

# Ultracon-170

## Ultrasonic Concrete Tester



The velocity of ultrasonic wave in concrete is affected by elastic property or strength. Ultracon-170 applies high voltage and sends it to transit transducer to generate ultrasonic wave. This ultrasonic wave reaches to the receive transducer through concrete. When elastic property or strength of concrete is high, the transit time is short. On the other hand, when the materials are contrary, the velocity is low.

Ultracon-170 measures the ultrasonic transit time accurately so it makes possible to evaluate a material or find an elastic properties non-destructively to investigate uniformity, cavities, cracks, fire/frost damage, delamination, deterioration and strength.

Ultracon-170 uses 52 kHz concrete transducers manufactured by mkcndt which was designed to send and receive ultrasonic signal effectively in highly attenuative materials, including concrete, wood, stone and plastic. This instrument was developed by cooperative research with Korea Research Institute of Standard & Science, subsidized from the national coffers of Ministry of Science & Technology. This is the 4th generation.

### Features of Ultracon-170

- With excellent analog circuitry design, the repeatability and accuracy is superb
- The color of background is changing according to measurement mode
- Direct read-out of transit time of ultrasonic in concrete with ultrasonic transducers, which is pulsed by high voltage
- With the combinations of high-energy pulser, high sensitivity receiver and high efficiency transducers, it is excellent in thick and attenuative materials
- TFT color LCD and makes it easy to operate in work-site or laboratory
- Status messages and different color display according to measurement modes enables to ascertain present inspection modes
- 6 x AA rechargeable batteries enables 5 hours operation with 1 hour charging
- Displays the transit time in  $0.1\mu\text{s}$  unit
- RF waveform can be observed through RF output connector to oscilloscope or optional A/D board
- It is possible to connect 2 through 16 transducers to observe the change of ultrasonic transit time according to time lapse using mortar container, multiplexer and PC (option)
- Rugged Aluminium case
- Low Battery status display

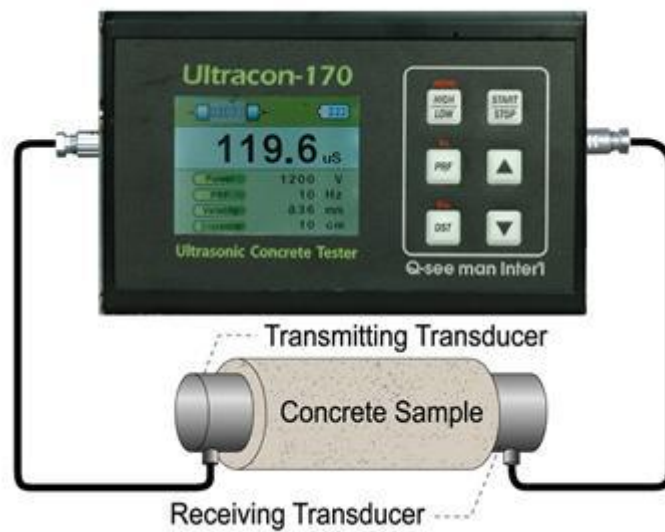


Mortar Analysis using MUX and containers(options)

## Measuring Principle of Ultracon-170

Ultrasonic wave is well propagated in hard materials, like concrete, stone and wood other than sonic wave. The velocity of ultrasonic is affected by length or stiffness of the material. Ultracon-170 evaluates the elastic property and measures the depth of crack in concrete structures as well.

In order that ultrasonic wave could propagate easily, ultrasonic couplant should be applied to the surface of UT transducers or concrete.



## Ultracon-170 Kit

The Ultracon-170 is consisted as follows.

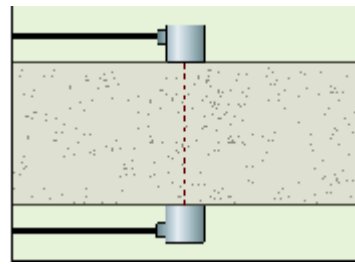
- Ultracon-170 main body
- Carrying Pouch
- Battery Charger
- A pair of 52 kHz UT Transducer
- RG 58 cable with BNC/BNC connectors
- Reference Block
- Ultrasonic couplant
- Instruction manual

			
main body	carrying pouch	transducers	cable
			
UT Couplant	reference block	battery charger	instruction manual
			
AL bag	Heavy Duty XDCR ✘	Small Transducers ✘	✘ optional item

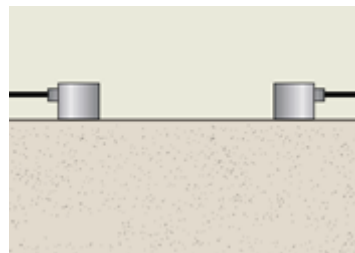
The displays of UC-170 according to measurement modes



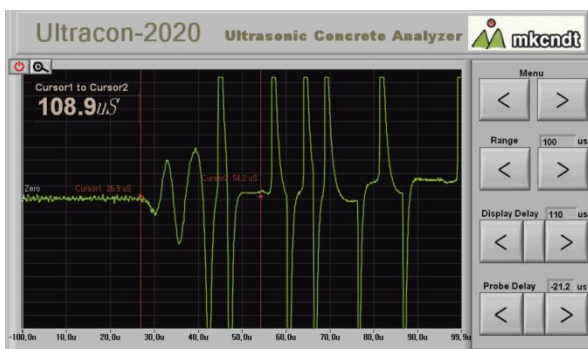
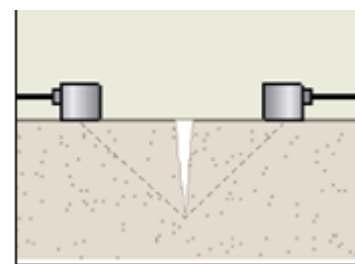
Direct Mode



In-direct Mode



Crack Depth Mode



A-scan waveform display



Mortar Analysis Software

## Specifications

- Measuring Range of Ultrasonic Transit time:  $0.1\mu s \sim 9999.9\mu s$
- Display: 320 x 240 TFT LCD
- Connector: BNC/BNC
- Operating Temperature:  $-20 \sim 50^{\circ}C$
- Power: 6 x AA Rechargeable Battery
- Battery Life: Continuously 5 hours with 1,200V pulse
- Size : 105(H) $\times$ 172(W) $\times$ 68mm(D)
- Weight : 1,065 grams (main body with batteries inside)
- Warranty : 1 year

## Initial Displays according to applications



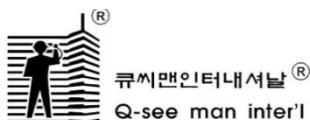
Carbon molding



Wire Insulation



Carbon Electrode



**Address:** #601, KICOX, Guro-dong, Guro-gu, Seoul, 152-759, Korea  
**TEL:** 82-2-804-3600 **FAX:** 82-2-893-0498  
**Web:** [www.mkckorea.com](http://www.mkckorea.com) **E-mail:** ndt@mkckorea.com