

Humidity Sensor Units

Unit type

CHS series

Type: **CHS-U (For industrial use and measuring equipment)**
 CHS-SS(For consumer and office equipment)
 CHS-C(For consumer and office equipment)

Issue date: **January 2010**

- All specifications are subject to change without notice.
 - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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Humidity Sensor Units

CHS Series CHS-U, -SS, -C Types

TDK's CHS series humidity sensors are compact and extremely simple to apply. Because they contain the necessary circuitry, there is no need to provide additional control circuitry or perform time-consuming calibration. With simple connection to a power supply, they will output DC at 100% relative humidity. This makes it possible to read RH directly with a voltmeter.

CHS-U TYPE

For industrial use and measuring equipment

FEATURES

- These sensors can measure a wide range of humidity – from 5(%) to 95(%)RH.
- They are highly accurate. The nominal accuracy for the CHS-UPR and CHR-UPS is within $\pm 3(\%)$ RH.

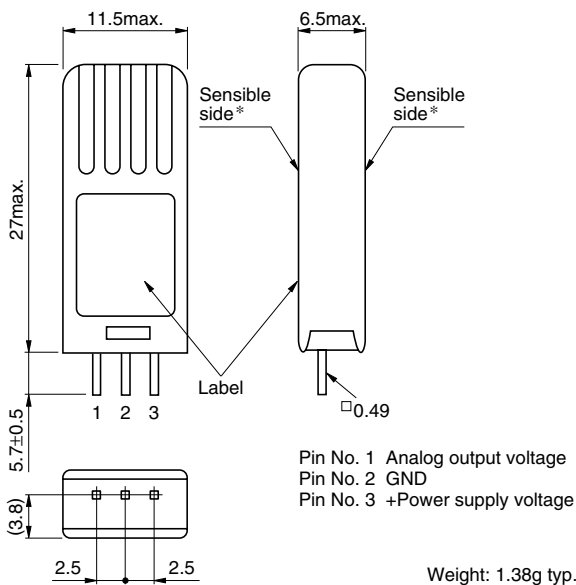
| Type | CHS-UGS CHS-UGR | CHS-UPS CHS-UPR |
|-----------------------|--------------------|--------------------|
| Nominal accuracy(%)RH | ± 5 | ± 3 |
| Measuring range(%)RH | 5 to 95 | 5 to 95 |

- Characteristics are stable over a wide temperature range.
- Humidity sensing characteristics exhibit virtually no hysteresis.
- Highly cost-effective and compact, requiring extremely little mounting space.
- Low current consumption.
- Outputs DC.1V at 100(%)RH; relative humidity can be read directly with a voltmeter.
- All-in-one construction integrates sensor with support circuitry. The entire module operates off a 5V power supply.
- Generated ripple at low humidity levels will not exceed 2.5mV.

SHAPES AND DIMENSIONS

SQUARE TYPE

CHS-UGS, -UPS

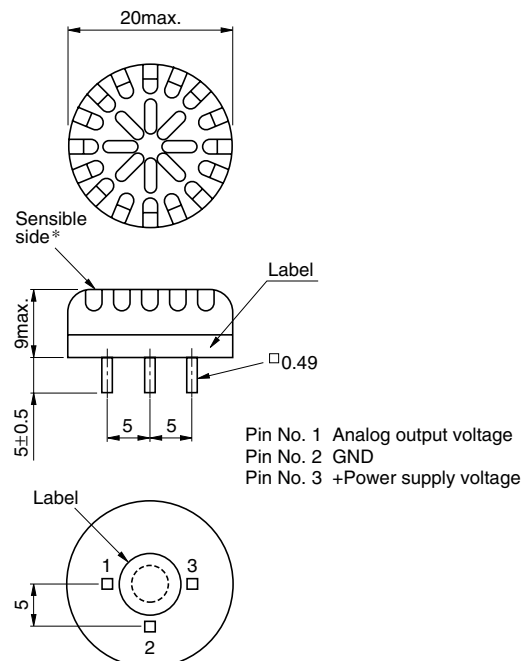


MAXIMUM RATINGS (Ta=25°C)

| | |
|--------------------------|---|
| Power supply voltage Edc | 7V max. |
| Operating conditions | 0 to +50°C, power supply voltage 5V, without dewing |
| Storage conditions | -20 to +60°C, without dewing |

ROUND TYPE

CHS-UGR, -UPR



*When installing the device, ensure that the humidity sensing surface is not obstructed.

Weight: 1.68g typ.

