

Sensors

Humidity Sensors

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.

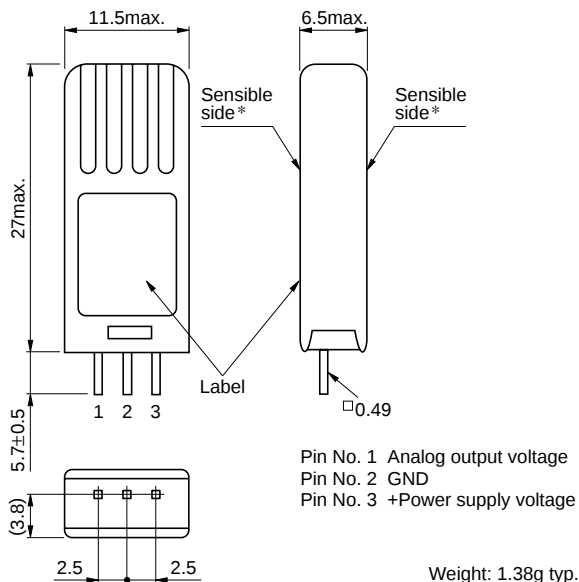
Type	CHS-UGS CHS-UGR	CHS-UPS CHS-UPR
Nominal accuracy(%)RH	± 5	± 3
Measuring range(%)RH	5 to 95	5 to 95

- 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

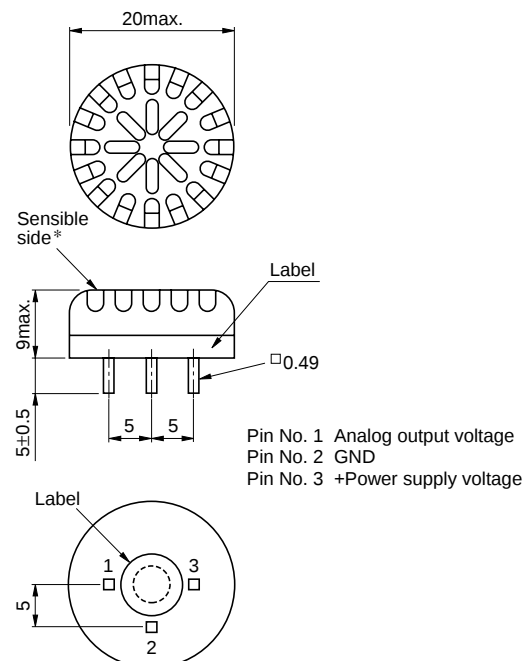


MAXIMUM RATINGS (Ta=25°C)

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

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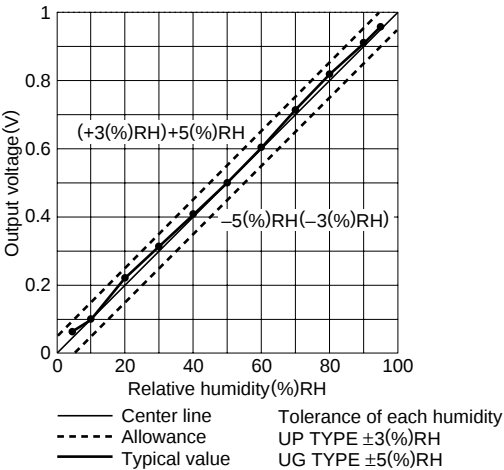
CHS Series CHS-U, -SS, -C Types

