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TRSYS01

HIGH ACCURACY THERMAL RESISTANCE MEASUREMENT SYSTEM WITH 2 MEASUREMENT LOCATIONS

TRSYS01 is a measurement system for analysis of thermal resistance and thermal transmittance of building elements by in-situ measurement. It can be used for measurements according to ISO 9869 and ASTM C1155 / C1046 standards. In its standard configuration the system is equipped with two heat flux sensors as well as two pairs of matched thermocouples for differential temperature measurements.

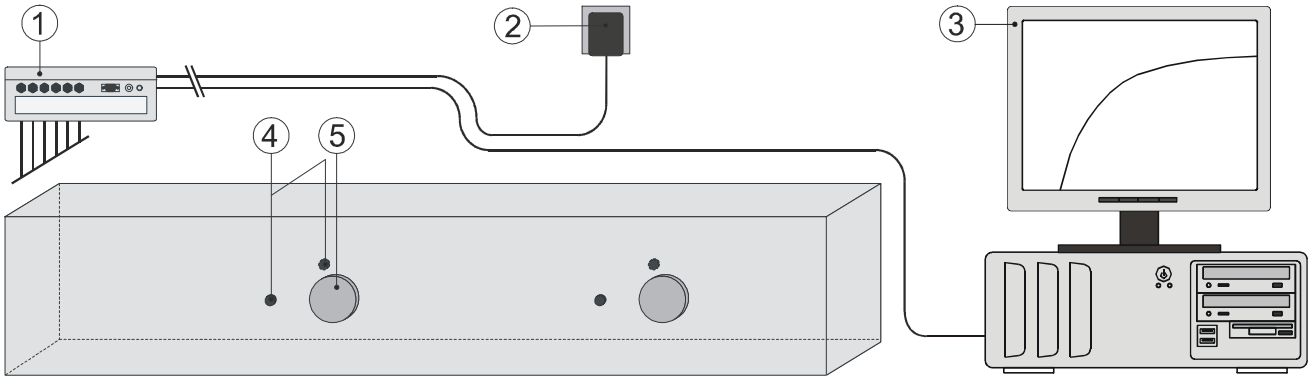

Figure 1 TRSYS01 consists of MCU Measurement and Control Unit (1), an adapter for power (2), 2 pairs of matched thermocouples (4), and 2 heat flux plates of type HFP01 (5). MCU measures and stores data. Readout is performed by connecting temporarily to a PC (3) (not included). Software for readout is included.

INTRODUCTION

The in-situ measurement of thermal resistance, thermal transmittance or U-Values of buildings is often applied in studies of building elements. The thermal resistance, TR, measurement is based on simultaneous measurement of time averaged heat flux Φ (using a heat flux sensor) and differential temperature, ΔT, (two temperature sensors).

$TR = \Delta T / \Phi$

The ISO and ASTM standards on the subject comment on applicability of the method, on installation and on data analysis.
The TRSYS consists of high accuracy electronics (measurement accuracy up to 1 microvolt) as well as matched thermocouple pairs to make a differential temperature measurement with a total accuracy of better than 0.1 degrees C. It also includes HFP01 heat flux plates. HFP01 is the world's most popular sensor for heat flux measurement through building envelopes.

TRSYS01 SPECIFICATIONS

Test method:	ISO 9869 and ASTM C1155 / C1046
Measurement locations:	2 (can be increased on request)
Power requirements:	110-220 V, 0.5 Watt (max)
Differential temperature (ΔT) :	matched pairs thermocouple type KX, 584.3:1989
ΔT accuracy:	0.1 degree C
Heat flux sensor:	type HFP01
Protection sensors and MCU:	IP 63
Cable length:	20 m (3x) and 10 m (3x)
Storage capacity:	> 30 days of data: 10 minute and 24 hour averages
Data analysis:	to be performed by the user according to ISO and ASTM standards

OPTIONS

LP02 solar radiation sensor
Integrated battery pack