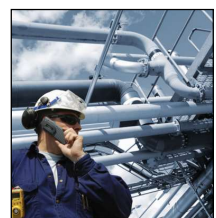


## Datalogger Series rugged<sup>plus</sup>

Humidity · Temperature · Condensation · Waterdetection  
Strain gauge · Barometric Pressure · Light ·  
Analogue Signals (Voltage · Current · Pulse)



## Data Logger Series Made in Germany

**rugged<sup>plus</sup>** ... Made to be strong and tough.

Wind, water, solar radiation, rain, storm, heat - these are just some of the environmental conditions data loggers have to brave in operation.

To ensure long durability and accuracy in readings despite these conditions, the devices have to be especially robust and sturdy.

Driesen + Kern GmbH have met this challenge and developed the data logger series **rugged<sup>plus</sup>**.

One of the **rugged<sup>plus</sup>** Series' main features is its flexibility (freely programmable input channels and removable probes) which makes it suitable for a variety of industrial and research applications.

**Driesen+Kern GmbH** has manufactured data loggers required by sophisticated applications for over 20 years. For example, we developed devices that could be strapped to the back of penguins, others could detect the formation of cracks damaging monuments or store readings in tsunami warning buoys. The logger series **rugged<sup>plus</sup>** is our standard line of robust and reliable data loggers.”

*(Oliver Driesen, Managing Director)*

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## The Data Logger Family rugged<sup>plus</sup>

Number 1 in Versatility & Flexibility

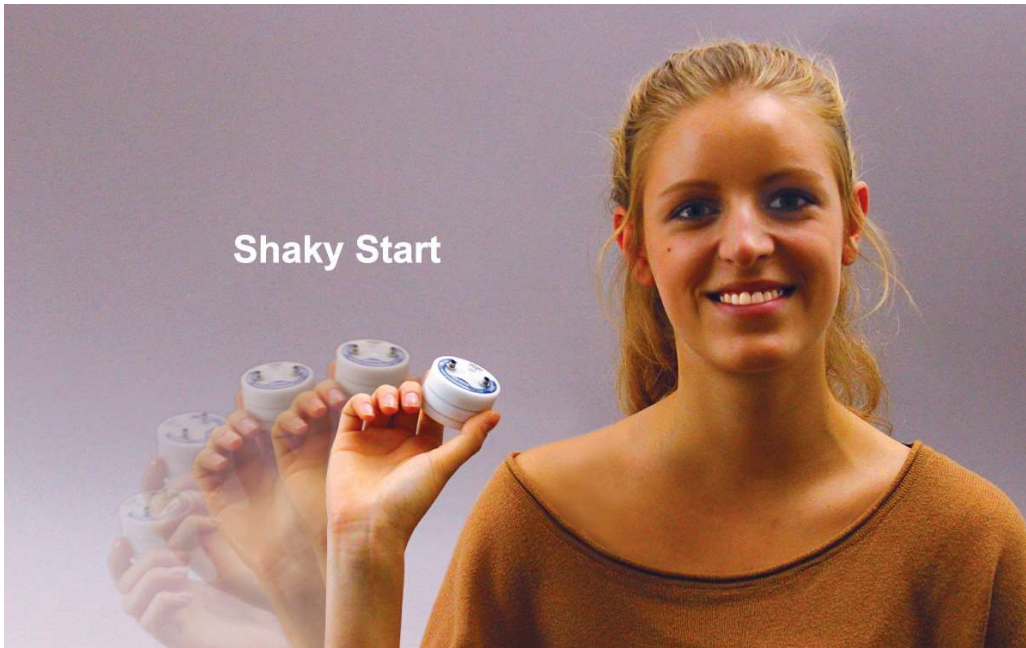


### Features

Programmable inputs for temperature, voltage/current/pulse count/ humidity/strain gauge etc.
Multitude of integrated sensors and external probes available
Robust, shock-proof and IP65/IP68 protected enclosure
Temperature range within -40°C...+150°C
Fast response time for temperature and humidity
High resolution and accuracy (20 bit A/D converter)
Flash memory for up to 4 million readings (exhausted or defect battery does not cause data loss)
Battery life of 4 years, monitored battery level!
"Shaky Start"- Start the logger by giving it a shake!
Visible alarm when exceeding thresholds
Continuous mode - oldest readings will be overwritten when the memory is full
Stop-when-full mode - the logger stops logging when the memory is full
Online measurements on screen and on hard disk
ASCII-Stream-Mode - Create your own software / hardware with our rugged loggers
Standard software InfraLog Basic included in delivery, or Light / Enhanced with comprehensive graphical functions

# Just shake the logger

## Easy and flexible handling



**Shake, start up, record\***  
 “Shaky Start” is a feature of the **rugged<sup>plus</sup>** Series. Just shake the logger in a specified rhythm and it will start up at a predefined interval, rendering the on-site use of a notebook or tablet unnecessary (\*= this doesn't apply to RDG-Logger).

