

# Accessories, interfaces, sensors and complete solutions.

## Boomerang is much more than just another temperature log system.

Boomerang is a versatile and flexible monitoring and log system, capable of doing data acquisition in many areas and from many types of sensors, probes, instruments and other industrial/medical equipment.

Anywhere there are needs for continuous monitoring and quality assurance, Boomerang is the natural choice. Boomerang can provide a complete solution, featuring history records for traceability and reports, process and routines overview and alarms on deviations. This datasheet shows some of our most common sensors, accessories and other solutions for environmental monitoring. If your application have needs for other sensors or interfaces, please do not hesitate to contact us, we can most likely help you with all monitoring tasks.

### Digital Temperature Sensor

FT011/030

#### Description

The digital temperature sensor is our standard version. It is designed for through-hole assembly into the equipment where you want to monitor the temperature. The sensor has a rugged design and the metal casing is acid-proof. No interface is needed the sensor is connected directly to the measurement nodes.

#### Applications

- Refrigerators/Freezers
- Cold-storage room
- Outdoor temperature
- Indoor temperature
- Incubators
- Heating cabinets

#### Specification

Temperature range: -10°C - +85°C , ± 0,5°C  
(or -20°C - +125°C, ± 2°C)

Probe: 6x70 mm  
Cable: 3,0 m



### Combined Humidity and Temperature Sensor Probe

FH002

#### Description

This humidity and temperature sensor have a ruggedized design against rough environments, in a stainless steel housing. No interface is needed the sensor is connected directly to the measurement nodes.

#### Applications

- Storage rooms
- Warehouses
- Clean rooms
- Climate chambers

#### Specification

Measure range, accuracy, Humidity: 0-100% 10-90%, ±1.8%

Measure range accuracy, Temperature: -40°C - +120°C 0-40°C, ±0.5°C

Probe: 14x180 mm  
Cable: 1,5 m



## Combined Humidity and Temperature sensor Wall mounted

FH003

### Description

This humidity and temperature sensor is designed to be mounted on a wall. It offers excellent air throughput. No interface is needed the sensor is connected directly to the measurement nodes.

### Applications

- Storage rooms
- Warehouses
- Clean rooms
- Climate chambers

### Specification

Measure range, accuracy, Humidity: 0-100% 10-90%,  $\pm 1.8\%$   
Measure range accuracy, Temperature:  $-40^{\circ}\text{C}$  -  $+120^{\circ}\text{C}$   $0-40^{\circ}\text{C}$ ,  $\pm 0.5^{\circ}\text{C}$   
Dimensions (H/W/D): 96x81x24 mm  
Cable: 1,5 m



## High resolution and accuracy, Temperature Solution

THR001

### Description

The high accuracy solution is delivered with an indicator panel and a calibration certificate from our certified calibration partner. The sensor is a thermocouple wire with exposed measuring junction. It is excellent for temperature measurements of gas and air. It can also be used for surface temperature if attached to an object and (because of its small size) for measurements very close to an object. The exposed junction allows very fast response time.

The high accuracy solution connects to the measuring node.

### Specification

Accuracy:  $\pm 0,07^{\circ}\text{C}$  within calibrated range  
Probe: 0,9 x 1100 mm  
Indicator panel: Big, bright display ensure good visibility in high and low ambient lighting.



## Incubator Heraeus BBD6220 Solution

TIH001

### Description

The TIH001 interfaces to Thermo Scientific Heraeus BBD6220 incubators. Having this solution, Boomerang can continuously monitor and log Temperature, Humidity (RH) and  $\text{CO}_2$ -level in the incubator.

### Specification

Directly connects to the incubator via its special cable.



## Analogue Pt100 Temperature Sensor

FT012

### Description

The analogue Pt100 sensor offers excellent accuracy over a wide temperature range. The principle of operation is to measure the resistance of a platinum element. The sensor is designed for through-hole assembly into the equipment where you want to monitor the temperature. The sensor has a rugged design and the metal casing is acid-proof.

