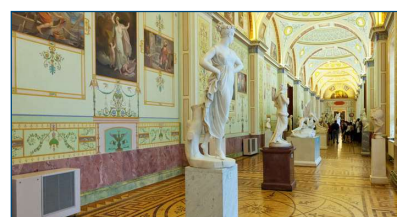
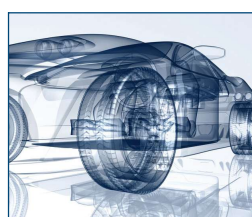


Humidity & Temperature

Product Linie

**Developed &
manufactured
in Germany**



“Thanks to the variety of our products we can offer you the best solution for your humidity and temperature measurements.”

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Humidity / Temperature Probes

HumiProbe Series with Analog and Digital Output



HumiProbe - Precision Made to Measure!

Our new HumiProbe DKRF5xx Series offers high accuracy (up to 1.5% RH and 0.1°C) and excellent longevity at the same time. Its exchangeable and calibratable sensor element helps minimize maintenance related downtimes and conserves your budget.

Different Models for Various Applications

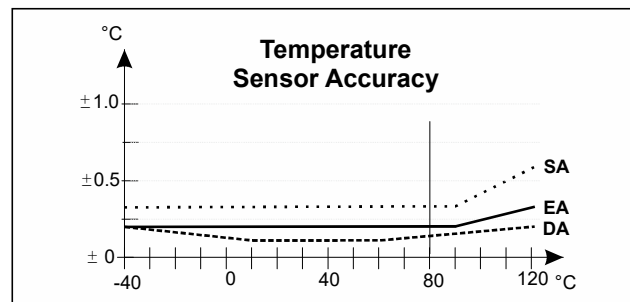
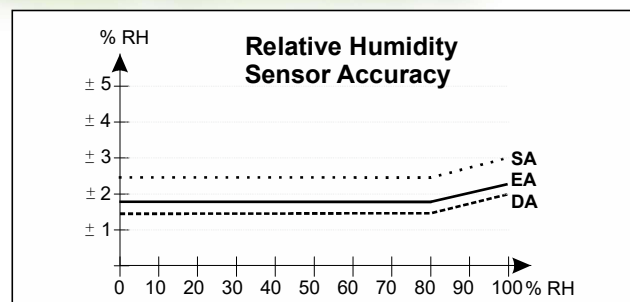
We offer different models each with individual features, e. g. a model for high-pressure applications, a miniaturized model for confined spaces and applications up to 120°C.

Analog and Digital Signals

All models come with a RS485 interface in addition to linear analog outputs. Through this interface the analog output can be configured and readings can be fetched. Digital interfaces RS232 and USB are optionally available. A variety of calculated variables is provided by default, and can also be assigned to the analogue outputs ex works.

Emphasizing Flexibility

Retrieve live data through, configure output signals, adjust scaling and calibrate the sensor - all through the digital interface. The default digital protocol is Modbus-RTU which can be changed to ASCII by the user or delivered with ASCII ex works on request.



SA = Standard Accuracy, EA = Enhanced Accuracy, with ISO9001 Calibration, DA = Highest Accuracy, with DAkkS Certificate

Applications:

- HVAC
- Weather stations
- Data loggers
- Automation processes / SPS
- Environmental chambers
- Instruments
- Test benches

Features

Cost-efficient sensor for relative humidity and temperature as well as calculated variables
Exchangeable high-precision sensor
6 models for a broad range of applications
2 analog outputs (0...1 V, 0...2.5 V, 0...5 V, 0...10 V)
RS485-Modbus / ASCII, RS232, USB interface
Wide temperature range (-40...+120°C)
Calibration options: ISO9001 and ISO17025 (DAkkS)
Calculated variables: dew point, wet-bulb temperature, absolute humidity, mixing ratio, water vapour partial pressure
Configurable, scaleable and calibratable by the user
Low power consumption → ideal for data loggers!

Modelle

DKRF500-Serie



DKRF500

- Standard model in tube design
- Suitable for a wide range of applications
- Robust stainless steel housing
- Both sensor and filter are exchangeable



DKRF505

- Detached probe head for enhanced temperature range
- Measurements in very tight spaces
- Both sensor and filter are exchangeable



DKRF505/XXS

- Detached and miniaturized probe head
- For the most confined spaces or smallest of openings



DKRF510

- Rod type probe for measurements in bulk goods or concrete/screed
- Handle for comfortable use with hand-held instruments or data loggers



DKRF515

- Pressure-resistant model, suitable for use outdoors
- Sensor and sintered filter exchangeable
- Overpressure protection up to 2 bar



DKRF517

- High-pressure model with screw-in thread for direct process integration
- G1/2" or M8 threads - other sizes on request
- Pressure-resistant up to 30 bar

Models	DKRF500	DKRF505	DKRF505/ XXS	DKRF510	DKRF515	DKRF517
Exchangeable sensor	✓	✓	✗	✗	✓	✗
Exchangeable filter	✓	✓	✗	✗	✓	✗
Probe head Tmax	+80°C	+120°C			+80°C	+80°C
Probe body Tmax		+80°C				
Probe head length	101 mm	65 mm	20 mm	200 mm	122 mm	29 mm
Probe body length		105 mm		100 mm		53 mm
Ø Probe head	8 mm	8 mm	4 mm		13 mm	4 mm
Ø Probe body		8 mm	8 mm			13 mm
Pressure-resistant	✗	✗	✗	✗	0 to 2 bar	0 to 30 bar

Calibration & Accessories

HumiProbe Series



High-precision Sensor
The sensor is user-exchangeable. Simply remove the protective cap and the sensor part and insert the replacement as is shown on the left.

Calibration Concept

We recommend calibrating your HumiProbes every 12 months. Calibration can either be done on site or you can send in your probes to our calibration laboratory.

It can be even **easier, cheaper** and much **more convenient** with models **DKRF500**, **DKRF505** and **DKRF515** thanks to user-exchangeable sensor elements: Purchase a fully calibrated replacement sensor which can be put into operation with a single command and which immediately complies with specifications.

Replacing the sensor is also an option for models with enhanced or highest accuracy (EA/DA). The required correction values are listed on the included certificate.

Exchanging the sensor element helps prevent down times and renders your measurement almost interruption free.

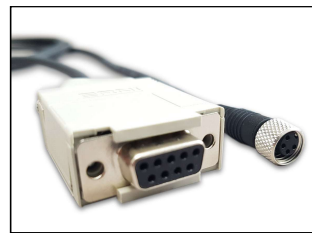


Available Certificates

ISO17025 Calibration
(Option DA, $\pm 1.5\%$ RH / $\pm 0.1..0.2^{\circ}\text{C}^*$ (with DAkKS Certificate)

ISO9001 Calibration
(Option EA, $\pm 1.8\%$ rF / $\pm 0.2^{\circ}\text{C}^*$

* = See page 1 or specifications for more details regarding the sensor accuracy.