**Robust and water-proof**  
 The enclosures are made of high quality, shock-proof POM-composed synthetic material. The devices are protected against splash water according to IP65 and are partially fit for operation under water (IP68).

**Long operating time**

The large memory capacity and low current consumption allow logging for up to 4 years.

**Status visualisation by LED**

- Indicates threshold exceedance
- Indicates low battery level
- Indicates recording mode (quickly determine the status)

**Time synchronised readings**

A real time clock (RTC) ensures a correct time-reference enabling you to synchronise several devices.

**Quickly process large amounts of data**

The logger's memory can hold up to 4 million readings which can be downloaded in a matter of seconds thanks to a transfer rate of 1Mbps through the USB interface.

**Online measurement**

The series of rugged dataloggers can be used for online metering while logging,. Using this feature the readings will be displayed on your PC/Notebooks screen while being stored directly to your hard disk. And these readings can be accessed from customer specific software tools at any time!

**ASCII Stream functionality**

If you would like to use a rugged logger as a sensor, directly connected to your application, you may set it up into ASCII-Stream Mode.

This feature allows you to collect data by Terminal commands (Windows/Linux), while not using any logging functions.

The USB driver simulates a virtual Comport that derives readings directly into your software/application or any other separate hardware.

This makes the logger lot more than “just” a datalogger- it serves as an interface to any hard/software as complex as it may be!

**Versatile & flexible**

With the robust data logger series **rugged<sup>plus</sup>** you can freely configure the measured variables. A variety of internal sensors and input channels are at your disposal. They can be used for analog signals (e. g. 0..20mA/ 0..10V/pulse etc.) as well as a multitude of external probes. (Standard sensor range on pages [11-12](#))

**Integrated Sensors (depending on model)**

- Temperature
- Humidity
- Barometric pressure
- Light (Lux)

**Standard external inputs/probes**

- Thermocouples
- Voltage
- Current
- Pulse
- UltraLowVoltage
- strain gauges
- Humidity/Temperature
- Water detector
- Soil moisture
- Condensation
- Radiation (UV,PAR etc)



Software “InfraLog” is supported by Windows tablets



Changing the battery is very simple



### 1a Temperature Measurements

Option Temp: the logger comes with a high precision sensor type PT1000. The internal sensor is fitted on the surface of the enclosure for optimum thermal contact with the environmental medium.

**Available for model: DK310, DK314**

Option -DM: the sensor is built-in to a 100mm stainless steel pipe for easy insertion in ducts or food. We offer the radiation/rain shield TR351 for outdoor temperature measurements which provides protection against interferences from solar radiation.

**Available for model: DK310-DM, DK314-DM**

### 2 Status LED

LED flashes at logging intervals.

It also indicates the exceedance of thresholds and low battery levels.

## All Measurements of the rugged<sup>plus</sup> Family



with 100mm stainless steel pipe

### 1b Humidity/Temp. Measurements

A special filter protects the integrated humidity/temperature sensor against dust and condensation.

The sensor is resistant to chemicals and features a high long-term stability of less than  $\pm 1\%$  RH/year.

Using latest sensor technology, a measurement accuracy of up to  $\pm 2\%$  RH and  $0.3^\circ\text{C}$  as well as a fast response time is achieved.

Therefore the loggers can be used in applications with sophisticated scientific and technological demands.

With Option -DM the sensor is placed in a 100mm stainless steel pipe, which protrudes from the logger.

We offer the radiation/rain shield TR357 for outdoor temperature measurements, available for model: DK320, DK323 and DK390. We offer the inexpensive and easy-to-mount-radiation shield TR350A for meteorological surveys.

This offer protection against interferences from solar radiation and rain in outdoor applications.

**Available for models: DK320/-DM, DK323/-DM, DK324-DM, DK390/-DM, DK391**



radiation shield TR357



with radiation shield



### 3 Option Baro - Barometric Pressure

The Baro sensor is for absolute pressure and was optimised in particular for the range of  $10 \dots 1300\text{hPa}$ .

It is suited for a variety of applications such as environmental or climate studies, meteorological research and also in clean rooms and laboratories.

**Available for models: DK323, DK323-DM, DK391**

### 4 LUX - Illuminance measurements

The spectral sensitivity of the built-in LUX sensor was adjusted to meet the sensitivity of human visual perception so as to weight the brightness as if it were perceived through the human eye. It can be used both for natural sunlight and artificial light sources.

In addition, we offer a selection of sensors with different spectral ranges for scientific research. The entire series of radiation sensors can be connected to the external input channels. A discrete data sheet is available for you online.

