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Wcap



## Thermal conductance of shell's opaque surfaces

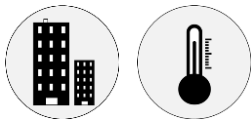
Wireless system used to measure thermal conductance of shell's opaque surfaces, performed on existing buildings in not invasive mode (HFM flux meter method – Heat flux Meter). Free installation in any position. Excellent radio range and autonomy.

### Suitable to monitor:


- energy certification of buildings
- thermal conductivity measurement

### Main features

- Can be installed in any position
- Rugged and impact resistant containers
- IP65
- Temperature measurement
- Up to 5 years of autonomy



## General technical specifications

Power supply	8.5Ah - 3.6V type "C" lithium internal battery ( <i>BAT2</i> )
Battery life (*)	Up to 5 years <i>(samples every 10 minutes and radio signal quality at least sufficient)</i>
Measures acquired <i>(4 input channels)</i>	<ul style="list-style-type: none"> <li>• Indoor temperature</li> <li>• Surface temperature</li> </ul>
Sampling interval (*)	Selectable from one minute to 24 hours <i>(10 minutes default)</i>
Datalogger capacity	64,000 samples <i>(for each channel)</i>
Working temperature	<ul style="list-style-type: none"> <li>• Operative: -30°C ÷ +60°C</li> <li>• Warehousing: -40°C ÷ +70°C</li> </ul>
Radio frequency	ISM 868MHz
Radio coverage 	Up to 6Km in line of sight <i>(can be extended using <i>WR12</i> battery powered repeaters)</i>
Sealing	IP65
Dimensions	90x120x50mm
Weight	350g
Case material	ABS
Mounting	Fix on 4 points
Connections	Wireless, USB
Cable external diameter	2.5mm minimum - 6.5mm maximum
Copper wire section	0.05 ÷ 2.5mm <sup>2</sup> ÷ 14AWG

## Ambient temperature

Transducer type	NTC10KΩ
Measure range	-20°C ÷ +60°C
Measure accuracy	±0.2°C in whole range
Measure resolution	0.01°C

## Surface temperature

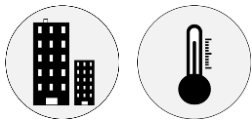
Transducer type	PT1000
Measure range	-30°C ÷ +50°C
Measure accuracy	±0.25°C in whole range
Measure resolution	0.01°C

## Thermo-fluxmeter input

Transducer type	Thermo-pile fluxmeter plate
Measure range	±35W/m <sup>2</sup>
Measure accuracy	0.001W/m <sup>2</sup>
Measure resolution	±0.05W/m <sup>2</sup>

\* battery life may be influenced by fieldwork conditions, sampling/measuring interval and system configuration.

\*\* radio coverage can be extended using up to 32 *WR12* repeaters (maximum 16 for each path) between the device and the gateway.



The **WSD12-TF KIT** is a wireless system used to measure, thermal conductance of shell's opaque surfaces, performed on existing buildings in not invasive mode (*HFM flux meter method – Heat Flux Meter*). This system is a good aid for building's energy certification.

System is made by three wireless **dataloggers**:

- **WSD12T-TTT1K**: contact surface temperature measure (*three points*) to be placed on the external side of the shell;
- **WSD12T-TTT1K**: contact surface temperature measure (*three points*) to be placed on the internal side of the shell;
- **WSD12T-FLUX**: thermal flow measure, to be placed on the internal side of the shell.

The main feature of the instrumentation is the possibility of being installed comfortably and quickly in any position. It can be fixed with dowels or glued directly to the measuring surface.

The system acquires a total of eight measurement channels: surface temperature in contact, ambient temperature, and measurement of the heat flow.

The radio module High Reliability (*unique 868MHz radio technology. implementing frequency hopping on 11 channels*) based on **WINECAP™ LuPo** protocol (**Long Range**) provides an excellent radio range (*up to 6 Km in line of sight*), low battery consumption and the certainty of data recovery in any situation (*black out/signal obstacles*).

With a backup memory onboard may store the last 64,000 samples per channel even if the wireless link is down. Samples can be downloaded using a USB connection.

Using the configuration software, the sampling interval may be set and two thresholds per channel can be activated.

Can be interfaced with:

- all the **gateways** of **MWDG** product line
- all the **gateways** of **MWLI** product line

If necessary, radio coverage may be extended up to 16 times using **WR12 repeaters** (*battery powered repeaters with battery life up to 7 years*) between the datalogger and the **gateway**.

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