

Boomerang - Sensors and probes

Description

The different types of Boomerang nodes can monitor and log a wide variety of sensors and probes, ranging from Temperature sensors, Humidity, CO2, Differential pressure and much more.

Different applications requires different sensors and probes, this datasheet describes the specifications for our most popular sensors and also which available Boomerang nodes they can connect to.

Applications

- Hospital laboratories
- Blood banks
- IVF / Infertility clinics
- Biotech laboratories
- Clinical laboratories
- Chemistry laboratories
- University laboratories
- Pharmaceutical producers
- Food producers
- Restaurants
- Dairies
- Catering facilities
- Pharmacies
- Cold logistics
- Cold storage
- Veterinary labs
- ...and much more

Digital sensors



FT04x - Digital temperature sensors

Description

The digital temperature sensor is our most commonly used temperature sensor. The standard part FT040 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.

All FT04x sensors are verified and tested at factory, test certificate is available upon request.

No additional interface units are required, the sensor is connected directly to the measurement nodes or splitter-box using standard RJ12 connector.

Specifications

- Temperature range and Max. thermometer error:
-10°C to +85°C , ± 0,5°C
(-30°C to +100°C , ± 1°C)
- Resolution: 1/16 °C (0.0625°C)

FT040 Std digital temperature sensor
 Probe: 6×70mm
 Cable: 3 meter (FT040/030)
 5 meter (FT040/050)
 Use: Refrigerators, Freezers, Incubators,
 Cold storage rooms

FT041 Flex cable digital sensor
 Probe: 6×15mm
 Cable: 3 meter total
 Flex length 750mm
 Flex width 0.20mm
 Accessory: DR020 Clamping device
 Use: Benchtop incubators, Refrigerators



FT040



FT041 (+ DR020)



Node compatibility

FT040/0x0 BBO concept: XBB0xx
 WIN concept: NWIN003

FT041/030 BBO concept: XBB0xx
 WIN concept: NWIN003



Digital sensors



(continued)

FH010 - Digital RH + T sensor, Temperature / Humidity

Description

The digital RH/T sensor is designed for wall-mount in the room, to log ambient Temperature and Humidity into our BoomBridge devices (BBO).

No additional interface units are required, the sensor is connected directly to our BBOs or splitter-box using standard RJ12 connector.

Specifications

- Temperature range and accuracy:
-10°C to +85°C , ± 0,4°C
- Humidity range and accuracy:
0% RH to 80% RH , ± 3% RH

FH010 Digital temperature and humidity sensor
Wall mounted, 80×80×21 mm
Use: Room RH/T, ambient

FH009 Digital sensor Light / Barometric pressure /
temperature / humidity
Light: 0 - 65000 Lux (±20%)
Pressure: 300 - 1100 hPa/Millibar (±3)
Wall mounted, 80×80×21 mm
Use: any temperature / humidity / light /
barometric pressure sensitive system



FH010 (+ BBO XBB006)

Node compatibility

FH010	BBO concept: XBB0xx
FH009	BBO concept: XBB0xx

FT011 - Digital temperature sensors for S2-nodes

Description

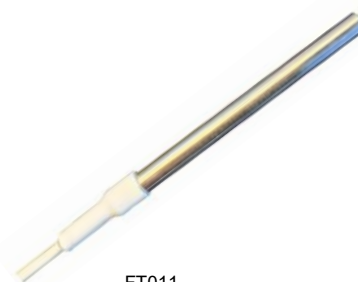
The digital temperature sensor is designed for use with our S2 wireless nodes (NSRA0xx). The standard part FT011 is designed for through-hole assembly into the equipment where you want to monitor the temperature. The sensor has a rugged design and the metal casing is acid-proof.

All FT011 sensors are verified and tested at factory, test certificate is available upon request.

Specifications

- Temperature range and Max. thermometer error:
-10°C to +85°C , ± 0,5°C
(-30°C to +100°C , ± 1°C)
- Resolution: 1/16 °C (0.0625°C)

FT011 Std digital temperature sensor
Probe: 6×70mm
Cable: 3 meter (FT011/030)
5 meter (FT011/050)
Use: Refrigerators, Freezers, Incubators,
Cold storage rooms



FT011

Node compatibility

FT011/0x0	S2-nodes: NSRA0xx
-----------	-------------------



RTD Temperature sensors



Pt100 - RTD temperature sensors

Description

The RTD temperature sensor used for Low and Ultra-Low temperatures. The standard part FT012 is designed for through-hole assembly into the equipment where you want to monitor the temperature. The sensor has a rugged design, the cable can stand low temperatures and the metal casing is acid-proof.

All RTD FT0xx sensors are verified and tested at factory, test certificate is available upon request.