RS232 Connector

D-sub, 9 pin connector, with 2 m or 5 m connection cable or custom length



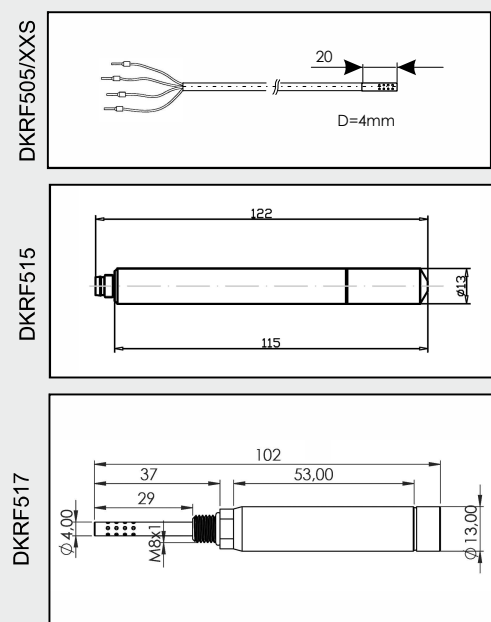
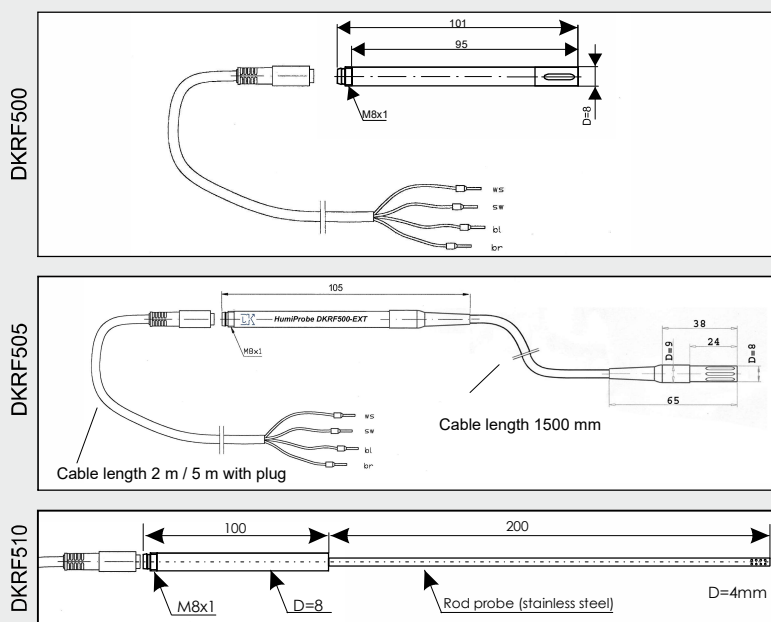
USB Cable

(Type A, 2 m, 5 m or custom length)

Note:

DKRF500 comes with RS485 Modbus by default. Protocols can be changed to RS485-ASCII by the user or chosen upon purchasing.

Engineering Drawings



Specifications

HumiProbe-Serie

Sensor Accuracy

		SA Standard Accuracy	EA Enhanced Accuracy	DA Highest Accuracy
RH	0...80%	±2.5%	±1.8%	±1.5%
	beyond	±3.0%	±2.3%	±2.0%
T	-40...+90°C	±0.3°C	±0.2°C	±0.2°C
	-20...+60°C	±0.3°C	±0.2°C	±0.1°C
	beyond	±0.6°C	±0.3°C	±0.2°C

Humidity Range: 0...100% RH (noncondensing)
(all models)

Temperature Range: -40...+80°C

Models DKRF500, DKRF515, DKRF517

Temperature Range: -40...+120°C

Models DKRF505, DKRF505/XXS, DKRF510

Calculated Variables

Dew point, mixing ratio, absolute humidity, wet-bulb temperature, optionally water vapour partial pressure¹.

Parameter and its corresponding required range can be configured and scaled using the digital interface.

Analog outputs: 0...1 V, 0...2.5 V, 0...5 V, 0...10 V
available, user-configurable

Digital interface: RS485/Modbus (standard)²
RS232 and USB optional

Housing: Stainless steel

Connection cable: Pluggable, PVC, Tmax = 80°C
2 m, 5 m, 10 m, 15 m

Cable assembly: Open ends (connectors optionally
available)
Other cable lengths upon request

Sensor cables

DKRF505 / DKRF505/XXS/G: 1500 mm, PFA, Tmax = 120°C

DKRF505/XXS/V: 1500 mm, PVC, Tmax = 80°C

Power supply:

Output: 0...1/2.5/5 V 9.0...30 VDC³, 800 µA

Output: 0...10 V 12...30 VDC, 1.5 mA

Settling time: 80 msec

Output load: > 2 kOhm

Refresh (output) 1x per second.

Response time (T63): 8 s (RH, without filter)

30 s (RH, with filter)

Accessories (optional)

Flansch400: Mounting flange (L = 300 mm) for
installation in ducts or pipes

WM400: Wall mount, stainless steel bracket

Replacement parts

CAP500: Protective cap (stainless steel) for
DKRF500, DKRF505

FILTER500 Filter for DKRF500, D = 7.8 mm

SENSOR500SA: Replacement sensor for DKRF500,
DKRF505, DKRF515, pluggable

SENSOR500EA/DA: Replacement sensor for the same models
but with calibration certificate⁴

FILTER515: Sintered filter for DKRF515

Order Code

TYP A DP AO CH1 CH2 CL CO
DKRF - - - - - - -

TYP = Model Number

500 = DKRF500 Standard probe
505 = Removed probe, up to 120°C
505/XXS/V = Miniaturized probe, 1.5 m/80°C
505/XXS/G = Miniaturized probe, 1.5 m/120°C
510 = Rod type probe
515 = Robust probe for up to 2 bar
517/M8 = Screw-in probe, 30 bar,
M8 male thread
517/1/2 = Screw-in probe, 30 bar,
G½" male thread

A = Accuracy

SA = Standard accuracy
EA = Enhanced accuracy, includes
ISO9001 calibration certificate
DA = Highest accuracy, incl. DAKKS
certificate (ISO17025 calibration)

DP = Digital Protocol

MOD = Modbus
ASC = ASCII
XXX = Custom

AO = Analogue Output

0 = Without analog signal
01 = 0...1 VDC
025 = 0...2.5 VDC
05 = 0...5 VDC
10 = 0...10 VDC

CH1 = Channel 1 Configuration

STD = Temperature (depending on model
-40...+80°C or -40...+120°C)
ABS = Absolute humidity (0...30 g/m³)
TP = Dew point (-5...+60°C)
WB = Wet-bulb temperature (depending on
model -40...+80°C or -40...+120°C)
PV = Water vapour partial pressure
X = Mixing ratio (0...30 g/kg)
XXX = custom

CH2 = Channel 2 Configuration

STD = Relative humidity (0...100% RH)
ABS = Absolute humidity (0...30 g/m³)
TP = Dew point (-5...+60°C)
WB = Wet-bulb temperature (depending on
model -40...+80°C or -40...+120°C)
PV = Water vapour partial pressure
X = Mixing ratio (0...30 g/kg)
XXX = Custom

CL = Cable length

0 = Without connection cable
2000 = 2 m
5000 = 5 m
10000 = 10 m
15000 = 15 m
20000 = 20 m
XXX = Custom

CO = Connector

0 = Open ends
232 = RS232 Interface with 9 pin
D-sub connector
USB = USB Interface with
USB connector Type A
XXX = With custom connector

Footnotes:

¹ Standard for MODBUS probes, optional for ASCII models.

² A RS485 termination resistor can be enabled by commands.

³ Down to 3.0V technically feasible upon request

⁴ Traceable to national / international standards.
DAKKS certificate optionally available.

High-Precision Humidity & Temperature Transmitters

DKRF670 Industrial Series



**DKRF670
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 $\pm 1.8\%$ RH and the accuracy regarding temperature is ± 0.1 K for a considerable scope.

