Humidity/Temperature Transducers

DKRF670 Industrial Series

Capacitive CMOSens Technology
The DKRF670 Transducers feature the newest sensor technology and provide fitting solutions to a multitude of measurement problems which require high accuracy, fast response times and reliability.

The devices are highly resistant 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 purpose 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 analog output signals are available for a user-defined combination of 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..1 V, 0..5 V, 0..10 V as well as 4..20 mA three-wire, and specifying the measurement range.
Besides the analog outputs readings can be donwloaded using control commands.

Robust Housing
The transducer's electronic circuits are integrated in a robust aluminum 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

Robust sensor head, pressure-resistant up to 2 bar
Designed for industrial applications
High accuracy for both temperature and humidity measurements
Calculated variables
Up to 120°C air temperature
USB interface
Three analog output signals - user-configurable scaling and programming
Fast response time (4 seconds)
Robust aluminum housing, IP65 protected
Calibration certificate included in delivery

Alarm function with mobeye® - CM Guard

With the universal alarm CM4000, which you can hook up to the DKRF670 without a problem, you can get an alarm notification on your phone as either push-message, SMS and/or email. For further information visit our homepage or refer to the separate spec sheet.

Models

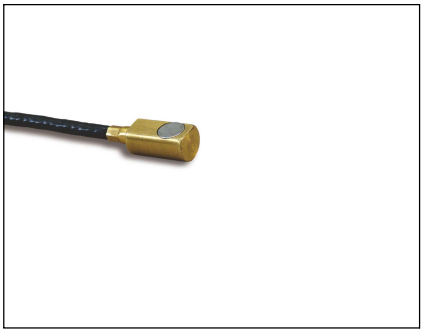
DKRF670 Industrial Series

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

DKRF673
- ► Transducer for direct process integration
- ► Range: -40...+120°C, 0...100% RH
- ► Flexible sensor cable up to 100m

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



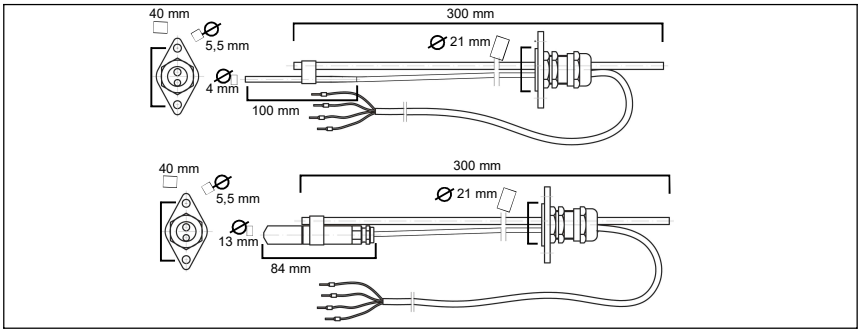
Additional Temperature Probe ETM1-G Magnetic surface probe
- ► The ETM1-G magnetic surface probe is designed for surface temperature.
- ► Range: -40...+240°C

Additional Temperature Probe DS-G-Medium temperature probe
- ► The DS-G probe is intended for medium temperature (even in liquids)
- ► Range: -40...+240°C

Accessories

DKRF670 Industrial Series

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



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

Order Code & Technical Drawings DKRF670 Industrial Series

Order Code

DKRF671	**AA**	**O1**	**O2**	**O3**	**FT**	**XX**	**AL**	**RS**
DKRF673	**AA**	**KL**	**O1**	**O2**	**O3**	**FT**	**XX**	**AL**	**RS**
DKRF676	**AA**	**KL**	**O1**	**O2**	**O3**	**XX**	**AL**	**RS**

(The additional temperature probe uses the same cable length as the humidity probe)

Please put together your order code according to your needs:

AA = Analog Output

01	= 0...1 VDC
05	= 0...5 VDC
10	= 0...10 VDC
020	= 0...20 mA
420D	= 4...20 mA three-wire

KL = Cable Length

2000	= 2m cable
5000	= 5m cable
10000	= 10m cable
	(other sizes on request)

O1 = Option1

STD	= Temperature (-40...+120°C)
ABS	= Absolute humidity (0...30 g/m³)
TP	= Dew point (-5...+60°C)
WB	= Wet-bulb temperature (-40...80°C)
X	= Mixing ratio (0...30 g/kg)

O2 = Option2

STD	= Relative humidity (0..100% RH)
ABS	= Absolute humidity (0...30 g/m³)
TP	= Dew point (-5...+60°C)
WB	= Wet-bulb temperature (-40...80°C)
X	= Mixing ratio (0...30 g/kg)

O3 = Option3

STD	= without additional output
T	= Temperature (-40...+120°C)
ABS	= Absolute humidity (0...30 g/m³)
TP	= Dew point (-5...+60°C)
WB	= Wet-bulb temperature (-40...80°C)
X	= Mixing ratio (0...30 g/kg)

FT = Temp.-probe

STD	= without additional temp. probe
DS2	= DS-G-2000 Process / 2 m cable
DS5	= DS-G-5000 Process / 5 m cable
DS10	= DS-G-10000 Process / 10 m cable
ETM2	= ETM1-G-2000 Surface / 2 m
ETM5	= ETM1-G-5000 Surface / 5 m
ETM10	= ETM1-G-10000 Surface / 10 m

