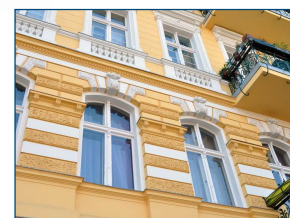
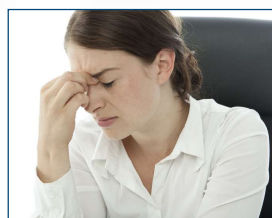


# DK660 CO<sub>2</sub> Data Logger

Includes Temperature and Humidity



CO<sub>2</sub> = Key Parameter  
for Indoor Air Quality



# DK660 CO<sub>2</sub> Data Logger incl. Humidity & Temperature

Optionally with 3 additional external sensors



DK660-3S (with external inputs)

Regular DK660 model

## Data Loggers for CO<sub>2</sub>, Humidity and Temperature

Driesen + Kern's DK660 is a robust, long-term stable data logger for CO<sub>2</sub>, humidity and temperature. Optionally, the logger can be fitted with three additional external inputs (option -3S) which can be used for voltage, current, pulse count, resistance and strain gauges. We offer a comprehensive range of humidity, temperature and condensation probes for use with the DK660.

### CO<sub>2</sub>= Key Parameter for Indoor Air Quality

In addition to temperature and humidity a decisive factor for well-being in rooms is air quality. The CO<sub>2</sub> content is the paramount indicator of indoor air quality. This fact is reflected by the European standard (EN 13779) for ventilation in non-residential buildings.



Poor indoor air quality can lead to a lack of concentration as well as fatigue.

### Lack of Concentration & Fatigue

High concentrations of CO<sub>2</sub> are known to cause a lack of concentration as well as fatigue. Almost 150 years ago Max Josef Pettenkofer proposed a CO<sub>2</sub> concentration of 1000 ppm as the optimal amount for good indoor air quality in schools. Today, it is widely acknowledged that levels of 2000 ppm should not be exceeded in offices and class rooms while levels above 5000 ppm are considered to be harmful to health.

### Adding Humidity & Temperature Measurements

Of course, humidity and temperature also have a huge impact on comfortable ambient climate conditions and they can be helpful indicators for ineffective ventilation and the need to change the air in the room. Monitoring both parameters helps to create a healthy working or learning environment while also preventing mould formation in walls or at windows.

### Sensors with Excellent Long-Term Stability

The DK660 uses only high-grade measuring technology with excellent long-term stability and a self-calibrating CO<sub>2</sub> sensor which makes continuous operation possible over several years. This is also true both for the humidity and temperature sensors. Calibrate the logger either with fresh air (no software required) or with test gases (software required).

#### Features at a Glance

- Robust data logger
- Long battery life and large memory capacity
- LCD for live readings
- LED indicator (green/amber/red) for air quality
- Optionally: Wall mount, certificate of calibration, adapter for calibration

#### Fields of Application

- Schools
- Day-care centres
- Conference rooms
- Offices
- Residential buildings

# Sensors & Probes for DK660-3S/3DMS

## Temperature Sensors for the DK660-3S

Driesen+Kern GmbH manufactures several standard temperature sensors for the DK660-3S. Furthermore a large selection of sensors is available (see separate spec sheet).



**DS-325 Standard Probe**  
D=4mm, L=100mm

**CM-325 Standard Probe**  
D=4mm, L=50mm



**CO-325 Air Temperature Probe**  
D=4mm, L=17mm  
with extra fast response time



**EU-325 Standard Probe**  
L=20mm, W=10mm

**EUM-325 Surface Temperature Probe**  
with magnet L=25mm, W=14mm



**MT-315 Thermocouple Probe**  
D=3mm, L=200mm  
for high temperatures (1200°C)  
(for mor thermocouple probes see separate data sheet)

## Combined Humidity/Temperature Probes for DK66X-3S



**RFT-325** - Measures humidity and temperature. Operating range: -20...+80°C, or -40...+120°C with cable type G. D=8mm, L=35mm



**DKRF300-325** - Measures humidity and temperature. Operating range: -20 and +80°C, D=8mm, L=101mm



**RFTXS-325** - Miniaturised sensor for measuring for example in screed. max. +80°C D=4,6mm, L=200mm,



**RFTXXS-325** - Especially small probe with dimensions d=4mm and l=20mm. Sensor cable: 2m



**RFTO-325** - Probe for humidity and temperature at walls and boundary layers. D=30mm x H=10mm



**RFTW-325** - Special probe for measuring humidity/temperature in confined spaces or wall surfaces. Dimensions: l=45mm, W=20mm