**Available for models: DK361, DK362, DK391**

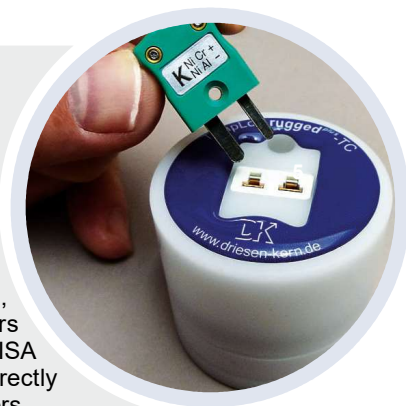
### 5

#### Thermocouple Sensors

While the loggers already mentioned allow connection of thermocouple probes to particular ports, thermocouple sensors equipped with a mini ISA connector can be directly installed to these loggers.

You can use thermocouple types K, T, J, B, E, R, and S. When choosing this option all other internal sensors as well as options for external connection are omitted.

**Available for models: DK315, DK316**



## 6 Additional Inputs

Besides the logger's integrated sensors you can connect up to two probes from our wide range of energy-efficient probes to the additional input channels (see pages 12-13 for further details). What is more, you can also feed in every kind of standard signal (e. g. 0...20mA, 0...10V, pulse/frequencies), PT100, PT1000 as well as thermocouple types K, T, J, B, E, N, R, S. The 20-bit A/D converter provides extremely high resolution and precise measurements.

Cable types DKCU/DKCI and DKCP are required for standard signal input and are sold separately.

**Available for model:** 1 Channel DK311,  
2 Channel DK312, DK390, DK391

## 7 Flexible Input Terminal - for all Sensors

The input terminal of the DK336/DK337 allows you to connect up to two external sensors or signals which are recorded with high resolution and accuracy. It also provides the required supply voltage for external sensors.

The most important advantage of these input terminals is ist without the need for any special connection cables (DKCI...DKCP\*) when measuring current/voltage/pulses.

\*DKCP is not required for potential free pulses and pulses <3V.  
For higher pulses (max. 24V) DKCP-0 is required.

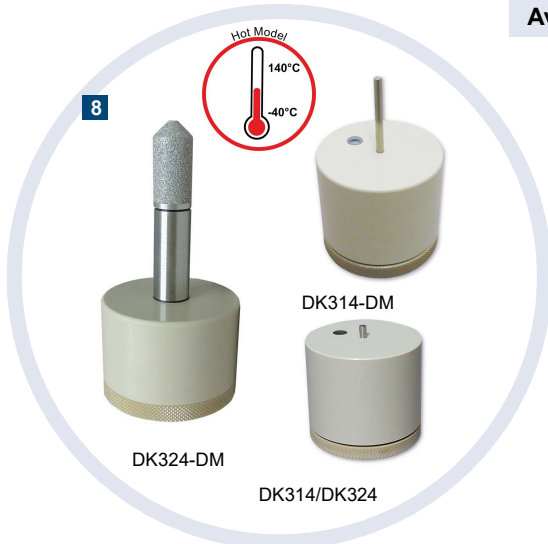
**Available models:** DK336/DK337

## Flexible Input Terminal - also for Strain Gauges

Just like the DK336 the DK337 is equipped with two input terminals but in addition it has two other essential features: This special edition can process even very small measurement signals such as from Wheatstone bridges, force or position sensors and strain gauges.

It supplies a high-precision constant current required for the sensor supply of strain gauges.

**Available model:** DK337



## 8 High Temperature Logger up to 140°C

These logger models were specifically designed for high temperature applications.

The temperature logger DK314 can operate at max. 150°C and the humidity/temperature logger DK324 may be used at up to 140°C.

Both models can be ordered with -DM option, probe -30, -50, -100mm.

Their special enclosure, optimised electronic components and a particular calibration make them suitable for process monitoring applications such as the food, medical and pharmaceutical sectors.

These logger will also calculate A0-Value according to EN 15883-1 for validation of washer disinfectors.

**Available for models:** Temperature DK314, DK314-DM  
Humidity/Temperature DK324, DK324-DM

## rugged<sup>plus</sup> Series Specifications

**Memory capacity:**  
**Battery type LITH35**  
**Battery type LITH12**

4 million readings  
SL-550/S (high temp loggers)  
SL-750/S (all others)

**Included in delivery:**

Data logger, 1x lithiumbattery, Software InfraLog Basic, USB cable, manual, Certificate of Conformity

**Battery life:**  
(@different interval)

4 years @ 1 minute  
230 days @ 10 seconds  
25 days @ 1 second

**Optional accessories:**

Software InfraLog Light or Enhanced, calibration certificate, Wall holder, carrying case, lead seal kit, DKCP/ DKCU/ DKCI, DKCK cables

