

## DATA SHEET

# Cross-Hole Analyzer for Foundation Piles Wireless Modular Version



Complete Cross-Hole system with 2 motorized reels, on site application. Mod 58-E4600/E

## General description

The cross-hole method is a way to analyze the foundation piles of buildings, which, with the use of **cross-hole ultrasonic pulses**, allows accurate, high-resolution tests to be carried out. An ultrasonic wave is sent from a transmitter to a receiver and is conveyed automatically by the device along the entire length of the pile via the pipes embedded into it during casting. The speed of the sonic wave and its energy are strongly influenced by the quality of the concrete and it is therefore possible to assess the characteristics and give a tomographic representation in 2D called diagraphy.

The instrument is a complete system for performing structural tests by ultrasound on piles, deep foundations, infrastructural works or buildings. Each reel system has a 52 kHz motorized probe with 60 m of cable and also houses the battery plus all the electronic controls that automatically manage the probes during the descent / ascent phases (cross-hole) and saving of the test data.

The configuration practically eliminates the need for physical cables and is supplied with a Rugged tablet which allows the setting of all parameters, test management, and display / processing of the acquired test data in an easy, immediate and wireless way.

The system can directly manage up to 4 motorized coil systems from one tablet. Using 2, 3 or 4 motorized reels it is possible to increase the survey productivity and reduce testing time: with a single ascent / descent of the probes in the pile to be checked (which must have 2, 3 or 4 integral pipes) it is possible to obtain results for the corresponding sections.

The data are acquired at each pulse and displayed in real time on the tablet screen allowing any imperfections in the structure being inspected to be seen immediately.

The procedure for running cross-hole surveys with 2, 3 or 4 channels is managed in a fully automated way. The only manual operations required are the positioning of the encoders for reading the position of the motorized probes on the pipes and the initial alignment of the probes on the pile head.

The test is started by simply pressing a button and it is possible to verify the test data step-by-step in order to check the test progress in real time.

## Main features

- **Integrated wireless system with 2 motorized reels; expansion options for 1 - 2 channels;**
- **with multi-reels system (up to 4) the investigation is performed providing complete information on pile quality and homogeneity over its whole length;**

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- **the system is completely managed via a rugged Android tablet (included);**
- **easily transportable with the very small wheeled suitcase;**
- **user-friendly and intuitive software.**

### Standards

- ASTM D6760

### Specifications

#### Acquisition:

time bases: 100 ns; 200 ns; 500 ns; 1 us; 2 us; 5 us; 10 us; 20 us

sample resolution: 12 bit

samples per event: 2048

amplification factors: x1; x2; x4; x5; x8; x10; x16; x32

band width: 50 MHz

filter for ultrasounds: central frequency 50 kHz

#### Probes

hole: resonant frequency of 52 kHz, diameter 35 mm

peak excitation voltage: 500 V (standard) 2000 V (high)

maximum pulse output frequency: 1 per second

measuring step increment: 10 mm

motorized reels: 2, 3 or 4 no. with 60 m cable

position encoder: 2, 3 or 4 no.; accuracy 1.4 °

speed and alignment: managed automatically

hardware buttons for drive motors

automatic switching transmit / receive ultrasonic

#### General

complete control from Panasonic Rugged tablet with dedicated Android application

conforming to ASTM D6760-08

wireless technology: WiFi - 2.4 GHz - 802.11 b

wireless synchronization: 5 GHz, 8 selectable channels

selection radio channel: automatic

power supply: 12V DC, 1 Li-Ion battery 10,5Ah for each reel

average intake (per reel): 180mA (standby) - 600mA (during measurement)

diagraphy processing software: compatible with Microsoft Windows® operating systems

ambient operating conditions: -20 to 80 ° C

single unit dimensions: 220x250x225 mm (L x W x H)

carrying case dimensions: 538x406x269 (L x W x H)

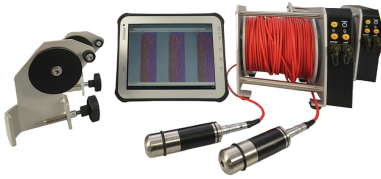
single unit weight approx.: 9.3 kg

carrying case with two complete units weight: 28 kg

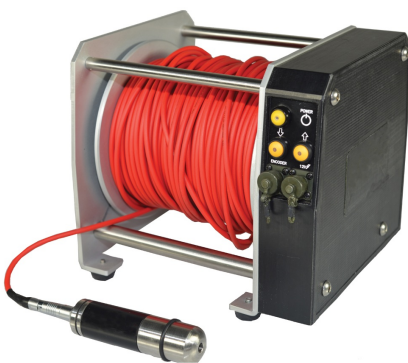
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Complete set, easily transportable with the very small wheeled suitcase. Mod. 58-E4600/E.



Complete Cross-Hole system with 2 motorized reels. Mod. 58-E4600/E.



Integrated motorized reel including the 52Hz probe with 60 m cable; battery and control panel. Mod. 58-E4600/E1.

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### Products

#### 58-E4600/E

Wireless modular system for Cross-Hole ultrasonic investigation on foundation piles.

### Accessories and consumables

#### 58-E4600/E1

Expansion options for 1 additional channel for Cross Hole instrument code 58-E4600/E, comprising:- 1 motorized reel: the unit includes 52 kHz probe with 60 m cable, integrated wireless, integrated battery and positioning encoder - carrying case