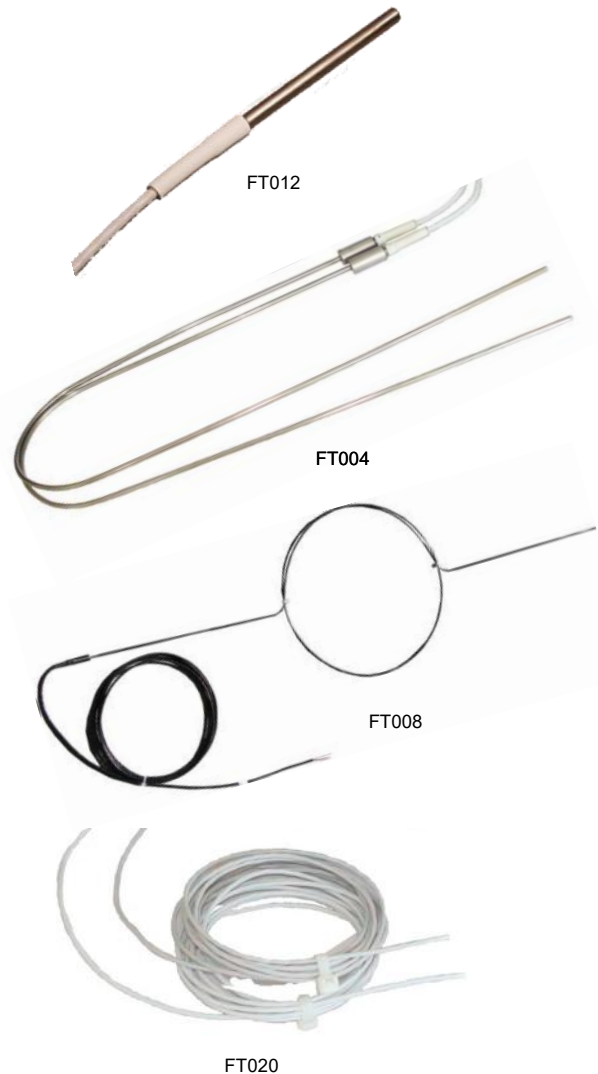
The RTD FT0xx sensors connects via screw-terminals directly to WIN-nodes or to our BBOs via our Pt100-interface (XBT006).

Specifications

- FT012** RTD Pt100 temperature sensor, 4-wired
 Probe: 4.75×80mm
 Range: -90°C to +200°C , ± 0,5°C
 Class A according to IEC 60751
 Cable: 5 meter (FT012/050)
 10 meter (FT012/100)
 Use: Refrigerators, Freezers and ultra-freezers, Cold storage rooms
- FT004** 600mm RTD Pt100 temperature sensor
 Probe: 3×600mm (flexible)
 Range: -200°C to +200°C
 Class A according to IEC 60751
 Cable: 1 meter (FT004/010)
 3 meter (FT004/030)
 Use: Liquid Nitrogen tanks (LN2)
- FT008** 1800mm RTD Pt100 temperature sensor
 Probe: 3×1800mm (flexible)
 Range: -200°C to +200°C
 Class A according to IEC 60751
 Cable: 3 meter (FT008/030)
 Use: Liquid Nitrogen tanks (LN2) or other large tanks, ovens
- FT020** Thin 2.1mm RTD Pt100 sensor, 4-wired
 Flexible PFA cable, hermetically sealed
 Cable: 2 meter, φ 2.1 mm
 Range: -60°C to +200°C
 Class A according to IEC 60751
 Use: Benchtop incubators, Refrigerators



BBO XBB006
 Interface XBT006
 Sensor FT012



Node compatibility

FT012/0x0	WIN concept: NWIN002 BBO concept: XBB0xx, via Pt100 interface XBT006 S2-nodes: NSRA005
FT004/0x0	WIN concept: NWIN002 BBO concept: XBB0xx, via Pt100 interface XBT006 S2-nodes: NSRA005
FT008/030	WIN concept: NWIN002 BBO concept: XBB0xx, via Pt100 interface XBT006 S2-nodes: NSRA005
FT020/020	WIN concept: NWIN002 BBO concept: XBB0xx, via Pt100 interface XBT006 S2-nodes: NSRA005



RTD Alarm contact sensors



FK002 - Alarm contacts - RTD emulated sensor

Description

The FK002 sensor detects dry-contacts (volt-free or potential-free contacts). The FK002 will detect if the relay output is "open" or "closed", open-loop or closed-loop.

The FK002 emulates RTD/Pt100 sensors and connects via screw-terminals directly to WIN-nodes or to our BBOs via our Pt100-interface (XBT006).