The Pt100/1000 interface is required (TAT002) to connect a Pt100 sensor to the Boomerang system or NSRA005

### Applications

- Blood freezers
- Freezers
- Low temperature/Ultra low temperature freezers
- Cold-storage rooms
- Ovens

### Specification

Temperature range:	-90°C - +200°C
	Class A according to IEC 60751
Sensor:	4 wired
Probe:	4,75*80 mm
Cable:	5,0 m or 10,0 m



## 2.1mm Pt100 Temperature Sensor

### Description

The 2.1mm Pt100 sensor is hermetically sealed at the sensor tip to provide continuous protection at the temperature measurement junction. The flexible sensor probe PFA cable forms a hermetic seal and electrically isolates the small RTD sensor, suited to a variety of applications.

The Pt100/1000 interface is required (TAT002) to connect a Pt100 sensor to the Boomerang system or NSRA005

### Applications

- Desktop incubators
- Benchtop measurements
- Incubators
- Cabinets

### Specification

Temperature range:	-60°C - +260°C
	Class A
Sensor:	4 wired
Probe:	φ 2.1 mm
Cable:	2 m



## Analogue Pt100 Temperature Sensor

FT004/030 (600 mm)

FT008/030 (1800 mm)

### Description

The sensor is designed for immersed assembly and the extra long metal casing can be curved to fit into a ultra-low temperature equipment. The sensor has a rugged design and the metal casing is acid-proof.

To convert signals to Boomerang Measuring Nodes, the Pt100 interface is required (TAT002) or NSRA005

### Applications

- Nitrogen freezers
- Cryo freezers
- Dishwashers
- Temperatures in tanks

### Specification

Temperature range:	-200°C - +200°C
	Class A according to IEC 60751
Sensor:	4 wired
Probe:	600 or 1800 mm
Cable:	3,0 m



## Pt100 Penetration Temperature probe

FT014

### Description

The penetration temperature probe with hand-grip, offers excellent handling for chill-sequences or warm keeping. The probe has a coned sharp point (tip) and is curved in the other end, for easy penetration into the measuring object. The cable is designed for easy cleaning (hygiene), both when used in cool and hot environments.

The analogue Pt100 sensor offers excellent accuracy over a wide temperature range. The principle of operation is to measure the resistance of a platinum element. The Pt100/1000 interface is required (TAT002/ TAT004) to connect a Pt100 sensor to the Boomerang system. The sensor has a rugged design and the metal casing is acid-proof.

### Applications

- Blast chillers / freezers
- Cooling (chill) sequences
- Warm keeping

### Specification

Temperature range:	-90°C - +260°C
Sensor:	4 wired
Probe:	Coned sharp point (tip) and curved end
Cable:	3,0 m (for other lengths please contact us)



## Pt100 Surface Temperature probe with magnet

FT023

### Description

The surface temperature sensor with magnet and spring mounted probe. Powerful 6 kg (13 lb) Pull Magnet

### Applications

- Surface Temperature of Ferrous Materials

### Specification

Temperature range:	0°C - +400°C
Sensor:	4 wired
Probe:	spring mounted



## CO2 sensor (Vaisala GMM221 4-20mA)

FC001

### Description

Parallel CO2 monitoring in incubators

The FC001 is designed for carbon dioxide measurements in harsh and demanding applications.

Its critical parts are made of silicon; this gives the sensor outstanding stability over both time and temperature.

Since water vapour, dust, and most chemicals do not effect the measurement, sensor can be used in harsh and humid environments.

### Applications

- Incubators
- Greenhouse control
- Fermentors

### Specification

Range: 0 ... 20% ( $\pm 0,3\%$ )

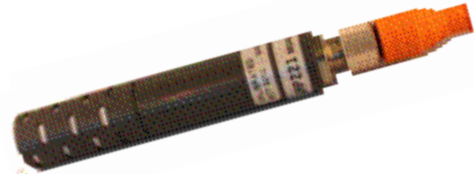
Operating Temperature:  $-20^{\circ}\text{C} \dots +60^{\circ}\text{C}$

Operating Pressure: 700 ... 1300 hPa

Operating Humidity: 0 ... 100 %RH, non-condensing

Probe housing material: PC plastic

Probe housing classification: IP65



## Submersible pressure sensor Level monitoring

FP003

### Description

A submersible sensor for monitoring of liquid levels in tanks or other large containers. The sensor, as well as the cable, is robust and rugged for use in harsh and rough environments.

