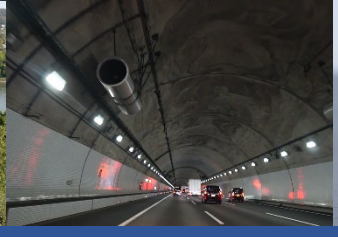
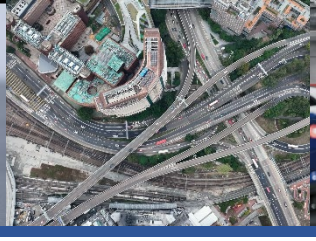






Data sheet early warning system CorroDec® for humidity in concrete

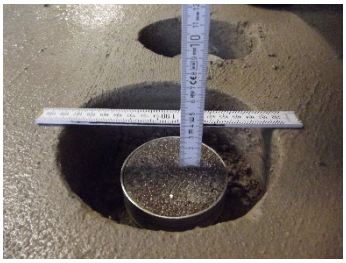
The working principle:

- Wire- and energy-free detection of humidity in concrete by moisture sensors in combination with RFID technology
- Determination of the actual state for the detection of deviations
- Measurement of the electolytic resistance
- Concrete temperature measurement
- Data readout possible over the entire useful life of the object (>50 years)

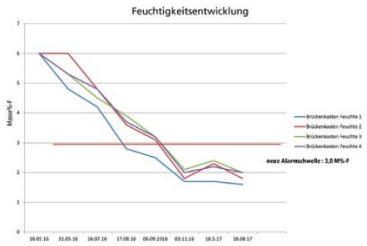
Basic construction:

- Circumferential stainless steel rings for detecting humidity
- Housing material: plastic or fiber cement
- Standard housing diameter: 95 mm
- Standard housing height: 26 mm
- Fastening of the sensor to the reinforcement by standard wire integrated on the sensor housing

Humidity sensor



Retrofit



Data chart

Modification

- Antenna extension up to 25m possible. Measuring unit and readout unit can be up to 25m apart. Both are connected with one cable. The cable does not leave the concrete.

Framework conditions:

- Min. concrete cover from top edge of sensor housing 15mm with concrete grade C35/45
- Mounting parallel to the surface (vertical or horizontal)
- Installation depth according to the reading range of the readers 10 - 30 cm, depending on the interference
- Influencing the reading range:

Steel reinforcement (connection with standard wire)	Low influence
Steel reinforcement (connection welded)	High influence
Operation under water	Medium influence
Operation under metal coated waterproofing	No communication
Operation next to another RFID reader device	Very high influence
Installation in concrete	No influence
Covering the concrete with bitumen / pavement	No influence

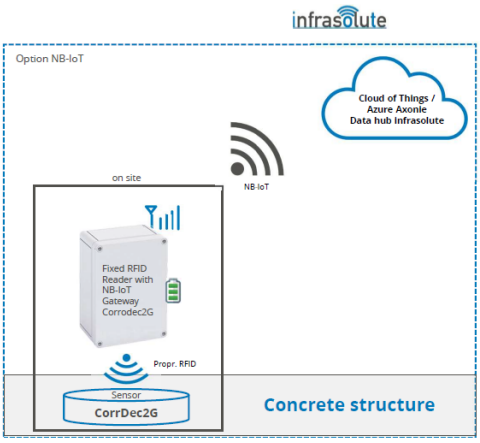
Tolerances / measuring ranges:

- Working temperature: -15 to + 55 degrees Celsius
- Measuring range: -25 to + 55 degrees Celsius
50Ohm to 20 KOhm
Output in M.% humidity
- Type of measurement: Resistance measurement
- Measuring frequency: 1 kHz
- Accuracy T > 0°C -> max. ± 0,75°C
T < 0°C -> max. ± 1,25°C

Data readout

Variant 1 – Online reading

- Data transmission via gateway
- Gateway is mounted to the concrete from the outside
- Data transmission via Narrowband (NB-IoT)
- Narrowband radio standard is characterized by high building penetration, low costs and low energy consumption.
- One gateway can read up to four sensors
- Data transfer to a cloud
- 24/7 Online monitoring
- Proactive alerting when defined thresholds are exceeded threshold values



Variant 2 – IoT handheld reader with online data transmission

- Readout with an IoT handheld reader on site
- Transfer of data after readout to the online dashboard
- Calibration of the measured values in the online dashboard
- Optional integration of the measured values into an existing monitoring system

Applications

All forms of concrete infrastructure including:

Bridges | Multi-storey car parks / garages | Buildings | Tunnels | Stadia | Utilities infrastructure | Pre-stressed/post-tensioned structures

Benefits

- Reduced repair & maintenance costs
- Reduction of inspection costs
- Increased sustainability & durability
- Increased safety