SPECIFICATION:
SENSOR: Sensirion SHT30-DIS-F Air Temperature and Humditiy
INTERFACE: I2C
HOUSING: Nickel-plated Copper Sintered Metal Filter with M12 x 1.5mm Black Cable Gland
CABLE: 22 AWG 4-Wire Black PVC with molded threaded waterproof connector
TERMINATION: Bare wire, tinned

1. Sensirion SHT30-DIS-F Sensor Chip; Sensor PCB with Membrane Protection; Temperature Range: -40C to +85C
2. Heat shrink tubing covering board and PCB
3. Nickel Plated Copper Sintered Metal Filter Housing with M12x1.5 Cable Gland Black
4. Black color PVC 22 AWG 4-Wires Jacket Cable Total length L=1000mm
5. Injection waterproof male connector Black
6. Injection waterproof female connector Black

Wire Assignment

Name	Comments	Color
SDA	Serial data; input / output	Yellow
SCL	Serial clock; input / output	White
VDD	Supply voltage; input	Red
VSS	Ground	Black

Battery Type	CR123

Datasheet SHT30-DIS
Humidity and Temperature Sensor

Fully calibrated, linearized, and temperature compensated digital output
Wide supply voltage range, from 2.15 V to 5.5 V
I2C Interface with communication speeds up to 1
MHz and two user selectable addresses

1 Sensor Performance

Humidity Sensor Specification

Parameter	Condition	Value	Units
SHT30 Accuracy tolerance	Typ.	2	%RH
	Max.	**Figure 1**	-
Repeatability	Low, typ.	0.21	%RH
	Medium, typ.	0.15	%RH
	High, typ.	0.08	%RH
Resolution	Typ.	0.01	%RH
Hysteresis	at 25°C	0.8	%RH
Specified range	extended[4]	0 to 100	%RH
Response time	63%	8[6]	s
Long-term drift	Typ.[7]	<0.25	%RH/yr

Table 1 Humidity sensor specification.

Temperature Sensor Specification

Parameter	Condition	Value	Units
SHT30 Accuracy tolerance	typ., 0°C to 65°C	0.2	°C
	Max.	**Figure 2**	-
Repeatability	Low, typ.	0.15	°C
	Medium, typ.	0.08	°C
	High, typ.	0.04	°C
Resolution	Typ.	0.01	°C
Specified Range	-	-40 to 125	°C
Response time	63%	>2	s
Long Term Drift	max	<0.03	°C/yr

Table 2 Temperature sensor specification.

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2 Specifications

2.1 Electrical Specifications

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units	Comments
Supply voltage	V_{DD}		2.15	3.3	5.5	V	
Power-up/down level	V_{POR}		1.8	2.10	2.15	V	
Slew rate change of the supply voltage	$V_{DD,slew}$		-	-	20	V/ms	Voltage changes on the VDD line between $V_{DD,min}$ and $V_{DD,max}$ should be slower than the maximum slew rate; faster slew rates may lead to reset;
Supply current	I_{DD}	idle state (single shot mode) T=25°C	-	0.2	2.0	A	Current when sensor is not performing a measurement during single shot mode
		idle state (single shot mode) T=125°C	-	-	6.0		
		idle state (periodic data acquisition mode)	-	45	-	A	Current when sensor is not performing a measurement during periodic data acquisition mode
		Measuring	-	600	1500	A	Current consumption while sensor is measuring
		Average	-	1.7	-	A	Current consumption (operation with one measurement per second at lowest repeatability, single shot mode)
Alert Output driving strength	IOH			1.5x V_{DD}		mA	See also section 3.5
Heater power	P_{Heater}	Heater running	3.6	-	33	mW	Depending on the supply voltage

Table 3 Electrical specifications, typical values are valid for T=25°C, min. & max. values for T=-40°C ... 125°C

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2.2 Timing Specification for the Sensor System

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units	Comments
Power-up time	t_{PU}	After hard reset, $V_{DD} \geq V_{POR}$	-	0.5	1	ms	Time between V_{DD} reaching V_{POR} and sensor entering idle state
Soft reset time	t_{SR}	After soft reset.	-	0.5	1.5	ms	Time between ACK of soft reset command and sensor entering idle state
Duration of reset pulse	t_{RESETN}		1	-	-	µs	See section 3.6
Measurement duration	$t_{MEAS,l}$	Low repeatability	-	2.5	4	ms	The three repeatability modes differ with respect to measurement duration, noise level and energy consumption.
	$t_{MEAS,m}$	Medium repeatability	-	4.5	6	ms	
	$t_{MEAS,h}$	High repeatability	-	12.5	15	ms	

Table 4 System timing specification, valid from -40 °C to 125 °C and 2.4 V … 5.5 V.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units	Comments
Power-up time	t_{PU}	After hard reset, $V_{DD} \geq V_{POR}$	-	0.5	1.5	ms	Time between V_{DD} reaching V_{POR} and sensor entering idle state
Measurement duration	$t_{MEAS,l}$	Low repeatability	-	2.5	4.5	ms	The three repeatability modes differ with respect to measurement duration, noise level and energy consumption.
	$t_{MEAS,m}$	Medium repeatability	-	4.5	6.5	ms	
	$t_{MEAS,h}$	High repeatability	-	12.5	15.5	ms	

Table 5 System timing specification, valid from -40 °C to 125 °C and 2.15 V … < 2.4V.

