developed specifically for the monitoring of vibrations induced by explosions. The MR3000BLA offers 4 acquisition channels: 3 dedicated to vibrations and one to air overpressure. The IP66 housing integrates an high capacity battery and makes the MR3000BLA easily transportable on mining or quarrying sites for quick setup close to the blasts. The trigger-based recording automatically acquires the blast event and the LCD screen displays the most useful related information, such as peak amplitudes and dominant frequencies. For proper blast documentation, an automatic reporting with norm comparison is immediately generated and sent to user defined e-mails by the Syscom Cloud Software (SCS).

In the standard kit, the MR3000BLA motion recorder is delivered with an external MS2003BLA triaxial velocity sensor and a high pressure microphone. Accessories such as mounting plate and sensor spikes are available for installation in different types of soil.

Major features

- Vibration and air pressure acquisition
- Calibration of the velocity sensor according to ISEE Specification for Blasting Seismographs (USA) or to DIN 45669-1 (Germany)
- External triaxial velocity sensor with measuring range ± 250 mm/s (± 10 in/s)
- High pressure microphone with range up to 150 dB(L)
- Rugged IP66 Peli Box
- AC or DC power
- Wi-fi connectivity
- Embedded 3G module
- Long-life internal battery
- Compatibility with Syscom Cloud Software (SCS) for data visualization and automatic blast event reporting



MR3000BLA complete kit for blasting monitoring



Side view of the MR3000BLA

Technical specifications

Data recording

Resolution	18 bits
Sampling-rate	1'000, 2'000 sps
Number of channels	4
Recording principle	Event recording (time history), continuous time recording, manual trigger
Data memory	Removable Industrial Grade SD Card
Minimum trigger level	0.1 mm/s (0.004 in/s)
Trigger voting logic	Predefined AND or OR combinations, individual channel votes
Pre-event recording	1 - 30 seconds (in 1 sec steps)
Post-event recording	1 - 100 seconds (in 1 sec steps)
Alarm principle	Multiple level triggers with many notification options (settable for each axis)
File event format	XMR/ASCII (if no microphone), ASCII (if microphone is present)

Physical characteristics

Housing	IP66 Peli Box, 420 x 331 x 170 mm (16.5 x 13.0 x 6.7 in)
Weight	6.4 kg
Temperature	-20° up to 60°C
Humidity	Up to 100% RH

External MS2003BLA triaxial velocity sensor

Sensor type	Triaxial velocity sensor with linearized frequency response
Principle	Geophone
Measuring range full scale	± 250 mm/s (± 10 in/s)
Frequency range	1 - 350 Hz
Dynamic range	> 130 dB
Linearity/Phase	Class 1 (according to DIN 45669)
Cross axis sensitivity	<5% (according to DIN 45669)
Velocity sensor calibration	To be specified at the time of purchase between: <ul style="list-style-type: none"> • calibration according to ISEE Performance Specification for Blasting Seismographs • calibration according to DIN 45669-1

Dimensions	100 x 100 x 81 mm (3.9 x 3.9 x 3.2 in)
Weight	1.0 kg
Connector	Cable gland with 1.5 m cable and LEMO 2K push-pull connector (with positioning key)
Accessories	Mounting platform with spikes screws - weight: 0.3 kg, soft-soil spike

External high pressure microphone

Sensor type	Air pressure microphone
Principle	Array microphone
Measuring range	150 dB (L)
Frequency range	2 - 2000 Hz
Dimensions	60 mm length, 7 mm diameter
Weight	5.5 g
Connection	LEMO coaxial push-pull connector with SMB socket 1.5 m

