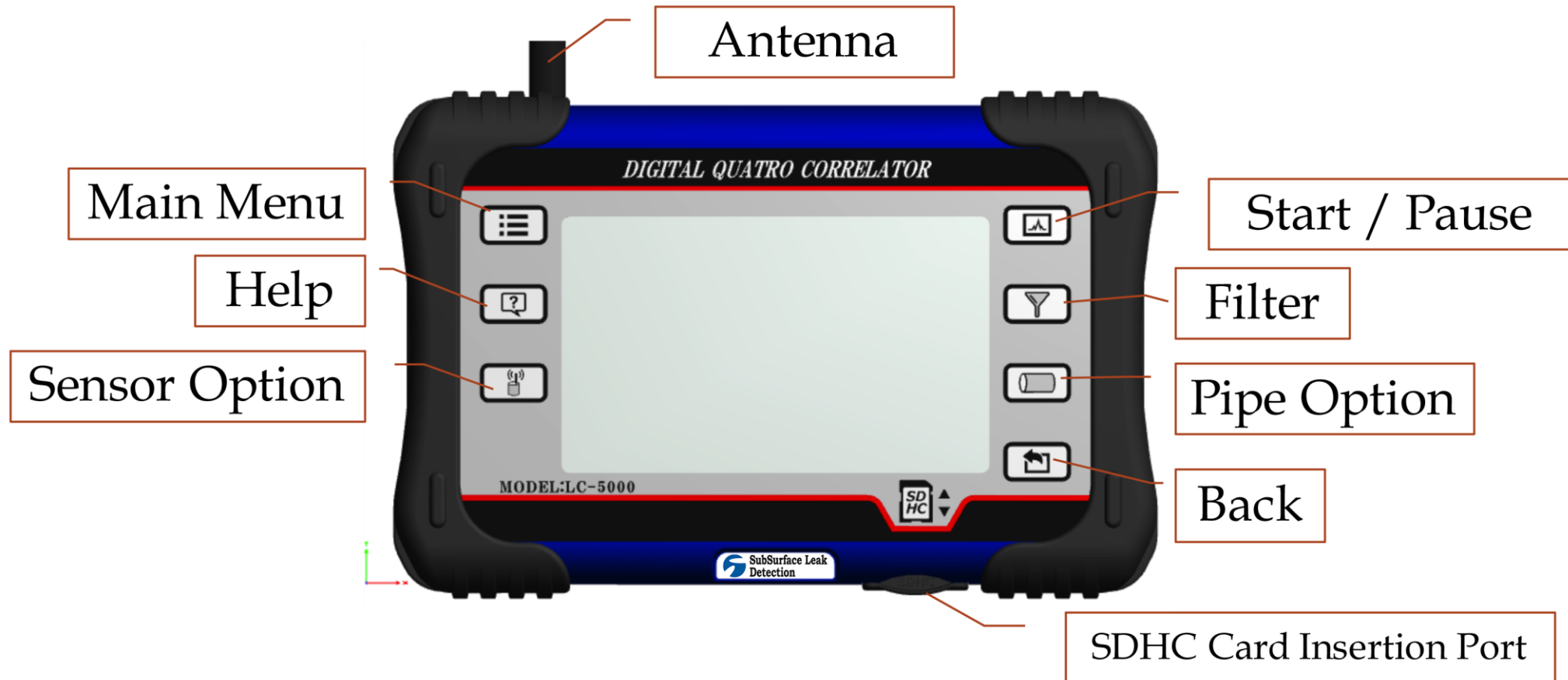# SUBSURFACE DIGITAL QUATRO CORRELATOR
LC-5000

LC-5000

- Tough with resin body and rubber protection.

- 7 inches display and touch panel.