Additional Temperature Probe

Oftentimes measurements separate 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 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 analog signals 0...1 V, 0...5 V, 0...10 V as well as 4...20mA three-wire, and specifying the measurement range. Besides, the analog outputs readings can be downloaded 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 100 m



DKRF676

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



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

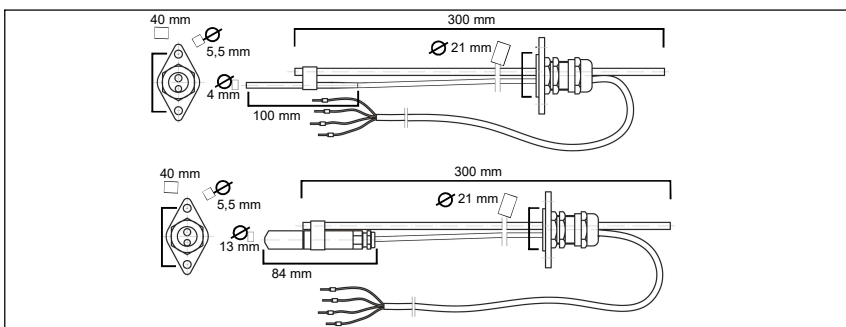
Accessories

DKRF670 Industrial Series



Radiation/Rain Protector TR351

- d=77 mm, h=108 mm (optional)



Flange for 673 and 676

- Mounting flange (l=300 mm) for installation in ducts or pipes

Order Code & Technical Drawings DKRF670 Industrial Series

Order Code

DKRF671	AA	O1	O2	O3	FT	XX	AL	RS	
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
DKRF673	AA	KL	O1	O2	O3	FT	XX	AL	RS
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DKRF676	AA	KL	O1	O2	O3	XX	AL	RS	
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

(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 cable
ETM5	= ETM1-G-5000 Surface / 5 m cable
ETM10	= ETM1-G-10000 Surface / 10 m cable

XX = Display

MD	= with LCD
OD	= without LCD

AL = Alarm

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

RS = additional Interface

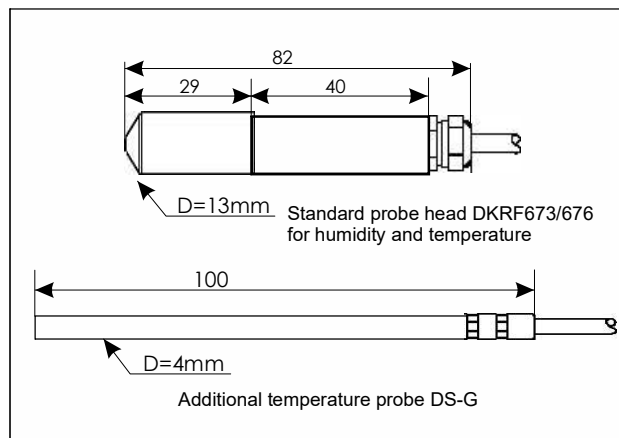
STD	= without additional interface
0	= RS232 interface
1	= RS485 interface

All DKRF670 transducers are fitted with a USB port

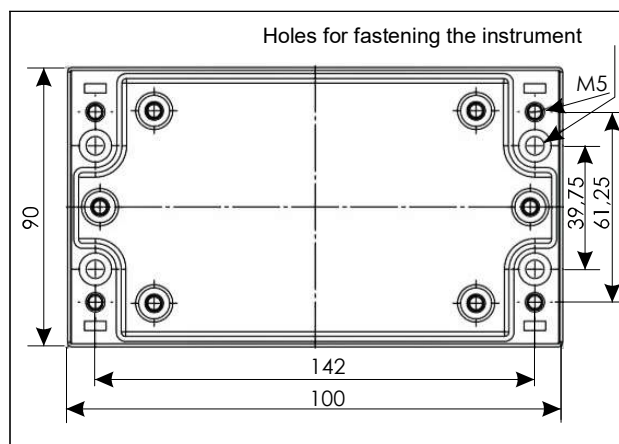
Attention!

If you require a measurement range differing from our standard options, it can be calibrated set 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



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.

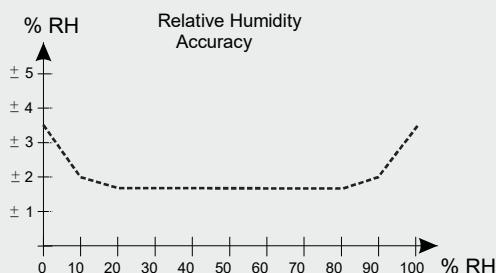
Alternatively, we offer DAkkS traceable certificates with more than one measuring point or particular temperature ranges.

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



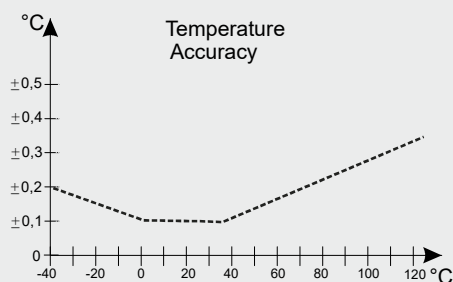
Temperature

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 Analog 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 analogue outputs.

Certificate of Calibration: included in delivery

General Technical Data

Dimensions: see figures on previous page

Probe head: Stainless steel 1.4571

Current consumption and supply voltage:

Supply (0...1 V): 6...35 VDC, 15 mA

Supply (0...5 V): 6...35 VDC, 15 mA

Supply (0...10 V): 11...35 VDC, 15 mA

Supply (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. 2 kOhm
 0...5 V / 0...10 V → min. 10 kOhm

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

Industrial Humidity & Temperature Transmitters

DKRF470-Series for Demanding Applications



Designed for Demanding Applications

The DKRF470 Series of transducers was designed for demanding measurement applications such as process automation, HVAC in public swimming pools or greenhouses.

Based on the latest capacitive sensor technology the devices provide precise and cost effective solutions to a variety of your measuring tasks.

They are extremely resistant to dust as well as most chemicals and provide high accuracy and reliability ($\pm 1.8\% \text{ RH} / \pm 0.3^\circ \text{C}$).



A traceable Certificate of Calibration (ISO9001) as well as DKD Certificates can be provided.

Pluggable Measuring Head

The sensor head of our DKRF47x Series is exchangeable. It provides a calibrated digital output signal and can be reordered with a Certificate of Calibration.



SK470 exchangeable, calibrated sensor head for DKRF471/472/473 (right).

SK474 exchangeable, calibrated sensor head for DKRF474 (left). DNV inspection document optional.



That is why you don't need to send back your device for recalibration thus avoiding downtimes.

The entire measuring chain can be checked with digital CalSticks.

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.

This makes it perfectly suitable even for applications in wet areas such as public swimming pools, environmental chambers or in the food industry.



Flexible Output Signals

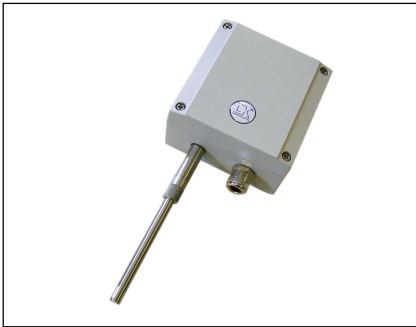
Two analog output signals are available for a user-defined combination of the measured variables (relative humidity, temperature, absolute humidity, mixing ratio, dew point). Analog signals 0...1 V, 0...5 V, 0...10 V as well as 4...20 mA two- or three-wire type are selectable.

