

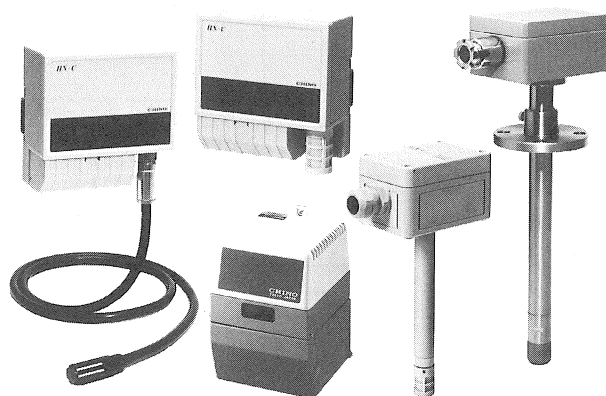
HN-C SERIES THERMO-HYGROMETER



HN-C series using newly developed humidity element features high performance and reliability 2-wire transmission type thermo-hygrometers for the wide measuring range of 0 to 100%RH. Models with temperature output of 3-wire type Pt100 is available.

Selectable from three types; Wall-mount type, separated type and inserting type.

Separate type is designed for heat-resistant and available for use in -40 to 180°C operating temperature.



■ FEATURES

- High molecule humidity elements are built-in to improve reproducibility and reliability.
- Relative humidity of 0 to 100% is measurable.
- Low humidity even lower than 20%RH can be measured with high-accuracy.
- Six types of wall-mount type, separate type, heat-resistant separated type, and inserting type (soft type and hard type) are available for various applications.
- The sensing part of the heat-resistant separated type can be used in the operating temperature of -40 to 180°C.
- Interchangeable sensing element for easy maintenance
- Mounting on DIN rail is possible. (except ventilation and inserting types)
- Utilizing humidity converter (HN-GV1F□□) computation display and output(4 to 20mA DC) of temperature and humidity (absolute humidity, relative humidity, mixing ratio, water vapor pressure, dew point)

■ MODELS

HN-C□□□

Type

- Q: Wall mounting type
- F: Separated type
- G: Heat-resistant separated type
- W: Ventilation type
- V: Inserting type (Soft type)
- P: Inserting type (Hard type)

Output signal*1

- A: Temperature :
4 to 20 mA DC(two-wire transmission*)
- Humidity :
4 to 20 mA DC(two-wire transmission*)
- B: Temperature : Pt100, three wire type
- Humidity :
4 to 20 mA DC(two-wire transmission*)

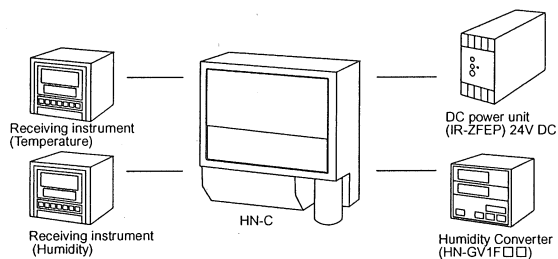
Notice : *In case of separated type and heat-resistant separated type, the output signal is only "A".
*Ventilation type is not built for two-wire transmission.

Length of cable

- 1: 1 m
- 2: 2 m
- 3: 3 m

*Only for separated type and heat-resistant separated type.
Others are blanks.

■ CONFIGURATIONS



Working environment

- As the humidity element consists of hygroscopic high polymer film and thin electrode which transmit moisture in ambient atmosphere, its performance may be remarkably deteriorated in the environment which includes ketones organic solvent, esters organic solvent, halogen, strong acid material, corrosive material.
- To avoid danger do not use in the environments where flammable gas, dust, oil mist, salt mist, corrosive gas, steam or seawater splashing exists.
- No dew condensation. After all dew removed, measuring returns to be available.

