

HUM Series

INSTRUCTION MANUAL

TCD250030AA



Read and understand the instruction manual and manual thoroughly before using the product.

For your safety, read and follow the below safety considerations before using.

For your safety, read and follow the considerations written in the instruction manual and AutomationDirect.com website.

Keep this instruction manual in a place where you can find easily.

The specifications, dimensions, etc. are subject to change without notice for product improvement.

Safety Considerations

- Observe all ‘Safety Considerations’ for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.(e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, etc.)

Failure to follow this instruction may result in personal injury, economic loss or fire.

02. Do not use or store the unit in the place where flammable/explosive/ corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.

Failure to follow this instruction may result in explosion or fire.

03. Do not connect, repair, or inspect the unit while connected to a power source.

Failure to follow this instruction may result in fire.

04. Check ‘Connections’ before wiring.

Failure to follow this instruction may result in fire.

05. Do not disassemble or modify the unit.

Failure to follow this instruction may result in fire.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. Use the unit within the rated specifications.

Failure to follow this instruction may result in fire or shortening the life cycle of the product.

02. Use a dry cloth to clean the unit, and do not use water or organic solvent.

Failure to follow this instruction may result in fire.

03. Keep the product away from metal chip, dust, and wire residue which flow into the unit.

Failure to follow this instruction may result in fire or product damage.

04. When fixing the unit to bracket, tighten the fixing bolt with a tightening torque of 0.5 to 0.9 N·m.

Failure to follow this instruction may result in damage to bracket or product.

Cautions during Use

- Follow instructions in ‘Cautions during Use’. Otherwise, it may cause unexpected accidents.
- Keep away from high voltage lines or power lines to prevent inductive noise. In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. Do not use near the equipment which generates strong magnetic force or high frequency noise.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- 24VDC≒ power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Avoid touching the sensor element with your hands to prevent potential device malfunction.
- HUM-R must be installed on the wall.
- Make a required space around the unit for radiation of heat.
- For accurate temperature measurement, warm up time is 20 min after turning on power. Make sure that power supply voltage reaches the rated voltage within 2 sec after supplying power.
- Do not wire to terminals which are not used.
- This unit may be used in the following environments.
 - Indoors (in the environment condition rated in ‘Specifications’)
 - Altitude max. 2,000 m
 - Pollution degree 2
 - Installation category II

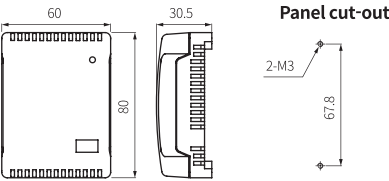
Product Components

- Product
- Instruction manual
- Bracket (HUM-W / D model)

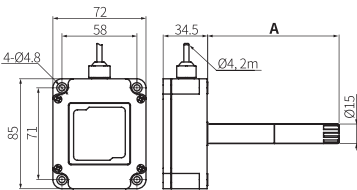
Dimensions

- Unit: mm, For detailed drawings, go to AutomationDirect.com

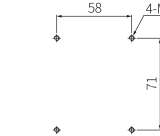
■ HUM-R



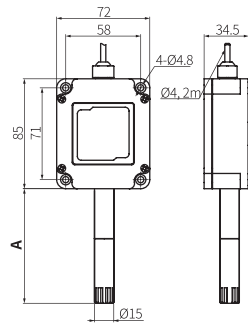
■ HUM-D



Panel cut-out

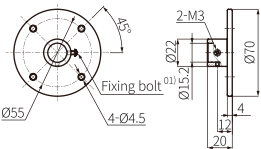


■ HUM-W



Model	Sensor pole length (A)
HUM-□-100-□	100 mm
HUM-□-200-□	200 mm

■ Bracket

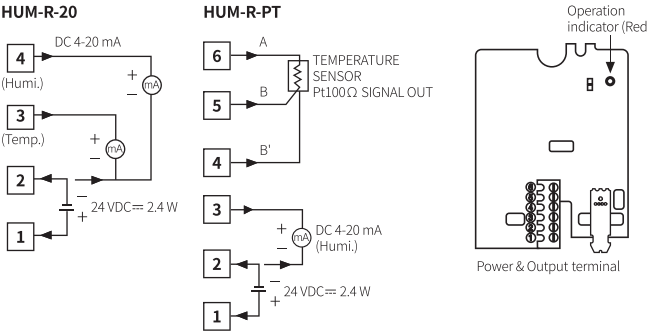


01) Recommended allowable tightening torque 0.5 to 0.9 N·m

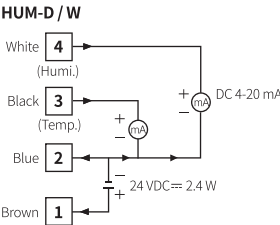
Connections

- Check the terminal connection diagram and be careful with connecting the power.