**Interval:** configurable, see table page 10

## All ruggedPlus-Models



All rugged<sup>plus</sup> Models at a Glance: Measured Variables and Connectable External Sensors

Models	Internal Sensors				External Sensors		
	Temperature	Humidity	Barometric Pressure	Illuminance	PT100/PT1000/Thermistor/ Thermocouple. Voltage/Current/Pulse, Digital RH/T Probes, Water Detector, Soil Moisture Sensor	ELV/Strain Gauge	Thermo-couple with mini ISA
DK310	x						
DK310-DM	x						
DK311					x (1)		
DK312					x (1)		
DK314/314-DM	x						
DK315							x
DK316							x
DK320	x	x					
DK320-DM	x	x					
DK320-DMTR	x	x					
DK323	x	x	x				
DK323-DM	x	x	x				
DK324/324-DM	x	x					
DK336					x		
DK337					x	x	
DK361				x			
DK362	x	x		x			
DK390/390-DM	x	x			x(1,2)		
DK391/391-DM	x	x	x	x	x(1,2)		

1 = connecting thermocouples with Mini-ISA-plug requires cable type DKC-TC-4

2 = connecting voltage/current/pulse signals requires cable types DKC-U-4/DKC-I-4/DKC-P-4



# Data logger DK323 HumiLog rugged<sup>plus</sup> in the field



© Georesearch Volcanedo

... monitoring at a depth of 1300 m within the volcanic collapse caldera on Sumbawa (Lesser Sunda Islands, Indonesia)

„Georesearch Volcanedo Germany successfully deployed a HumiBaroLog rugged<sup>plus</sup> in 2013 and 2014 during two first-time expeditions to the deepest caldera on earth which originated at the beginning of the Common Era.

It reliably recorded meteorological data in the caldera even under extreme environmental conditions. The rough terrain would have made the transportation of a larger weather station to the crater floor difficult which is why the small, compact data logger proved to be the right, powerful instrument for the task.”

Georesearch Volcanedo Germany

## rugged<sup>plus</sup> Series Specifications

rugged <sup>plus</sup> -Model	High mm <sup>2</sup>	Protection Class	Measuring Range	Battery Type	Shaky-Start	Enclosure
DK310	30	IP68	-40/+90°C	LITH-12	x	POM
DK310-DM <sup>1,3</sup>	30+100	IP68	-40/+90°C	LITH-12	x	POM
DK311	30+3	IP65	-40/+90°C	LITH-12	x	POM
DK312	30+3	IP65	-40/+90°C	LITH-12	x	POM
DK314	45+5	IP68	-40/	LITH-35	-	Peek
DK314-DM <sup>1,3</sup>	45+30/+50/+100	IP68	+150°C	LITH-35	-	Peek
DK315	45	IP40	-40/+90°C	LITH-12	x	POM
DK316	45	IP40	-40/+90°C	LITH-12	x	POM
DK320	32	IP65	-40/+90°C	LITH-12	x	POM
DK320-DM <sup>1,3</sup>	30+100	IP65	-40/+90°C	LITH-12	x	POM
DK320-DMTR <sup>4</sup>	70	IP65	-40/+90°C	LITH-12	x	POM
DK323	32+3	IP65	-40/+90°C	LITH-12	x	POM
DK323-DM <sup>1,3</sup>	30+100	IP65	-40/+90°C	LITH-12	x	POM
DK324	37	IP65	-40/	LITH-35	-	Peek
DK324-DM <sup>1,3</sup>	36+63	IP65	+140°C	LITH-35	-	Peek
DK336	30+3	IP40	-40/+90°C	LITH-12	x	POM
DK337	30+3	IP40	-40/+90°C	LITH-12	x	POM
DK361	30	IP65	-40/+90°C	LITH-12	x	POM
DK362	32	IP65	-40/+90°C	LITH-12	x	POM
DK390	32+3	IP65	-40/+90°C	LITH-12	x	POM
DK390-DM <sup>1,3</sup>	30+100	IP65	-40/+90°C	LITH-12	x	POM
DK391	32+3	IP65	-40/+90°C	LITH-12	x	POM
DK391-DM <sup>1,3</sup>	30+100	IP65	-40/+90°C	LITH-12	x	POM

1 The DM models are available with a different sensor length (30, 50, 100mm). The order code is DK314-DM-30, DK314-DM-50, DK314-DM-100

2 Enclosure high plus sensor or sensor slot high (DK390, DK391)

3 When installing a DM model please ensure that the light sensor is not shaded by the probe or other materials.

4 Radiation shield D=55 mm

## Connecting sensors and signals

The dedicated models DK311/DK312/DK390/DK391/DK336/DK337 have input sockets to connect external sensors and signals. We offer IP65-splash water resistant models and IP40 dust protected versions:

### Dust protected models (DK336/DK337)

If the logger is going to be used in normal environment such as indoor and industrial sites the models DK336/DK337 may be used. These flexible loggers have terminal block inputs which allow for connecting any type of signal (i.e. current, voltage, pulse, ELV or strain gauges (DK337 only) All standard probes/transducers may be connected to these logger as well. Simply select order code "-0" for bare wires (at probe cable end). The plug for connection is already included with the logger.  
(i.e. CM-325-V2000-0 as a temperature probe type CM with a 2m PVC-lead, no plug)  
More information about probes can be found on page 11/12.