Dimensions in mm
Tolerance: ± 0.2

CHS-U TYPE

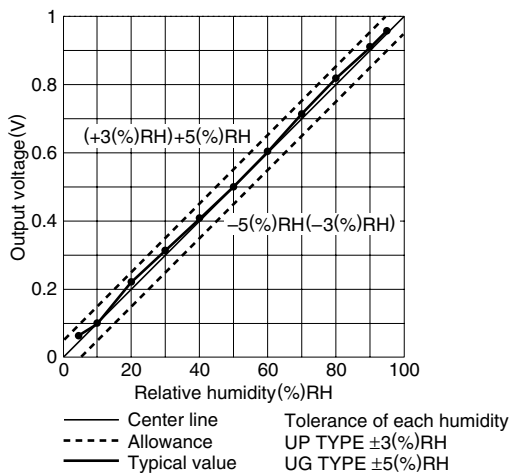
ELECTRICAL CHARACTERISTICS

| Item | Specifications | | | Conditions |
|---------------------------------------|----------------|----------|---------|---|
| | Minimum | Standard | Maximum | |
| Operating voltage Edc (V) | 4.75 | 5 | 5.25 | |
| Operating current(mA) | | | 0.6 | E _{dc} =5V, 25°C |
| Output voltage(mV)/(%)RH | | 10 | | E _{dc} =5V, 25°C, 5 to 95(%)RH |
| Output impedance(kΩ) | | (200)* | | at DC |
| Accuracy(%)RH | CHS-UPS, -UPR | -3 | +3 | E _{dc} =5V, 25°C, 5 to 95(%)RH (For details, please refer to typical characteristics) |
| | CHS-UGS, -UGR | -5 | +5 | |
| Hysteresis(%)RH | | ≈0 | | Stable time: 20min |
| Temperature dependency(%)RH | | -5 | +5 | E _{dc} =5V, 25°C standard, +5 to +45°C, 5 to 95(%)RH |
| Response time(min) | | 1 | | Response time to reach 90% of actual humidity as for from 30 to 85(%)RH |
| Recommended operating temperature(°C) | +5 | | +45 | E _{dc} =5V |

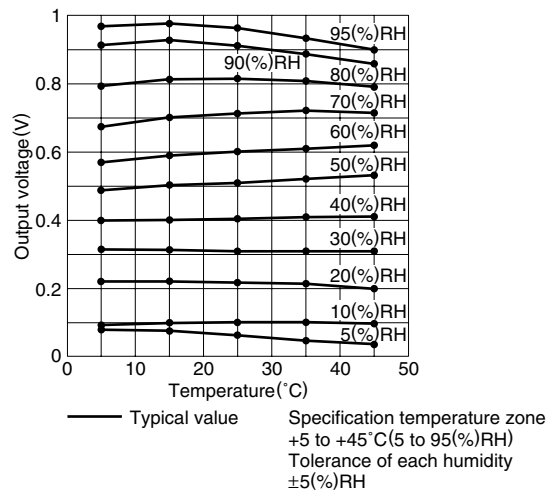
*(): Reference value

TYPICAL CHARACTERISTICS

SENSOR LINEARITY CHARACTERISTICS (Ta=25°C E_{dc}=5V)



TEMPERATURE DEPENDENCY CHARACTERISTICS



CHS-SS TYPE

For consumer and office equipment

FEATURES

- Humidity sensing characteristics exhibit virtually no hysteresis.
- Compact size.
- Low current consumption.
- Outputs DC.1V at 100(%)RH; relative humidity can be read directly with a voltmeter.
- All-in-one construction integrates sensor with support circuitry. The entire module operates off a 5V power supply.
- Generated ripple at low humidity levels will not exceed 2.5mV.

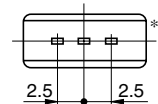
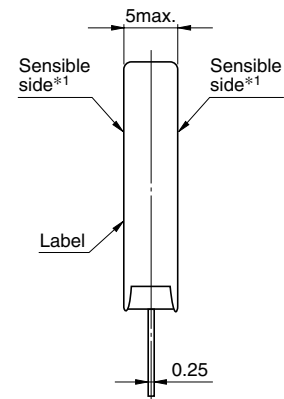
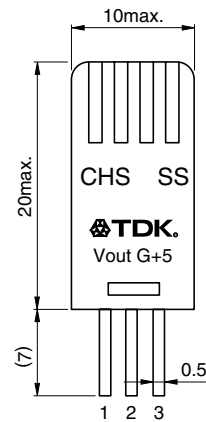
| | |
|-----------------------|----------|
| Type | CHS-MSS |
| Nominal accuracy(%)RH | ±5 |
| Measuring range(%)RH | 20 to 85 |

MAXIMUM RATINGS (Ta=25°C)

| | |
|--------------------------------------|---|
| Power supply voltage E _{dc} | 7V max. |
| Operating conditions | 0 to +50°C, power supply voltage 5V, without dewing |
| Storage conditions | -20 to +60°C, without dewing |

SHAPES AND DIMENSIONS

SQUARE TYPE



Pin No. 1 Analog output voltage
Pin No. 2 GND
Pin No. 3 +Power supply voltage

*1 When installing the device, ensure that the humidity sensing surface is not obstructed.
*2 The three leads are parallel to within 0.2mm.