CHS-U TYPE
ELECTRICAL CHARACTERISTICS

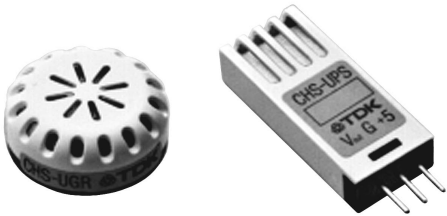
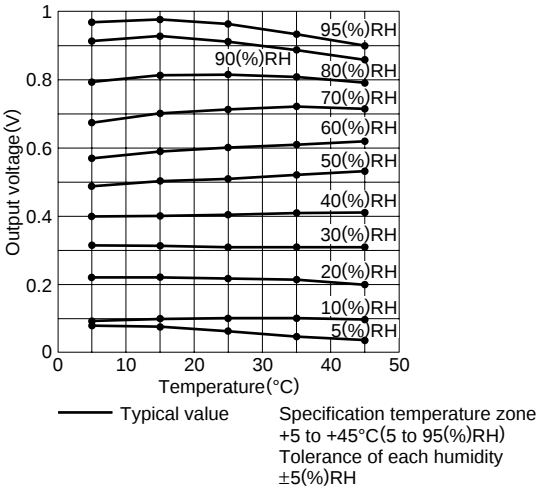
Item	Specifications			Conditions
	Minimum	Standard	Maximum	
Operating voltage Edc (V)	4.75	5	5.25	
Operating current(mA)			0.6	E _{dc} =5V, 25°C
Output voltage(mV)/(%)RH		10		E _{dc} =5V, 25°C, 5 to 95(%)RH
Output impedance(kΩ)		(200)*		at DC
Accuracy(%)RH	CHS-UPS, -UPR	-3	+3	E _{dc} =5V, 25°C, 5 to 95(%)RH
	CHS-UGS, -UGR	-5	+5	(For details, please refer to typical characteristics)
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 Edc=5V)



TEMPERATURE DEPENDENCY CHARACTERISTICS



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

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.

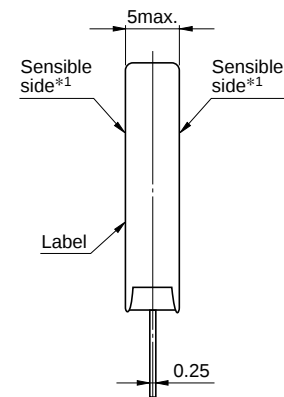
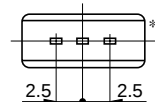
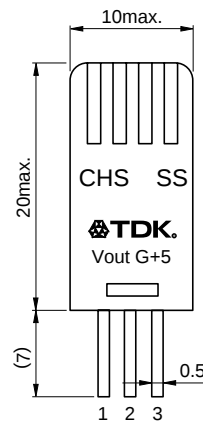
Type	CHS-GSS	CHS-MSS	CHS-BSS
Nominal accuracy(%)RH	±5	±5	±5
Measuring range(%)RH	5 to 90	20 to 85	50

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

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.

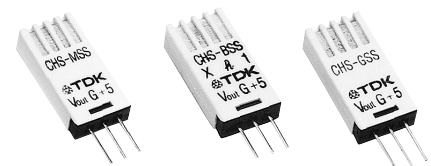
Weight: 1.1g typ.

Dimensions in mm
Tolerance: ±0.2

ELECTRICAL CHARACTERISTICS

Item	Specifications			Conditions
	Minimum	Standard	Maximum	
Operating voltage Edc (V)	4.75	5	5.25	
Operating current(mA)	CHS-GSS, -MSS		0.6	E _{dc} =5V, 25°C
	CHS-BSS		3	E _{dc} =5V, 25°C, 50(%)RH
Output voltage(mV)/(%)RH		10		E _{dc} =5V, 25°C
Output impedance(kΩ)		(200)*		at DC
Accuracy(%)RH	CHS-GSS	-5	+5	E _{dc} =5V, 25°C, 5 to 90(%)RH(For details, please refer to typical characteristics)
	CHS-MSS	-5	+5	E _{dc} =5V, 25°C, 20 to 85(%)RH(For details, please refer to typical characteristics)
	CHS-BSS	-5	+5	E _{dc} =5V, 25°C, 50(%)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)	CHS-GSS	+5	+45	E _{dc} =5V, without dewing
	CHS-MSS	+15	+35	(For details, please refer to typical characteristics)
	CHS-BSS	+15	+35	