### Applications

- Tanks for liquids
- Water tanks
- Fuel tanks
- Chemicals tanks
- Fat tanks

### Specification

Output: 4-20mA (mbar, psi, m H<sub>2</sub>O)

Protection class: IP 68 (acc. to DIN EN 60529) respectively NEMA 6P1



## Gas TrEx Transmitter for Oxygen monitoring

FC008

### Description

The Gas TrEx will measure the Oxygen level in a room and can be connected to Boomerang for continuous monitoring and log. The Gas TrEx also has a display for direct reading of actual oxygen level and external alert options like lamp / siren / light strobe can also be connected.

### Applications

- Cryo tank (LN<sub>2</sub>) storage rooms

### Specification

Sensor: Electrochemical cell

Range: 0-25%

Output: 4-20mA (linear)

4 × relays

LCD display

Protection class: IP 66

Ex-class: ATEX: II 2G Ex dIIC T6 Gb



## Transport logger Solution

BTLS001

### Description

The Transport Logger solution enables logging during transports, temporary logging on critical locations and/or provides a flexible low cost alternative to continuous temperature monitoring. Transport logger cards are easy to attach to any shipment and logging interval as well as alarm limits are configurable. The checker enables a quick status check upon receiving a shipment and the reader allows you to store the logged data in your Boomerang system.

### Specification

Kit: Installation CD  
Five (5) Transport logger cards Standard  
Transport logger reader (USB)  
Handheld Checker

### Accessories

FU002	Transport logger card Standard 1921G, 2kbytes memory (-40°C to +85°C) Accuracy $\pm 1^{\circ}\text{C}$ from -30°C to +70°C
FU003	Transport logger card High resolution 1922L, 8kbytes memory (-40°C to +85°C) Accuracy $\pm 0.5^{\circ}\text{C}$ from -10°C to +65°C
FU004	Transport logger card High temp. 1922T, 8kbytes memory (-40°C to +125°C) Accuracy $\pm 0.5^{\circ}\text{C}$ from +20°C to +75°C
DR002	Boomerang Transport Checker Handheld checker with status indications



## Temperature stabilization block

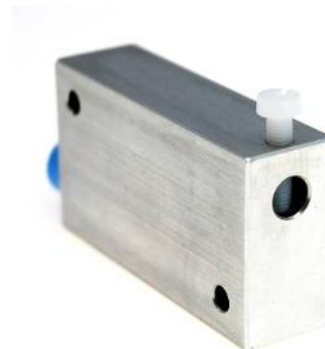
DBU001

### Description

The aluminium blocks stabilize temperature readings from our sensors. Instead of registering fast temperature changes in open air, the temperature readings will be filtered by the mass of the aluminium block. The block has an additional 5mm input hole which allows for calibration probe. Widely used in refrigerators, freezers, cool storage etc..

### Specification

Material: Aluminium (Al)  
Length / Width / Height: 70 / 20 / 40 mm  
Weight: approx. 140 gram



## Temperature stabilization test tube

DBU006

### Description

The aluminium test tube stabilize temperature readings from our sensors. Instead of registering fast temperature changes in open air, the temperature readings will be filtered by the mass of the aluminium block. Widely used in refrigerators, freezers, cool storage etc..

### Specification

Material: Aluminium (Al)  
Length: 95 mm  
Diameter: 17 mm  
Weight: approx. 50 gram



## Temperature stabilization 10ml Glycerol

DBU008

### Specification

Material: Aluminium (Al)  
Length: 26 mm  
Diameter: 25,4 mm  
Weight: approx. 30 gram

