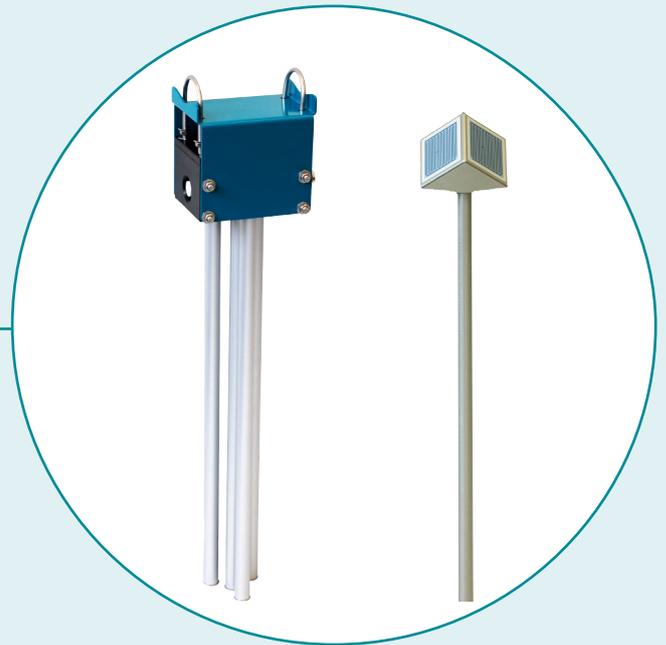
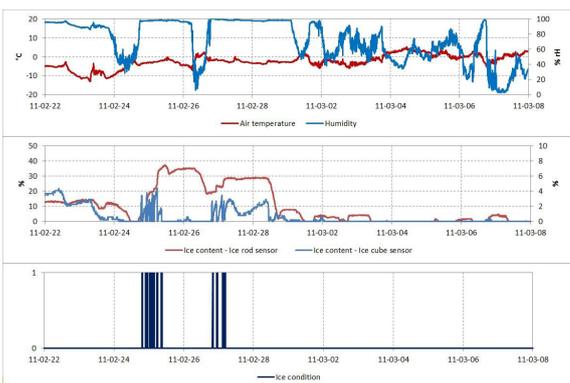


IDS-20

Ice Detection Sensor to measure icing and freezing rain for various fields of application



Features and advantages

- ✓ Detection of icing and freezing rain
- ✓ Distinction between ice and water
- ✓ Ice detection: 0.01 mm to 80 mm ice thickness
- ✓ Different sensor versions according to specific applications - cube and rod sensors
- ✓ Very reliable measurement results due to plausibility check
- ✓ Suitable for existing and new systems, easy and quick installation
- ✓ Maintenance-free operation, low power consumption
- ✓ Parameters measured:
 - icing
 - rain
 - dew point, frost point
 - air temperature and humidity
- ✓ Analysis: Quantity and duration of icing events

The Innovation in Ice Detection

The ice detection sensor IDS-20, in the shape of a cube or of rods, is used for the reliable and precise measurement of icing in aviation, for wind power plants, high voltage power lines, cable cars, antennas, overhead wires, streets, buildings and constructions and wherever the formation of ice constitutes a potential risk.

Measuring principle

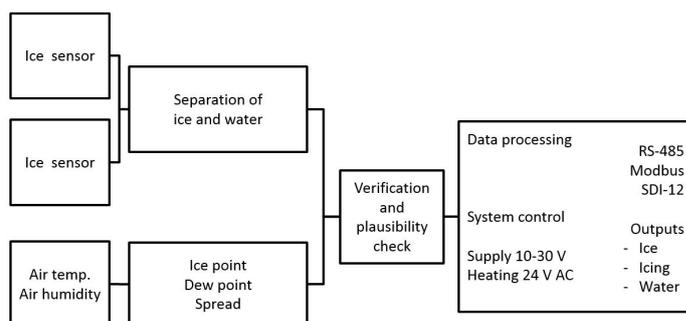
The innovative ice sensor makes use of the different physical characteristics of air, water and ice at varying frequencies. Measuring the complex impedances within the medium around the sensor the IDS-20 is able to distinguish between water and ice and hence recognise the formation of ice.

Increased data quality due to plausibility check

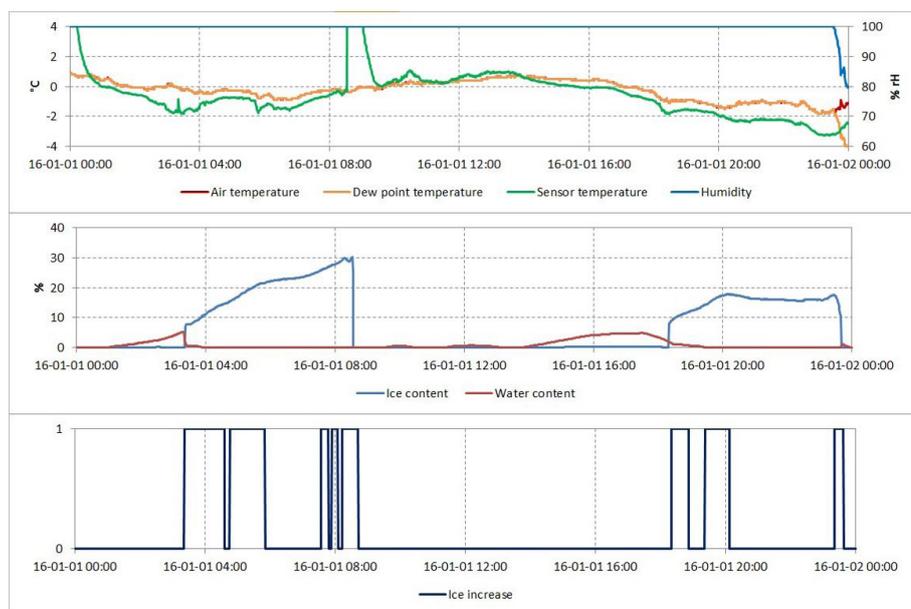
The formation and accretion of ice depends on specific climatic conditions determined by the state of the air temperature, humidity and the temperature of the surface, where the ice adheres to.

