

# Industrial Humidity Transducers

## DKRF470-Series for Demanding Applications



**DKRF470 Series**

### 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

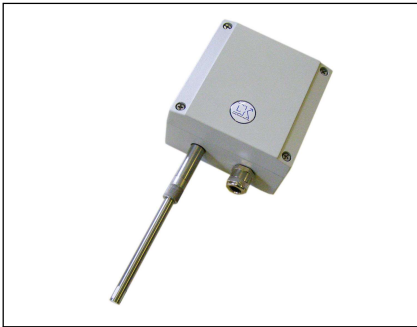
Two analog output signals are available for a user-defined combination of the measured variables (relative humidity, temperature, absolute humidity, mixing ratio, dew point). Analogue signals 0..1 V, 0..5 V, 0..10 V as well as 4..20 mA two- or three-wire type are selectable.

### Features

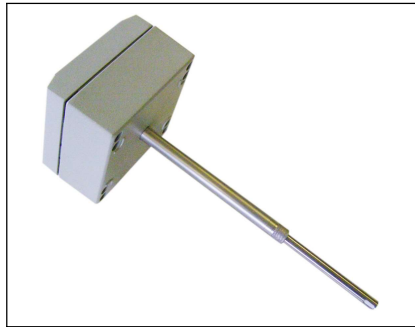
Exchangeable, digital probe
High accuracy
5 models for various requirements
Two analog outputs allow for a user-configurable combination of measurement variables
Extra fast response time (4 seconds)
LCD optional
Robust aluminum housing, IP65 protected

## Models

### DKRF470-Series



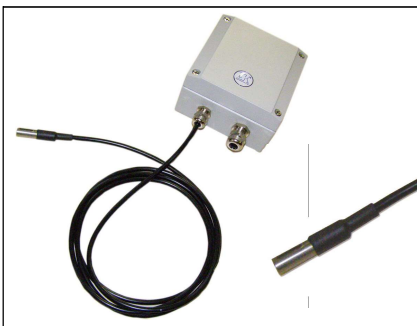
- DKRF471**
- ▶ Transducer for wall mounting
  - ▶ Suitable for operation in clean rooms, laboratories, greenhouses & museums
  - ▶ Range: -40...+60°C, 0...100% RH



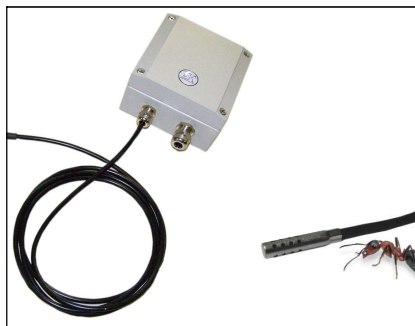
- DKRF472**
- ▶ Designed for duct installation such as in pipelines, ventilation ducts or environmental chambers
  - ▶ Range: -40...+80°C, 0...100% RH (on request up to 120°C)



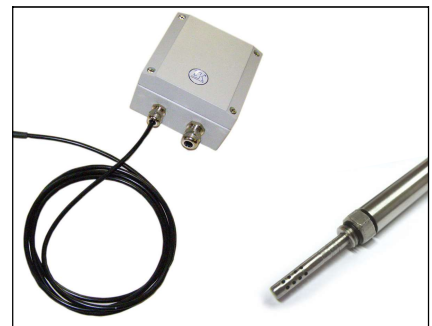
- DKRF473**
- ▶ Transducer for direct process integration e. g. in HVAC applications, environmental chambers, drying plants etc.
  - ▶ Range: -40...+80°C, 0...100% RH
  - ▶ Flexible sensor cable up to 100 m



- DKRF473-EXT**
- ▶ For higher temperatures with small measuring head
  - LCD-display (d=8mm / l=40mm)



- DKRF473-EXT-XXS**
- ▶ Transducer with extra small dimensions (d=4mm, l=20mm)



- 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: 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 100 m



- 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	
DKRF472	A0	CH1	CH2	LCD	MKL
DKRF473	A0	CL	CH1	CH2	LCD
DKRF473-EXT	A0	CL	CH1	CH2	LCD
DKRF473-EXT-XXS	A0	CL	CH1	CH2	LCD
DKRF473-EXT-D	A0	CL	CH1	CH2	LCD
DKRF474	A0	CL	CH1	CH2	LCD

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/m³)
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/m³)
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

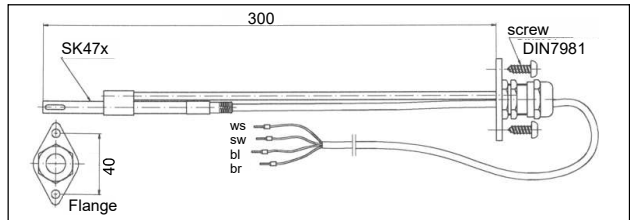
While measuring relative humidity and temperature the probes allow for a simultaneous calculation of other parameters.. These are: dew point, absolute humidity, wet-bulb temperature and mixing ratio. The variables are provided at the analogue output and shown on the display.