Features

Exchangeable digital probe
High accuracy
5 models for various requirements
Two analog outputs allow for a user-configurable combination of measurement variables
Extra fast response time (4 seconds)
LCD optional
Robust aluminum housing, IP65 protected

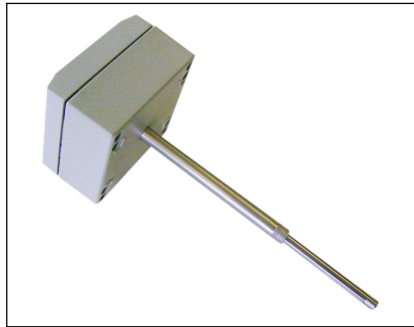
Models

DKRF470-Series



DKRF471

- Transducer for wall mounting
- Suitable for operation in clean rooms, laboratories, greenhouses & museums
- Range: -40...+60°C, 0...100% RH



DKRF472

- Designed for duct installation such as in pipelines, ventilation ducts or environmental chambers
- Range: -40...+80°C, 0...100% RH (on request up to 120°C)



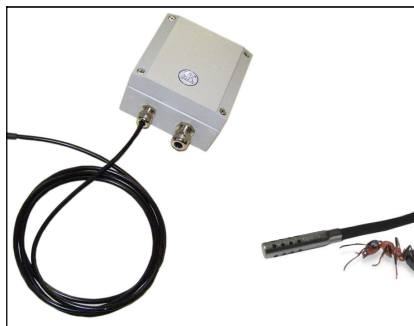
DKRF473

- Transducer for direct process integration e. g. in HVAC applications, environmental chambers, drying plants etc.
- Range: -40...+80°C, 0...100% RH
- Flexible sensor cable up to 100 m



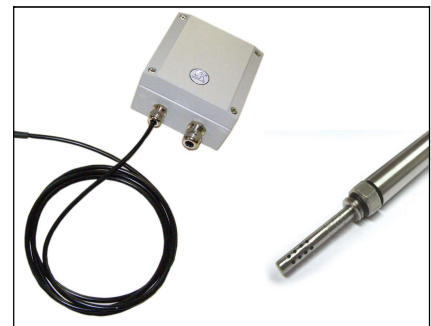
DKRF473-EXT

- For higher temperatures with small measuring head
- LCD-display (d=8 mm / l=40 mm)



DKRF473-EXT-XXS

- Transducer with extra small dimensions (d=4 mm, l=20 mm)



DKRF473-EXT-D

- Pressure-resistant measuring head for up to 30bar with M8 thread (optional G1/2")

For all models: ► Range: -40...+120°C, 0...100% RH ► All models with flexible sensor cable up to 100 m



DKRF474

- For measurements in pressurized environments of up to 100 bar
- Range: -40...+80°C, 0...100% RH
- Flexible sensor cable up to 100m



Digital Display (Optional)

- LCD with blue backlight which displays the current readings and their respective units.

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. Optionally, we also offer a certificate with additional measuring points. Alternatively, we can provide an original DAkkS certificate.



Order Code & Accessories DKRF470-Series

Order Code

DKRF471	A0	CH1	CH2	LCD	
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
DKRF472	A0	CH1	CH2	LCD	MKL
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DKRF473	A0	CL	CH1	CH2	LCD
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DKRF473-EXT	A0	CL	CH1	CH2	LCD
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DKRF473-EXT-XXS	A0	CL	CH1	CH2	LCD
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DKRF473-EXT-D	A0	CL	CH1	CH2	LCD
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DKRF474	A0	CL	CH1	CH2	LCD
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Please put together your order code according to your needs:

A0 = Analog output

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

CL = Cable length

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

CH1 = Channel1

STD	= Channel1 temperature
ABS	= Abs. humidity (0...30 g/m ³)
TP	= Dew point (-5...+60°C)
WB	= Wet-bulb temperature (-40...80°C)

CH2 = Channel2

STD	= Channel2 rel. humidity
ABS	= Abs. humidity (0...30 g/m ³)
TP	= Dew point (-5...+60°C)
WB	= Wet-bulb temperature (-40...80°C)
X	= Mixing ratio (0...30 g/kg)

LCD = Display

MD	= with LCD
OD	= without LCD

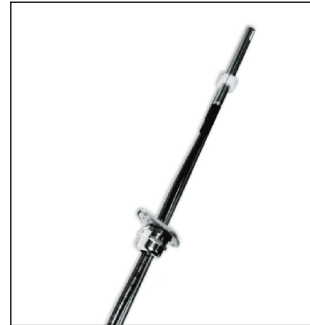
MKL = (only DKRF472)

215	= 215 mm length of probe head
300	= 300 mm length of probe head
500	= 500 mm length of probe head

Calculated and Derived Values

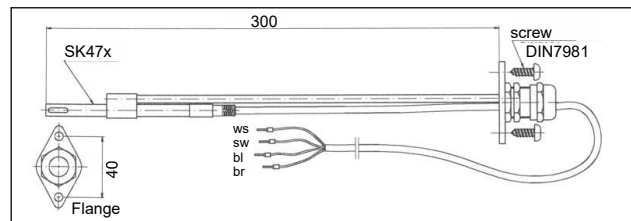
While measuring relative humidity and temperature the probes allow for a simultaneous calculation of other parameters. These are: dewpoint, absolute humidity, wet-bulb temperature and mixing ratio. The variables are provided at the analog output and also shown on the display.