Now, the **unique and very valuable feature** of the IDS-20 is that it additionally considers meteorological data for the purpose of a plausibility check:

Parallel to the ice sensor the system measures the air temperature and humidity and thereof calculates the dew point and frost point. The sensor system then uses these data for a plausibility check together with the ice values measured. Therefore, it is possible to qualitatively increase the reliability of the measurements and improve the ice detection results.



Measuring principle IDS-20, schematic diagram

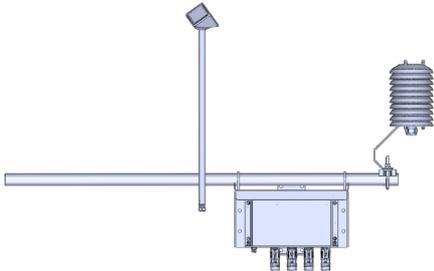


Measurement result IDS-20:
Interaction of dew point, temperature and humidity during the formation of ice – change from water to ice.

System Versions and Fields of Application

Version 1: one cubesensor

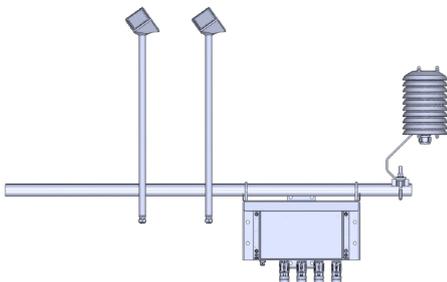
- > thin to medium ice layers
- > IDS-cubesensor 5
- > measuring range: 0,1 ... 5 mm



Applications: e.g. wind power plants, site evaluations, general fields of application

Version 2: two cubesensors, alternating

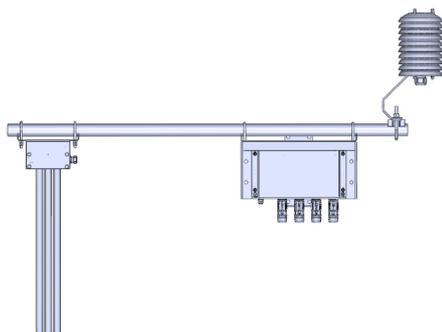
- > very thin ice layers
- > IDS-cubesensor 1
- > measuring range: 0,01 ... 1 mm
- > sensors work alternatingly for uninterrupted measuring results



Applications: e.g. aviation - de-icing of aircrafts, road traffic control etc.

Version 3: one rodsensor

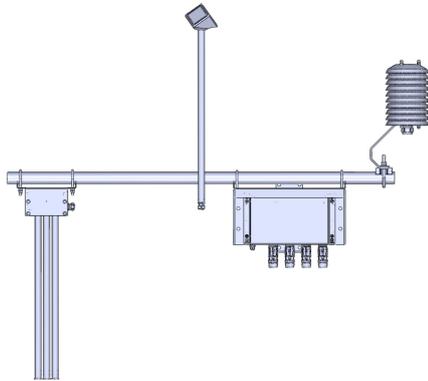
- > big ice thicknesses
- > IDS-rodsensor 80
- > measuring range: 1 ... 80 mm
- > measurement of whole ice accretion



Applications: e.g. high voltage power lines, cable cars, overhead wires (train, tram) etc.

Version 4: cube- and rodsensor combined

- > big & small ice thicknesses
- > IDS-cubesensor 5 & IDS-rodsensor 80
- > measuring range: 0,1 ... 5 mm and 1 ... 80 mm
- > Measures icing on appliances as well as whole ice accretion on buildings and constructions



Applications: e.g. antennas, masts, weather stations, buildings, constructions, research purposes etc.

Technical Data

IDS-sensors, ice detection measurement			
Sensor types	cube sensor 5	cube sensor 1	rod sensor 80
Measuring range ice thickness	0.1 ... 5 mm	0.01 ... 1 mm	1 ... 80 mm
Weight	0.7 kg	0.7 kg	2.3 kg
Length	560 mm	560 mm	580 mm

IDS-sensor, meteorological measurement	
Dew point	-20 ... +20 °C
Frost point	-20 ... +20 °C
Air temperature	-40 ... +60 °C
Air humidity	0 ... 100 %
Weight	0,715 kgs
Dimensions (mm)	310 x 120 x 165 (H x W x D)

IDS-contoller	
Weight	3.6 kg
Dimensions (mm)	318 x 208 x 132 (L x W x D)
Protection	IP 66
Operation temperature	-40 ... 60 °C
Power supply	ice sensor: 10 ... 28 VDC heating: 24 V AC/DC
Power consumption	active measurement: 50 mA at 12 VDC heating: max. 7 A at 24 V AC/DC
Outputs	Icing: SDI-12; RS 485 (Modbus) three relay-outputs: rain, ice, failure
Miscellaneous	integrated lightning protection; integrated overvoltage protection