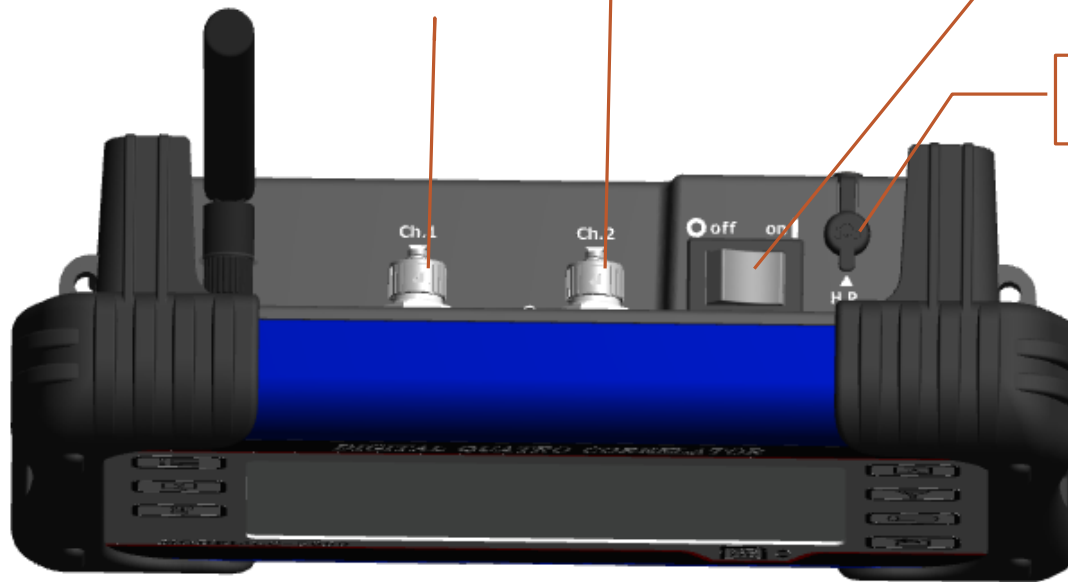- Rechargeable lithium-ion batteries.

Main Unit

Antenna

Main Menu

Help

Sensor Option

Start / Pause

Filter

Pipe Option

Back

SDHC Card Insertion Port

DIGITAL QUATRO CORRELATOR

MODEL:LC-5000

SD HC

SubSurface Leak Detection

Main Unit

Wireline Cable Insertion Port (Ch2)

Wireline Cable Insertion Port (Ch1)

Power Switch

Headphone Insertion Port

Preamplifier

Antenna

Charging Adapter
Insertion Port

Wireline Cable
Insertion Port

Sensor Insertion Port

Internal Sensor

LED (Action)

LED (GPS)

LED (Power)

LED
(Sensor /adjustment)

Antenna

DIGITAL QUATRO CORRELATOR
LC–5000

Headphone
Insertion Port

Power Switch

Sensitivity

Comparison with LC-2500

	LC-5000	LC-2500
Main Unit	11"x6.3"x2.7" 5.7 lbs	7.8"x9.8"x4" 6.8 lbs
Preamplifier	3.14"x16" 2.2 lbs	6"x4.3"x14.5" 6.3 lbs
Heat Resistant Temperature	-4～+120°F	14～＋120°F

Power Supply

	Main Unit	Preamplifier
Changing Batteries	Exchangeable （Battery pack type)	NOT Exchangeable
Operation Time	8 hours or longer	8 hours or longer*
Recharge Time	About 5 hours	7.5 hours （Usable for about 4 hours on 2 hour charge)