**DKRF370-325** - Humidity-/temperature snesor for pressure applications max. 100bar, G3/8" thread, Range -20/+80°C L=100mm, D=13mm



**TR351 Radiation screen** for RFT-325 and DKRF300-325. Minimises influence from solar raditation and protects againts rain. (D=77mm/H=108mm)



**SHS-325** - Detects incipient bedewing. Signal "1" if condensation occurs, "0" if not Operating range: 0...50°C Dimensions: 60 x 10mm



**SHSW-325** - Detects water ingress. (Pipe burst, flooding) Signal "1" if moistened "0" if not. Operating range: 0...50°C Dimensions: 60 x 10mm

## Cable specifications

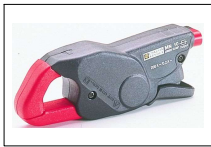
The standard probes come with a PVC cable type V and can be used under operating conditions -20...+80°C. If required, special cables made of Teflon (type G) can be used which allow operation from -75...+250°C. The RFT and RFT-XXS probes can operate within the range of -40...+120°C with a Teflon cable.

**Example:** DS-325-V-2000 for the DS-probe with a 2m PVC cable or DS-325-G-2000 with 2m Teflon cable.

# Sensors, Probes and Accessories

## Current Clamps, Position Sensors, Force Sensors, Weather Sensors

Driesen+Kern GmbH offers a wide range of probes for connection with DK660 loggers. A small number of probes are listed below. If you do not find a suitable sensor here or if you need any assistance with selecting a sensor, feel free to contact us.



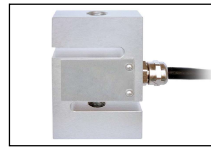
**Current Clamp MN-89**  
Range: 0.5..240A  
Opening: D=20mm



**Electrical Transducer**  
For measuring high voltage/current  
Model Uw : U<sub>max</sub>= 650V (AC)  
Model UgT : U<sub>max</sub>=600V (DC)  
Model IgT : I<sub>max</sub> = 5A (DC)



**LP-50F Linear Potentiometer (DK660-3DMS only)**  
Detects change of position  
L=129mm  
Effective stroke 50mm



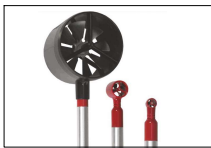
**K25 Force Sensor (DK660-3DMS only)**  
Torque, force, load sensors  
0.02 to 50 KN  
Accuracy class: 0.1% / 0.2%



**Radiation Sensors**  
We offer a wide range of radiation i. e. LUX, UV, PAR, Pyranometer



**EC5 -Soil Moisture Probe**  
Special sensor to measure moisture in soil by volumetric water content  
Dimensions: 43 x 10mm



**MA6-Micro/Mini/Macro Vane Anemometers for Air Velocity**  
Messbereiche von 0.2..40m/s  
MA6-Micro: D=11x15mm  
MA6-Mini: D=22x28mm  
MA6-Macro: D=85x80mm



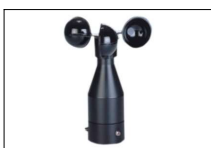
**PSense650 Pressure Probes**  
Available for water level measurements or as screw-in model. Operating range from 1...100bar  
Resolution: 0.1mm



**ARG100 Rain Gauge**  
Affordable tipping bucket raingauge.  
area: 506.7cm<sup>2</sup>  
sensitivity: 0.2mm



**Young 52202/52203 Rain Gauge**  
With heating option, tipping bucket according WMO recommendation  
area: 200cm<sup>2</sup>  
sensitivity: 0.1mm



**WG3400 Low-cost Wind Speed Sensor 0,5..35m/s**  
Accuracy 0.5m/s / 5%  
(no additional power supply needed)



**WR3124 Low-cost Wind Direction Sensor** with potentiometer  
Resolution: 0.5°  
(no additional power supply needed)



**Calibration Kit**  
For DK660 offset calibration includes test gas 400 ppm, regulator and adapter




**Calibration Adapter**  
designed for DK660, comes with ports for CO<sub>2</sub> gases or zero point calibrator




**Zero Point Calibrator**  
Especially suitable for calibrating several instruments. Includes pump, chemicals, carrying bag, PSU

**Accessories for all rugged Visual data loggers**

Wall holder for easy installation, lead seals can be attached.  
Lead seal kit for protection, includes 50 wires and 50 numbered single-use seals.  
Carrying case for up to 3 data loggers with cables and sensors.