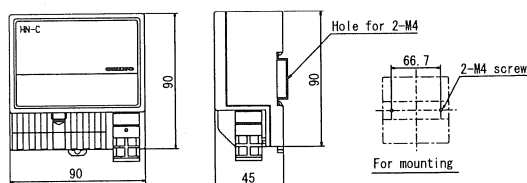
■ GENERAL SPECIFICATIONS

| Item | Wall-mounting type | Separated type | Heat-resistive separated type | Ventilation type | Inserting type (Soft type) | Inserting type (Hard type) | |
|-----------------------------------|--|---|-------------------------------|----------------------------|----------------------------|----------------------------|-------------------|
| Model | HN-C□□ | HN-CFA | HN-CGA | HN-CW□ | HN-CV□ | HN-CP□ | |
| Humidity | Element | High polymer capacitance type | | | | | |
| | Measuring range | 0 to 100 %RH (No dew condensation) | | | | | |
| | Accuracy ratings | ±2%RH (0 to 90%RH at 25°C), ±3%RH (90 to 95%RH at 25°C) | | | | | |
| | Coefficient of relative humidity/temperature | ±0.1%RH/°C (at 5 to 80°C) | | | | | |
| | Response time | Within 15 sec. (90% response at 25°C and wind speed of 0.1m/s) | | | | (Shorter than 1 min) | |
| | Output signal | 4 to 20 mA DC, 2-wire transmission (For 0 to 100%RH) | | | | | |
| Resistance load | Lower than 500 Ω (at 24V DC power voltage); Lower than 250 Ω (at 15V DC); Lower than 100 Ω (at 12V DC) | | | | | | |
| Temperature | Element | Platinum resistance thermometer; Pt100 JIS, Class A | | | | | |
| | Measuring range | 0 to 50 °C | -40 to 80 °C | -40 to 180 °C | 0 to 50 °C | 0 to 80 °C | |
| | Accuracy ratings (two-wire transmission) | ±0.3°C | | ±0.5°C | ±0.3°C | | |
| | Output signal | HN-C□A: 4 to 20mA DC, 2-wire transmission* (For measuring range), HN-C□B: Pt100, 3wire type | | | | | |
| Resistance load | Lower than 500 Ω (at 24V DC voltage), Lower than 250 Ω (at 15V DC), Lower than 100 Ω (at 12V DC) | | | | | | |
| Interchangeability (sensing part) | Plug-in | Plug-in including cable | | Plug-in | | | |
| Working temperature | Main unit | 0 to 50 °C | | | | | |
| | Sensor | 0 to 50 °C | -40 to 80 °C | -40 to 180 °C | 0 to 50 °C | 0 to 80 °C | |
| Power voltage | 12 to 24V DC ±1V | | | 24VDC ±1V | 12 to 24V DC ±1V | | |
| Connecting | Cramp type no screw terminals | | | Screw terminals (M3.5 x 7) | Screw terminals (M4 x 5) | | |
| Materials | Unit | Resin | | | Steel plate | Resin | Aluminum die cast |
| | Protection Tube | - | | | - | Resin | SUS |
| Weight (unit only) | About 160 g | About 220 g | | About 1.7 kg | About 240 g | About 1.6 kg | |
| Accessories (unit only) | Fixture for wall-mounting | | | - | | | |
| Other | - | Cable length: 1m, 2m, 3m (to be specified) | | - | | | |

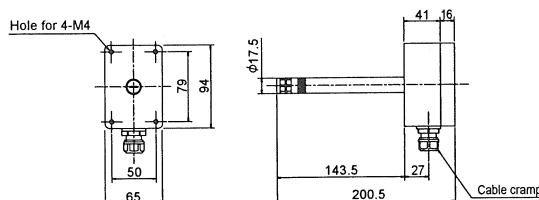
*When measuring temperature using HN-C□A, please turn on the power of a humidity measuring part. Also, when measuring temperature using HN-CWA, please make sure to short-circuit humidity output terminal U+ to U-.

