#### ABC Wireless Vibration Meter MEMS 8g





## Hardware and features:

- 3-axis MEMS-technology accelerometer
- Small dimensions: 76 mm x 39 mm x 20 mm
- Light weight: 65 grams
- Weatherproof, with a temperature range of: -20 degC to 60 degC
- Dynamic range of +-8 g
- Exceptional noise floor
- Single recording memory threshold of non-volatile 128 Mb
- Can be calibrated outside of lab using earth's gravity as a reference
- Sampling rate up to 4 kHz with 100% samples success rate
- Life-long internal USB rechargeable battery
- Accurate date/time clock
- Provided (when necessary) with weatherproof Outdoor 4G Router
- Reliable WiFi connection that provides data to PC server everywhere or directly to the Cloud
- Available with free softwares for: Management, Listening, PPV Analysis, Wave Analysis, Response Spectrum, SBR-A & DIN Building & Human Vibrations Calculations
- Affordable, user-friendly 1 year-long Cloud subscription working on every platforms' internet browers (Android, iOS, Mac, Windows)
- Complete monitoring of the instrument via Cloud (sound levels, battery status, temperature)
- 2 LED light signals that constantly show info about battery status, temperature and recording situation



# Type of measurements and recordings:

- Raw acceleration or raw velocity signals
- Acceleration or velocity signal statistics
- Acceleration or velocity RMS levels, peak levels
- Inclinations

# Applications:

- Building-health monitoring on construction sites
- Long-term seismic monitoring
- Long-term inclination monitoring
- Long-term measurement and recording of acceleration signals, velocity signals, signal statistics (peaks and average) and RMS-levels
- Continuous monitoring of machinery wear



# **Practical applications**





## Signals, ports and buttons



LED State		Meaning					
Off		Instrument is in <i>Idle</i> mode.					
1-blink/second		Instrument is in Active or Auto-Rec mode, but is not actively recording.					
2-blinks/seco	ond	Instrument is actively recording.					
1-blink/second (off-beat)		Instrument is presently communicating with a server via <i>WiFi</i> ™.					
4-blinks/second		Battery is low. Recharge as soon as possible. If the battery level becomes critical the instrument will go to <i>Idle</i> mode (LED-off) in order to safeguard the battery against over-discharge as much as possible.					
LED State	Mea	ning					
Off	Instru	nstrument is disconnected, or is connected to a PC that is in standby.					
Green	ument is connected to a PC or USB charger, and the battery is full.						
Orange	Instru	ument is connected to a PC or USB charger, and the battery is charging.					



### Data Logger Management: setup



- Arrange instrument's settings
- Calibrate
- Check time synch, temperature, memory and signals
- Record manually



#### Data Logger Management: static situation



- Inclinometer provides real-time static 3d view of the meter
- 3-axis, 3 digits precise dynamic value
- 2 angles, 3 digits precise inclination value



## Data Logger Management: settings

Velocity 500 Hz Fs	Sensor & Sampling
1 HighPass Filter (Hz) VHigh-Pass-On	High-Pass
100m Threshold 00:00:10 Time (m/s) (HH:MM:SS)	Auto_Rec
<ul> <li>Record</li> <li>AutoRec</li> </ul>	Timer/ WiFi
00:00:01,000 Log Interval (HH:MM:SS.ms)	
Raw Signal - X Y Z Signal Pk & Avg - X-max Y-max Z-max RMS Pk & Avg - X-avg Y-avg Z-avg X-min Y-min Z-min	Recording
155m Time_Cst (s)	RMS Response
Save Recall	🖌 ок

- Manually set highpass cut-off filter
- Set Auto-recording threshold and elapsed time
- Regulate your recording signal settings
- Save your settings and quickly recall them



# Data Logger Management: WiFi setup

00-01:00:00       Connect Interval (DD-HH:MM:SS)         11:15:25 20-6-2018       WiFi-Report Active	Schedule
Image: Omega Constraint     Priority     Image: WPA2 Encryption       Netwerk van     SSID       Image: Omega Constraint     PassPhrase	Access Point
Server Name	Server
Save Recall	🖌 ок

- Choose your connection interval (temperature and battery check)
- Insert Outdoor Access Point SSID and password (WEP, WPA or WPA-2)
- Set the timer for starting auto-recording mode
- Put in your server IP address
- Connect to a provided gmail account for alarms
- Receive automatic email alarms for vibrations over the threshold or low battery



# Data Logger Management: WiFi and email connection

Setup Records Spectrum Static WiFi	Setup Records Spectrum Static WiFi
Connection Status	Connection Status
192 168 2 Netwerk RSSI (dBm) 192 168 2	192 168 2 Netwerk RSSI (dBm) 192 168 2
Set WiFi Set email	Set WiFi Set email Cloud Disable All Connect Now!

- Test the wireless connections ahead of the measurement with the button "Connect Now!"
- In case of connection error you can handily recognize a problem thanks to the interface (image on the right as example)



## Data Logger Management: email setup

			Secondary Alarm Cycle	
smtp.gmail.com	email_Server email_Username email_Password	Connection	Weekly	Cycle
465 @gmail.com	email_Port to		0,05 Threshold (dB)	Threshold
TLS	ion Fmail 1 email per 00:03:00 Max Secondary		Monday V 8 H 0 M	Start
Batter	y_Email 1 email per 01:00:00 Max	Conditions	Friday T 18 H 0 M	Stop
Save	Recall	ok 🖌		💉 ок

- Email alarms for vibrations over a manually set threshold
- Email alarms for low-battery alert
- Available email limit per hour, minute or second
- Secondary alarm cycle with different threshold available for days, hours and minutes