  
Wall mount & Seal

  
Carrying Case

# Software *InfraLog V5* for Windows

## for the ruggedVisual Series



### InfraLog V5

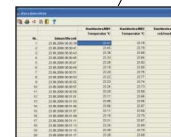
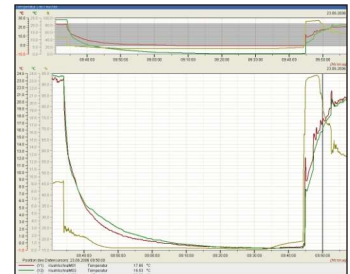
Basic-Version  
Light-Version  
Enhanced-Version

for Windows  
Win7/Win8/Win10

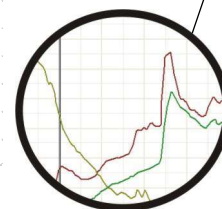
The Software *InfraLog* provides EASY, SECURE & CONVENIENT communication for all Driesen + Kern data loggers. After establishing a connection between your logger and PC, *InfraLog* automatically detects the device. *InfraLog V5* offers a multitude of features for the ruggedVisual data logger series and is available in three versions (Basic, Light, Enhanced) each with a different number of features:

INFRALOG FEATURES	BASIC	LIGHT	ENHANCED <i>(Professional)</i>
Automatic device detection	•	•	•
Conversion from base units of measurement into customizable physical values	•	•	•
Load/save device settings	•	•	•
Upgrade device firmware via USB	•	•	•
Save readings to your PC's hard drive or network storage	•	•	•
Customize <i>InfraLog</i> 's appearance	•	•	•
Symbols and Icons indicate logger status (logging/alarm/battery)	•	•	•
Total control (settings, start, stop, download etc.)	•	•	•
Measurement input configuration	•	•	•
Download data without stopping the logger	•	•	•
Online readings	•	•	•
Export to Excel (fast conversion)	•	•	•
Calculate absolute humidity, dewpoint etc.	•	•	•
Supports USB 2.0 for download rates of 1 Mbit (100 000 readings in 20 s)	•	•	•
Menu languages (German, English, Spanish, French)	•	•	•
Compatible with Windows 7, 8 & 10	•	•	•
Formula compiler calculates any measured variable		•	•
y/t charts (readings over time)		•	•
Three scalable axes		•	•
Zooming function		•	•
Meter readings at the cursor		•	•
Display as spreadsheets		•	•
Combine a series of measurement in one chart		•	•
Definition of thresholds		•	•
Statistics (min, max and average values)		•	•
y/x charts (values over values)			•
Generate daily, weekly, monthly and annual reports			•
Specify beginning and end of analyzed period			•
Input of analysis interval			•
Print settings			•

Well-arranged charts with overview and up to three Y-axes



Meter-reading at the cursor



Zooming function

# Specifications

## DK660/DK660-3S (integrated sensors)

	Measuring Range	Resolution	Accuracy
CO <sub>2</sub>	0...2 000 / ...5 000 / ...10 000 ppm	1 ppm	± 50 / ±70 / ±100 ppm + 3% of reading
Relative Humidity	0...100% RH	0.01% rF	see chart
Temperature	0...50°C	0.01 K	see chart

## DK660-3S (external sensors)

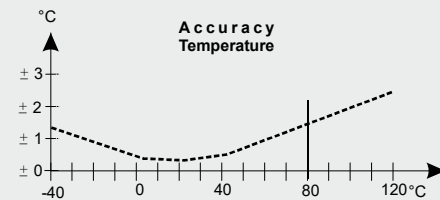
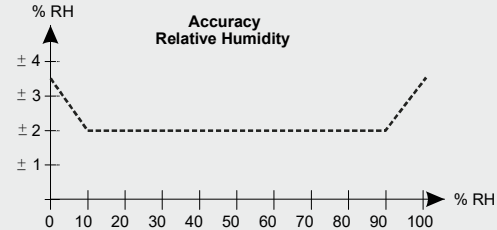
	Measuring Range
Slots 1 - 3	Depending on sensor Refer to pages 2 and 3

### General Technical Data

Sampling rate:	1 minute to 24 hours
Memory capacity:	4 million readings
Power supply:	2 x 3.6V Lithium-Ion battery
Operating range (Temp.):	0...50°C
Operating range (RH):	0...95% RH non-condensing
Weight:	430g
Measuring principle of internal sensors:	Diffusion (CO <sub>2</sub> ) capacitive (rel. humidity/temp.)