*Correlation mode / GPS on / Maximum volume / Signal: 25uV/400Hz
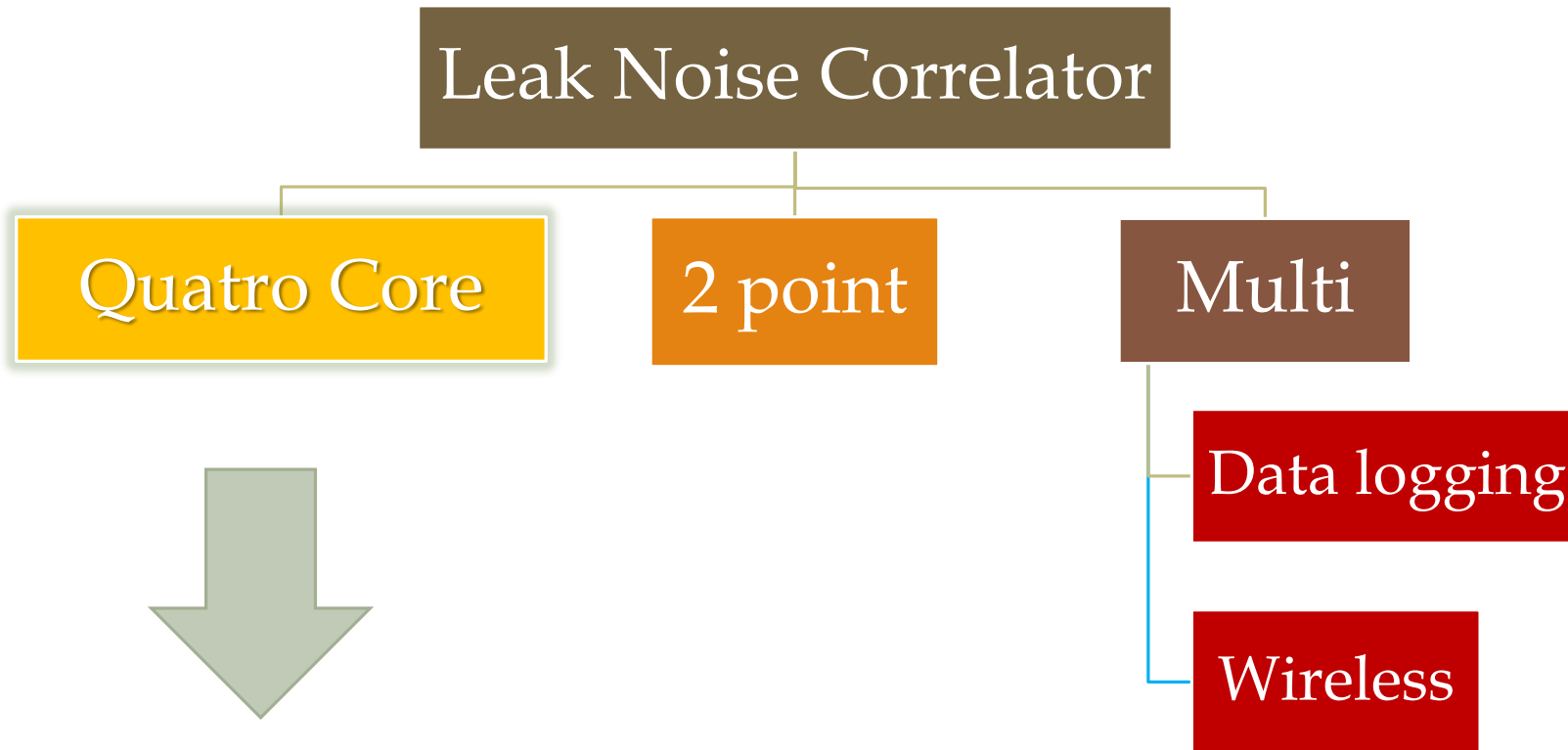
Time Synchronization and Logger Mode

Time Synchronization

Verification	Condition	Error Range	
Wireless	70°F	Max. 27μs	1 hour or more of observation
	-4°F	Max. 21μs	1 hour or more of observation
	120°F	Max. 16μs	1 hour or more of observation

Logger Mode

Verification	
GPS Synchronization Time	2 min 55sec – 4 min 40sec / Average 3min 28sec
Time Accuracy	Maximum 720μS in 4 hours (32°F 50°F 100°F)
Time Accuracy （Main unit correction function）	The difference between time of GPS and preamplifier are corrected after preamplifier recovered.

New Category Leak Noise Correlator

Leak Noise Correlator

Quatro Core

2 point

Multi

Data logging

Wireless

New Category of Leak Noise Correlator

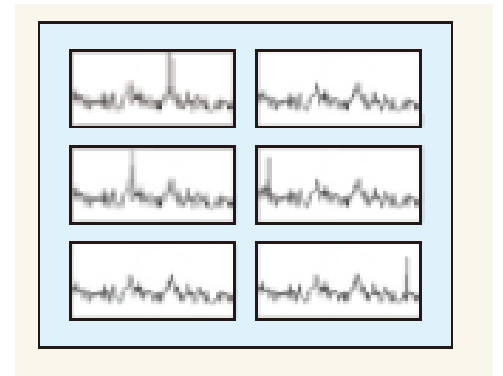# What is Quatro Core ?

