

# AIR RELATIVE HUMIDITY AND TEMPERATURE TRANSMITTERS

- relative humidity transmitters with the 4-20mA current output
- combined temperature and relative humidity transmitters with the 4-20mA outputs
- relative humidity transmitters with the 0-10V voltage output



■ **Applications: Monitoring of air relative humidity in these fields:**

- food and beverages industry (HACCP)
- pharmaceutical industry (GMP)
- blood stations, pharmacies
- horticulture and cultivation of plants
- HVAC (heating, ventilation, air conditioning, cooling)
- building and energy management



■ Relative humidity transmitters with linear 4-20mA current output for two-wire connection, respectively linear 0-10V voltage output are available in wall-mount, duct-mount and bar types. Transmitter contains a microprocessor based control circuitry in durable plastic case with interconnection terminals and a humidity sensor in a cover. Transmitters with current output are also available with galvanic isolated temperature output 4-20mA and humidity output 4-20mA. Computerized design ensures maximum long term stability, temperature compensation of the humidity sensor and fail indication.

State-of-the-art capacitive polymer sensor excels in mechanical stress, temperature shock, as well as in large linearity range and low hysteresis. Transmitters are designed for non-aggressive environment.

## TECHNICAL PARAMETERS - COMMON :

Measuring relative humidity range:	0 to 100%
Accuracy:	±2.5% relative humidity from 5 to 95% at +23 °C
Current output of relative humidity (HG421 .xx):	4-20mA linearly corresponds 0% -100% relative humidity
Voltage output of relative humidity (HGD10.xx):	0-10V linearly corresponds 0% -100% relative humidity
Operating temperature of the case with electronics:	-30 to +80 °C
Accuracy of current output of temperature (NH421 .65xxx):	±0.4 °C from -20 to +50 °C ±0.8% from reading over +50 °C ±0.6 °C below -20 °C
Range of temperature compensation of RH sensor:	-30 to +105 °C
Filtering ability of sintered bronze sensor cover:	0.025mm
Power:	9-30Vdc transmitter with 4-20mA output 15-30Vdc transmitter with 0-10V output, maximum consumption 25mA
Protection of the case with electronics:	IP65



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Transmitters are available in the following types:

TYPE	MEASURED VALUE	TEMPERATURE OPERAT. RANGE	TEMPERATURE OUTPUT	LENGTH	NOTE
<b>TRANSMITTERS WITH CURRENT OUTPUT 4-20mA</b>					
HG421.65	RH	-30 to +80 °C	-	67mm	outdoor
HG421.65-150	RH	-30 to +105 °C*	-	150mm	duct mount
HG421.65-700	RH	-30 to +105 °C*	-	700mm	bar type
NH421.65	RH+T	-30 to +80 °C	4-20mA/-30 to +80 °C	67mm	outdoor
NH421.65-150A	RH+T	-30 to +105 °C*	4-20mA/-30 to +80 °C	150mm	duct mount
NH421.65-150B	RH+T	-30 to +105 °C*	4-20mA/0 to +150 °C	150mm	duct mount
NH421.65-700A	RH+T	-30 to +105 °C*	4-20mA/-30 to +80 °C	700mm	bar type
NH421.65-700B	RH+T	-30 to +105 °C*	4-20mA/0 to +150 °C	700mm	bar type
<b>TRANSMITTERS WITH VOLTAGE OUTPUT 0-10V</b>					
HG010.65	RH	-30 to +80 °C	-	67mm	outdoor
HG010.65-150	RH	-30 to +105 °C*	-	150mm	duct mount
HG010.65-700	RH	-30 to +105 °C*	-	700mm	bar type

\* +105 °C only at the end of measuring tip with the limitation accordingly to the Working range graph. Near plastic case with electronic and terminals maximum temperature is +80 °C.

