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**BARTEC** SYSCOM

# MR3000TR

## Traffic and Railways



The MR3000TR is a new set dedicated to the monitoring of vibration induced by traffic and railways.

It is directly derived from the MR3000C and its primary characteristics are:

- 1 trigger input to start the measure with an external trigger
- 2 relay outputs for the connection to external devices

In the standard configuration, the MR3000TR is equipped with external three uniaxial velocity sensors.

### Market Segments

- Traffic monitoring
- Railway monitoring
- Construction sites
- Mining/blasting

## MR3000TR Traffic and Railways

The MR3000TR is a set developed specifically for the monitoring of vibration induced by traffic and railways. The MR3000TR is based on the MR3000C, and in addition it features a hardware trigger input and two relay outputs. This allows the user to

- trigger at any time, without using the Web User Interface
- connect external devices to have immediate information/alarms related to vibration levels.

The MR3000TR can be delivered with an internal or an external triaxial velocity sensor MS2003+, or with three external uniaxial velocity sensors MS2003+, solution dedicated to the traffic and railway measurements.

### Major features

- 2 relay outputs
- 1 hardware trigger input
- Wireless connectivity
- Embedded Web Server for easy configuration and control
- Removable SD Card Memory
- Absolute time reference (GPS)
- Power over Ethernet (PoE)
- Velocity sensors with wide dynamic range



MR3000TR set for traffic/railway measurements



Front view of the MR3000TR

### Data acquisition

<b>Principle</b>	4 <sup>th</sup> order delta-sigma ADC per channel
<b>Resolution</b>	24 bit
<b>Sampling-rate</b>	50, 100, 200, 400, 500, 800, 1'000, 2'000 sps, others on request
<b>Number of channels</b>	3

### Dimensions

<b>Housing</b>	Aluminum, 120 x 180 x 100 mm
<b>Weight</b>	1.5 kg
<b>Protection degree</b>	IP 65 (splash-proof)

### Sensor

**Sensor type** Velocity sensor with linearized frequency response A3HV 315/1 (triaxial) (according to DIN 45669)

**Principle** Geophone

**Number of axes**

- 3, in different configuration
  - One internal triaxial sensor
  - One external triaxial sensor
  - Three external uniaxial sensors

**Measuring range full scale** ± 100 mm/s

**Frequency range** 1 - 350 Hz (linear ±10% frequency response)

**Case-to-coil motion** 4 mm p-p

**Dynamic range** > 130 dB

**Linearity/Phase** According to DIN 45669 (class 1)

**Cross axis sensitivity** According to DIN 45669 (<5%)

**Recommended configuration for traffic/railways measurements** Three external uniaxial sensors

### External MS2003+ triaxial

<b>Dimensions</b>	122 x 120 x 80 mm
<b>Weight</b>	1.55 kg
<b>Connector</b>	Metallic self-latching push - pull connector with positioning key
<b>Accessories</b>	Mounting platform with levelling screws - weight: 1.9 kg
<b>Option</b>	Connector for external z-axis

### External MS2003+ single axis (horizontal or vertical)

<b>Dimensions</b>	80 x 75 x 57 mm
<b>Weight</b>	0.45 kg
<b>Connection</b>	3 m interconnection cable with metallic, self-latching push-pull connector with positioning key
<b>Accessories</b>	Junction box (input for 3 single axis sensors, output like triaxial sensor) and extension lead

### Trigger input

**Principle** Digital Hardware trigger

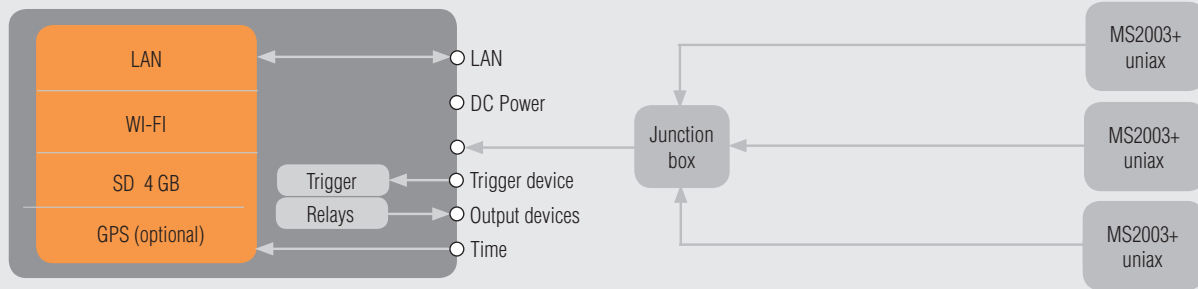
### Relay outputs

<b>Configuration</b>	2 output configurable relays, No/Nc
<b>Current</b>	2 A, 30 V DC
<b>Alarms for relays</b>	Multiple level triggers (individually settable for each axis)
<b>Alarm range</b>	0.1 % to 100% full scale