☛ Real time simultaneous correlation

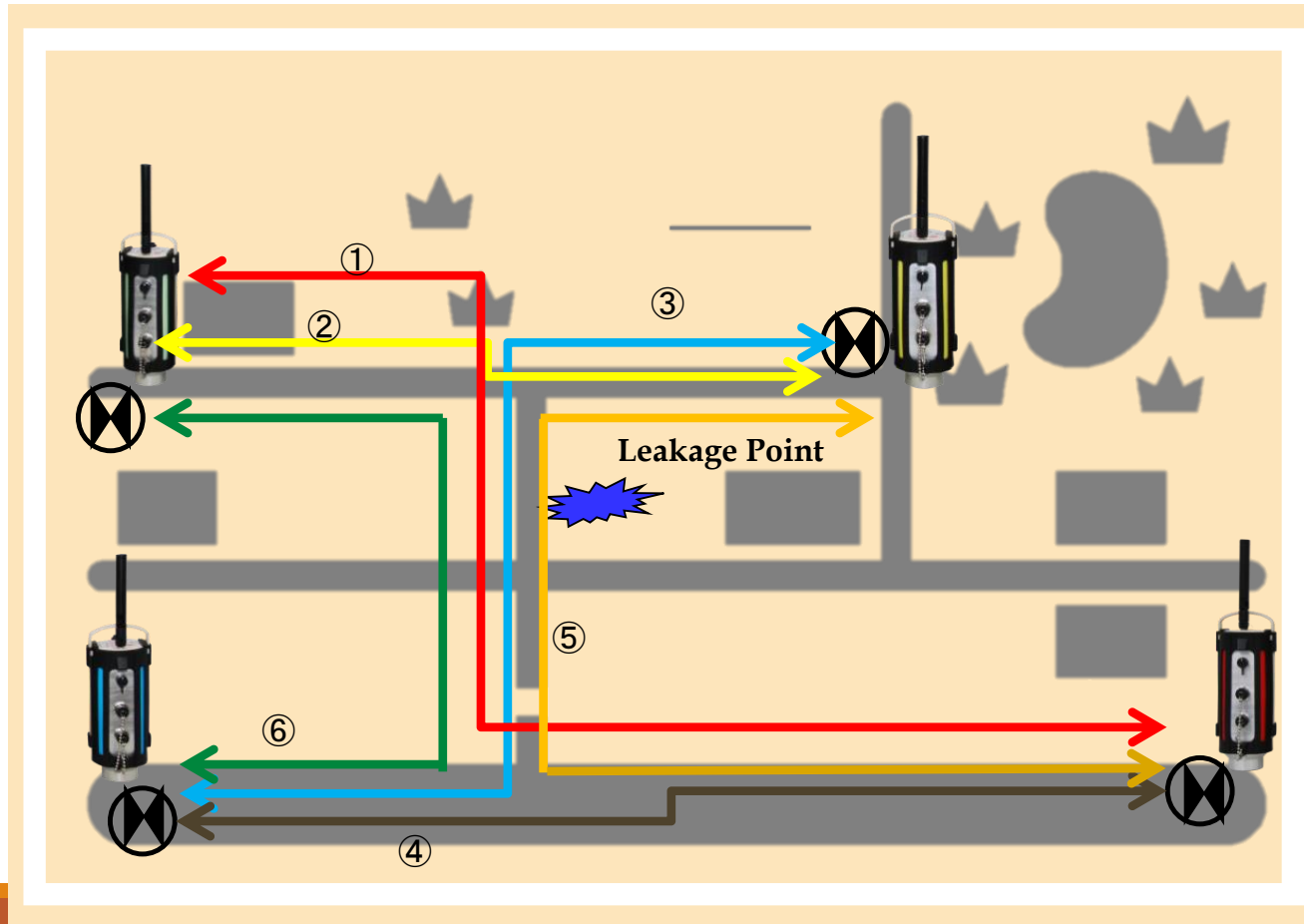☛ 6 Up to correlations can be done at once

☛ Able to check 6 screens at once

Very fast!!

Advantage of Quatro Core I

6 route simultaneous correlation processing & screen display

Enables for simultaneous correlation processing of up to six paths by using four sensors

Advantage of Quatro Core II

High correlation processing ability

Distance resolution is 8″ on high precision mode.

(Delay time range : ± 1,600 ms, Sound speed : 3200′/ sec)

※ 4 times the resolution compared with our conventional device

(model: LC-2500)