2.3 Absolute Minimum and Maximum Ratings

Parameter	Rating	Units
Supply voltage V_{DD}	-0.3 to 6	V
Max Voltage on pins (pin 1 (SDA); pin 2 (ADDR); pin 3 (ALERT); pin 4 (SCL); pin 6 (nRESET))	-0.3 to VDD+0.3	V
Input current on any pin	±100	mA
Operating temperature range	-40 to 125	°C
Storage temperature range	-40 to 150	°C
ESD HBM (human body model)	4	kV
ESD CDM (charge device model)	750	V

Table 6 Minimum and maximum ratings; voltages may only be applied for short time periods.

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Humidity Sensor Performance Graphs

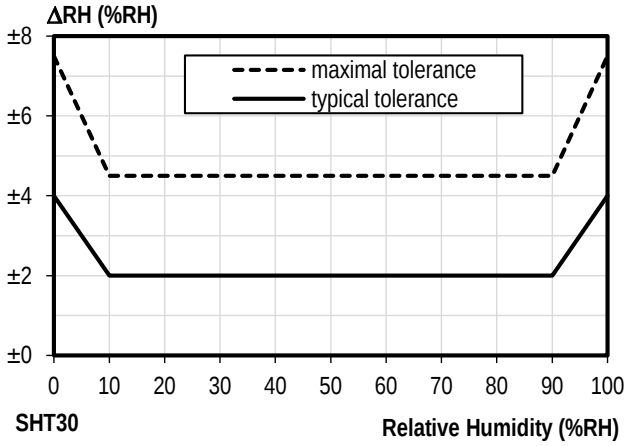
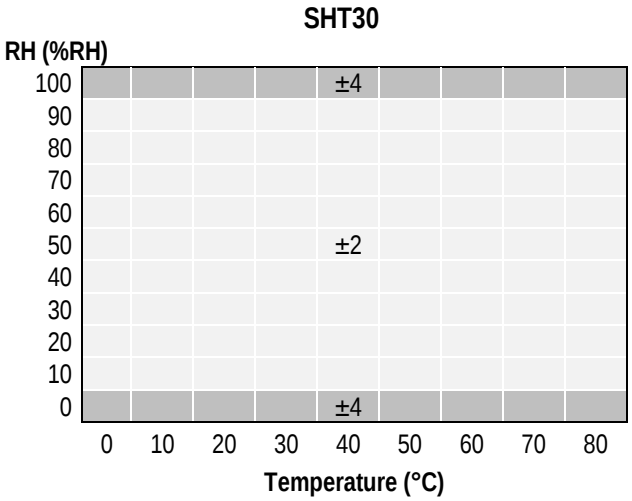


Figure 1 Tolerance of RH at 25°C for SHT30.



Temperature Sensor Performance Graphs

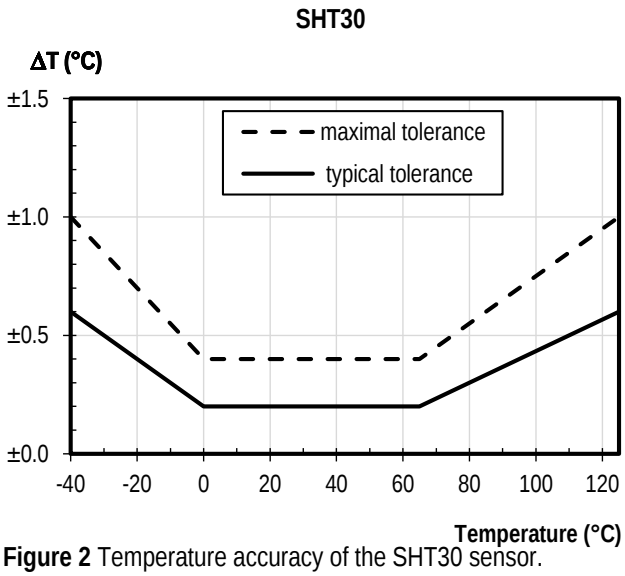


Figure 2 Temperature accuracy of the SHT30 sensor.