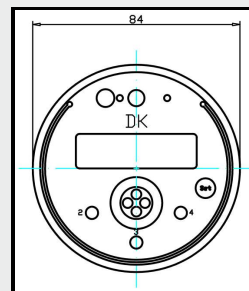
### Accessories

	Order No.
Carrying case	DK6500002
Wall mount (screw-on type) (Logger can be secured with lead seal wire)	DK6500050
Wall mount (screw-on type) (Logger attached with magnet)	DK6500057
Magnetic wall mount (Logger can be secured with lead seal wire)	DK6500058
Lead seal kit (50 pieces)	DK32000012
InfraLog V5 Light (Upgrade) for Windows	INFRALOG00040
InfraLog V5 Enhanced (Upgrade from Basic) for Windows	INFRALOG00050
Calibration certificate for CO <sub>2</sub> , RH, T	DK65000200
Calibration certificate for CO <sub>2</sub> only	DK65000210
Calibration kit (Adapter, CO <sub>2</sub> test gas, pressure regulator)	DK6600210

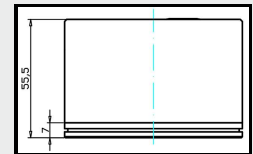


### Dimensions

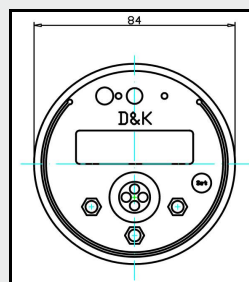
#### Data logger DK660



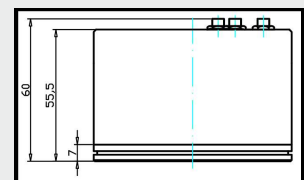
Ø = 84 mm  
H = 55.5 mm



#### Data logger DK660-3S



Ø = 84 mm  
Height with cables connected:  
ca. 73 mm



### Included in delivery:

- Data logger
- 2 x 3.6V Lithium batteries
- Download version of InfraLog Basic for Windows
- User manual included in InfraLog software
- USB cable
- Certificate of conformity
- Model -3S comes with 3 DKC-S cables

## Specifications

The logger will be supplied with three additional, flexible inputs if the option “-3S” has been ordered. These can be used for measuring analogue signals (voltage, current, pulses) as well as signals from a large number of sensors such as temperature, humidity, light, wind, pressure and many more (see pages 2/3 for available sensors).

If the option “-3DMS” is ordered, the DK660 can be supplied with three special inputs which can be used for very low signals, strain gauge measurements or other wheatstone bridges.

The logger supplies a stabilised output current for these type of measurements.

### High impedance mode for voltages

Range (mV):	+/- 5	+/-10	+/-20	+/- 50	+/-100	+/-1000
Resolution (µV) <sup>2</sup> :	0.15	0.3	0.6	0.8	1.5	15
Input impedance (GOhm):	1					
Accuracy:	0.1% of chosen range					

<sup>2</sup> The maximum sampling rate in high impedance mode is 1Hz.

### Strain gauge (bridge circuits) (for full bridges of 60...700Ohm)

Range (mV):	+/- 5	+/-10	+/-20	+/- 50	+/-100
Resolution (µV) <sup>1</sup> :	0.15	0.3	0.6	0.8	1.5
Input impedance MOhm	2.5				
Accuracy	0.1% of chosen range				

<sup>1</sup> When logging at 32Hz, the resolution is 10x of the above values.

### Single ended voltage signals

Range (mV):	0-10	0-20	0-50	0-100	0-1V	0-2,5	0-5V	0-10V
Resolution (µV) <sup>3</sup> :	0.58	0.58	0.76	1.54	15.4	38.9	76.9	154
Input impedance (MOhm):	2.5	2.5	2.5	2.5	2.5	0.1	0.1	0.1
Accuracy:	0.1% of chosen range							

<sup>3</sup> Single ended signals can be sampled at a maximum rate of 32 Hz. The maximum resolution is 10x of the values specified above.

### Current

Range (mA):	0 - 24mA
Resolution (µA):	0.36 µA
Input impedance (Ohm):	10
Accuracy:	0.1% of chosen range

### Pulse count (potential-free)

Range	0...65 000 pulses per interval	0...100 Hertz
Resolution	1Pulse / 1 Hz	1Pulse / 1 Hz
Accuracy	1Pulse / 1 Hz	1Pulse / 1 Hz

### Pulse count (voltage pulses, max 24V)

Range	0...65 000 pulses per interval	0...1 300 Hertz
Resolution	1Pulse / 1 Hz	1Pulse / 1 Hz
Accuracy	1Pulse / 1 Hz	1Pulse / 1 Hz

### Connecting analogue inputs

#### Voltage/current:

Signals within a range of 0...1V can be connected with the standard cable DKC-S.

Signals with higher voltage (max. 24V) need to be connected with the voltage divider cable DKC-U.

When measuring current signals the DKC-I cable is required.

#### Pulse count:

Potential-free signals or pulses with a low level of <0.5 VDC and a high level between 2 and 3 VDC can be connected with the standard cable DKC-S (included in delivery).

Higher levels up to 24V need to be routed through the DKC-P cable.





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