Advantage of Quatro Core III

Long distance wireless communication is possible

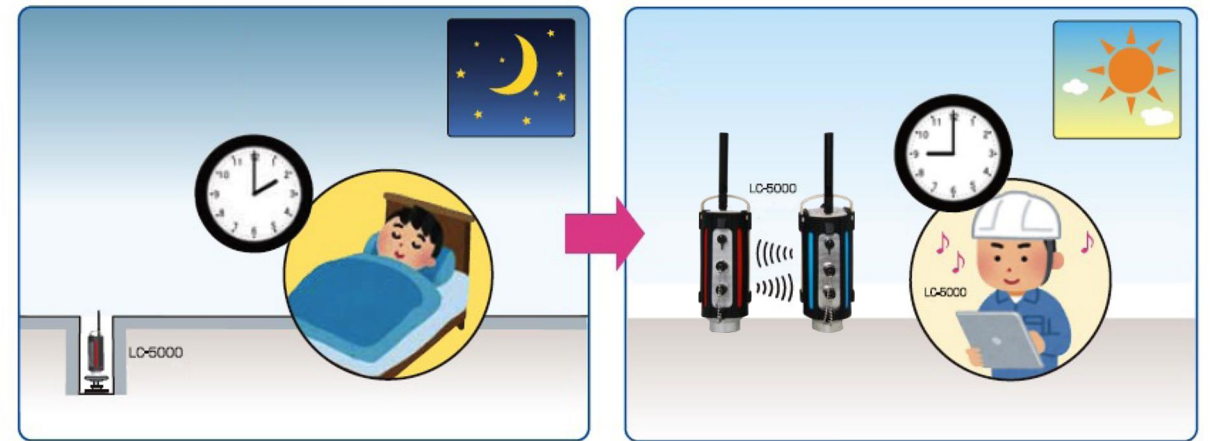The **distance** can be **further extended** by using the relay function of the sensor.

Advantage of Quatro Core IV

Logger mode

By setting the time in the logger mode, it is possible to perform **correlation processing after acquiring sound data** at the set time.

Even if you can not restrict traffic for a long time or you want to collect data at night, you can investigate without loss of opportunity

Advantage of Quatro Core V
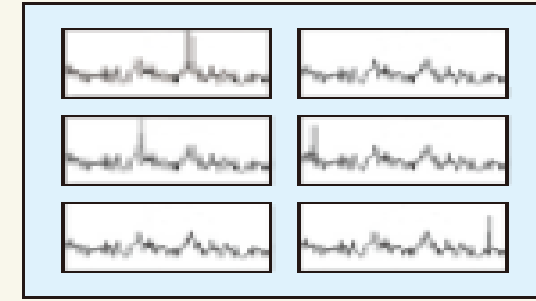
- Filter for large diameter pipes

- Recalculation function

  Data collected and saved during survey could be recalculated
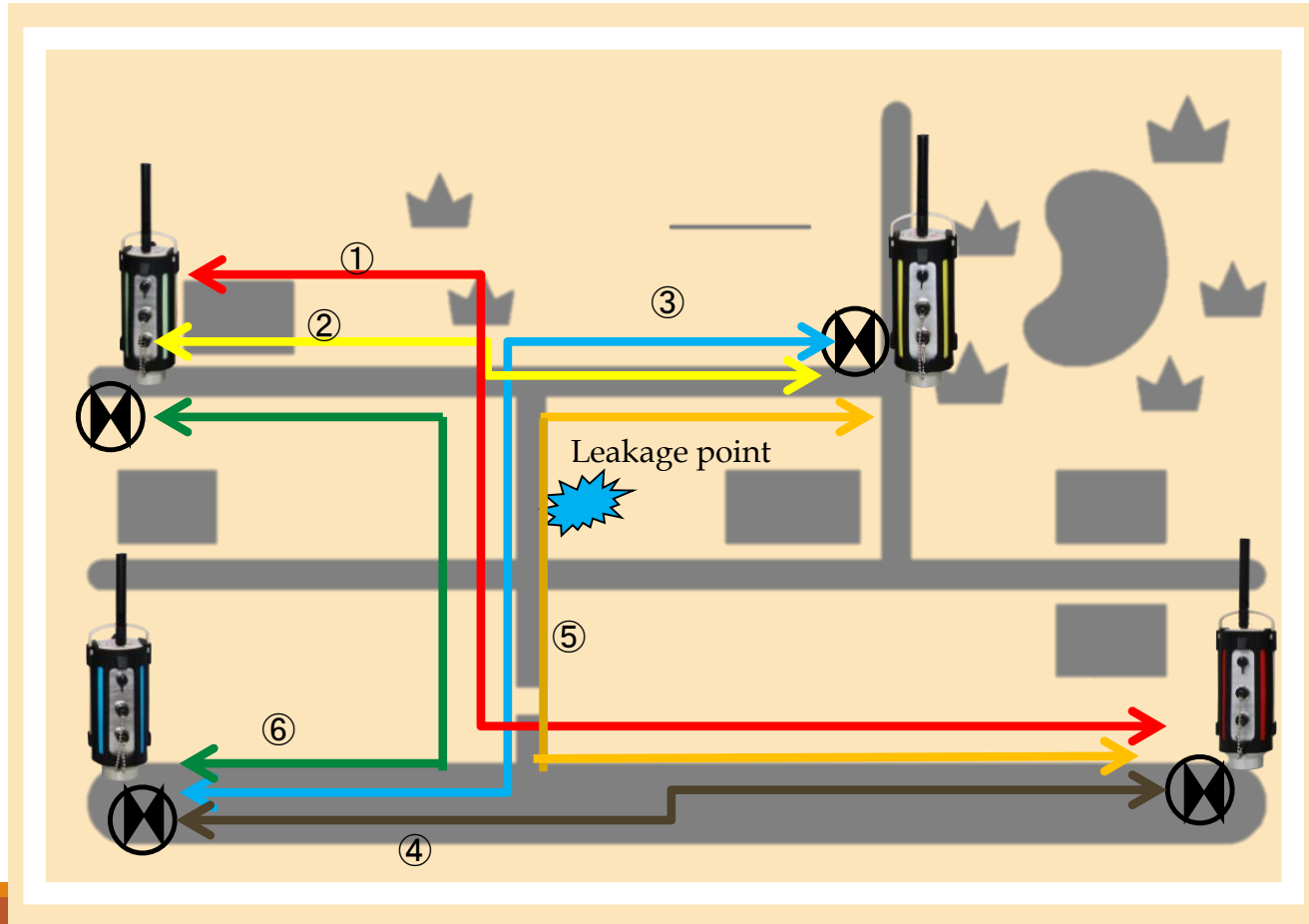
  after changing/altering of pipe information.

