

### Description

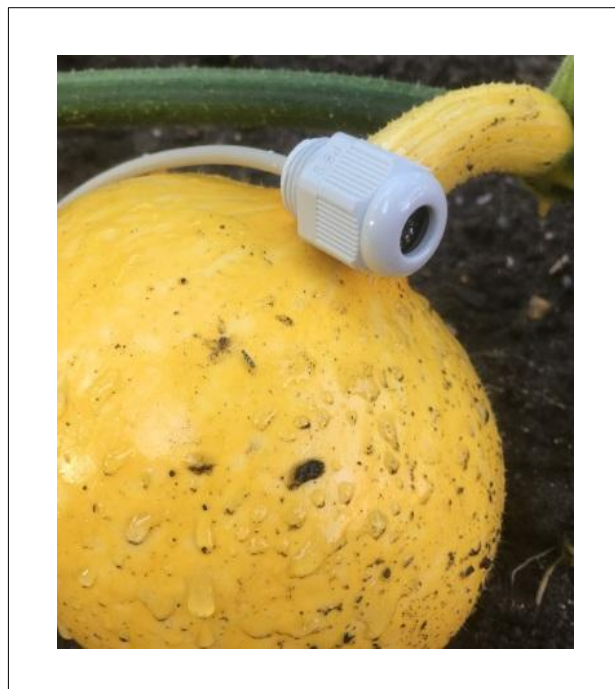
ES-SHT3x is the next generation of temperature and humidity sensors. It builds on a new CMOSens® sensor chip that is at the heart of new humidity and temperature platform. The ES-SHT3x has increased intelligence, reliability and improved accuracy specifications compared to its predecessor. Its functionality includes enhanced signal processing, and communication speeds of up to 1 MHz. This allows for integration of the into a great variety of applications. Additionally, the wide supply voltage range of 2.15 V to 5.5 V guarantees compatibility with diverse assembly situations.

The ES-SHT3x with WP membrane is based on PTFE film that protects the sensor opening from water and dust according to IP67. It thus allows sensor use under harsh environmental conditions, where spray water and high exposure to dust might be challenging for accurate sensor performance.

### Operation and Communication

The ES-SHT3x-DIS supports I2C fast mode (and frequencies up to 1000 kHz). Clock stretching can be enabled and disabled through the appropriate user command. For detailed information about sensor, refer to datasheet of used sensor.

After sending a command to the sensor a minimal waiting time of 1ms is needed before another command can be received by the sensor. All SHT3x-DIS commands and data are mapped to a 16-bit address space. Additionally, data and commands are protected with a CRC checksum. This increases communication reliability. The 16 bits commands to the sensor already include a 3 bit CRC checksum. Data sent from and received by the sensor is always succeeded by an 8 bit CRC. In write direction it is mandatory to transmit the checksum, since the SHT3x-DIS only accepts data if it is followed by the correct checksum. In read direction it is left to the master to read and process the checksum.



### Features

- ✓ wide supply voltage range (2.15 V to 5.5 V)
- ✓ I2C Interface with speeds up to 1MHz
- ✓ Fully calibrated, linearized, and temperature compensated digital output
- ✓ Cable length and connector type on demand
- ✓ Arduino & Raspberry compatible

## Absolute Minimum and Maximum Ratings

Stress levels beyond those listed in Table may cause permanent damage to the device or affect the reliability of the sensor. These are stress ratings only and functional operation of the device at these conditions is not guaranteed. Ratings are only tested each at a time.

Parameter	Rating	Units
Rating Units Supply voltage VDD	-0.3 to 6	V
Max Voltage on pins (SDA, SCL)	-0.3 to VDD+0.3	V
Input current on any pin	±100	mA
Operating temperature range	-40 to 85	°C

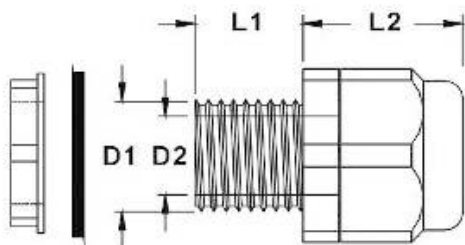
## Pin Assignment

Wire	Signal	Notes
1 - brown	VCC	Supply voltage; input
2 - green	GND	Ground
3 - white	SCL	10K PU
4 - yellow	SDA	10K PU

## Ordering Information

Name	Connector	Description
ES-SHT31-A100	4x single pin header for Arduino debug	Cable L=100cm
ES-SHT31-B100	4x hole wire	Cable L=100cm
ES-SHT31-B100-WP	4x hole wire	Cable L=100cm (water proof variant with membrane)

## Mechanical Solution



L1=7.9mm

L2=21mm

D1=15.2mm

D2=10.5mm

Ingress Protection: IP67 (only in WP variant)

Screw thread: PG9

Wrench size (WS): 19