■ DIMENSIONS

● Wall-mounting type

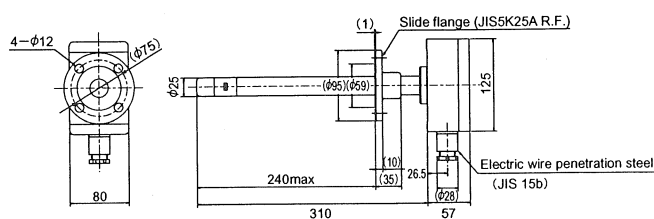
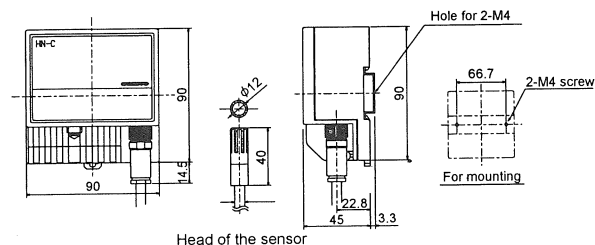


● Inserting type (Soft type)

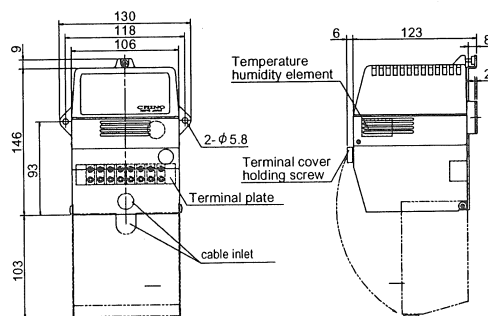


● Separated type, Heat-resistive separated type

● Inserting type (Hard type)



● Ventilation type



Unit: mm

CE conformance unit

Wall mounting type thermo-hygrometer HN-CQA

Cord and specification: (89/336/EEC, 92/31/EEC amendment, 93/68/EEC amendment)

IEC61326+A1, Emission class A, immunity Annex A TableA.1

Necessary condition:

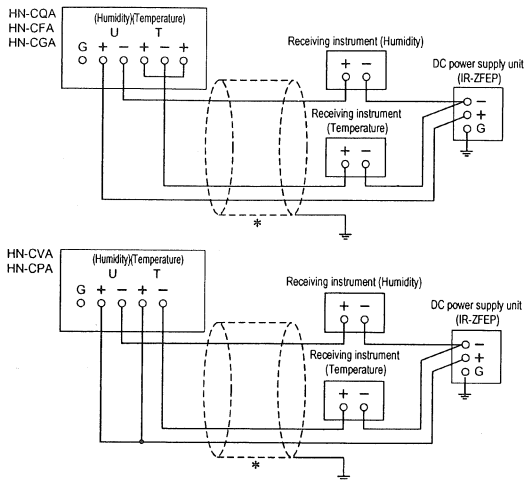
Electric current power supply unit (IR-ZFEP) is required. Connecting cable shall be used in closed environment and the length is within 30 m.

Stability: Temperature ±1°C, relative humidity ±3%RH

*Only under the test environment of EMC Directive

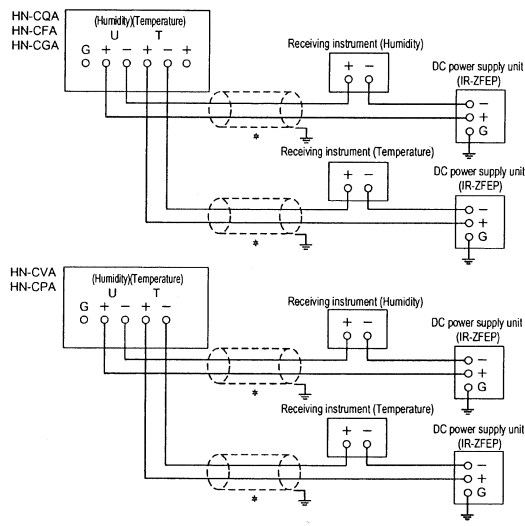
CONNECTION 1 HN-CQA, HN-CFA, HN-CGA, HN-CVA, HN-CPA

(Case 1) Humidity measurement and temperature measurement instrument are isolated: 1 pc of DC power supply unit required