Specifications

FK002 2-wires, no connector on equipment side
 Cable: 3 meter
 Use: Alarm outputs from Incubators (Box, Benchtop or Time-lapse), Refrigerators, Freezers and much more



Node compatibility

FK002

 WIN concept: NWIN002
 BBO concept: XBB0xx, via
 Pt100 interface XBT006

FK002-PWR - Power sensor - RTD emulated

Description

The FK002-PWR sensor detects power failure to the NWIN002 node. The FK002-PWR will detect if power adapter delivers power to the node or not (and the battery back-up supplies power to the node).

The FK002-PWR emulates RTD/Pt100 sensors and connects in-line with the power supply to the NWIN002 and via screw-terminals directly to WIN-nodes.



Node compatibility

FK002-PWR

WIN concept: NWIN002

Sensors with analog signals



FC014 - CO₂, Carbon dioxide probe

Description

The FC014 (Vaisala GMP251) probe for measuring CO₂ in life science incubators, cold storage facilities, fruit and vegetable transportation, and in all demanding applications where stable and accurate percentage-level CO₂ measurements are needed.

The probe provides accurate and stable measurements also in varying and harsh conditions.

Accessory: Flat cable available for incubators without access-port, RD021.

Specifications

- CO₂ measurement range: 0 ... 20% CO₂ (±0.3%)
- Operating temperature range: -40°C to +60°C
- Operating Humidity range: 0% RH to 100% RH
- Calibrated at +37°C (with certificate)

FC014 Vaisala GMP251 CO₂ probe
 Size: 96 mm, Ø 25 mm
 Use: Box type of incubators



Node compatibility

FC014

 BBO concept: XBB012
 WIN concept: NWIN004
 S2-nodes: NSRA013


FC019 - Oxygen (O₂) sensor and alarm
Description

The FC019 (Analox O₂NE+) sensor for monitoring and log of Oxygen (O₂), and alarm on too low concentrations.

The FC019 (O₂NE+) is a wall mounted oxygen depletion monitor, perfect to protect those in areas where an inert gas is piped, stored or used.

The FC019 consists of a main sensor unit with digital display and a remote alarm repeater which is placed by the entrance to the room so you know if it is safe to enter or not.

Both parts of the system offer audible and visual alarms and the main unit continuously displays the ambient (O₂) levels for the area. Boomerang nodes will log the main unit for history records and alarm distribution.

Specifications

- Long-life oxygen (O₂) sensor, 8 years
- Oxygen (O₂) Range: 0.1 to 25%

FC019 Analox O₂NE+
Use: Cryo storage rooms (LN₂)


Node compatibility

FC019 BBO concept: XBB012
WIN concept: NWIN004
S2-nodes: NSRA013

FH012 - Combined Humidity & Temperature probe
Description

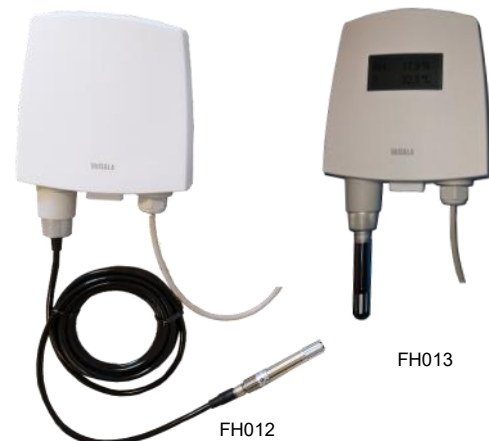
The FH012 (Vaisala HMT120) sensor for monitoring and log of Humidity and Temperature, having remote probe (3 meter cable).

The FH013 is the wall mounted version for monitoring RH+T, it has a display.

Specifications

FH012 RH range: 0 - 100% RH
RH accuracy: ±1.5% RH (0 - 90% RH, 0 - 40°C)
Temperature range: 0°C - +60°C
Temperature accuracy: ±0.15°C (0 - 40°C)
3 meter cable
Use: incubators, heated cabinets etc.

FH013 RH range: 0 - 100% RH
RH accuracy: ±1.5% RH (0 - 90% RH, 0 - 40°C)
Temperature range: 0°C - +60°C
Temperature accuracy: ±0.15°C (0 - 40°C)
Wall mounted and Display
Use: Wall mounted in cleanrooms


Node compatibility

FH012 BBO concept: XBB012
WIN concept: NWIN004
S2-nodes: NSRA013

FH013 BBO concept: XBB012
WIN concept: NWIN004
S2-nodes: NSRA013

Other types of sensors

**BTLS001** - Transport Logger Kit**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, alarm limits are configurable. The reader allows you to configure the Logger Cards and store the logged data in your Boomerang system.

Specifications

Kit: Five (5) Transport logger cards Standard
Transport logger reader (USB)
Transport Logger Client (Windows PC SW)

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 (0°C to +125°C)
Accuracy $\pm 0.5^\circ\text{C}$ from +20°C to +75°C

**DBU001/B** - Temperature stabilization**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

