Humidity/Temperature Transducers
DKRF670 Industrial Series

DKRF670 Series

Capacitive CMOSens Technology

The DKRF670 Transdurcers feature the newest sensor technology and provide the fitting solution to a multitude of measurement problems which require high accuracy, fast response times and reliability.

The devices are highly resitant to dust and most chemicals. They are used in the process control of the pharmaceutical, food and automotive industries as well as in research laboratories.

The capacitive humidity sensor offers a very high accuracy of up to ±1.8% RH and the accuracy regarding temperature is ±0.1 K for a considerable scope.

Additional Temperature Probe

Oftentimes measurements away from the sensing head may be required. For this case the models DKRF671 and DKRF673 can be equipped with an additional external temperature probe. Probe DS-G lets you take measurements of the medium temperature and probe EU-G measures surface temperature.

Flexible Output Signals

Three analogue output signals are available for a user-defined combination of the measured variables (relative humidity, temperature, absolute humidity, mixing ratio, dew point).

Every device comes with a USB port (RS232 and RS485 optionally available) for downloading the data, configuring analogue signals 0..1V, 0..5V, 0..10V as well as 4..20mA three-wire and specifying the measurement range.
Besides the analogue outputs readings can be donwloaded using control commands.

Robust Housing

The transducer's electronic circuits are integrated in a robust aluminium housing that is protected against dust and splash water according to protection class IP65.

High Humidity Applications

If bedewing frequently occurs during measurements it is advised to use the DKRF676. It incorporates an integrated sensor heating, constantly keeping the sensor above condensation point.

An additional external temperature probe ensures the calculation of not only the dew point but also the relative humidity value.

Features

Features
Robust sensor head
Designed for industrial applications
High accuracy for both temperature and humidity measurements
Calculated variables
Up to 120°C air temperature
USB interface
Three analogue output signals - user-defined scaling and programming
Fast response time (4 seconds)
Robust aluminium housing
Calibration certificate included in delivery

Models
DKRF670 Industrial Series

DKRF671
Transducer for wall mounting
Used in clean rooms, production halls,
greenhouses etc.
Range: -40...+60°C, 0...100% RH
Protection class: IP65

DKRF673
Transducer for direct process integration with a flexible
sensor cable
Range: -40...+120°C, 0...100% RH
Pressure resistant probe up to 2 bar
Flexible sensor cables 2m, 5m, 10m or custom-made
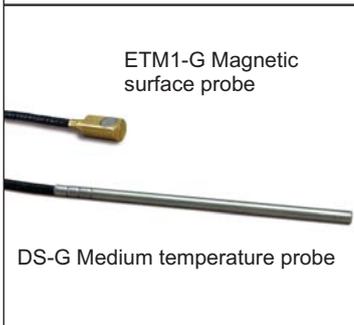length up to 100m, protection class IP65

DKRF676
Transducer for high humidity applications. Sensor heats
up subject to the ambient humidity keeping it above
condensation point.
Range: -40...+120°C, 0...100% RH
2 flexible sensor cables up to 100m

Option: Digital Display
The devices can be delivered with an optional LCD with
blue backlight. It displays the current values and their
respective units.

Additional Temperature Probe
DKRF670 Series transducers can be equipped with an
additional temperature probe. With the DKRF676 it is
required for correct air temperature and relative humidity
measurements compensating for the heated measuring
head. For other models it can be used as an additional
external probe for temperature measurements.
The DS-G probe is intended for meadium temperature
(even in liquids) while the ETM1-G magnetic surface
probe is designed for surface temperature.
Both probes have a measuring range of -40...+240°C.