Weight: 1.1g typ.

Dimensions in mm
Tolerance: ±0.2

ELECTRICAL CHARACTERISTICS

| Item | Specifications | | | Conditions |
|---------------------------------------|----------------|----------|---------|--|
| | Minimum | Standard | Maximum | |
| Operating voltage E _{dc} (V) | 4.75 | 5 | 5.25 | |
| Operating current(mA) | | | 0.6 | E _{dc} =5V, 25°C |
| Output voltage(mV)/(%)RH | | 10 | | E _{dc} =5V, 25°C |
| Output impedance(kΩ) | | (200)* | | at DC |
| Accuracy(%)RH | -5 | | +5 | E _{dc} =5V, 25°C, 20 to 85(%)RH(For details, please refer to typical characteristics) |
| Hysteresis(%)RH | | ≈0 | | Stable time: 20min |
| Temperature dependency(%)RH | -5 | | +5 | E _{dc} =5V, 25°C standard |
| Response time(min) | | 1 | | Response time to reach 90% of actual humidity as for from 30 to 85(%)RH |
| Recommended operating temperature(°C) | +15 | | +35 | E _{dc} =5V, without dewing(For details, please refer to typical characteristics) |

*(): Reference value

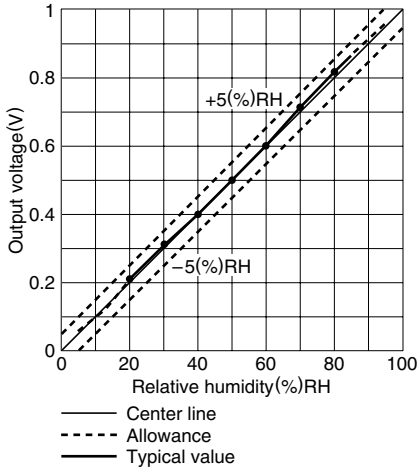


CHS-SS TYPE

TYPICAL CHARACTERISTICS

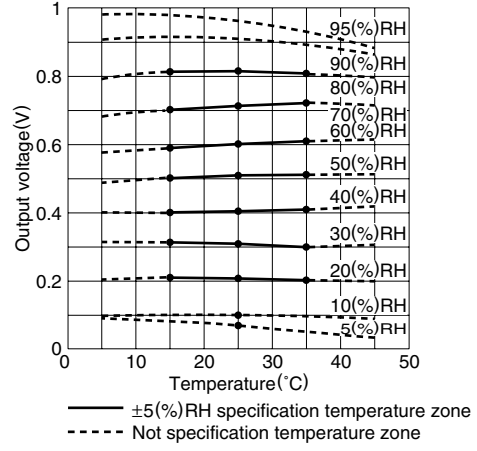
SENSOR LINEARITY CHARACTERISTICS (Ta=25°C Edc=5V)

CHS-MSS TYPE



TEMPERATURE DEPENDENCY CHARACTERISTICS

CHS-MSS TYPE



• All specifications are subject to change without notice.

CHS-C TYPE

For consumer and office equipment

FEATURES

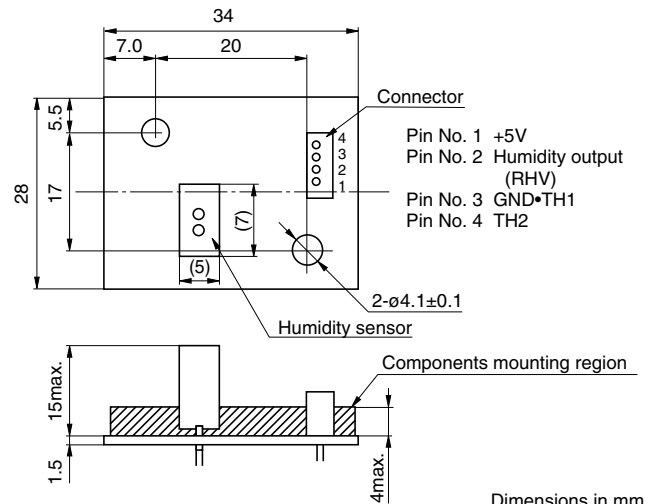
- Temperature detection thermistor can be added.
- Humidity sensing characteristics exhibit virtually no hysteresis.
- Low current consumption.
- Absolute humidity can be read directly with DC. 1V voltmeter.
- All-in-one construction incorporates circuits and 5V power supply operation.
- Generated ripple at low humidity levels will not exceed 2.5mV.