*(): Reference value



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Humidity Sensor Units

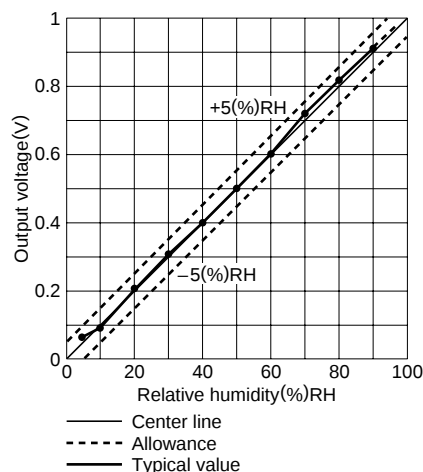
CHS Series CHS-U, -SS, -C Types

CHS-SS TYPE

TYPICAL CHARACTERISTICS

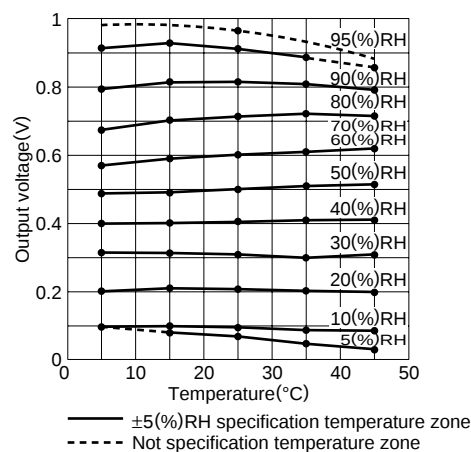
SENSOR LINEARITY CHARACTERISTICS (Ta=25°C Edc=5V)