Accessories DKRF470-Series



Flange 400

- Mounting flange (l = 300 mm)
- For installation in ducts/pipes



WM400

- Wall mount for DKRF473 stainless steel angle joint with screw fitting



TR351

Radiation/Rain Protector

- For humidity/temperature transducers d=77 mm, h=108 mm

Alarm function with **mobeye**® - CM Guard

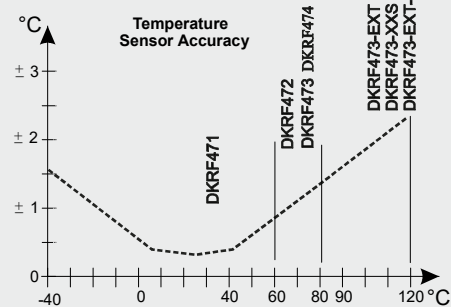
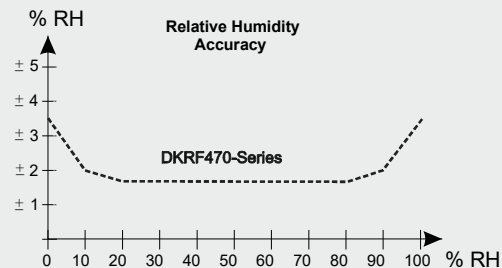
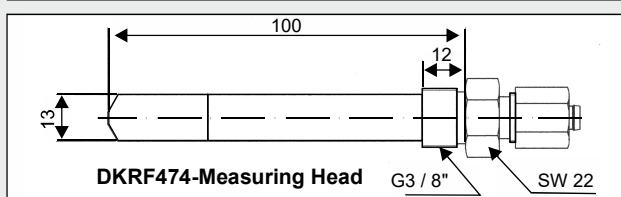
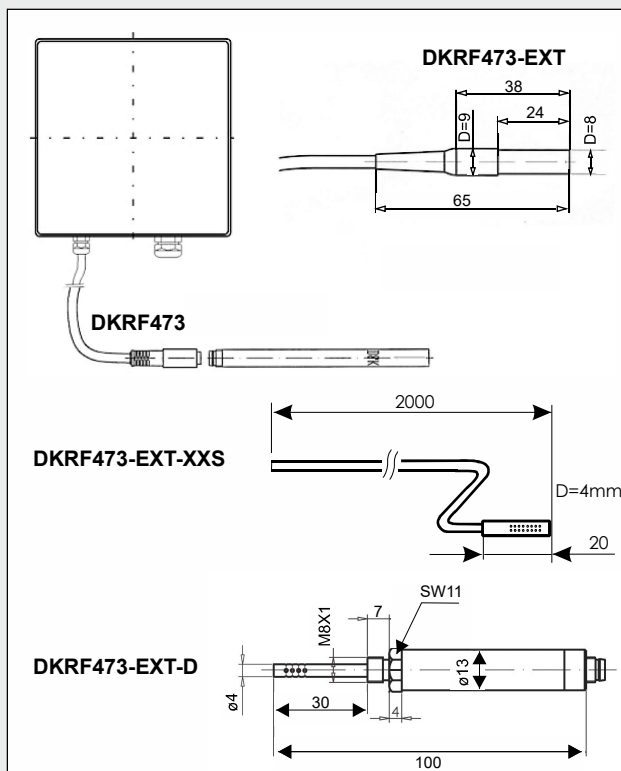
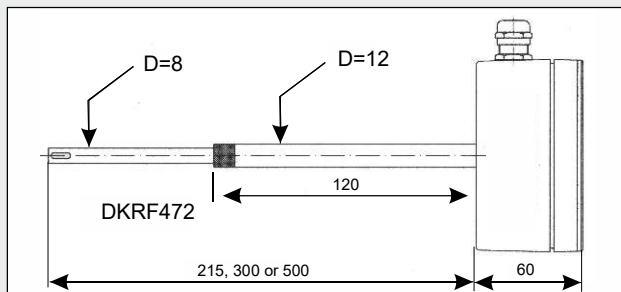
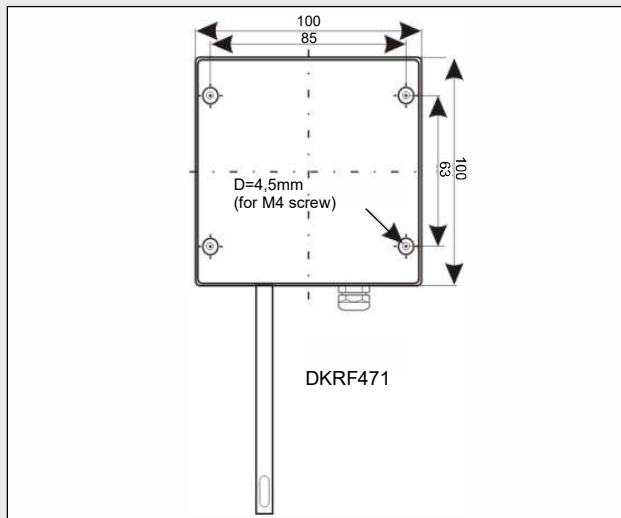
With the universal alarm CM4000, which you can hook up to the DKRF670 without a problem, you can get an alarm notification on your phone as either push-message, SMS and/or email.



For further information visit our homepage or refer to the separate spec sheet.



Specifications DKRF470-Series



Relative Humidity

Sensor type: Capacitive sensor element
 Range: 0..100% RH
 Response time: 4 seconds without filter,
 15 seconds with filter

Temperature

Sensor type: Semi-conductor sensor
 Range: DKRF471: -40... +60°C
 DKRF472, 473, 474: -40... +80°C
 DKRF473-EXT/XXS/EXTD: -40...+120°C
 Storage temp.: DKRF470 Series: -40... +60°C
 Response time: approx. 35 seconds

Outputs

2x Analog output: 0...1 V, 0...5 V, 0...10 V, 0...20 mA,
 4...20 mA (three-wire),
 4...20 mA (two-wire)

Calculated Variables

Absolute humidity, dew point, mixing ratio
 Measurement range: see previous page

General Technical Data

Current consumption and supply voltage:
 Supply (0...1 V): 6...30 VDC or 24 VAC, 1.5 mA
 Supply (0...5 V): 6...30 VDC or 24 VAC, 1.5 mA
 Supply (0...10 V): 12...30 VDC or 24 VAC, 1.9 mA
 Supply (0...20 mA): 12...30 VDC or 24 VAC,
 22 mA/Output

An optional display increases the current consumption by 20 mA

Max. load: max. 500 Ohm
 Load for voltage output: 0..1V --> min. 2kOhm
 0..5V/0..10V --> min. 10kOhm
 Housing: Aluminum AlSi12 DIN 1725
 Protection class: IP65 (NEMA 4)
 Cable gland: PG9 for the output signal
 PG7 for the sensor cable
 Cable cross section: 0.25...1.5 mm²

Humidity & Temperature Probe DKRF300 Series

with I²C-Interface and Digital Two-Wire Sensirion Sensor

Humidity / Temperature Probe

The probes of the DKRF300 series we provide are based on the combined humidity and temperature probes SHT2X and SHT3X by Sensirion (refer to separate spec sheet).

These offer an I²C protocol. The models with the SHT2x furthermore operate with the proprietary protocol known from older sensors (SHT11/15/71/75).

Its different designs allow you to use the probe series in practically every environment from normal indoor or outdoor applications to compressed air applications and difficult to access measuring points, realisable through minimized sensor dimensions.

Features

Stainless steel probe for relative humidity and temperature in different models
High measurement accuracy ($\pm 2\%$ RH / $\pm 0,3^{\circ}\text{C}$ without recalibration!)
Digital, calibrated output signal via I ² C interface (Sensirion SHT1x/7x protocol possible for SHT21/25)
Fast response time for the humidity value (4 seconds)
Filter options available
Temperature range $-40 \dots +80^{\circ}\text{C}/+120^{\circ}\text{C}$

Models

DKRF300: The basic model of the series. For standard measuring tasks and moderate temperature influence. The measuring head is delivered with a dust filter. Tmax = 80°C , filter cap Tmax = 120°C

DKRF300S: Minimized dimensions and a detached sensor head for applications with increased temperatures. Design with integrated dust filter. Tmax = 120°C

DKRF310: Rod probe for narrow measuring points e.g. for joints or interlayers. Tmax = 80°C , probe end Tmax = 120°C

DKRF310XXS: The smallest device of the series for tight conditions of use and increased temperatures. Tmax = $80/120^{\circ}\text{C}$, depending on the cable's material.

DKRF315: Variant for rough environments and pressure resistant up to 2 bar, equipped with a robust sintered filter. Tmax = 80°C , sinterd filter Tmax = 120°C

DKRF317: With screw-in thread for direct process monitoring. Suitable for compressed air applications up to 30 bar. Tmax = 80°C , sensor end Tmax = 120°C

DKRF374: Robust probe for compressed air applications up to 100 bar. Cast measuring head outfitted with sintered filter. Tmax = 80°C , sintered filter Tmax = 120°C