### Data Listener

Connections	User ID Model SN Alarm Reading Instrument Operation Mose
Storage-Path C:\Users Force Restart None (only when memory full) Server-Visible Dialogs Ucg-Connections OK Cancel	4.3 4.2 4.2 4.2 4.2 4.2 4.2 4.2 4.2

- Receive incoming connections from multiple devices
- Choose your storage-path
- Set when to force restart
- Select what communications you need active
- Monitor battery and temperature status while storing real-time vibrations data



# Software: Peak-Particle-Velocity Analysis





- Peak-Particle-Velocity Analysis with one click
- Recordings are chronologically ordered and automatically numbered
- Each record contains data and time info
- One graph for single axial component of Velocity and Normal Vector of Velocity
- Zoom in/out and navigate the graph
- Run spectrum analysis with one click
- Axial and Normal component of Velocity (RMS)/Frequency
- Windows size and type at costumer's choice
- Quick printing and exporting options



# **Building Vibration Calculator**



- Spectral analysis of velocity plot with standard limits (left, upper)
- Correction for filters in **DIN 45669-1** and **SBR-A** implemented with our help and supervision (right side, upper)
- Auto-detection of the dominant frequency according to standards
- Calculations of Vd and compliance/non-compliance to Vr
- Manual input of X,Y axes values in graphs
- Customizable graphical options (line style, line width...)



# Human Vibration Calculator



- Spectral analysis of velocity plot with standard limits (left, upper)
- Correction for filters in DIN 45669-1 and SBR-B implemented with our help and supervision (right side, upper)
- Caculation of the Veff,max, Vper,meet and dominant frequency according to standards
- Manual input of X,Y axes values in graphs
- Customizable graphical options (line style, line width...)



## **Cloud Subscription: setup**

Setup	Records	Spectrum	Static	WiFi					
_									
						Connection Status			
	1	-					E		
	0 0	0	0		_	0 RSSI (d	IBm)	0 0	
						Cloud Setup	6		
						Instrum	ent Connected	Dialog Using Events	Account
							User ID	Enter your User Name	
		_			1		Model		User Name
	*	Set WiFi		Cloud	Disable	Firmware_Revision	SN	OK Cancel	
	<b>\$</b>	Set email		Setup		Activate Instrument			Instrument's Web Page
						Deactivate Instrument	۲		Instrument Config Web Page

- Enter your Cloud username
- Click on "Instrument Config Web Page"
- Setup your measurement (see next page)
- Click on "Activate Instrument"



## **Cloud Subscription: configuration**

		8
Enter y section	our login data to access the sec	ured
<u>.</u>	Jsername	
8	Password	

- Login on a internet browser
- Input your configuration
- Fill in your router SSID and password
- Choose the email account for the eventual alarms and the related threshold
- Activate the instrument with the "Instrument Manager"



## **Cloud Subscription: re-configuration**

ID	Model	Name	Serial no.	Active	Subscription	Message	Actions
1254	VSEW_mk2		CFHcrX0weXe9CDvSx2pRnD	Yes	ID: 1538 (1) Until Jun 30, 202 🗸		· · · · · · · · · · · · · · · · · · ·
1668	VSEW_mk2		CNHWhv0Y0fUVIhIQZ6rZID	Yes	10; 1539 (1) Umil Jun 30, 202 🗸 🗸		· ₽ 8 ∕ ×
1421	VSEW_mk2		Ctj8LH26e38%qrtCwyhZPD	Yes	10: 1542 (1) Lmtl Jun 30, 202 🗸		
1416	VSEW_mk2		CvB8rH2aUf8%IrlQb+JRND	Yes	1D: 1541 (1) Until Jun 30, 202 🗸		
1422	VSEW_mk2		CvtcB9U4+%WfAmQa2B5ID	Yes	ID: 1540 (1) Until Jun 30, 205 💙		



- Reconfigure at any moment
- All the measurement's configuration can be adjusted
- The connection's configuration cannot be changed via internet
- At the first next successful connection a new file will be created with the adjusted settings



#### Cloud Subscription: instruments management

My registration - Business info			
Business Info			
Business ABC International Trade BV Email beheer@av-consulting.nl Edit	Billing address Benedenberg 100 A, Bergambacht, Zuid-Holland 2861LH Netherlands Phone	Shipping address Benedenberg 100 A, Bergambacht, Zuid-Holland 2861LH Netherlands	Language of communication English
Subscription Info			
Subscription	Maximum instruments	Associated instruments	
From September 18, 2018 to October 20, 2019	1	APPWBn06Wfe9CptCYwBxvD , AHP0r%2a8X03ijHiwwLZnD	

#### • Manage each instrument, check their health, read all the measurement data from



# Cloud Subscription: instrument's health



- Example of temperature's monitoring in C°
- One value every 5 minutes



- Example of battery's status in Volts
- One value every 5 minutes



## Cloud Subscription: graphic data



- Example of a velocity record
- Once logged in with a device, you just need to refresh your browser's page to see the updated results

adings

## Cloud Subscription: additional features

- Primary and secondary email alarms for high vibrations
- Deactivate / reactivate an instrument without losing its Cloud stored data
- Manage your instruments and recordings at will
- Download the data and post-process it at any time
- In the case of storage space becoming full (figure below), the Cloud will send you several emails with enough notice

Storage Usage	
89% Complete	
Warning: You are using 445,050 KB out of 500,000 KB of storage. Please clean-up your files to free space.	

- At worst, the Cloud will delete your oldest file in order to avoid stopping your current measurement
- No limit for number of instruments on a storage account (*f.i. you buy 3 subscriptions, you can have unlimited instruments on the cloud, but up to three instruments ACTIVE at the same time*)
- No limit for number of files on a single activated instrument