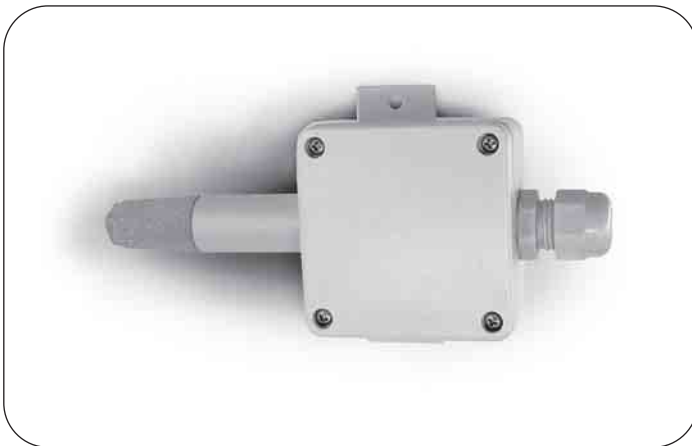
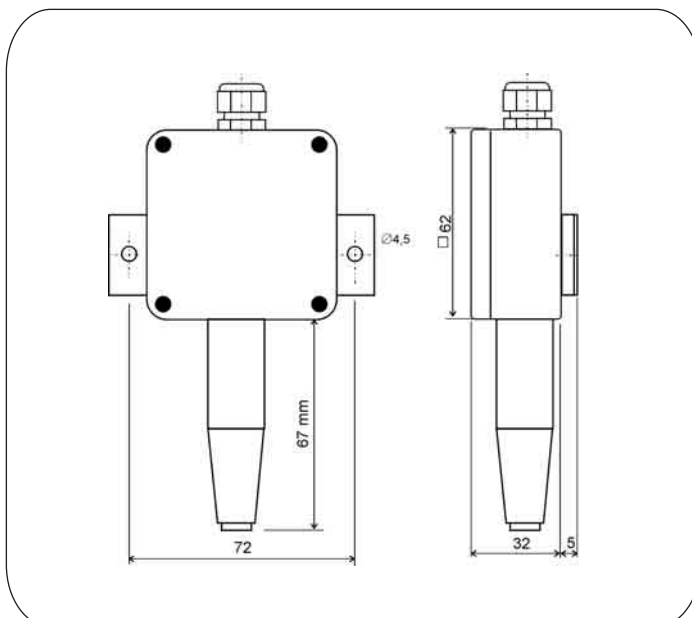


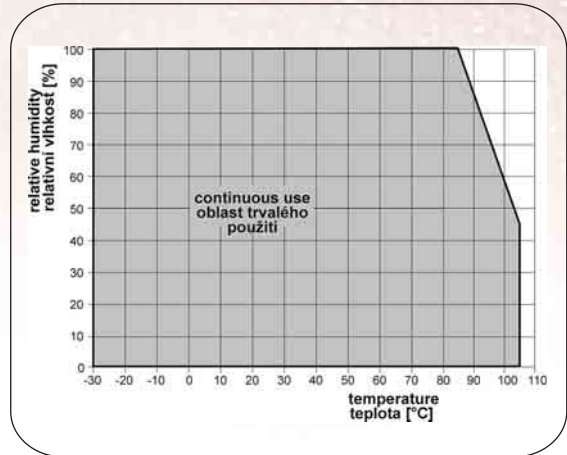
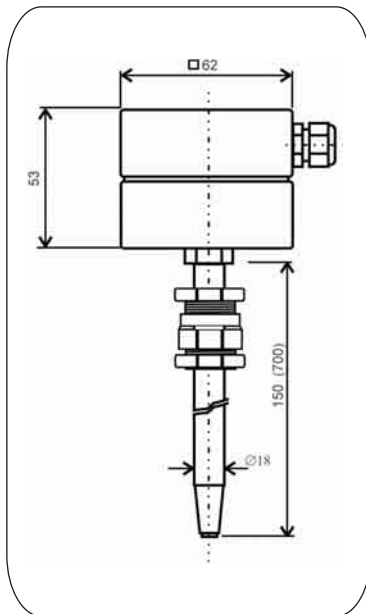
Figure:  
HG421.65  
NH421.65  
HG010.65



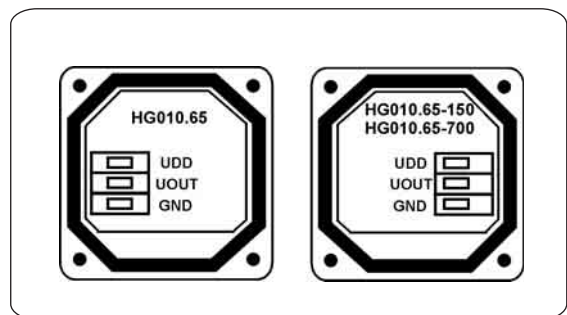
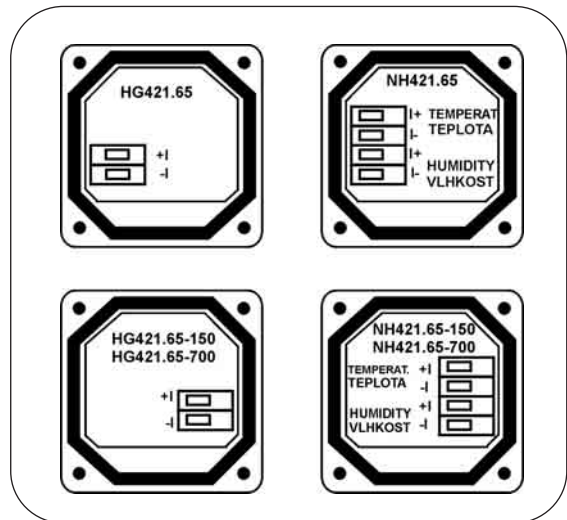
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Figure:  
HG421.65-150  
NH421.65-150  
HG010.65-150