CHS-GSS TYPE

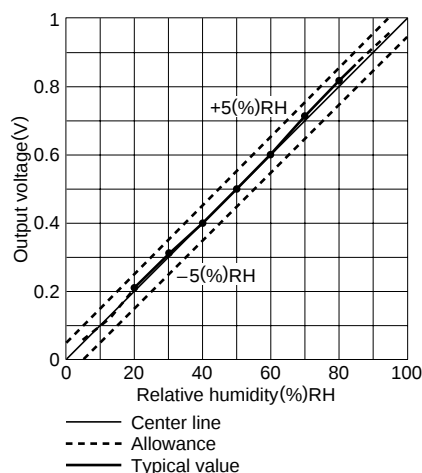


TEMPERATURE DEPENDENCY CHARACTERISTICS

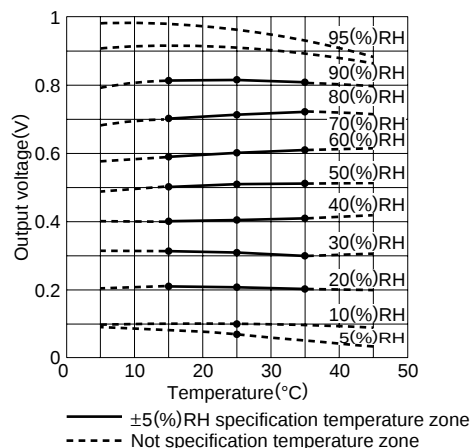
CHS-GSS TYPE



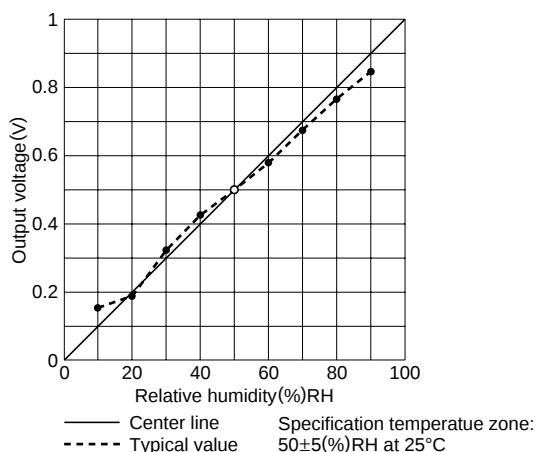
CHS-MSS TYPE



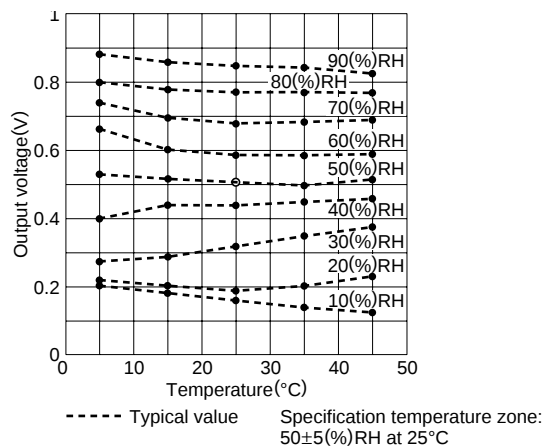
CHS-MSS TYPE



CHS-BSS TYPE



CHS-BSS TYPE



Sensors

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

CHS-C TYPE

For consumer and office equipment

FEATURES

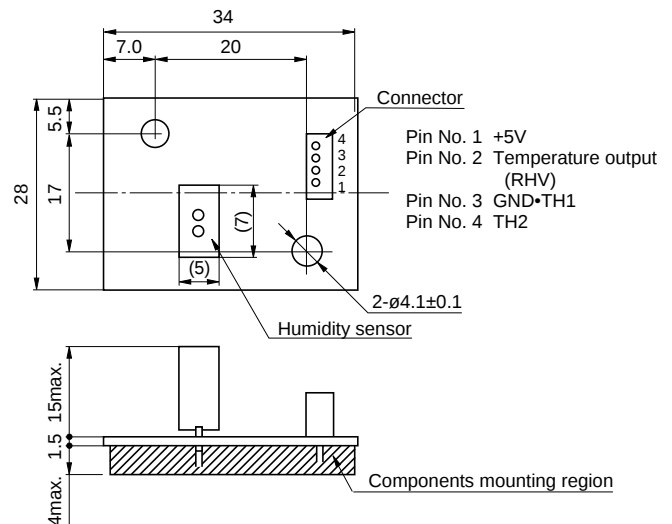
- Temperature detection thermistor can be added.
- Humidity sensing characteristics exhibit virtually no hysteresis.
- Low current consumption.
- Absolute humidity can be read directly with DC. 1V voltmeter.
- All-in-one construction incorporates circuits and 5V power supply operation.
- Generated ripple 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 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



ELECTRICAL CHARACTERISTICS

Item	Specifications			Conditions
	Minimum	Standard	Maximum	
Operating voltage E _{dc} (V)	4.75	5	5.25	E _{dc} =5V, 25°C at DC
Operating current(mA)			0.6	
Output impedance(kΩ)		(200)		
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	10kΩ±5%
Constant B	4100K±3%
Maximum rated power	230mW

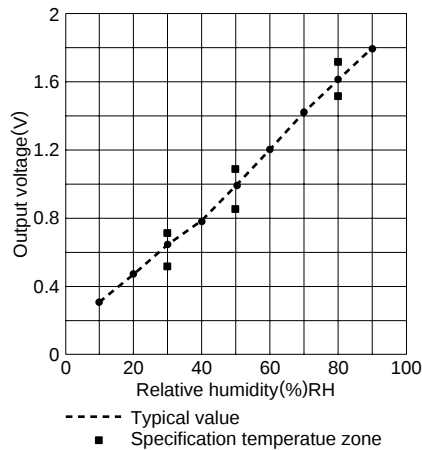
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Humidity Sensor Units

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

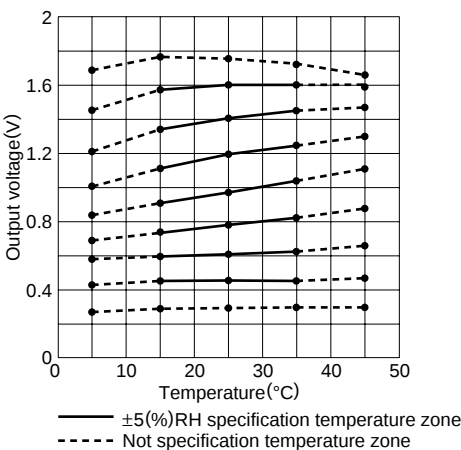
CHS-C TYPE

TYPICAL CHARACTERISTICS

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

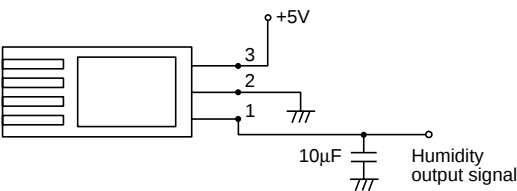


TEMPERATURE DEPENDENCY CHARACTERISTICS

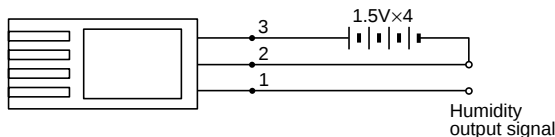


TYPICAL APPLICATIONS

HUMIDITY MONITOR



BATTERY POWERED SYSTEM



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微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件：晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子器件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

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