

U-Value Measurement with the gO Measurement System

Object:		Measurement period:	
Address:		Component:	<input type="checkbox"/> Wall <input type="checkbox"/> Window <input type="checkbox"/>
		Structure (by layer):	
Building Year:		Orientation:	
Building Type:		Expected U-Value:	
Use of building:	<input type="checkbox"/> Occupied <input type="checkbox"/> Unoccupied	Photos:	<input type="checkbox"/> Yes <input type="checkbox"/> No

1	Conditions
	Temperature difference ($T_{\text{interior}} - T_{\text{exterior}}$) is at least 5°C
	Measurement possible for at least 72h (ISO)
2	Material
	Cloud access (Qii) tested
	Measurement Nodes and Gateway charged
	Last digits of the IP of the gateway and SN of the nodes (on the labels) noted
	Fixation (paste, adhesive tape) available
	<i>Optional:</i> - Thermal imaging camera - Charger, power bank - Ladder
3	Choice of the measurement position
	Measurement position is accessible from the inside and the outside
	No direct solar radiation (north wall, if necessary, install a sunshade or similar)
	Position is protected from strong winds/rain
	Position is not in proximity to heat bridges (use thermal imaging camera if available)
	Position is not in proximity to a heat source
4	Mounting
	Fixation (paste, adhesive tape) chosen (The paste can leave residues on the wall/window)
	Measurement Node Type 1 installed <u>on the inside</u>
	Measurement Node Type 2 installed at the same position, but <u>on the outside</u>
	<i>Optional:</i> Measurement Node Type 3 installed
	All fixations checked

4	Mounting (Continuation)
	Gateway positioned near window
5	Start of the measurement
	Gateway started (Press and hold the on/off button, until cloud control light starts to blink. Then wait for this control light to turn green.)
	Measurement nodes started (Press and hold each on/off button, until wireless control light starts to blink. Then wait for this control light to turn green.)
	Photos of installation taken for documentation
6	During the measurement
	Keep inside temperature as constant as possible
	Battery status of gateway and measurement nodes checked (via cloud or pressing the on/off button once)
7	Read out of results
	Logged into cloud, measurement date chosen
	<i>Optional:</i> time frame of the analysis adjusted (by using the slide bar on the bottom of the page)
	U-Value and ISO conformity read off
7	End of the measurement
	Gateway turned off (Press and hold on/off button)
	Measurement node turned off (Press and hold on/off button)
8	Dismounting
	Heat flux sensor removed with care from surface (Please consult the manual)
	All other components removed from the wall
	Fixation residuals removed

Note on Window U-Value Measurements

As solar radiation influences the heat flux, only data measured during the night can be used to calculate the U-value of a window.

To analyze the data, two methods can be used:

Analysis via cloud

1. On the cloud, select the data of one night at a time using the slide bar at the bottom of the page (the time range might need further adjustment in order to fulfil the requirement of a 5°C minimum temperature difference)
2. Read off the U-value for each time range (the U-value equals the last value in the graph "U-value Evolution of Analyzed Period")
3. Compare U-values of the individual time ranges and calculate the mean

Analysis via Excel

1. Export raw data from the cloud
2. Select the data of one night at a time (the time range might need further adjustment in order to fulfil the requirement of a 5°C minimum temperature difference)
3. Calculate the U-value for each time range separately
4. Compare U-values of the individual time ranges and calculate the mean

Detailed information about U-value Measurements with the gO Measurement-System® can be found in the following documents:

- User Manual for gO Measurement-System
- Mounting Recommendations for gO Measurement-System Measurement Nodes and Sensors
- Leaflet „Double-sided Adhesive Roll Tape (Mount -1235) Quick Overview”
- Leaflet „gO Measurement-System Software Tutorial”

This checklist can be downloaded on our website.