- Recorrelation function

  WAV file data saved in SD cards could be re-correlated.

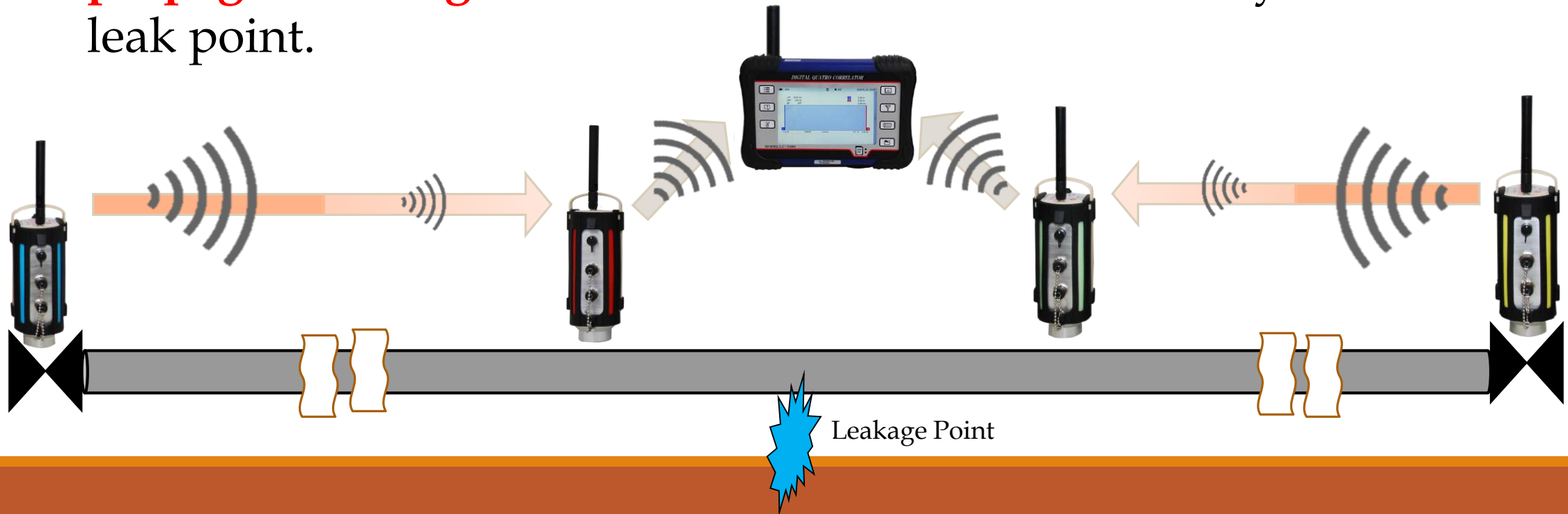# Quattro core application technique for time saving I

Performs up to **6 Simultaneous Correlations** at once using four sensors.

