

# HygroSmart HS3 Quick Start Guide

## Overview

The HS3 Probe is very simple to install and requires only a few basic considerations to get up and running, the essentials of which are covered in this document.

## Installation Site

When choosing an installation site for the sensor, consider the environment around it.

Ensure that the site:

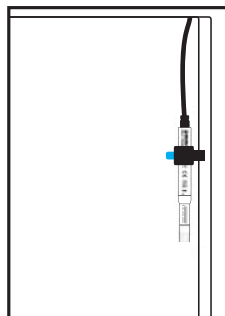
- is clear of nearby obstructions which could limit air circulation to the probe
- is away from any hot or cold spots, i.e. air conditioning or heater vents
- is not adjacent to any high power sources
- is representative of the surrounding environment at the point of interest

## Mounting

### Wall Mounting

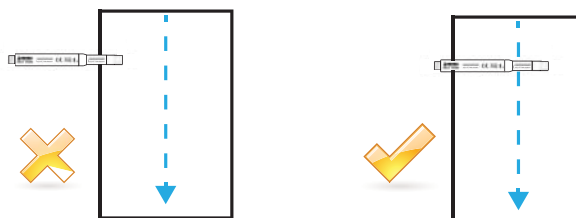
To securely fasten the probe to a fixed surface, a mounting clamp (HS3-PMC) is available. The mounting clamp can be attached at the point of installation using the 1/4" 20 UNC thread.

The probe should be installed so that the sensor and filter assembly are both facing downwards.



### Duct Mounting

When installing the HS3 Probe into a duct, ensure that the probe is inserted as far as possible into the environment to be measured.



If measurement in a pressurized environment is required, then the optional metal gland (HS3-PMG) should be used to provide the seal. Sealing up to 10 barg is possible with this item.



**When operating at pressure, ensure that the probe is securely tethered to a solid surface.**

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## Wiring

The HS3 Probe should be wired according to the diagram below. Optionally, complete cable assemblies with M12 connectors can be ordered to facilitate this. Cables are available in 2, 5 and 10m lengths:

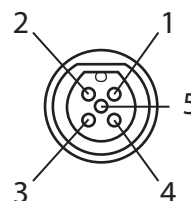
HS3-PC-02

HS3-PC-05

HS3-PC-10

A supply voltage between 5 to 28 VDC is required.

|   | Modbus        | Analog        | Cable Color |
|---|---------------|---------------|-------------|
| 1 | Comms A       | Output 1      | Brown       |
| 2 | Comms B       | Output 2      | White       |
| 3 | 0 V           | N/C           | Blue        |
| 4 | +5 V to +28 V | +5 V to +28 V | Black       |
| 5 | 0 V           | 0 V           | Gray        |



## Calibration

HS3 Probes are adjusted in the factory prior to delivery. Recalibration is recommended after one year of operation, depending on application. Recalibration can be carried out on-site using the Michell HygroCal100 Humidity Validator system. Please contact your Michell Instruments representative for further information.

## Technical Data

| Performance Specifications    |   |   |
|-------------------------------|---|---|
| RH Measurement Range          | 0 to 100% RH                                      |   |
| RH Accuracy @ 23°C            | ± 0.8% RH (5 to 95%RH)                            |   |
| RH Measurement Response Time  | < 1 sec to RH event                               |   |
| RH Long Term Stability        | ±1% RH per year                                   |   |
| Temperature Measurement Range | -40 to +85°C (-40 to +185°F)                      |   |
| Temperature Accuracy          | ±0.2°C  |   |
| Calibration                   | Traceable 5-point calibration certificate         |   |
| Electrical Specifications     |   |   |
| Voltage Output Signals        | 0-1 V, 0-2.5 V, 0-5 V, 0-10 V                     |   |
| Digital Output Signal         | Modbus RTU over RS485 2-wire                      |   |
| Load Resistance               | 0-1, 0-2.5 V :<br>0-5, 0-10 V :                   | 10K Ω<br>50K Ω  |
| Supply Voltage Range          | 5 to 28 V DC                                      |   |
| Supply Current Consumption    | 5 V :<br>28 V :                                   | 4 mA<br>7 mA  |
| Supply Protection             | Protected against reverse voltage and overvoltage |   |
| CE Conformity                 | 2004/108/EC heavy industrial immunity             |   |
| Operating Specifications      |   |   |
| Probe Operating Temperature   | Probe:<br>Interchangeable sensor:                 | -40 to +85°C (-40 to +185°F)<br>-40 to +120°C (-40 to +248°F)   |
| Recommended storage           | +10 to +40°C (+14 to +104°F)                      |   |
| Mechanical Specifications     |   |   |
| Ingress Protection            | IP67 (NEMA 6)                                     |   |
| Dimensions                    | Probe:<br>Interchangeable sensor:                 | L=145mm, ø15mm (5.7", ø 0.6")<br>L= 56mm, ø12mm (2.2", ø 0.47") |
| Weight                        | 31g (1.09oz) approx (packed weight 45g (1.59oz))  |   |