### Loggers for outdoor use, IP65 (models DK311/DK312/DK390/DK391)

If you intend to use the logger in an outdoor environment, you may choose any of the models DK311/DK312/DK390/DK391 without any further protection. These loggers have connectors to suit our standard probes and signals. Simply select order-code "-4" and the sensors will be fitted with the appropriate connector.  
(i.e. RFT-325-V2000-4 as a combined humidity and temperature probe Type RFT with a 2m PVC cable lead and a plug for DK311/312/390/391)  
More information about probes can be found on page 11/12.



If you intend to connect electrical signals or third party sensors to our loggers, choose from the following options:

### DK311/DK312/DK390/DK390-DM/DK391

DKC-S-V-2000-4 Voltage signals 0-1V, pulse signals <3V, or third party temperature sensors, 2m lead, Tmax 80°C  
 DKC-U-V-2000-4 Voltage signals 0-10V, 2m lead, Tmax 80°C  
 DKC-I-V-2000-4 Current signals 0..20mA, 2m lead, Tmax 80°C  
 DKC-P-V-2000-4 Pulse signals between 3 to 24 VDC, 2m lead, Tmax 80°C  
 DKC-TC-4 Adaptor for any type of thermocouples (K, T, J, B, E, N, R, S) with Mini-ISA-connector, 0,15m cable, (connector f. DK311/312/390/391, Tmax 80°C)

### DK336/DK337

DKCP-V-2000-0 Pulse signals >5V, 2m lead, Tmax 80°C  
 DKC-TC-0 Adaptor for any type of thermocouples (K, T, J, B, E, N, R, S) with Mini-ISA-connector, 0,15m cable, (bare wires for DK336/337, Tmax 80°C)

## Current/Voltage/Pulse Measurements

The models DK311/DK312/336/DK337/DK390/DK391 can accept standard signals as follows:

### Single-ended Voltage Signals DK311/312/336/337/390/391

Range (mV):	0-10	0-20	0-50	0-100	0-1V	0-2,5	0-5V	0-10V	0-50V <sup>3</sup>
Resolution (µV) <sup>3</sup> :	0.58	0.58	0.76	1.54	15.4	38.9	76.9	154	750
Input impedance (MOhm):	2.5	2.5	2.5	2.5	2.5	0.1	0.1	0.1	0.1
Accuracy:	0.1% of selected measuring range								

<sup>3</sup> Single-ended signals can be logged at a maximum of 32 Hz, in which case resolution increases by 10 times the specified values.

<sup>4</sup> The range of 0-50V is only available for models DK336/DK337

### Current DK311/312/336/337/390/391

Range (mA)	0 - 24mA
Resolution (µA)	0.36 µA
Input impedance	10 Ohm
Range (Ohm)	1MOhm
Accuracy	0.1% of selected measurement range

### Pulse (potential-free) DK311/312/336/337/390/391

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

### Pulse (Voltage Pulses, max 24V) DK311/312/336/337/390/391

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

### Pulse:

Potential-free signals or signals with a low voltage of <0.5 VDC and a high voltage between 2 and 3 VDC can be applied with the standard cable DKCS (not included in delivery). Measuring higher pulse levels of up to 24V (max.) requires cable type DKCP.

## Strain gauge and UltraLow voltages (high impedance)

The model DK337 can also be used to measure strain gauges. The loggers offers a very stable supply for whatstone bridges (600-700 Ohm) In addition, the model DK337 can additionally be configured to measure bipolar voltage with a resolution of up to 150nV. The range can be scaled according to your demands.

### High Impedance Mode (DK337 only)

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	1 GOhm					
Accuracy:	0.1% of selected measuring range					

<sup>2</sup> Maximum sample rate is 1Hz. This range is mostly used for measuring electrochemical balancing processes .

### Strain Gauge Measurements (Full-Bridge 60...700Ohm), DK337 only

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	2.5	2.5	2.5	2.5

<sup>1</sup> Strain gauge measurements can be conducted in fast mode at up to 32 Hz, in which case resolution decreases by 10 times the specified values.

