

Technical Specification of Ultrasonic Set up for Masonry

- Instrument to be supplied should be Rugged and reliable geophysical investigation system for structures with various dedicated piezoelectric sensors and probes.
- System should be characterized by an A/D board multichannel and selectable sampling rates from 100Hz – 10 MHz
- All acquired signals should be displayed, computed and digitized directly on ruggedized tablet with pre-installed software to allow field use.
- Connection between All-in One system and tablet via Wi-Fi.
- System should have minimum 3 channels for transmission and receiving to carry out ultrasonic, sonic and other tests.

The system should be capable to be utilized for following:

- Investigation of concrete elements on-site
- Testing of rocks and laboratory samples
- Sonic cross-hole test

Concrete or masonry inspection kit:

- Should be in conformance to Standard: UNI EN 12504-4, ASTM D2845-08 and ASTM C597-02.
- Sonic and ultrasonic measurements frequency 55 kHz and 20 kHz highly sensitive active piezoelectric receivers.
- Even for wood samples.
- Integrated with a HAMMER-Transducer.

Ultrasonic cross hole testing kit:

- According to the Norm: ASTM D6760-16.
- Simultaneously cross-hole measurements along three paths in pile foundation.
- Synchronization impulse using an encoder.
- High power transmitter and highly sensitive active-type piezoelectric receivers (50 and 80 kHz).

Control Unit	
Channel	3 channel controller for 2 channels receiving and 1 channel transmitting to work simultaneously
Converter type	2 A/D x 12bit converter
Input type	Differential / Single ended / IEPE
Input range	+/- 5 Vpp
Amplifier	1 to 1024 software selectable
Pretrigger	selectable, 0 to 80%
Time base	50Khz to 10 Mhz (10MHz/1Ch – 5MHz/2Ch)
Sample per event	1K to 8K for channel
Travel time resolution	100 ns
Sample resolution	12 bit@10Mhz to >16bit@ 50Khz (with oversampling)
Band width	> 1 MHz

Filter	Antialias, digital custom filter selectable (DSP)
Pulse duration	Selectable, 1 to 65000uS
Transmitter pulse repetition	> 20 measurements /seconds
I/O:	USB 2.0/ WiFi 802.11 (100m)
Power supply	Internal battery LiFePO4 (6Ah)
Recharging	External recharging - recharging time 4hours
Power consumption	0.8W StandBy/ 1.6W Ultrasonic active
Autonomy	Greater than 35 hours operation
Environmental protection, based on casing	IP 65
Working temperature	0-60 °C
Transducers	Piezoelectric-Type: - Receiver Sensor (wall-type): 55KHz - Transmitter Sensor (wall-type): 55 KHz - Transmitter Sensor (wall-Type): 20 KHz
Sonic test	Hammer transducer
Tablet	
Ruggedized tablet, screen size	>=10 inch
Operating system	Windows, preinstalled software on tablet
Crosshole test kit	Transmitter probe of frequency 55kHz or 80kHz Receiver probe of frequency 55kHz or 80kHz Transmitter / receiver probe of frequency 55kHz or 80kHz
Trigger type	software