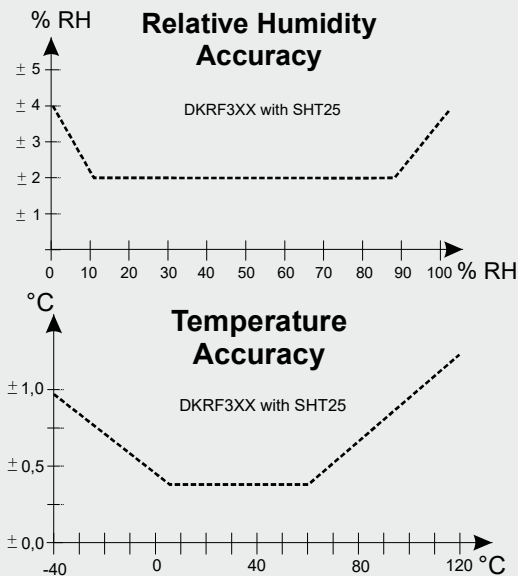
DKRF300 Series



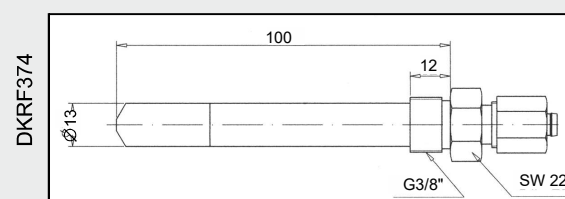
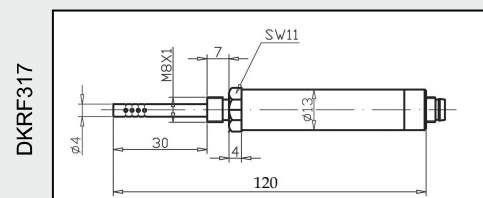
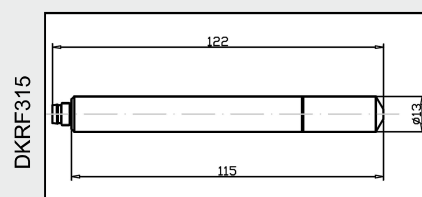
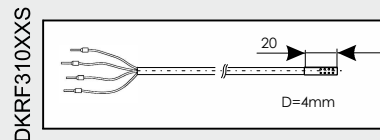
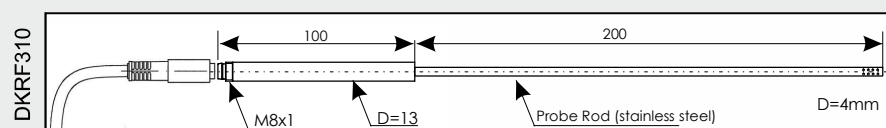
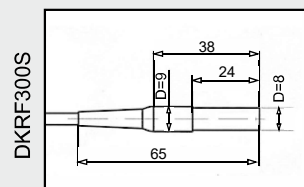
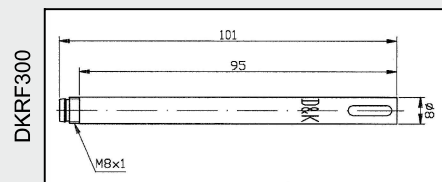
Digital & Precise Humidity Sensor

The heart of the DKRF300 series is an extremely durable and accurate SHT sensor from Sensirion. In place of the standard SHT25 sensor, depicted here, probes of the DKRF300 series can be equipped with SHT21, SHT31, and SHT35 sensors. For details on sensor specifications, please refer to the spec sheet of the respective sensor installed.

Specifications



Dimensions



Order Code

The following order code applies to the DKRF300 series:

MODELL-ST-CT-CO

Models DKRF300
DKRF300S
DKRF310XS
DKRF310XXS
DKRF315
DKRF317
DKRF374

ST = Sensor type 21 = SHT21
25 = SHT25
31 = SHT31
35 = SHT35

CT = Cable* 2000* = 2 m cable (pluggable)
Tmax up to 80°C
5000* = 5 m cable (pluggable)
Tmax up to 80°C on
V2000 = 2 m PVC cable (fixed to probe)
Tmax up to 80°C
V5000 = 5 m PVC cable (fixed to probe)
Tmax up to 80°C
G2000 = 2 m PFA cable (fixed to probe)
Tmax up to 120°C
G5000 = 5 m PFA cable (fixed to probe)
Tmax up to 120°C
Further cable types on request
*Not applicable for DKRF310XXS

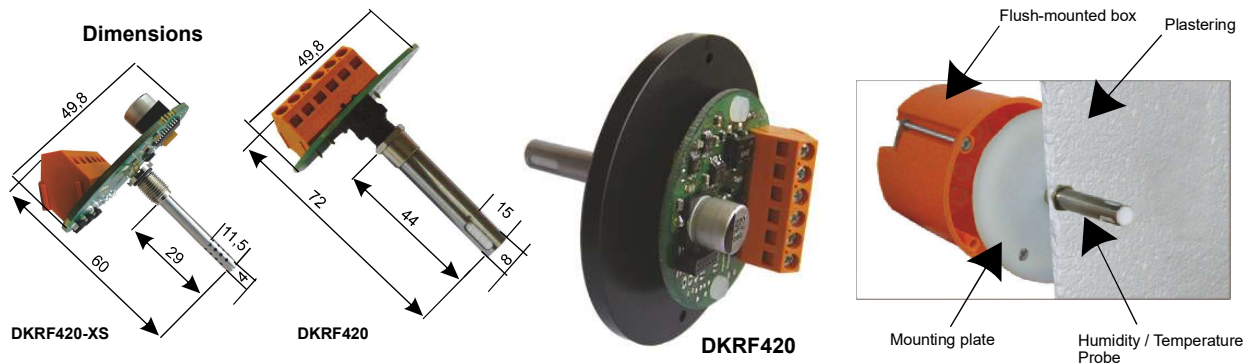
CO = Connector O = without plug / open ends
S = connector (please specify details when ordering)

Optional Accessories

Mounting flange, calibration certificate, calibration set MHT Kit, radiation shield TR351 for outdoor use.

Humidity & Temperature Transmitters

DKRF420/420-XS for Flush Mounting

**DKRF420
420-XS**


Humidity & Temperature Transducer

The DKRF420 and DKRF420-XS are transducers for relative humidity and temperature and come with an analog output. The DKRF420-XS is the smaller and even more inconspicuous model.

Their benefits become evident when used in museums and historic buildings as well as representative facilities.

The transducer's electronic components fit completely into the flush-mounted box (required mounting depth: 30 mm). It is covered by a mounting plate and can be plastered leaving only the small stainless steel probe sticking out of the wall.

Exchangeable Probe

The DKRF420 and DKRF420-XS respectively feature a precise sensor which offers long-term stability and a measurement accuracy of $\pm 1.8\%$ RH and $\pm 0.3^\circ\text{C}$. It is easy to maintain and can be exchanged or replaced without recalibration or removing the entire transducer.

Specifications

Measuring range:

Relative humidity: 0 ... 100% RH
Temperature: $-40 \dots +80^\circ\text{C}$

Dimensions: D = 49.8 mm, H = 30 mm
Mounting plate: D = 71 mm, H = 4.9 mm

Sensor fitting: plug-in type at the front
Sensor type: Digital, calibrated sensor in stainless steel sleeve (d = 8 mm, l = ca. 35 mm)

Supply Voltage/Current Consumption

Supply (0...1 V): 3.0...25 VDC, 800 μA
Supply (0...5 V): 6.0...25 VDC, 1.5 mA
Supply (0...10 V): 11...25 VDC, 1.9 mA
Load for voltage output: $> 2 \text{ k}\Omega$

Output:

4...20mA three-wire: 11...25 VDC, 2x 22 mA
4...20mA two-wire: 11...25 VDC, max. 2x 20 mA
Max. Load: 500 Ω

Response time:

1/e (63%): 35 seconds

Order Code

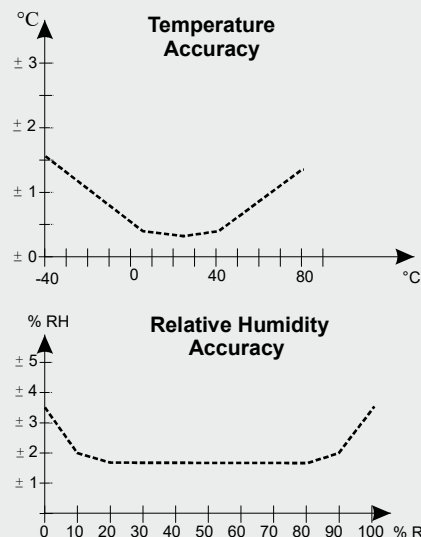
The following order code applies to the DKRF420 Series

DKRF420-AA-KL
DKRF420-XS-AA-KL

AA = Analog output - 01 = 0...1 VDC
 - 05 = 0...5 VDC
 - 10 = 0...10 VDC
 - 420Z = 4...20 mA two-wire
 - 420D = 4...20 mA three-wire

Note: The DKRF420Z and DKRF420D cannot operate with the probe connected directly. Both devices require a sensor cable.