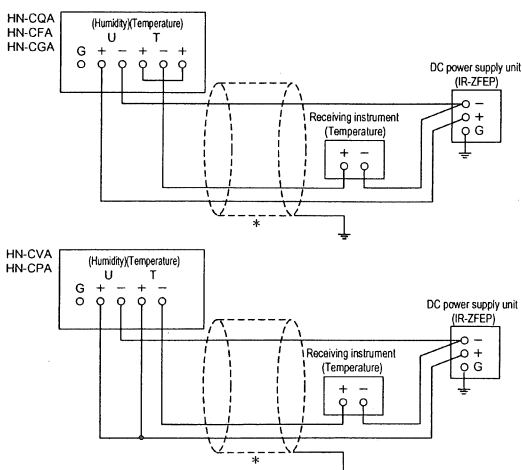
*A shielded wire (3-core) must be used.
(Size: AWG22, nominal, Cross-sectional area: more than 0.3mm², 1.25 mm² is recommended for strengthening cable pull)

(Case 2) Humidity measurement and temperature measurement instrument are not isolated: 2 pc of DC power supply required



*Two shielded wires (2-core) must be used.
(Size: AWG22, nominal, Cross-sectional area: more than 0.3mm², 1.25 mm² is recommended for strengthening cable pull)

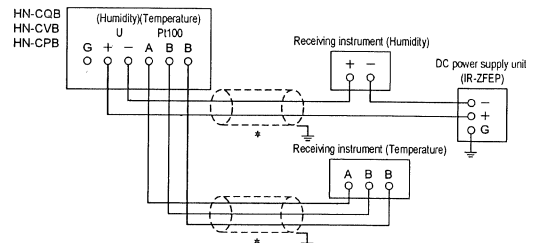
(Case 3) To measure only temperature: 1 pc of DC power supply required
Notice: Please turn on the power of humidity measurement part.



*A shielded wire (3-core) must be used.
(Size: AWG22, nominal, Cross-sectional area: more than 0.3mm², 1.25 mm² is recommended for strengthening cable pull)

CONNECTION 2 HN-CQB, HN-CVB, HN-CPB

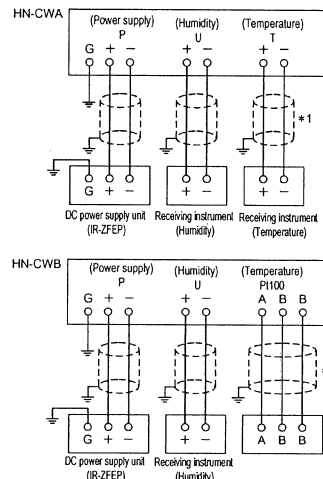
(Case 1) To measure humidity and temperature: 1 pc of DC power supply unit required



*A 2-core shielded wire and a 3-core shields wire or a 5-core shields wire must be used.
(Size: AWG22, nominal, Cross-sectional area: more than 0.3mm², 1.25 mm² is recommended for strengthening cable pull)

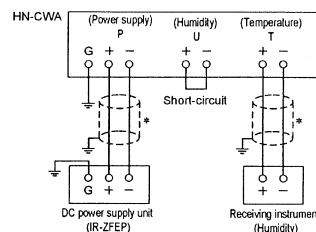
CONNECTION 3 HN-CWA, HN-CWB

Notice: HN-CW□ series are not 2-wire transmission type.
(Case 1) To measure humidity and temperature



*1 Three shielded wires (2-core) or a shielded wire (6-core) must be used.
*2 Two shielded wires (2-core) or a shielded wire (3-core) or a shielded wires (7-core) must be used.
*1,2 Size: AWG22, nominal, Cross-sectional area: more than 0.3mm², 1.25 mm² is recommended for strengthening cable pull

(Case 2) To measure only temperature with HN-CWA: 1 pc of DC power supply unit required
Notice: Please short circuit humidity output terminal U+ and U-.