| | |
|-----------------------|------------|
| Type | CHS-CMC-__ |
| Nominal accuracy(%)RH | ±5 |
| Measuring range(%)RH | 30, 50, 80 |

MAXIMUM RATINGS (Ta=25°C)

| | |
|--------------------------|---|
| Power supply voltage Edc | 7V max. |
| Operating conditions | 0 to +50°C, power supply voltage 5V, without dewing |
| Storage conditions | -20 to +60°C, without dewing |

SHAPES AND DIMENSIONS



Dimensions in mm
Tolerance: ±0.5

ELECTRICAL CHARACTERISTICS

| Item | Specifications | | | Conditions |
|---------------------------------------|----------------|---------------|---------------|--|
| | Minimum | Standard | Maximum | |
| Operating voltage Edc (V) | 4.75 | 5 | 5.25 | |
| Operating current(mA) | | | 0.6 | E _{dc} =5V, 25°C |
| Output impedance(kΩ) | | (200) | | at DC |
| Accuracy(%)RH | 30(%)RH | -5 (0.5V) | +5 (0.7V) | E _{dc} =5V, 25°C (For details, please refer to typical characteristics) |
| | 50(%)RH | -5 (0.86V) | +5 (1.06V) | |
| | 80(%)RH | -5 (1.5V) | +5 (1.7V) | |
| Hysteresis(%)RH | | ≈0 | | Stable time: 20 min |
| Temperature dependency(%)RH | -5 | | +5 | E _{dc} =5V, 25°C standard (For details, please refer to typical characteristics) |
| Response time(min) | | 1 | | Response time to reach 90% of actual humidity as for from 30 to 85(%)RH |
| Recommended operating temperature(°C) | +15 | | +35 | E _{dc} =5V |

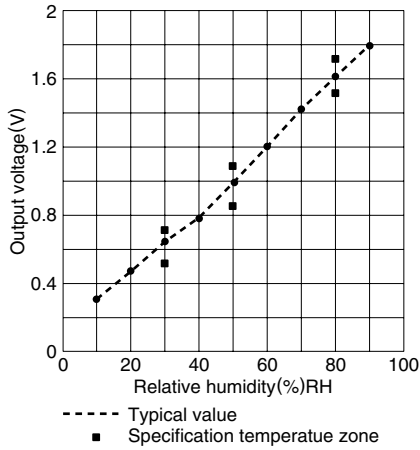
RECOMMENDED CHARACTERISTICS OF TEMPERATURE DETECTION THERMISTOR

| | |
|---------------------------------------|-------------------|
| Part No. | NTCCM16084BH103JC |
| Resistance value(Between TH1 and TH2) | 10kΩ±5% |
| Constant B | 4100K±3% |
| Maximum rated power | 230mW |

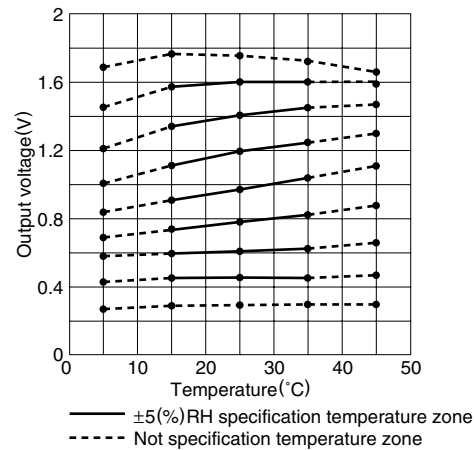
CHS-C TYPE

TYPICAL CHARACTERISTICS

SENSOR LINEARITY CHARACTERISTICS(Ta=25°C, Edc=5V)

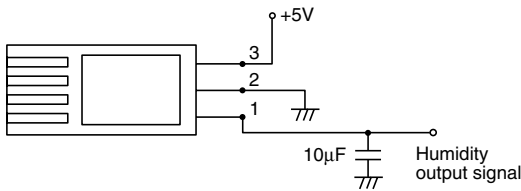


TEMPERATURE DEPENDENCY CHARACTERISTICS

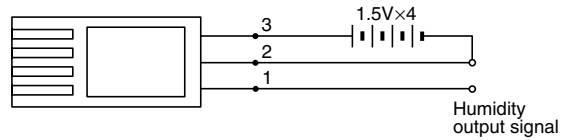


TYPICAL APPLICATIONS

HUMIDITY MONITOR



BATTERY POWERED SYSTEM



• All specifications are subject to change without notice.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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