



The perfect solution to identify and monitor moisture in concrete.

Due to the small, fast sensor of the Hygropin, diagnosing moisture according to ASTM F2170-09 is quicker and easier than ever before.

Identifying the Presence of Moisture

Excess moisture in concrete can be fatal to a floor covering installation. To prevent mildew and major damage, the flooring industry requires smart testing solutions to check surfaces for moisture prior to installing floor coverings or coatings. The in-situ technique has proven to be the most reliable method since it measures directly where the moisture hides: below the surface of the concrete.

Application

The relative humidity test outlined by ASTM F2170-09 requires placing a measuring sleeve at a specific, well defined depth in the concrete. This can be done either by drilling a hole or by pre-installing cast holes in fresh concrete. Proceq offers the best solution for both procedures.

The Hygropin provides the smallest available sensor on the market, minimising damage to the surface and reducing the installation efforts immensely. Due to the small air volume of the test sleeve, the humidity equilibrium process is extremely fast.

Benefits to the Customer

Comfortable: Two independent sensor channels can measure ambient and concrete characteristics simultaneously.

Wide Measuring Range: Measures relative humidity, temperature, dew/frost point, etc.
0...100 % RH / -40...+85 °C (-40...185 °F)

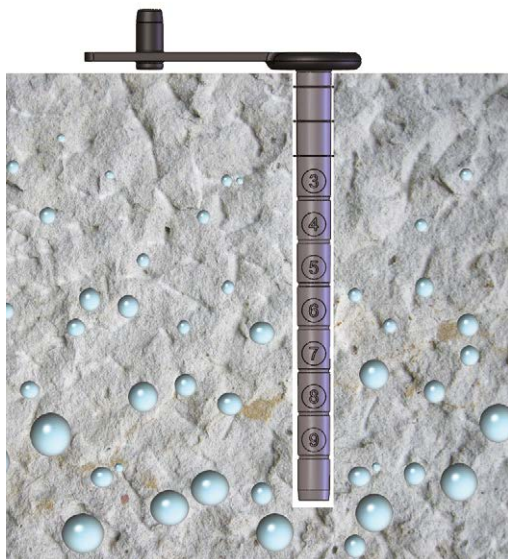
Accuracy: The Hygropin combines the highest measurement accuracy with a fast response time.

Minimal Invasive: Highly integrated sensor with only 5 mm / 0.3" diameter for minimal efforts on site.

Durability: Stainless steel housing of the sensor for long lasting performance in rough environments.

Data Logging / Storage: The Hygropin can record data over a period of time for traceable information.

Crucial Measurement of Moisture in Concrete



The moisture content inside the concrete is different to that on the surface. Surface based testing methods only measure up to 20 mm (¾") at best and don't necessarily reflect reality. Therefore, the Hygropin uses the in-situ technology which identifies the actual moisture content inside the concrete.

What percentage of relative humidity is acceptable in an interior concrete floor slab? Tolerable RH levels using in-situ probes have been established and the flooring manufacturers release recommendations depending on their products.

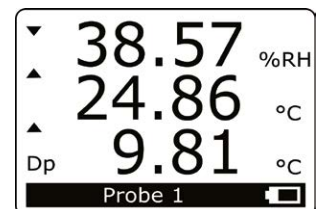
Common reference values:

90 % RH	Plastic tiles, linoleum
85 % RH	Plastic carpet or cellular plastic base Cork tile with plastic film barrier Textile carpet made of natural fibers, rubber or PVC
80 % RH	Mosaic parquet on concrete
60 % RH	Parquet board with no plastic between wood and concrete

User Interface

Depending on the settings the Hygropin is able to display:

- Relative humidity and temperature measured by two probes
- Calculate psychrometric parameters like dew / frost point etc. for both probes
- Difference between the values measured by the two probes
- Trend indicators for each parameter



In-Situ and Ambient Probe

The instrument offers two independent channels for measuring probes which can be fitted in any combination.



In-Situ Probe

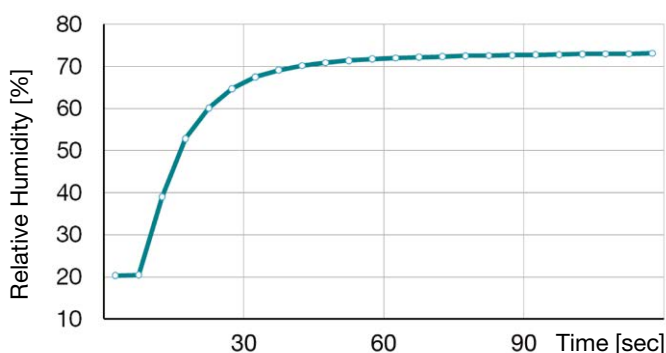
Highly integrated temperature and humidity probe which combines accuracy, wide measuring range and long term stability. The stainless steel housing fits perfectly to the rough environment on the construction site. Probe and instrument are connected with a 2 m cable.