Quattro core application technique for time saving II

When the distance between sensors is long

Use of a preamplifier as a repeater **expands the radio propagation range** even if there is no incidental facility near the leak point.

Leakage Point

Quattro core application technique for time saving III

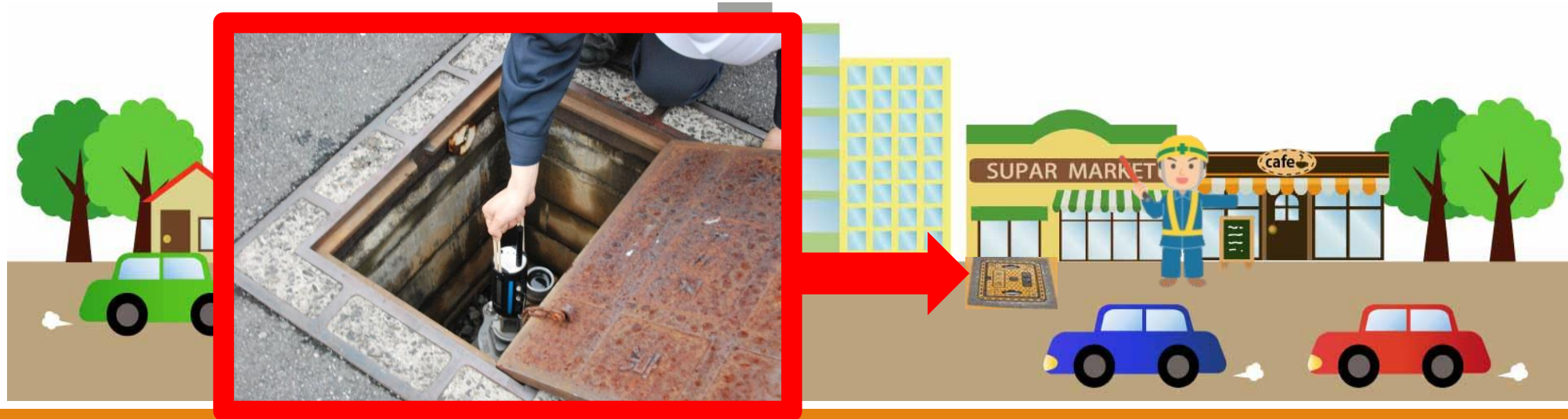Avoid radio interference in the building areas!

In cases of no clear line of sight or building interference with antenna communication:

Use a sensor as a **repeater** to provide comfortable radio wave environment depending on location.