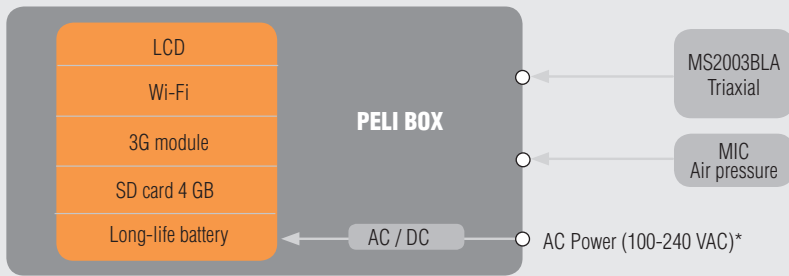
Connectivity

Mobile Network	Multi-Band UMTS / HSDPA / WCDMA / GSM / GPRS / EDGE
Wi-fi access	IEEE 802.11 b/g compliant

Power supply

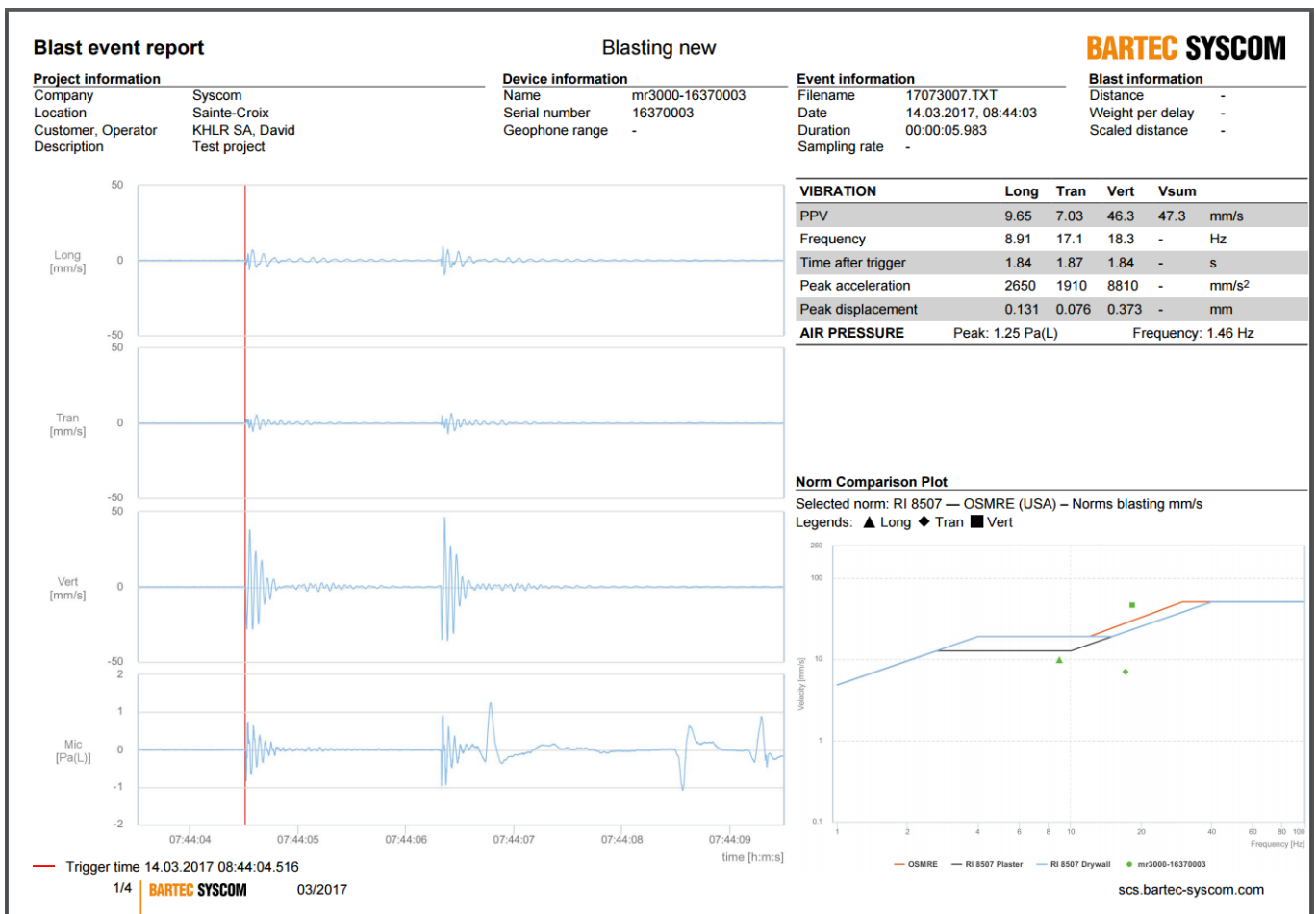
Internal battery	High capacity long life battery (> 3000 charge cycles), 5.3 Ah, 12 VDC
AC power	Internal AC/DC converter, 100-240 VAC, 50-60 Hz, with power LED indicator
DC power	10-36 VDC, with external AC/DC converter and cable to power grid