Ambient Probe (optional)

Directly connected to the instrument, the ambient probe simplifies capturing the environmental parameters. Both temperature and relative humidity are measured as precisely as with the in-situ probe.

Fast Measuring Time



Two factors reduce the leap frogging time immensely: The small air volume of the measuring sleeve and the extreme fast reaction time of the probe.

In addition, the trend indicators of the instrument show when stable temperature and humidity values are reached. This prevents taking false readings caused by insufficient equilibration time.

Sleeve for Standard and Fresh Concrete Application

Standard Application: Drilled Holes



Measuring Sleeve

The measuring sleeve is used for all applications. Thanks to length indicator and marked groove, cutting to the required length is simple.

An 8 mm (5/16") hole in the concrete is enough to place the sleeve. The re-closeable silicon cap seals the hole and liner air tight.



Fresh Concrete Application: Cast Holes

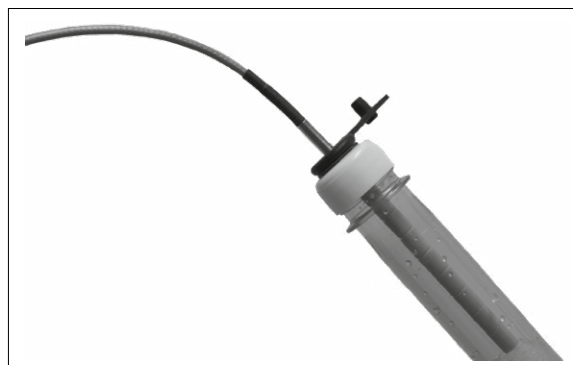


Add-on for Wet Concrete (optional)

Together with the measuring sleeve the add-on for wet concrete allows pre-installation of cast holes in fresh concrete. Before placing concrete, the measuring sleeve is secured to the formwork. A rod placed inside the sleeve will exclude the fresh concrete from entering the liner. As soon as the concrete hardens the rod can be replaced with the in-situ probe to track the relative humidity during curing.



Humidity Standard Test Tube (optional)



The humidity standard tube allows a fast and easy on-site functional and calibration check of the instrument and the in-situ probe as recommend by ASTM.

Based on a saturated salt solution the micro climate inside the test tube is stable at 75% RH.

Technical Information

Display Unit	
Power Supply	
Battery	9 V alkaline (standard) Ni-MH 8.4 V, 170...250 mAh (rechargeable via USB)
Mains	Via USB charger
General	
Probe input	Two separate digital probe inputs
Real time Clock	Yes
Psychrometric Calculations	Yes
Start-up time	3 s
Data refresh rate	1 s
Interface type	USB
Data Logging / Data Capture	
Memory	Max. 10'000 readings
Interval	5 s to 1 h
Display	
Display	Pixel graphic LCD Backlight
Display modes	% RH and temperature, date and time % RH, temperature and calculated parameter
Mechanical	
Dimension	270 x 70 x 30 mm (10.63 x 2.76 x 1.17")
Weight	Ca. 198 g (7.0 oz)
IP classification	IP 40
Environmental conditions	
Operating temperature	-10 °C to 60 °C (14 °F to 140 °F)
Humidity	0 to 100% RH, no condensing

In-situ Probe	
Measuring range	0 to 100% RH - 40 °C to 85 °C (-40 °F to 185 °F)
Accuracy	± 1.5 % RH / ± 0.3 K
Response time	< 15 s
Dimension	Ø 5 mm (Ø 0.2")
Cable length	200 cm (79")
Maximum air velocity	20 m/s (3,935 ft/min)

Ordering Information



Unit Hygropin, Part number 780 10 000

Hygropin unit consisting of: Instrument incl. in-situ probe, carrying case and accessories (10pcs measuring sleeves, USB cable, CD incl. HygroLink, documentation)

Parts and Accessories

780 10 400	In-situ Probe
780 10 450	Ambient Probe
780 10 470	Humidity Standard 75% RH
780 10 350	Set of Measuring Sleeves 20pcs
780 10 360	Set of Measuring Sleeves 100pcs
780 10 370	Add-on for Wet Concrete 10pcs

Service and Warranty information

The standard warranty covers the electronic portion of the instrument for 24 month and the mechanical portion of the instrument for 6 month. An extended warranty for one, two or three years for the electronic portion of the instrument may be purchased up to 90 days of purchase.

Standards and Regulations applied

CE / EMC immunity
EMC Directive 2004/108/EG:
EN 61000-6-1: 2001
EN 61000-6-2: 2005
EN 61000-6-3: 2005
EN 61000-6-4: 2001 + A11

Technical Standard
ASTM F 2170-09

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Head Office

Proceq SA
Ringstrasse 2
CH-8603 Schwerzenbach
Switzerland
Phone: +41 (0)43 355 38 00
Fax: +41 (0)43 355 38 12
info@proceq.com
www.proceq.com



proceq