## Sensor Specifications

### Humidity Sensors

Humidity (internal/external)	Range	Resolution	Accuracy
	0..100%RH	0.04%RH	ref. Graph A

### Calculated values:

In addition to relative humidity you may also get calculated values such as absolute humidity, dewpoint, wet bulb temperature, aW-Value, mixing-ratio, norm humidity, enthalpy, TH70/80-value.

The humidity sensor can be used in a range of 0...100%RH. It shall not be excessively wetted and not be used in an environment of extremely high humidity and high temperature at the same time.

The graph shows the limits for such an environment.

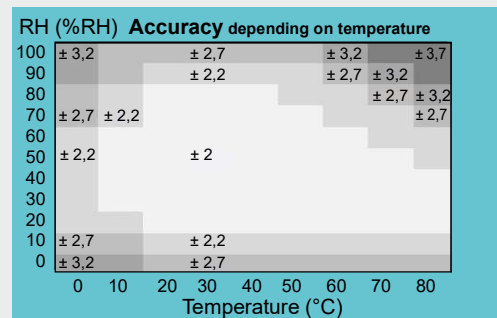
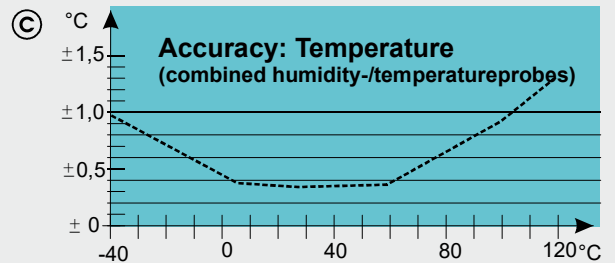
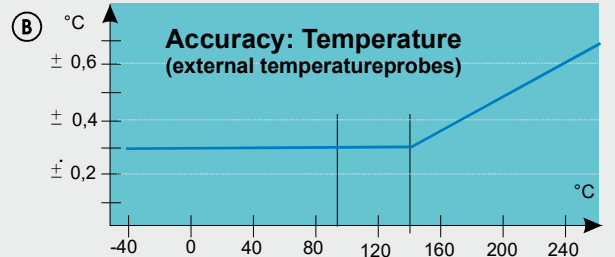
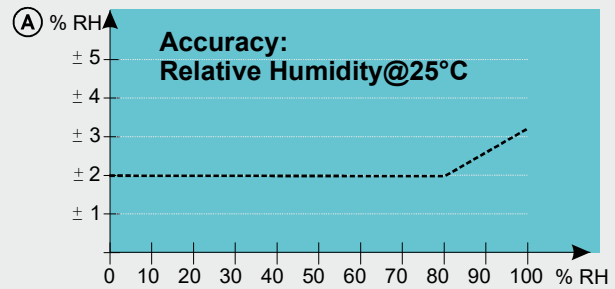
If used outside the normal conditions the humidity reading may temporarily offset by about up to 3%. After return to normal conditions it will slowly return to calibration state by itself. Use outside the maximum conditions is not recommended.

Temperature	Range**	Resolution	Accuracy
DK310, DK310-DM	-40...+90°C	0.01 C°	ref.Graph B
DK314, DK314-DM	-40...+140°C	0.01 C°	ref.Graph B
DK324, DK324-DM	-40...+140°C	0.01 C°	ref.Graph B
PT100, PT1000*	-100...+250°C	0.01 C°	ref.Graph B
Thermistor	-40...+120°C	0.01 C°	ref.Graph B
Thermocouple			
TypeK	-200...+1400°C	0.05 C°	acc. TC- Class I/II
TypeJ	-210...+1200°C	0.05 C°	
TypeT	-200...+400°C	0.05 C°	
TypeB	-250...+1820°C	0.05 C°	
TypeE	-200...+1000°C	0.05 C°	
TypeN	-200...+1300°C	0.05 C°	
TypeR	-50...+1750°C	0.05 C°	
TypeS	-50...+1770°C	0.05 C°	
Temperature in combined humidity-/temperature Sensors	-40...+120°C	0.01 C°	ref.Graph C

\* Alle standard- temperatureprobes use a precise PT1000-sensor

\*\* You may save readings also in K (Kelvin) or F (Fahrenheit).

The models DK314 and DK324 will also calculate A0-Value for cleaning and desinfection applications.



Barometric Pressure	Range	Resolution	Accuracy
DK323/DK391	600...1300hPa	0.1 hPa	± 1.5 hPa

Visible light	Range	Resolution	Accuracy
DK361/362/391	0...120.000 Lux	1 Lux	± 20% of range

## Specifications - Sample rate / Interval

The interval in which the readings are taken is user-configurable. The following table shows the maximum sample rate as a function of the selected sensor. The configurable rate has to comply with the sensor which has the lowest sample rate.