Block diagram MR3000BLA



* or DC power (10-36 VDC), with external AC/DC converter

Blast event report generated by the Syscom Cloud Software



Blast report on SCS cloud software

The blast report is automatically created and sent to the user-defined contacts by the SCS Cloud Software. For more information, please refer to the SCS datasheet or to the Bartec Syscom website.



Measurement information

All the details about the project and the measurement are shown on the top left part. If the user adds a comment in the SCS, this is automatically shown in the blast event report.

Time histories

- Visualization of 4 components:
- 3 for vibration
 - 1 for air overpressure

Summary table

Table with peaks and frequencies related to vibration and airpressure measurements. Additional information like vector sum and user comments is shown.

Comparison with the standard curve

The velocity peaks calculated on the 3 axes are compared with the curve selected by the user (OSMRE, RI 8507, DIN 4150-3 and others).

Ordering information

MR3000BLA - Internal battery - Integrated carrying case - 4GB Memory - 4 channels - WiFi - Embedded web server for configuration and control

Description	Part number	Triaxial velocity meter	Overpressure microphone	3G module EU-compatible	3G module US-compatible
		MS-2003BLA-H-TRIA-X	87000568	--	--

MR3000BLA main kits** with triaxial velocity meter* and high-pressure microphone					
MR3000BLA main kit with 3G module Europe-compatible, Swiss socket	93106036-CH	x	x	x	
MR3000BLA main kit with 3G module Europe-compatible, European socket	93106036-EU	x	x	x	
MR3000BLA main kit with 3G module US-compatible	93106036-US	x	x		x

MR3000BLA basic kits** with triaxial velocity meter*, without high-pressure microphone					
MR3000BLA basic kit with 3G module Europe-compatible, Swiss socket	93106038-CH	x		x	
MR3000BLA basic kit with 3G module Europe-compatible, European socket	93106038-EU	x		x	
MR3000BLA basic kit with 3G module US-compatible	93106038-US	x			x

MR3000BLA units**					
MR3000BLA with 3G module Europe-compatible, AC power	MR3000BLA-2003E-EX-EU-AC			x	
MR3000BLA with 3G module US-compatible, AC power	MR3000BLA-2003E-EX-US-AC				x
MR3000BLA with 3G module Europe-compatible, DC power	MR3000BLA-2003E-EX-EU-DC			x	
MR3000BLA with 3G module US-compatible, DC power	MR3000BLA-2003E-EX-US-DC				x

Accessories					
Triaxial velocity sensor, full range ± 250 mm/s (10 in/s)*	MS2003BLA-H-TRIA-X	x			
Microphone for air pressure 2-2000Hz, 150dB (L)	87000568		x		
Kit with mounting plate and set of spikes for velocity sensor	13100010				
Set of 3 mounting rods for microphone	90000945				

* Calibration according to DIN 45669-1 or ISEE Performance Specification for Blasting Seismographs, to be specified at the time of purchase.

** AC powered or DC powered version to be specified at the time of purchase



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