IC-Meter
Indoor Climate

PRODUKT PRISEN 2013
Ingeniøren
Product Award 2013

IC-Meter

Indoor climate and energy

Online measuring and web view of temperature, humidity, CO_2 and noise.

IC-Meter - Plug 'n' play concept for professional evaluation of indoor climate in relation to:

People and health

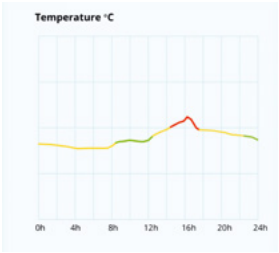
- Schools, children's institutions, health sector, offices and living areas

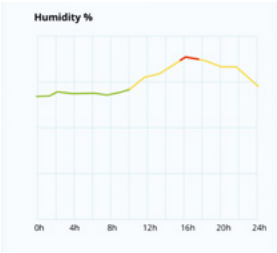
Building Management Systems

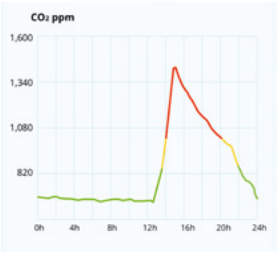
- Demand controlled ventilation, enhanced system performance, feedback and control evaluation

Refurbishment projects and contracts

- Remote diagnosis and comparison for consultants, specifiers and project appraisal by end users







Read more about IC-Meter at www.ic-meter.com and look at indoor climate at a selection of work places

Good indoor climate

A good indoor climate is a key element for good health and well-being, but the problem is that this indoor climate is rarely measured or visualised. This is remarkable since most people live a great part of their lives indoors. For Northern Europeans as much as 90% of the time. Another issue is energy efficient buildings with limited fresh air intake.

What is IC-Meter?

Indoor Climate Meter (IC-Meter) measures, analyses and visualizes 'online' indoor climate in a room or building. The concept consists of a plug in measuring box, a server solution, an app and a website. By combining the indoor climate measurements with the local weather anywhere on the globe IC-Meter calculates a number of key parameters for the indoor climate and air changes. All data is stored in a Cloud solution – the buildings 'Black Box' – the results are communicated to the user through smartphone and/or PC.

If the IC-Meter is combined with a remotely read heat meter, the heat loss to outside and gain from 'passive solar heat' can be derived.

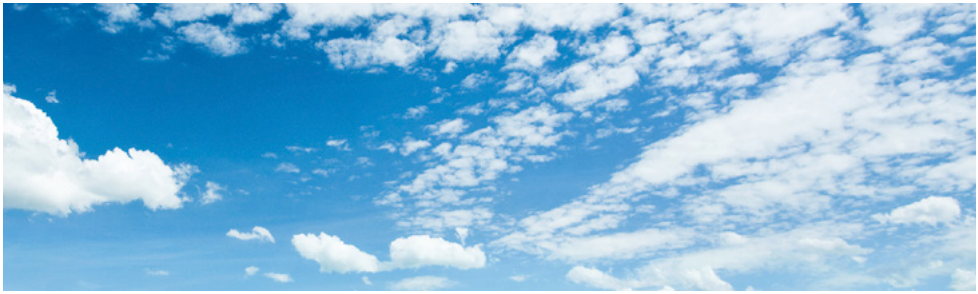
IC-Meter box

The IC-Meter box is equipped with high accuracy sensors which measure temperature, humidity, CO_2 and noise every 5 minutes. The unit uploads the data through the users internet (Wi-Fi or Ethernet) or GSM connection.

IC-Meter Basic
Temperature, humidity CO_2 with Wi-Fi/Ethernet communication
CO_2 sensor: SenseAir temperature and humidity sensor: Sensirion SHT21
Environment : -20 - 80°C, 0 - 95% RH (non condensing)
Wi-Fi: 802, 11g Ethernet 10/100mb/s (RJ45)
Power consumption : 12mA, 400mA peak (100 mA average)
Dimension: H 14.5cm x B 7cm x D 2.5cm

IC-Meter Mobile (GSM)*
Temperature, humidity, CO_2 and noise with GSM communication
CO_2 sensor: SenseAir temperature and humidity sensor: Sensirion SHT21
Work range: -20 - 80°C, 0 - 95% RH (non condensing)
Noise sensor: Invensense ADMDP404. Range 32-110dB (A).
GPRS: Dual band 900MHz/1800MHz
Power consumption: 12mA, 400mA peak (100 mA average)
Dimension: H 14.5cm x B 7cm x D 2.5cm
Note: The user must acquire Micro-SIM card for data communication (2G)

How can an IC-Meter and indoor measurements be useful?