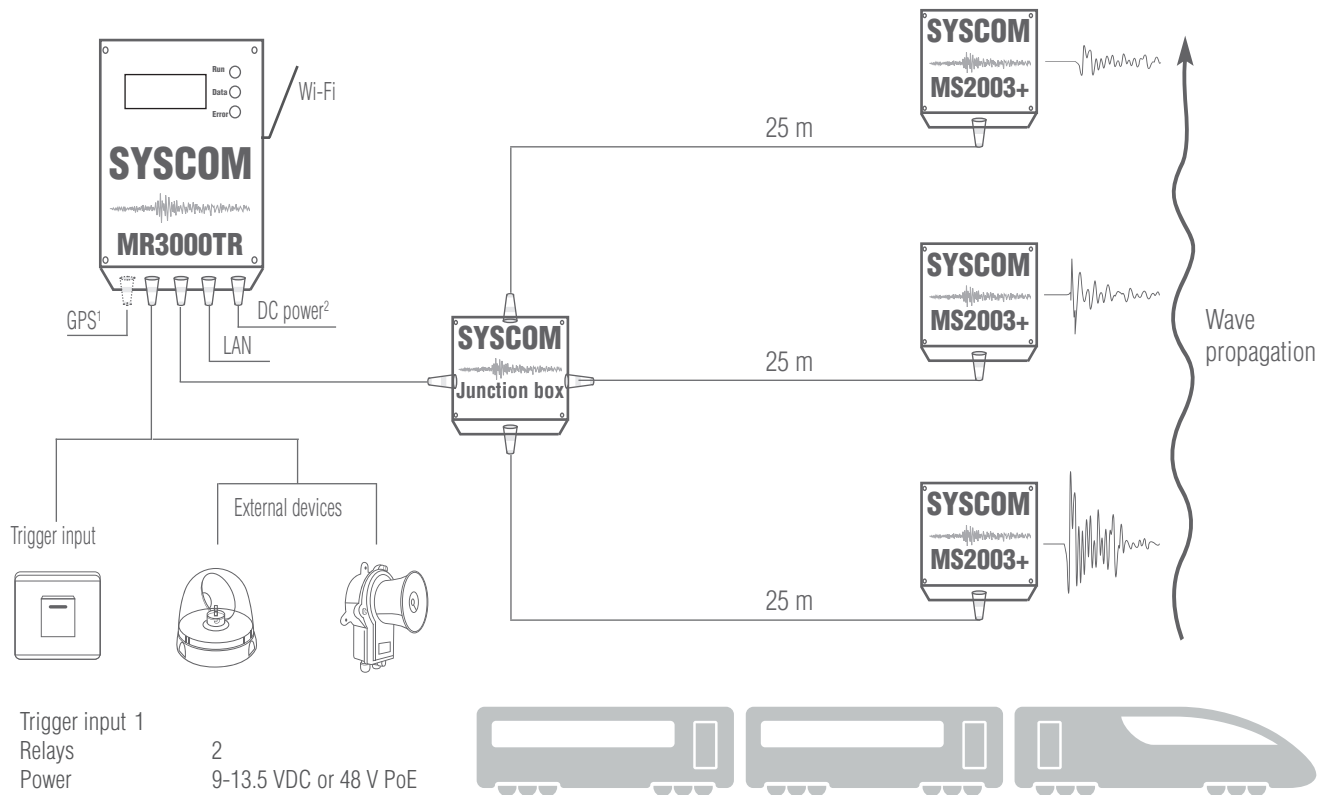
**Please refer to the datasheet of MR3000C for all the other technical details.**



## Block diagram MR3000TR



## Wiring diagram and typical installation



Trigger input 1  
 Relays 2  
 Power 9-13.5 VDC or 48 V PoE

<sup>1</sup> kit on request

<sup>2</sup> an external battery is available (PN: 14100007)

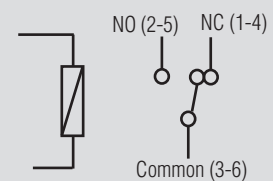
## Relays/trigger cable



Relays/trigger cable 81000580+

Signal name	Number	Colour
Relay1 NC	1	Red
Relay1 NO	2	Blue
Relay1 COM	3	Pink
Relay2 NC	4	Grey
Relay2 NO	5	Yellow
Relay2 COM	6	Green
Trigger	7	Brown
GND	8	White

### Relays



## Ordering information

MR3000TR - 4GB Memory - 3 channels - WiFi - Ethernet connectivity - Embedded web server for configuration and control - 3 m Ethernet cable

Description	Part number	Battery pack <sup>3</sup> with internal AC/DC & cable <sup>4</sup> to MR	External AC/DC converter	Carrying case	Relay alarm cable, 3 m	Sensor connec- ting cable
				14100007 <sup>3</sup> 81000527 <sup>4</sup>	87000268	74710112

### MR3000TR main units

MR3000TR main units with internal triaxial velocity sensor	93106030	x	x	x	x	
MR3000TR main unit with 3 external uniaxial velocity sensors (vertical sensors)	93106031	x	x	x	x	x

### MR3000TR units without accessories

MR3000TR, with internal velocity sensor	14101029					
MR3000TR, configured for external velocity sensor, without sensor	14101031					

### Accessories

MS2003+ 3 x uniaxial external velocity sensor (3 vertical) with 3 x mounting plate, 3 x 25 m extension cable, junction box and carrying case	93111097					
Relay alarm cable, 3 m	81000580+				x	
Sensor connecting cable for external MS2003+	81010006					x
Uniaxial sensor cable extension 25 m	81000144					
Other accessories	Please refer to MR3000C datasheet					



Accessories for traffic/railways measurements (P/N 93111097)



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