Sensor	max. Sample rate	Sensor	max. Sample rate
PT1000, Pt100	32 Hz	Voltage (DVM)	32 Hz
Thermistor	32 Hz	Voltage (HighImp)	4 Hz
Thermocouple	1 Hz	Pulse	1 Hz
HumidityTemp.	4 Hz	Frequency	1 Hz
Condensation	32 Hz	Status	32 Hz
Waterdetector	1 Hz	Light	1 Hz
Soil moisture	1 Hz	CO2	1 Min
Resistance	32 Hz	Pressure, baro	4 Hz
Strain gauge	32 Hz	Pressure, analogue	32 Hz
Current	32 Hz	Differential pressure	8 Hz

# Connectable Probes and Accessories

for rugged<sup>plus</sup> Data Logger Series DK3xx<sup>plus</sup>

## Temperature Probes



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

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



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



**EU Surface Probe**  
L=20mm, W=10mm

**EUM Surface Probe**  
w. magnet L=25mm, W=14mm



**MT Sheathed Thermocouple**  
D=3mm, L=200mm  
high temperature up to 1 200°C  
(see separate data sheet for more thermocouple probes)

## Humidity/Temperature Probes



**RFT** - Probe for measuring humidity and temperature.  
Operates at -20... +80°C and up to -40/+120°C with PTFE-cable (G) type G. Dimensions: D=8x35mm



**DKRF300** - Probe for measuring humidity and temperature.  
Operates at -20... +80°C  
Dimensions: D=8x101mm  
Suitable for DK325, DK390



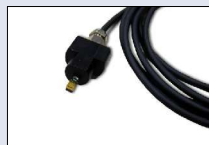
**RFTXS** - Miniaturised probe for humidity in walls (flush mounting, screed, tiles) Probe dimensions D=4,6mm, L=200mm, max . +80°C



**RFTXXS** - Special probe with extra small dimensions (D=4mm, L=20mm), Cable length: 2m, Operating conditions:-40...+80°C -40.+120°C with PTFE-cable (G)



**RFTO** - Special probe for humidity/temp measurements in walls and boundary layers  
Operating conditions: -20...+80°C.  
D=30mm x H=10mm



**RFTW** - Special probe for measurements in boundary layers such as walls or intermediate spaces  
Dimensions L=45mm, W=20mm



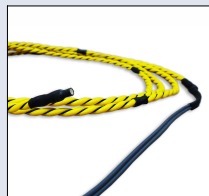
**DKRF374** - Humidity/temperature probe for compressed air up to 100 bar, G3/8" thread,  
Operating conditions: -20...+80°C.  
Dimensions: 100mm x 13mm



**Radiation/Rain Shield model TR351 / TR357**  
suitable for DM-models, DKRF-transmitter & DK320/323/390.  
Minimizes the impact of sunlight and rain.



**SHS** - Special probe for condensation detection.  
Condensation sensor signals 1 when condensation causes wetting. Operation at 0...50°C  
Dimensions: 60mm x 10mm



**Water detector FC**  
for measuring in spaces, for example under the screed after water ingress.  
Connection cable and active sensor cable available in different lengths.

## Connection Cables

Driesen+Kern GmbH offers a range of standard probes to connect to the rugged+ dataloggers.

When choosing a probe, please specify type of cable (-v or -G) , cable length (-2000 or -5000) as well as the type of connector (-0 no connector for DK336/DK337 or -4 rugged+ connector for all other models)

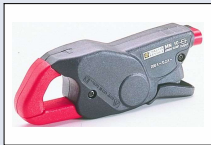
Standard probes are fitted with Type V PVC cables and can be used under conditions from -20...+80°C. Special Teflon® (Type G) cables allow operation within the range of -75...+250°C. Operating conditions of probes RFT-325 and RFTXXS-325 with the Teflon® cable are -40°C...+120°C. Order identifier paradigm: **DS-325-V-2000-0** stands for standard probe with 2m PVC cable and no connector; **DS-325-G-2000-4** is the standard probe with 2m Teflon® cable and a rugged plus mini connector. See separate data sheet for more probes.



## Connectable Probes and Accessories for rugged<sup>plus</sup> Data Logger Series DK3xx<sup>plus</sup>

Driesen + Kern offers a range of sensors that can be connected to the Data Logger Series rugged<sup>plus</sup>. Below is a selection of our products. Of course, you can also equip the device with another product if you do not find a suitable model among the listed sensors. Please do not hesitate to contact us for advice on how to choose the right sensor.