### 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 m

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

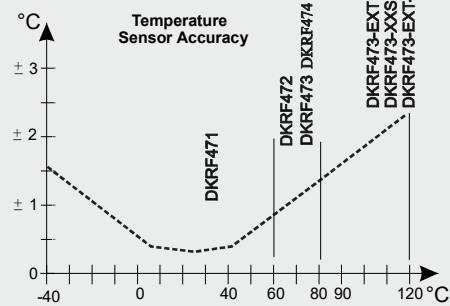
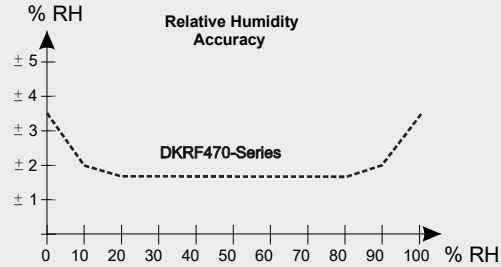
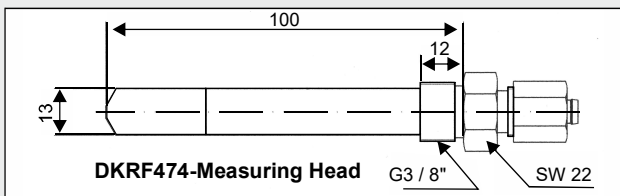
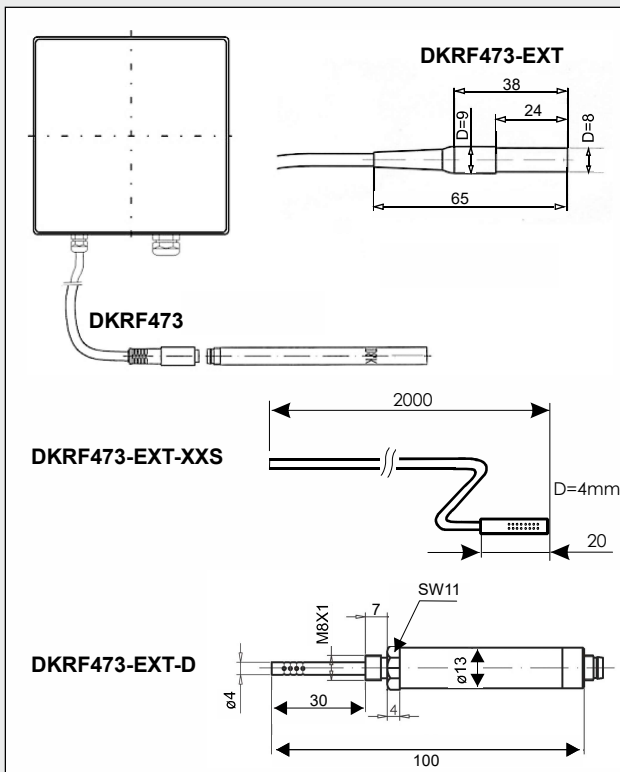
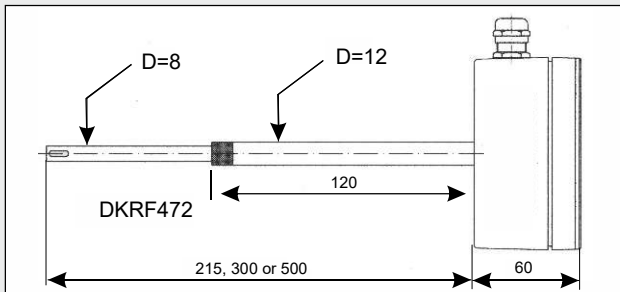
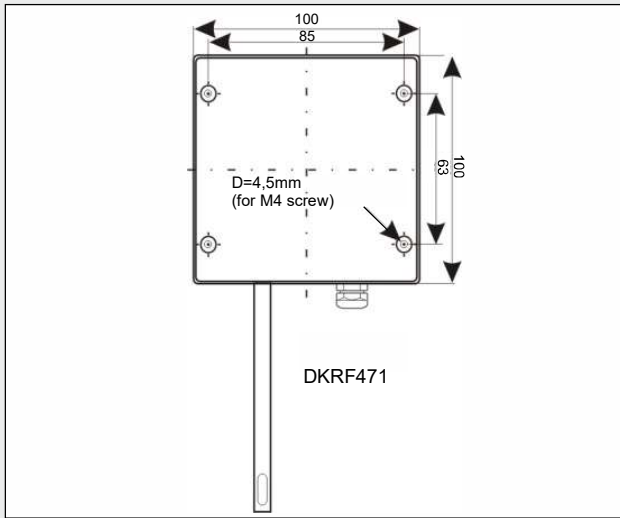
With the universal alarm CM4000, which you can hook up to the DKRF670 without a problem, you can get an alarm notification on your phone as either push-message, SMS and/or email.



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:  
 Output 0...1V: 6...30 VDC or 24 VAC, 1.5 mA  
 Output 0...5V: 6...30 VDC or 24 VAC, 1.5 mA  
 Output 0...10V: 12...30 VDC or 24 VAC, 1.9 mA  
 Output 0...20mA: 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. 2 kOhm  
 0..5V/0..10V --> min. 10 kOhm

Housing: Aluminium 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 mm<sup>2</sup>