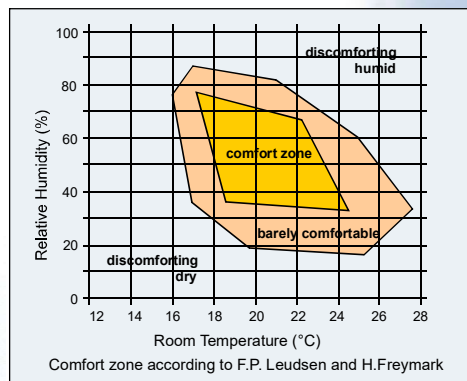
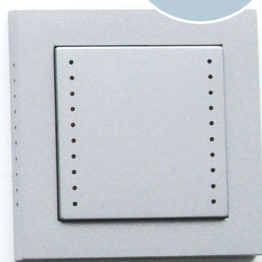
-KL = Cable length -DC = without cable
 -2000 = 2 m cable
 -5000 = 5 m cable
 -Xxxx = customized



Humidity & Temperature Transmitters

DKRF425, Light Switch Design

**Humidity
Sensor
DKRF425**



With their Flush Mounting Line Driesen + Kern offers a selection of sensors for building automation. The probes fit into standard flush-mounted boxes and are compatible to switch product ranges of several manufacturers. This lets them be easily integrated into existing building concepts. The sensor measures temperature, humidity, CO₂ concentration and light intensity (further details regarding CO₂ and light intensity can be found in the separate data sheet). Both analog output and an optional switching output are available. The standard models are configured for products of Gira and Busch-Jaeger. Compatibility with other products available on request.

Flush-mounted Module for RH

Humidity/Temperature

The humidity sensor DKRF-425 for flush mounting measures relative humidity and temperature in the air. It gives out two analogue signals which corresponds to 0...100% and 0...50°C respectively.

It works well in living areas, offices, conference rooms and centres etc.

The latest, long-term stable sensor technology of the flush-mounted sensor ensures precise measurements for many years without the need for recalibration.

Order Code

The following order code applies to the DKRF425 sensors
DKRF425-AA-MOD-FC

AA = Analog output	01	= 0...1 V
	05	= 0...5 V
	10	= 0...10 V
MOD = Model	G55	= Gira System55
	JLS	= Jung LS
FC = Colour code	RS	= Pure white, silk-matt
	RG	= Pure white, glossy
	CG	= Creme, glossy
	SM	= Matte silver

Specifications

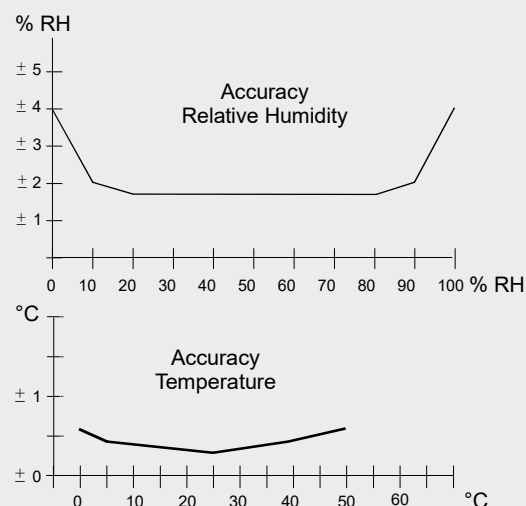
Relative Humidity

Measuring range: 0...100% RH
Accuracy: see diagram below

Temperature

Measuring range: 0...50°C
Accuracy: see diagram below

Outputs: 0...10 V (0...1 / 0...5 V optional)
Supply: 12...35 VDC / 12...24 VAC



LowCost- Humidity & Temperature Probe

DKRF4050/DKRF4060



Features

Capacitive humidity probe with excellent accuracy
Analog output signals 0...1 V / 5 V / 10 V (4050)
Digital CMOS-UART interface (4060)
Designed for low-cost integration
Drift-free and long-term stable sensor

Inexpensive and Compact

With the DKRF4050 and DKRF4060 Driesen + Kern offers an inexpensive solution for humidity and temperature measurements. With its G3/8" connection thread the compact cable probe (d = 24.5 mm, l = 46 mm) can easily be installed in plants and facilities.

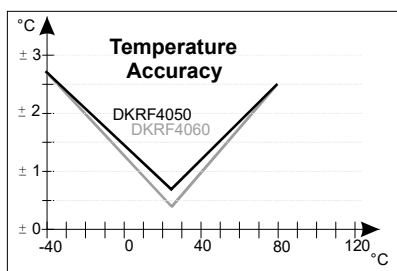
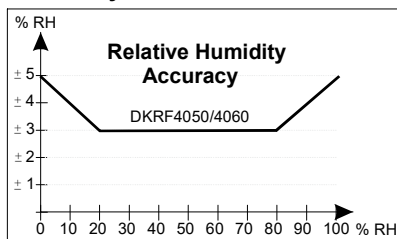
Alternatively, an extension for the probe is available with which the probe can be attached to a compression fitting.

Two models are available:

The DKRF4050 with 2 linear analog outputs 0...1 V, 0...5 V or 0...10 V and the DKRF4060 with a CMOS-UART interface. By default, the probes provide readings for relative humidity and temperature. Output of other calculated variables such as dew point, absolute humidity or wet-bulb temperature can also be configured.



Accuracy



Specifications

Dimensions	D = 24.5 mm, L = 46 mm
Probe tube (optional)	D = 23.5 mm, L = 200 mm
Connection cable	4 wire, PUR, (2 m, 5 m)

DKRF4050 Analogue Probe

Measuring range Humidity	0...100% RH, noncondensing
Measuring range Temp.	-20...+80°C
Analog output	0...1 V, 0...5 V, 0...10 V
Supply (0...1 V):	3.0...30 VDC, 3 mA
Supply (0...5 V):	6.0...30 VDC, 3.5 mA
Supply (0...10 V):	12...30 VDC, 4 mA
DAC resolution	0.04% RH / 0.04°C

DKRF4060 Digital Probe

Measuring range Humidity	0...100%RH, noncondensing
Measuring range Temp.	-20...+80°C
Supply	5.0...30 VDC, 400 µA
Logic level	0 = 0 V, 1 = 2.5 V
Communication:	9600 baud, 8 bits, no parity, 1 stopbit, no flux control
Reset	independent after power on

Order Code

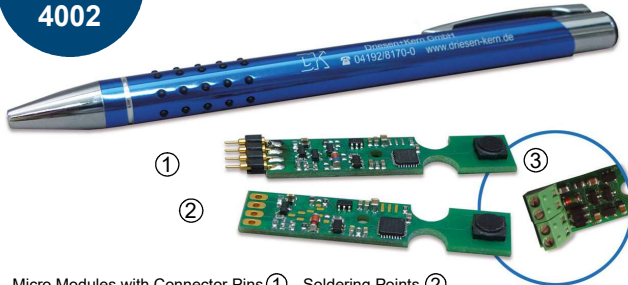
Order Code: DKRF40X0-A-KL

X =	5= Analog output 6= RS232-CMOS-UART
A =	01 = 0... 1 VDC 05 = 0... 5 VDC 10 = 0...10 VDC 00 = CMOS-UART
KL =	2000 = 2 meter cable 5000 = 5 meter cable