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



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



**Transducer**  
Model Uw : Umax= 650V (AC)  
(no aux. voltage required)  
Model UgT : Umax=600V (DC)  
Model IgT : Imax = 5A (DC)



**LP-50F Linear Position Sensor**  
Detects displacements  
or changes in length  
Total length: 129mm  
Electrical stroke max. 50mm



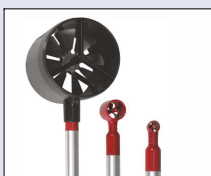
**K25 Load Cell**  
For tension and compression force  
measurements  
Range: 0.02..50 KN  
Accuracy: 0.1%/0.2%



**SKYE Light Sensors**  
We offer a variety of sensors,  
e. g. Pyranometers for total  
sunlight, UV and PAR sensors



**ECH20-10HS Soil Moisture Probe**  
Measures volumetric water content  
in soil.  
Insertion depth = 10 cm



**MA60 Micro/Mini/Makro  
Air Velocity Sensors**  
Range 0.2..40m/s  
MA6-Mikro: D=11x15mm  
MA6-Mini: D=22x28mm  
MA6-Makro: D=85x80mm



**Pressure Probe PSense650**  
Various models as waterlevel or  
screw-in probes with ranges from  
1 bar up to 100 bar  
Resolution: 0.1mm



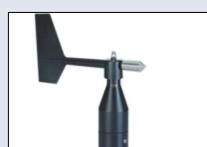
**ARG314 Tipping Bucket Rain Gauge**  
Resolution 0.1/0.2/0.5mm (options)  
Aerodynamic rain gauge made of UV  
resistant injection moulded plastic  
with self-emptying tipping bucket.  
(datasheet seperately available)



**Young 52202/03  
Tipping Bucket Rain Gauge**  
This rain gauge comes with a  
catchment area of 200 cm<sup>2</sup> and a  
resolution of 0.1mm. Can be de-  
ployed on flat surfaces or mounted  
to a pole. D=180mm, H=300mm



**WG3400 Air Velocity Transducer**  
Reasonably priced  
Range: 0.5..35m/s  
Accuracy: 0.5m/s i. e. 5%  
(no aux. supply needed)



**WR3124 Weather Vane**  
Well-priced Potentiometer  
Resolution: 0.5°  
(requires no additional  
power supply)

### Accessories for rugged<sup>plus</sup> Data Loggers



**Wall Holder**  
Easy installation  
Lead seals can be attached



Carrying Case for up to 4 data  
loggers with cables and sensors



**Lead Seal Kit**  
Includes 50 pieces of wire and 50  
numbered disposable seals.  
Pressed together manually.



A Certificate of Calibration can be  
provided with every logger upon  
request!

# Software *InfraLog* for Windows V5 for the rugged<sup>plus</sup> Series



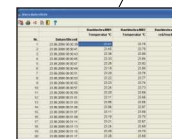
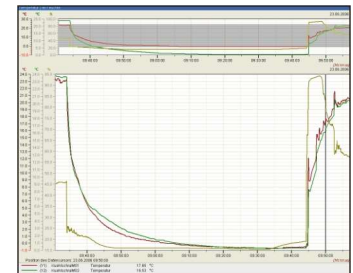
InfraLog V5

Basic-Version  
Light-Version  
Enhanced-Version

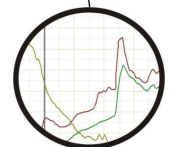
The software *InfraLog* provides EASY, SECURE & CONVENIENT control for all Driesen + Kern products. After establishing a connection between your logger and PC, *InfraLog* automatically detects the device. *InfraLog* V5 offers a multitude of features for the data logger series rugged<sup>plus</sup>. *InfraLog* is available in three versions: Basic (included in delivery), Light and Enhanced (both optionally available) each with a different number of features, including password protection and language options. It may be installed on all modern Windows-versions using a PC, notebook or windows-based tablet.

INFRALOG Features	Basic	Light	Enhanced (Professional)
Automatic device detection	•	•	•
Conversion from base units of measurement into customizable physical values	•	•	•
Load/save device settings	•	•	•
Upgrade device formware via USB	•	•	•
Save readings and settings 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	•	•	•
Live readings	•	•	•
Export to Excel (fast conversion)	•	•	•
Calculate dewpoint, humidity etc.	•	•	•
Supports USB 2.0 for download rates of 1 Mbit (100 000 readings in 20s)	•	•	•
Menu languages (German, English, Spanish, French, Italian, Russian)	•	•	•
Compatible with Windows 7, 8 & 10	•	•	•
Formula compiler calculates any measured variable	•	•	•
y/t charts (readings over time)	•	•	•
Three scaleable axes	•	•	•
Zooming function	•	•	•
Meter readings at the cursor	•	•	•
Display as spreadsheets	•	•	•
Combine a series of measurements 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 analysed 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

**NEW**

## Software *InfraLog* for Android

New Android app for your smartphone/tablet. So you have access to your measurement data anytime and anywhere.



For more information see QR code.



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