*Two shielded wires (2-core) or a shielded wire (4-core) must be used.
(Size: AWG22, nominal, Cross-sectional area: more than 0.3mm², 1.25 mm² is recommended for strengthening cable pull)

HUMIDITY CONVERTER HN-GV1F□□

■ GENERAL SPECIFICATIONS

Input range: Humidity 0 to 100% RH (Scale setting is optional)
Temperature 0 to 50°C, 0 to 80°C, -40 to 80°C or -40 to 180°C (scale setting is optional)

Input signal: Humidity 4 to 20mA DC
Temperature 4 to 20mA DC

Output signal: Humidity/ temperature --- 4 to 20mA DC (scale setting is optional)
(Load resistance less than 600Ω, output signal of humidity and temperature isolation; but output signal with communication output has no isolation.)

Humidity computation:

Absolute humidity (g/m³)
Relative humidity (%RH)
Mixing ratio (g/kg)
Water upper pressure (kPa)
Dew point temperature (°C)

* Please note if you change a unit of humidity, it will also change a unit of humidity output signal

Hold: Holding humidity and temperature reading and output by external contact signal

Alarm Output: 2 contact outputs
(scale setting is optional)
Each one point of humidity and temperature or one of their upper limit and lower limit.

Contact capacity Load resistance 100V AC 0.5A,
200V AC 0.2A

Communication interface:

RS232C, RS422A and RS485 (Option)

Power supply: 100-240V AC, 50Hz/60Hz

Allowable power supply voltage range:
85 to 264V AC

Working temperature:

0 to 50°C

Working humidity:

20 to 90 %RH (no dew condensation)

Weight: About 0.6 kg

Installation: Embedded to panel mounting

■ MODELS

Humidity converter for HN-C series HN-GV1F□□

HN-GV1F□□

For HN-C Series

Input signal: Humidity --- 4 to 20mA DC
Temperature --- 4 to 20mA DC

Humidity/ Temperature output,
communication interface (option)

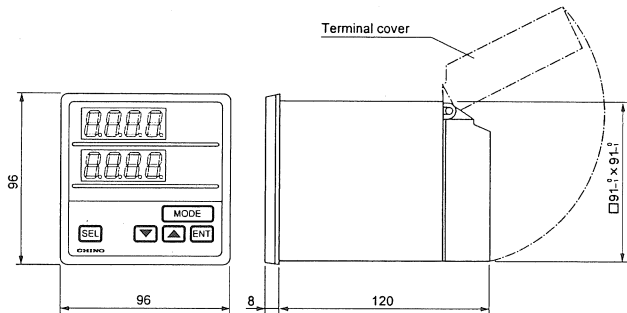
1N: 4 to 20mA DC (with isolation/ no communication)

1A: 4 to 20mA DC (without isolation/ RS422A)

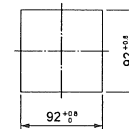
1R: 4 to 20mA DC (without isolation/ RS232C)

1S: 4 to 20mA DC (without isolation/ RS485)

■ EXTERNAL DIMENSIONS



Cut panel diagram



Unit: mm

DC power supply unit IR-ZFEP

■ SPECIFICATIONS

Output: 24V DC 0.6A

Power supply: 100 to 240V AC 50/60Hz

Allowable power supply voltage range:
85 to 264V AC

Over-current protection (automatic reset)

Display for voltage short supply

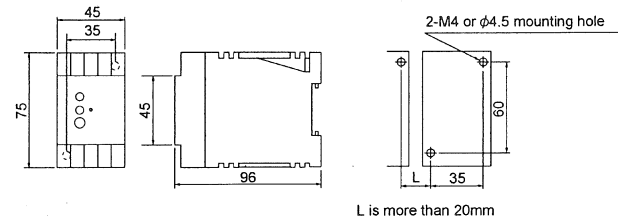
Working temperature range:

-10 to 50°C

Weight: About 260 g

Mounting: DIN rail mounting or fixing with screws (2 points)

■ EXTERNAL DIMENSIONS



Unit: mm

Specifications subject to change without notice. Printed in Japan (I) 2006. 6 Recycled Paper

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