Quattro core application technique for time saving IV

In the case of a site with a lot of traffic

As preamp and sensor are integrated, **storage in valve boxes/vaults & meter pits** is possible. Furthermore, if you use the logger mode, you can investigate while **avoiding the peak traffic volume**.
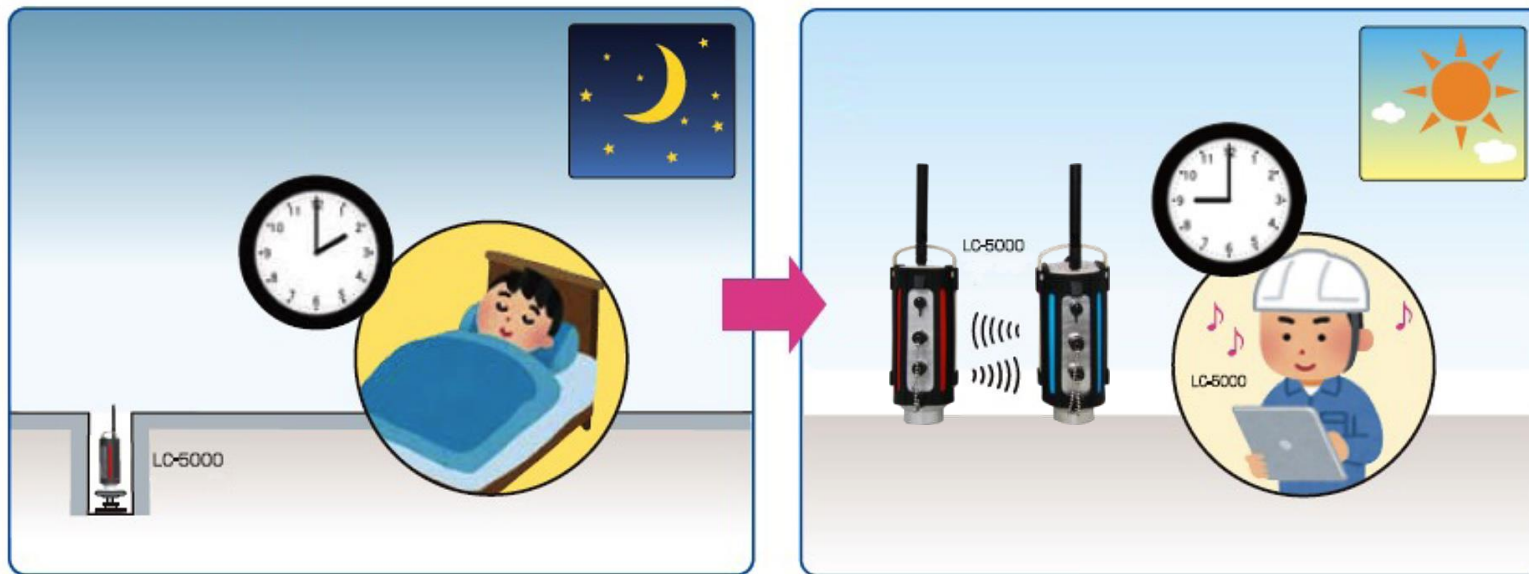
Quattro core application technique for time saving V
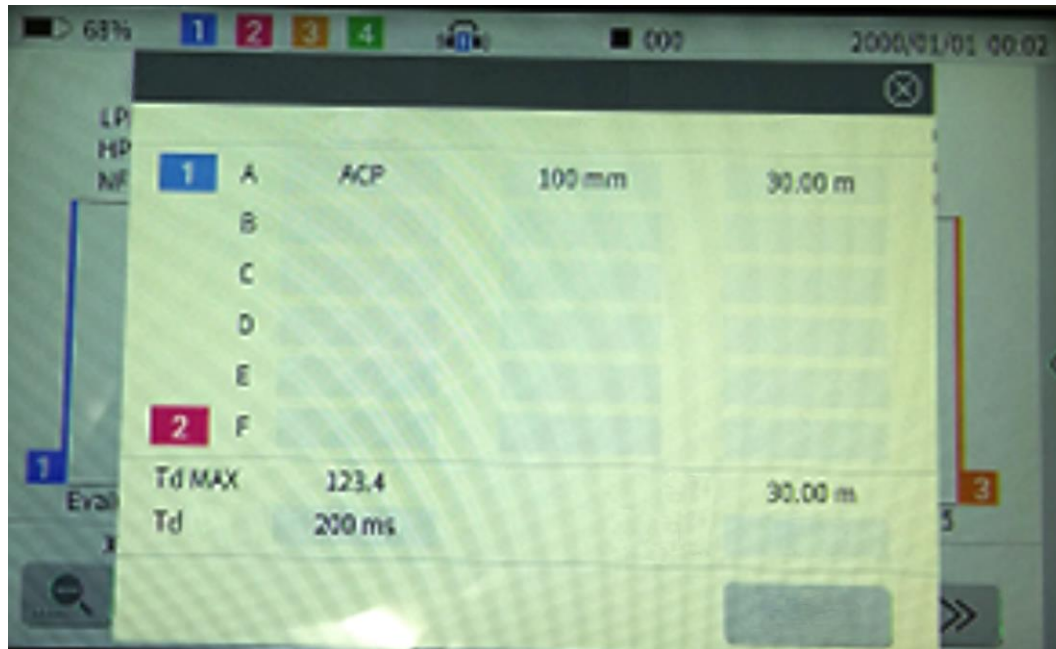
Correlating Leak Noise Logger

Set time in **logger mode**, install sensor on site
→ **The next day**, collect the sensor and acquire the data.

Quattro core application technique for time saving VI

When an error in piping information is found after correlation processing

If you save the acquired data, it is possible to **re-calculate** after changing the piping information as it is.

Quattro Core Summary

① **Contributing to time reduction** as it is equipped with 6-path simultaneous correlation function

② **Contributing to time savings** depending on how the sensor is used

③ **Contributing to shorten the time** by using logger mode even when you don't have time