

## Sensor Performance

### Relative Humidity

| Parameter                      | Condition    | min                   | typ   | max  | Units  |
|--------------------------------|--------------|-----------------------|-------|------|--------|
| Resolution <sup>1</sup>        |              | 0.4                   | 0.05  | 0.05 | %RH    |
|                                |              | 8                     | 12    | 12   | bit    |
| Accuracy <sup>2</sup><br>SHT10 | typical      |                       | ±4.5  |      | %RH    |
|                                | maximal      | see Figure 2          |       |      |        |
| Accuracy <sup>2</sup><br>SHT11 | typical      |                       | ±3.0  |      | %RH    |
|                                | maximal      | see Figure 2          |       |      |        |
| Accuracy <sup>2</sup><br>SHT15 | typical      |                       | ±2.0  |      | %RH    |
|                                | maximal      | see Figure 2          |       |      |        |
| Repeatability                  |              |                       | ±0.1  |      | %RH    |
| Replacement                    |              | fully interchangeable |       |      |        |
| Hysteresis                     |              |                       | ±1    |      | %RH    |
| Nonlinearity                   | raw data     |                       | ±3    |      | %RH    |
|                                | linearized   |                       | <<1   |      | %RH    |
| Response time <sup>3</sup>     | $\tau$ (63%) |                       | 8     |      | s      |
| Operating Range                |              | 0                     |       | 100  | %RH    |
| Long term drift <sup>4</sup>   | normal       |                       | < 0.5 |      | %RH/yr |

### Temperature

| Parameter                      | Condition    | min                   | typ    | max   | Units |
|--------------------------------|--------------|-----------------------|--------|-------|-------|
| Resolution <sup>1</sup>        |              | 0.04                  | 0.01   | 0.01  | °C    |
|                                |              | 12                    | 14     | 14    | bit   |
| Accuracy <sup>2</sup><br>SHT10 | typical      |                       | ±0.5   |       | °C    |
|                                | maximal      | see Figure 3          |        |       |       |
| Accuracy <sup>2</sup><br>SHT11 | typical      |                       | ±0.4   |       | °C    |
|                                | maximal      | see Figure 3          |        |       |       |
| Accuracy <sup>2</sup><br>SHT15 | typical      |                       | ±0.3   |       | °C    |
|                                | maximal      | see Figure 3          |        |       |       |
| Repeatability                  |              |                       | ±0.1   |       | °C    |
| Replacement                    |              | fully interchangeable |        |       |       |
| Operating Range                |              | -40                   |        | 123.8 | °C    |
|                                |              | -40                   |        | 254.9 | °F    |
| Response Time <sup>6</sup>     | $\tau$ (63%) | 5                     |        | 30    | s     |
| Long term drift                |              |                       | < 0.04 |       | °C/yr |

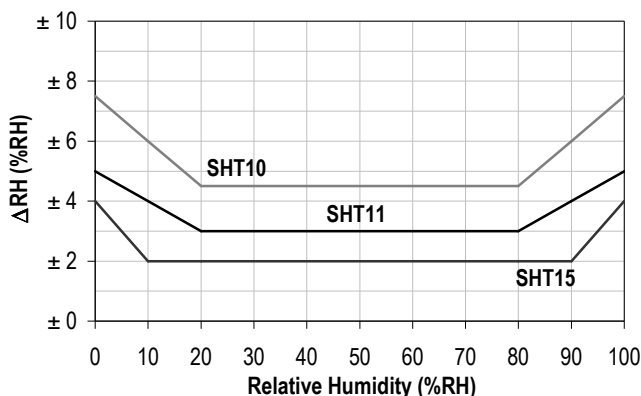


Figure 2: Maximal RH-accuracy at 25°C per sensor type.

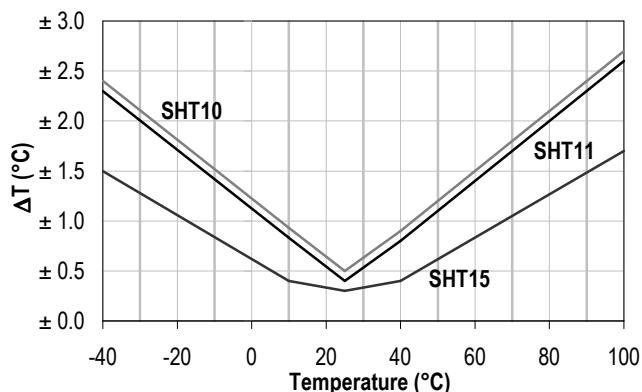


Figure 3: Maximal T-accuracy per sensor type.

### Electrical and General Items

| Parameter                      | Condition                                   | min | typ | max | Units |
|--------------------------------|---|-----|-----|-----|-------|
| Source Voltage                 |   | 2.4 | 3.3 | 5.5 | V     |
| Power Consumption <sup>5</sup> | sleep                                       |     | 2   | 5   | μW    |
|                                | measuring                                   |     | 3   |     | mW    |
|                                | average                                     |     | 150 |     | μW    |
| Communication                  | digital 2-wire interface, see Communication |     |     |     |       |
| Storage                        | 10 – 50°C (0 – 125°C peak), 20 – 60%RH      |     |     |     |       |

### Packaging Information

| Sensor Type | Packaging   | Quantity | Order Number |
|-------------|-------------|----------|--------------|
| SHT10       | Tape & Reel | 2000     | 1-100218-04  |
|             | Tape & Reel | 100      | 1-100051-04  |
| SHT11       | Tape & Reel | 400      | 1-100098-04  |
|             | Tape & Reel | 2000     | 1-100524-04  |
|             | Tape & Reel | 100      | 1-100085-04  |
| SHT15       | Tape & Reel | 100      | 1-100085-04  |
|             | Tape & Reel | 400      | 1-100093-04  |

<sup>1</sup> The default measurement resolution of is 14bit for temperature and 12bit for humidity. It can be reduced to 12/8bit by command to status register.

<sup>2</sup> Accuracies are tested at Outgoing Quality Control at 25°C (77°F) and 3.3V. Values exclude hysteresis and non-linearity and are applicable to non-condensing environments only.

<sup>3</sup> Time for reaching 63% of a step function, valid at 25°C and 1 m/s airflow.

<sup>4</sup> Value may be higher in environments with high contents of volatile organic compounds. See Section 1.3 of Users Guide.

<sup>5</sup> Values for VDD=5.5V at 25°C, average value at one 12bit measurement per second.

<sup>6</sup> Response time depends on heat capacity of and thermal resistance to sensor substrate.