ETM1-G Magnetic
surface probe

DS-G Medium temperature probe

Accessories
DKRF670 Industrial Series
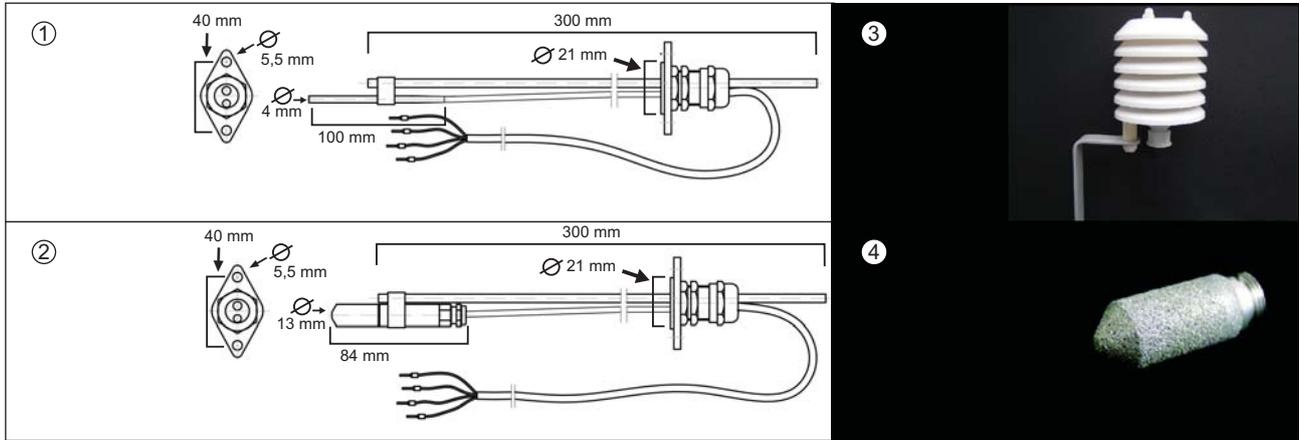
① + ②

Flange for 673 and 676:
Mounting flange (l=300mm) for installation in ducts or pipes

③

Radiation/Rain Protector TR351
d=77 mm, h=108 mm (optional)

④

S-Filter 600:
Sinter filter for DKRF67x (included)

Order Code

The following order code applies to the DKRF670er Series			
	O1 = Option1	STD	= Temperature (-40...+120°C)
		ABS	= Absolute humidity (0...30g/m³)
		TP	= Dew point(-5...+60 °C)
DKRF671 DKRF671-AA-O1-O2-O3-FT-XX-AL-RS		WB	= Wet-bulb temperature (-40...80°C)
DKRF673 DKRF673-AA-KL-O1-O2-O3-FT-XX-AL-RS		X	= Mixing ratio (0...30g/kg)
DKRF676 DKRF676-AA-KL-O1-O2-O3-XX-AL-RS	O2 = Option2	STD	= Relative humidity (0..100%RH)
(The additional temperature probe uses the same cable length as the humidity probe)		ABS	= Absolute humidity (0...30g/m³)
		TP	= Dew point (-5...+60 °C)
		WB	= Wet-bulb temperature (-40...80°C)
		X	= Mixing ratio (0...30g/kg)
AA =Analogue Output - 01 = 0...1VDC	O3 = Option3	STD	= without additional output
- 05 = 0...5VDC		T	= Temperature (-40...+120°C)
- 10 = 0...10VDC		ABS	= Absolute humidity (0...30g/m³)
- 020 = 0...20mA		TP	= Dew point (-5...+60 °C)
- 420D = 4...20mA three-wire		WB	= Wet-bulb temperature (-40...80°C)
		X	= Mixing ratio (0...30g/kg)
KL = Cable Length - 2000 = 2m cable	FT = Temp. probe	STD	= without additional temp. probe
- 5000 = 5m cable		DS2	= DS-G-2000 Process / 2m cable
- 10000 = 10m cable		DS5	= DS-G-5000 Process / 5m cable
(Other sizes on request)		DS10	= DS-G-10000 Process / 10m cable
		ETM 2	= ETM1-G-2000 Surface / 2m
If you require a different measuring range the device can be configured exempt from charges ex works or you can manually reconfigure the device via USB. Please specify the requested measuring range when placing your oder.		ETM 5	= ETM1-G-5000 Surface / 5m
		ETM10	= ETM1-G-10000 Surface / 10m
	XX = Display	MD	= with LCD
		OD	= without LCD
	AL=Alarm	0	= without alarm output
		1	= Alarm relay (60V/0,5A)
	RS= additional Interface	STD	= without additional interface
All DKRF670 transducers are fitted with a USB port.		0	= RS232 interface
		1	= RS485 interface