Micro-Modules for Humidity & Temperature

DKRF4001/DKRF4002 (CMOS-UART) for OEM Applications

DKRF
4001
4002



Micro Modules with Connector Pins ①, Soldering Points ② or Terminal ③

Micro Modules

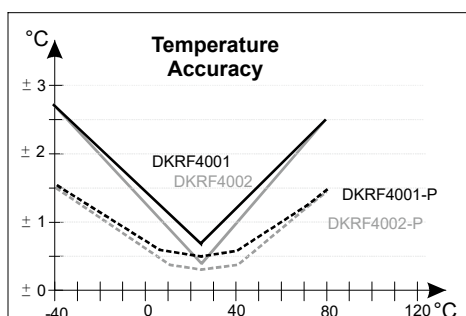
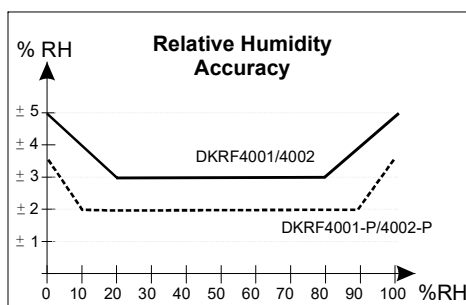
The DKRF4001 and DKRF4002 micro-modules are specifically designed to be used in OEM applications. The DKRF4001 provides two calibrated linear outputs with 0...1/0...5/0...10 VDC. The DKRF4002 module offers a CMOS-UART interface for digital communication. Communication relies on standard parameters of the serial port interface (9600 baud, 8, N, 1; duplex, bidirectional). The sensor modules can perform measurements at 0...100% RH and between -20...+80°C.

Protective Filter Cap

The modules can operate even under rough conditions. The standard filter cap protects the sensor against dust and liquids.

Optional Terminal

By default, the micro module provides soldering joints. A connection terminal or connector pins are also optionally available.



Order Code

The following order code applies to the DKRF4001/4002 modules: **DKRF MOD-AA-MB-C**

MOD = Output:

- 4001 = Analog output, standard accuracy
- 4001P = Analog output, improved accuracy
- 4002 = Digital output, standard accuracy
- 4002P = Digital output, improved accuracy

AA = Analogue Output:

- 01 = 0... 1 VDC
- 05 = 0... 5 VDC
- 10 = 0...10 VDC
- 00 = without analog output

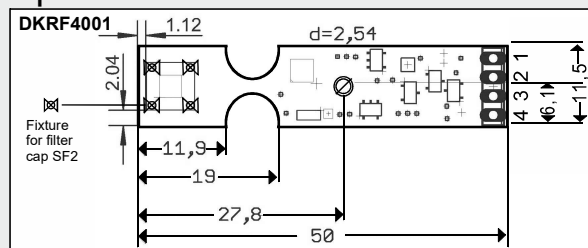
MB = Measuring range:

- 2080 = Range -20 ...+80°C
- xxxx = Range of probe

C = Connection

- STD = Soldering points
- AK = Terminal
- SL = Connector pins

Specifications



Pinout DKRF4001

- Pin 4: GND
- Pin 3: +U_B
- Pin 2: rFout
- Pin 1: Tout

Pinout DKRF4002

- Pin 4: GND
- Pin 3: +U_B
- Pin 2: RX Module
- Pin 1: TX Module

Bonding:

Soldering point, 1.27 mm grid
Pins or connection terminal optional

Height:

H = 4 mm without filter cap

Relative humidity DKRF 4001/DKRF4002

Measurement range: 0...100% RH, noncondensing

Accuracy: Refer to diagram

DAC resolution: 0.04% RH

Temperature DKRF 4001

Measurement range: -20...+80°C

Accuracy: ±0.6°C @ 25°C standard
(±0.4°C @ 25°C only DKRF4001-P)

DAC resolution: 0.04°C

Temperature DKRF4002

Measurement range: -20...+80°C

Accuracy: ±0.4°C @ 25°C standard
(±0.3°C @ 25°C only DKRF4002-P)

Analogue output (DKRF4001): 0...1 V / 0...5 V / 0...10 V

Supply DKRF4001:

- Supply (0...1 V) 3.0...30 VDC, 3 mA
- Supply (0...5 V) 6.0...30 VDC, 3.5 mA
- Supply (0...10 V) 12...30 VDC, 4 mA

Supply DKRF4002: 5.0...30 VDC, 400µA

Optionally available variables: dewpoint, absolute humidity

Humidity Calibration Kit MHT

Available as Basic or Professional Kit



On-Site Calibration of Transmitters

The MHT Series Humidity Checks allow you to test and calibrate a variety of humidity measuring instruments such as probes, hand-held instruments or transducers.

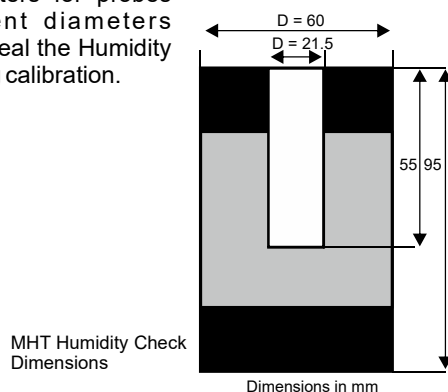
The Humidity Check contains a saturated salt solution which maintains an equilibrium humidity within the cartridges for every salt solution.

The equilibrium humidity of each salt solution has been agreed upon in international interlaboratory comparison. Using different salts it is possible to manufacture reference cartridges for the entire measurement range of 0...100% RH.

Independent of area of application

The MHT Humidity Checks were designed to be used in the field as well as in laboratories. They are small, handy and can operate in any position. This allows you to calibrate humidity probes without removing them from their respective facilities.

Special adapters for probes with different diameters hermetically seal the Humidity Checks during calibration.



Features

Calibration of humidity probes independent of area of application
Accuracy of up to $\pm 2\%$ RH viable
Miniaturized climate chambers
Hermetically sealed by universal adapter
Certificate of Calibration available

Order Codes

The following MHT Humidity Checks are available:

Professional Calibration Kit:

Order no.: MHT00051 6 Humidity Checks (MHT0, MHT11, MHT33, MHT54, MHT75, MHT97)

Basic Calibration Kit:

Order no.: MHT00050 3 Humidity Checks (MHT11, MHT33, MHT75)

The Basic Kit contains 3 Humidity Checks whereas the Professional Kit comes with 6 Humidity Checks.

Single MHT Humidity Checks

Order no.: MHT0	Humidity Check 0.8% RH
Order no.: MHT11	Humidity Check 11.3% RH
Order no.: MHT33	Humidity Check 33.1% RH
Order no.: MHT54	Humidity Check 54.0% RH
Order no.: MHT75	Humidity Check 75.5% RH
Order no.: MHT97	Humidity Check 97.5% RH

Included in delivery are:

Calibration manual,
1x universal adapter for 7...13 mm, carrying case with insulation material for stable temperature conditions and fixation during calibration.

Also available:

Humidity Check Certificate of Calibration

Order no.: MHT00040	for MHT Humidity Checks
Order no.: MHT00041	for the Basic Kit
Order no.: MHT00042	for the Professional Kit

Adapter for probes with different diameters, with compression fitting:

Order no.: MHT00255	Universal adapter (Probe diameter 4...7 mm)
Order no.: MHT00260	Universal adapter (Probe diameter 7...13 mm)
Order no.: MHT00270	Universal adapter (Probe diameter 12...20 mm)



Driesen + Kern GmbH

Am Hasselt 25
D-24576 Bad Bramstedt

Tel.: +49 (0) 4192 8170-0

Fax: +49 (0) 4192 8170-99

info@driesen-kern.de

www.driesen-kern.de

