

## VMR624

24 bit Integrated battery

**stand alone seismograph, 6 channels, 24 bit**



Stand-alone seismic digitizer specific for seismological studies and monitoring of seismic events. Instrument is designed for the automatic recording and saving of each seismic event on internal memory or sending to data collection center according to chosen mode. Unit management and programming can be done by Ethernet connection or by integrated GPRS / UMTS module. Unit is totally manageable remotely and is equipped with a high resolution (24 bit) acquisition card, with a dedicated sampler for each input channel. It is characterized by Compactness and Resistance. The data communication module and the integrated web server allow visualization of data acquired from the instrument in real time on any device connected to internet by accessing the dedicated page.

Local and remote alarm management: instrument allows the setting of alarm thresholds and, when they are exceeded, it is possible to send remote alarm signals with preset modes by the user and to activate locally the signs of visual signaling, warning signs, traffic lights, flashing lights or acoustic type such as sirens or prerecorded voice messages. Reporting of any threshold overruns can be notified in various ways such as an alarm call, SMS, mail. It is possible to install VMR624 even in remote areas or without an electric network by powering seismograph through photovoltaic kits of different power. The unit allows continuous monitoring of vibrations and noise generated by sources outside the structures, such as road or rail traffic, construction or demolition activities, the operation of impulsive machines, or from sources inside the structure such as the movement of people, movement of vehicles and materials, machine vibrations, etc. Through admitted vibration limits, instrument allows, in accordance to current regulation UNI 9916 (2014), to set programmable alarm thresholds upon which alarms are sent according to user's configuration. Alarm reporting via SMS or e-mail and sending data over the network are a strong point for timely and constant monitoring and for an easier access to the data of all the operators involved in monitoring. The flexible architecture of the unit it allows its functioning in stand-alone and in network modes.

- **Stand-alone** operation. The alarm management is based on the continuous interpretation of the input signals on 6 channels, the coincidence of thresholds exceeding individually set by one or more channels for a settable time determines the remote alarm signaling via sms and locally via relay activation. The alarm condition also determines the recording of the event on the internal memory and the optional sending via website for a time that can be set to allow subsequent processing. The data download by customer is possible by direct GPRS connection or by Ethernet connection. In case of an optional 3G or LAN connection, in the event of an alarm, the digitizer can send data directly to web portal, so as to limit time required for event visualization by assigned staff.

- **Network** operation: the unit provides continuous transmission by Ethernet network (preferential channel) or 3G (secondary channel) of the 6 channel acquisition data. In case of lack of both transmission channels, unit registers locally until they are restored. The acquisition center will analyze data, determine the epicentres and magnitude and the warning of the competent authorities. Using the relay outputs, different types of local

alarm signals can be configured in both visual and acoustic such as sirens, setting an activation time. Exceeded the limits of vibration thresholds, maximum amplitude in speed (mm / s) imposed by the law, you can enable notifications through SMS and email up to 5 final recipients so as to ensure a timely reporting of any critical situations. VMR624 can also be installed in remote areas or without an electric network using accessory photovoltaic kits.

<b>Metodologie</b>	
Dynamic surveys on structures	
Seismic vibration monitoring	

<b>General</b>	
Number of channels	6
Power supply	Internal rechargeable Li-Ion batteries @ 3.7V, 13Ah
Acquisition medium power consumption	1,1A @ 5V
Average autonomy	8 hours
Environmental conditions	Temperature (°C):-20 a 80; Humidity (RH): 0-90%
Connections	LAN, Wi-Fi
Data storage	Internal memory
Data format	SEG2
GPS	Yes
Case	aluminum case rack mount
Dimensions	cm 15 x 11 x 8
Weight	0,5 kg
HS code	90158011

<b>Acquisition</b>	
A/D converter resolution	ADC Delta-Sigma @24 bit (Fc max 50000 Hz)

## General

Dynamic range	109 dB
Maximum distortion	0.0005%
Bandwidth	0-25000Hz / 10,15,25,35,50,70,100,150,200,250,500,1000,2000
Common mode rejection	110 dB at 60 Hz
Diaphony	-128dB at 20 Hz
Amplifier noise treshold	1 $\mu$ V
Maximum range of input signal	+/-1.25V
Input impedance	39 KOhm
Anti-alias filter	-3dB, 80% of Nyquist frequency, -80dB
Sampling rate	Selectable by software:129 Hz, 263Hz, 531 Hz, 1053 Hz, 2193 Hz
Sampling interval	6.1 msec, 3.8 msec, 1.8 msec, 0.9 msec, 456 $\mu$ s
Trigger	Trigger based on channels coincidence and pre-trigger time settable through software
Pre-trigger / Post-trigger	Selectable up to 6255 samples