Specifications DKRF670 Industrial Series

## Relative Humidity

Sensor type: capacitive CMOSens
                        sensor element
Measuring range: 0..100% RH
Response time: 4 seconds without filter,
                        15 seconds with filter
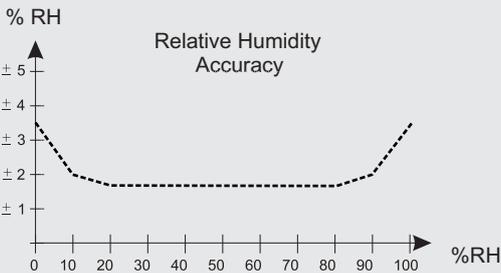
Temperature

Sensor type: High precision platinum
                        measuring resistor
Measuring range: DKRF671: -40... + 60°C
                        DKRF673, 676: -40... +120°C

External temp. probe: DS-G Sensor: -40...+240°C
                        EU-G Sensor: -40...+240°C

Response time: ca. T63/T90: 18 sec/ 100 sec,
                        without filter,
                        with light air movement,
                        step: 27 --> 37°C

Storage temperature: DKRF670 Series: -40... +60°C
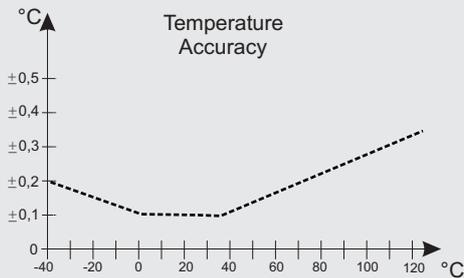
Outputs

3x Analogue output: 0...1V, 0...5V, 0...10V,
                        0..20mA, 4..20mA (three-wire)

USB port: Configuration / programming,
(Micro-USB Type B)   data readout e. g. with
                        PC or notebook etc.

RS485 port: DC isolated RS485
                        interface, optional
RS232 port: Through interface, optional

Alarm output   Optional, Alarm relay (60V/0,5A),
   potential-free

Calculated Variables

The calculated variables absolute humidity, dew point, mixing ratio and wet-bulb temperature are provided by the interface by default and can also be displayed through the analogue outputs.

Certificate of Calibration: included in delivery

General Technical Data

Dimensions: see figure

Standard probe head DKRF673/676 for humidity and temperature

Additional temperature probe DS-G
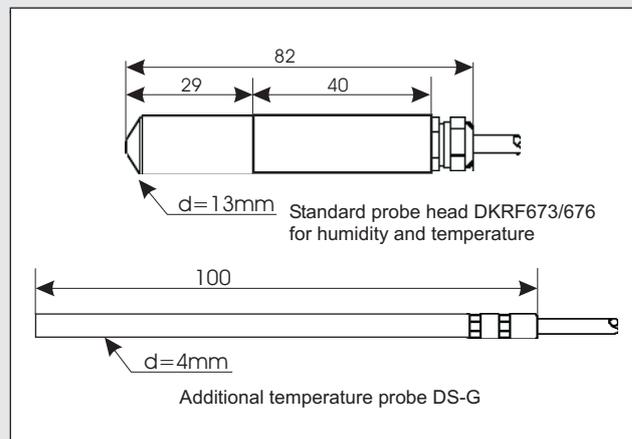
Probe head: Stainless steel 1.4571

Current consumption and supply voltage:
Output: 0..1V   6...35VDC, 2.5 mA
Output: 0..5V   6...35VDC, 2.5mA
Output: 0..10V   11...35VDC, 3.0 mA
Output: 4..20mA   11...35VDC, 22mA/Output

Max load: max. 500 Ohm

Load for
voltage output: 0..1V --> min. 2kOhm
                        0..5V/0..10V --> min. 10kOhm

Dimensions: 160 x 90 x 60mm

Protection class: IP65 (NEMA 4)

Cable gland: 2x PG7 for output signal,
                        1x PG7 for sensor cable

Cable cross section: 0.25...1.5mm²