■ HUM-R

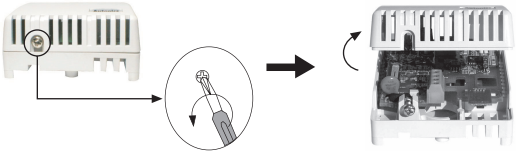


■ HUM-D / W



[HUM-R model] Case Detachment

- When mounting, remove the case cover.
- Unfasten the bolt on the bottom of the product, separate the case from it.



Errors

HUM-W with display (Temp. / Humi)	HUM-R / D operation indicator (Red)	Description	Troubleshooting
Err	Flash	When sensor module malfunctions.	Please contact tech support.
HHH / Max. value	Flash	PV > Measuring range	When input is within the measuring range, this display disappears.
LLL / Min. value	Flash	PV < Measuring range	

Specifications

Model	HUM-R-PT	HUM-R-20
Sensor type	Temperature/Humidity Sensor	
Sensor response time	10 sec	
Display type	Non-display type	
Temp. measuring range	-19.9 to 60.0 °C	
Humi. measuring range	0.0 to 99.9 %RH (be required to attend for using over 90 %RH)	
Temp. accuracy	± 1.0 °C (at room temp.)	
Humi. accuracy	± 3 %RH (30 to 70 %RH, at room temp.) ± 4 %RH (10 to 90 %RH)	
Temp. output	Pt100Ω resistance value (TCR: 3850 ppm/°C)	DC 4-20 mA (allowable impedance: ≤ 600 Ω)
Humi. output	DC 4-20 mA (allowable impedance: ≤ 600 Ω)	
Resolution	1/1000	
Sampling period	0.5 sec	
Insulation resistance	≥ 100 MΩ (500 VDC≒ megger)	
Protection structure	IP10 (IEC standards)	

Model	HUM-D-□ HUM-W-□	HUM-W-□-DSP-C	HUM-W-□-DSP-F
Sensor type	Temperature/Humidity Sensor		
Sensor response time	10 sec		
Display type	Non-display type	7-segment LED display	
Display digit	-	Each 3 digits for temp. / humi.	
Temp. measuring range	-19.9 to 60.0 °C		-4.0 to 140 °F
Humi. measuring range	0.0 to 99.9 %RH		
Temp. accuracy	± 1.0 °C (at room temp.)		± 1.8 °F (at room temp.)
Humi. accuracy	Typ. ± 2 %RH (10 to 90 %RH, at room temp.) ≤ ± 2.5 %RH		
Temp. output	DC 4-20 mA (allowable impedance: ≤ 600 Ω)		
Humi. output	DC 4-20 mA (allowable impedance: ≤ 600 Ω)		
Resolution	1/1000		
Sampling period	0.5 sec		
Protection structure	IP65 (except sensor part, IEC standards)		
Cable spec.	Ø4 mm, 4-wire, length: 2 m		
Wire spec.	AWG22 (0.08 mm, 60-wire), Insulator diameter: Ø1.25 mm		

Power supply	24 VDC≒
Permissible voltage range	90 to 110 % of rated voltage
Power consumption	≤ 2.4W
Insulation resistance	≥ 100 MΩ (500 VDC≒ megger)
Dielectric strength	Between the charging part and the case: 500 VAC~ 50/60 Hz for 1 min
Noise immunity	± 0.3 kV the square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 1 hour
Vibration (Malfunction)	0.5 mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 1 hour
Shock	300 m/s ² (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (Malfunction)	100 m/s ² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-20 to 60 °C, Storage: -20 to 60 °C (rated at no freezing or condensation)
Certification	CE