WORKING RANGE



**INTERCONNECTION TERMINALS OF CURRENT OUTPUT TRANSMITTERS:**

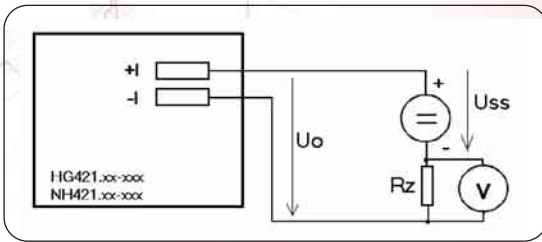
terminal +I current loop output 4-20mA, supply voltage positive pole (typically +24Vdc)  
terminal -I ground (GND), supply voltage negative pole

**INTERCONNECTION TERMINALS OF VOLTAGE OUTPUT TRANSMITTERS:**

terminal UDD supply voltage positive pole (typically +24Vdc)  
terminal UOUT output voltage positive pole 0-10V  
terminal GND ground (GND), supply voltage negative pole, output voltage negative pole

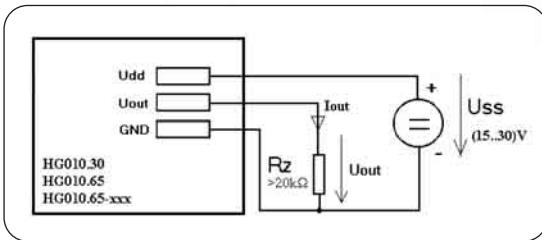


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## Typical application circuitry of current output transmitters

Minimum voltage of power supply  
 Uss for proper operation:  $U_{ss \min} > U_o \min + I_{max} * R_z$ ,  
 where  $U_o \min = 9V$   $I_{max} \dots$  approximately 20mA  
 $R_z \dots$  sensing resistor (shunt)



## Typical application circuitry of voltage output transmitters

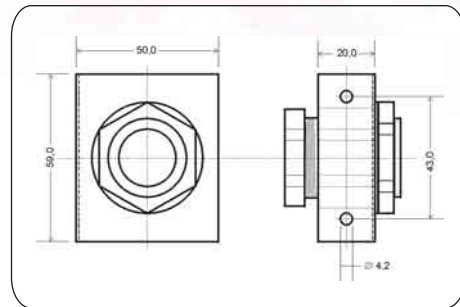


Figure: Flange PP90

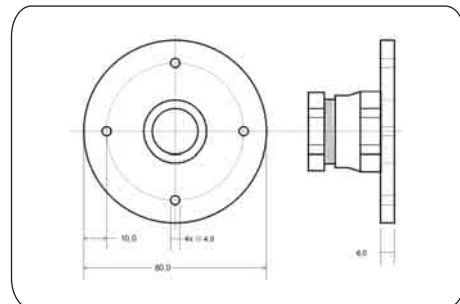


Figure: Flange PP4

**INCLUDED ACCESSORY:** calibration certificate from the manufacturer; duct mount and bar type transmitters have included a gland for direct fixing to a 29mm diameter hole.

### OPTIONAL ACCESSORY:

- **F0000** - spare air filter from sintered bronze
- **PP4** - flat circular flange for duct mount and bar type transmitters installation, see figure.
- **PP90** - right-angled stainless steel flange for duct mount and bar type transmitters, see figure.
- **F5100** - spare plastic cover for indoor use in clean environment

Transmitters are directly compatible with sixteen channel data loggers Comet MS2+, MS3+, MS4+.



Cover F5100

**WARRANTY: two years**

### ACCESSORY FOR HUMIDITY CALIBRATION AND ADJUSTMENT BY THE USER:

- **MD046** - vessel for humidity calibration and adjustment
- **HM023** - set of 5 humidity standards 10% RH with 5 application pads
- **HM024** - set of 5 humidity standards 80% RH with 5 application pads
- **CAL420** - adapter for humidity adjustment