XX = Display

MD	= with LCD
OD	= without LCD

AL = Alarm

0	= without alarm output
1	= alarm relay (60V/0,5A)

RS = additional Interface

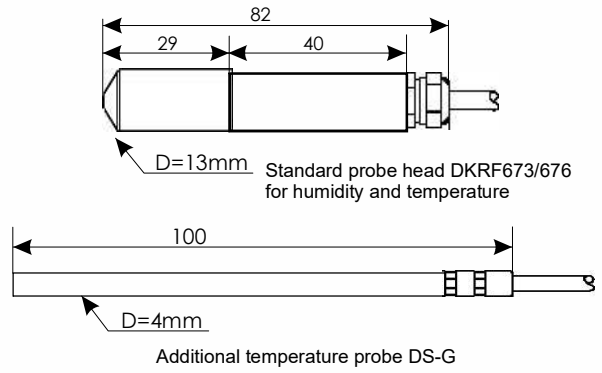
STD	= without additional interface
0	= RS232 interface
1	= RS485 interface

All DKRF670 transducers are fitted with a USB port

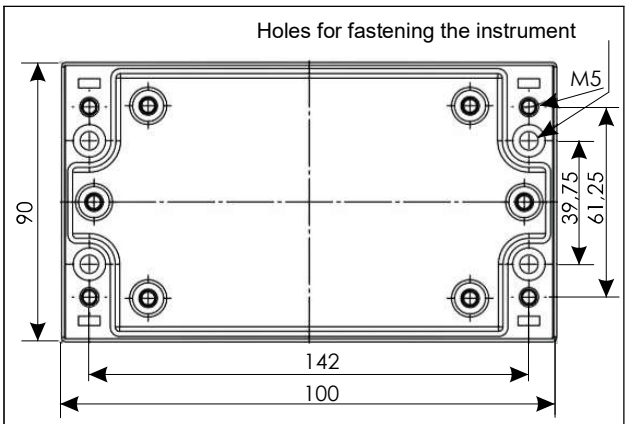
Attention!

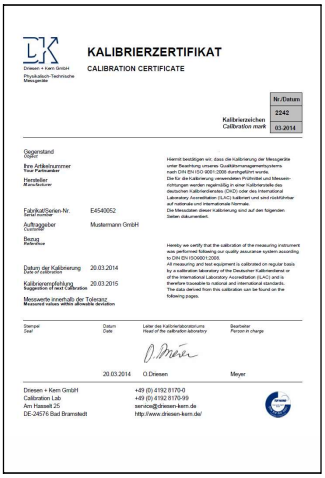
If you require a measurement range differing from our standard options, it can be calibrated at factory free of charge or configured with the help of the USB cable on-site. Please specify the desired measurement range in your order.

Technical Drawing Probe Head / Temperature Probe



Technical Drawing Transducer-housing





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CALIBRATION CERTIFICATE

Calibration Certificate included in Delivery

A DAkkS traceable calibration certificate with three measuring points for relative humidity as well as one measuring point at 25°C ambient temperature is included in delivery by default.

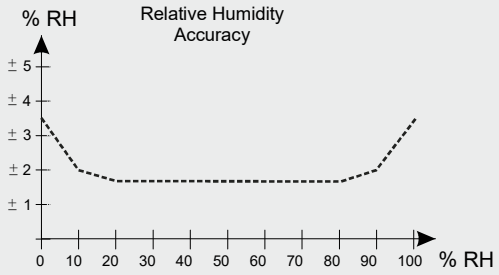
Alternatively, we offer DAkkS traceable certificates with more than one measuring point or particular temperature ranges.

Should you be in need of a DAkkS certificate contact us!

Specifications DKRF670 Industrial Series

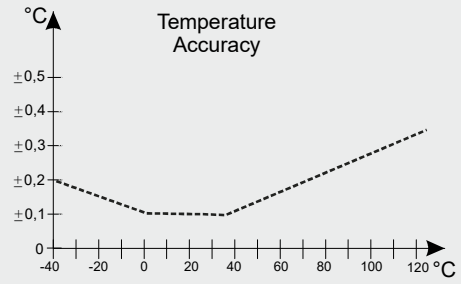
Relative Humidity

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...1 V, 0...5 V, 0...10 V, 0...20 mA, 4..20 mA (three-wire)
USB port: (Micro-USB Type B)	Configuration / programming, data readout e. g. with PC or notebook etc.
RS485 port:	Galvanically isolated RS485 interface, optional
RS232 port:	Through interface, optional
Alarm output	Optional, Alarm relay (60 V/0.5 A), 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 analog outputs.

Certificate of Calibration: included in delivery

General Technical Data

Dimensions: see figure previous page

Probe head:	Stainless steel 1.4571

Current consumption and supply voltage:

Output 0..1 V:	6...35 VDC, 15 mA
Output 0..5 V:	6...35 VDC, 15 mA
Output 0..10 V:	11...35 VDC, 15 mA
Output 0..20 mA:	11...35 VDC, 15 mA + 20 mA/Output
Optional Display	6...35 VDC, 60 mA
Max load:	max. 500 Ohm
Load for voltage output:	0..1 V --> min. 2kOhm 0..5 V/0..10 V --> min. 10kOhm
Dimensions:	160 x 90 x 60 mm
Protection class:	IP65 (NEMA 4)
Cable gland:	2x PG7 for output signal, 1x PG7 for sensor cable
Cable cross section:	0.25...1.5 mm²

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