People and health

IC-Meter is developed to measure, analyse and visualise the actual indoor climate where medical complaints are considered to be attributed to or positively influenced by ambient conditions. This is particularly relevant in schools, nurseries, meeting areas and offices. IC-Meter also meet the needs of the health and care sectors and document the actual indoor climate in living areas.

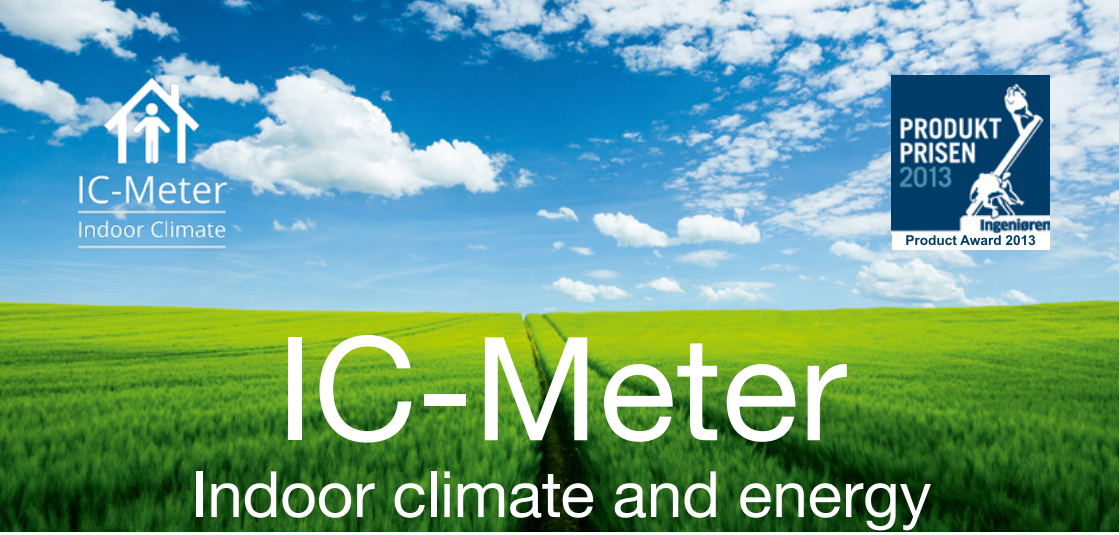
Building Management Systems

To manage a building is a matter of managing the technical system based on the climate and the individual needs of the user. At the same time the building should be monitored to avoid potential humidity problems. IC-Meter delivers indoor climate measurements and weather forecasts so that the building´s BMS and ventilation control systems can collect online data through the internet. The collected data gives the possibility of distributing the heating capacity to the users real requirement for a healthy indoor climate.

Energy efficiency analysis before, during and after refurbishment projects

IC-Meter provides remote assessment and analysis *before, during* and *after* a building energy upgrade. Many energy renovation projects have had problems delivering the expected energy savings. Is it the contractor that has not performed or is it a user behaviour issue? Without measurements of indoor climate and local weather it can be difficult to answer this question. In combination with data for the actual heat use, IC-Meter makes it possible to separate the technical and the user behaviour effect.

Contact IC-Meter: Email: info@ic-meter.com. Ph. (+45) 23 25 75 77



IC-Meter

Indoor climate and energy

NEW

Energy module that analyse heat loss by evaluating:

- Indoor climate measurements (temperature, humidity and CO_2)
- Local weather data and prognosis
- Actual heat consumption – from a remote energy measuring sensor

Purpose:

- To calculate a building's specific heat loss
- To analyze the energy addition from the sun - 'passive solar radiation'
- To calculate heat consumption/savings af 20°C indoor temperature

Energy balance for the entire building		
	Central heating - *actual* indoor temp. 21.2° C	**20.7** kWh/day
	Central heating - *if* indoor temp. 20.0° C	**18.6** kWh/day
	Savings - *if* indoor temp. 20.0° C	**2.1** kWh/day (**10** %)
	Passive solar	**6.0** kWh/day
	Specific heat losses	**150** W/° C

IC-Meter
Indoor Climate

IC-Meter
info@ic-meter.com
Ph. +45 23 25 75 77