



Data Logger Systems

FOR THERMAL PROCESS VALIDATION



MEDICAL | PHARMACEUTICAL | FOOD

-ebro-
a xylem brand

Data Logger Systems

Flexible data logger systems for the thermal process validation

ebro provides flexible measuring and documentation systems for the validation of various thermal processes. The reliable systems include easy to managing wireless radio or mini-data logger **EBI 10** and **EBI 11** series, which are placed directly in the process, as well as a software to process validation.

We also offer you a system for wired online measurement with up to 12 thermocouples with the **EBI 40**. An online measurement is also possible with the radio logger of **EBI 10 series**.

Our data loggers offer a wide variety to validate processes in the medical field, the pharmaceutical industry and the food industry.

- Washer-disinfectors
- Washer-disinfectors for endoscopes
- Bed pan washers
- Steam sterilizers
- Gas sterilizers
 - Ethylene oxide
 - Formaldehyde
 - H₂O₂
- Blood banks
- Medicine refrigerators
- Laboratories
- Freezers
- Stability chambers
- Cold storage
- Validation of store houses
- Incubators
- Retorts
- Pasteurization
- Spiral-cooker / cooler
- Transport facilities
- Refrigerators
- Smoke chambers
- Ovens
- Full water autoclaves



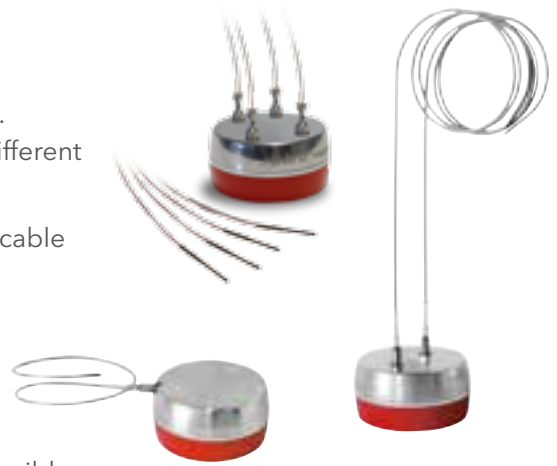
Temperature Data Logger EBI 10-T

The EBI 10 temperature data logger is in various models available. Whether with one sensor, with two sensors or with four sensors. Different technologies of the probes opens a wide field of applications.

The loggers are fitted with flexible metal probes or highly flexible cable sensors.

Characteristics:

- Pt 1000 technology for high accuracy and long term stability
- Up to four temperature sensors per logger
- Wide temperature range -85 °C ... +400 °C
- Accuracy ± 0.1 K
- Sampling rate 250 ms
- Probe length up to 1200 mm
- Response time $t_{90} < 2$ sec
- Sensor diameter < 2 mm
- Online measurement possible
- Battery replaceable
- Calibration by user
- Conform DIN EN ISO 17665 and DIN EN ISO 15883



Temperature / Pressure Data Logger EBI 10-TP

The EBI 10 temperature / pressure data logger is in various models available. The pressure connection is a "LUERLOCK" plug. The additional temperature recording can be with one sensor, two sensors or with three sensors.

A different technology in the design of the temperature sensor and pressure sensor opens a wide field of application and temperature range.

The pressure sensor is temperature compensated.

Characteristics:

- Piezo-resistive pressure sensor with temperature compensation
- Pressure sensor „LUERLOCK“, as M10 hose connector or as ambient pressure sensor
- Pt 1000 technology for high accuracy and long term stability
- Up to three temperature sensors per logger
- Wide temperature range 0 °C ... +150 °
- Pressure range 1 ... 4000 mbar
- Accuracy ± 0.1 K / ± 10 mbar
- Sampling rate 250 ms
- Probe length up to 1200 mm
- Response time $t_{90} < 2$ sec
- Sensor diameter < 2 mm
- Online measurement possible
- Battery replaceable
- Calibration by user
- Conform DIN EN ISO 17665 and DIN EN ISO 15883



Precision Pressure Logger EBI 10-TP X9X *for Gas Sterilizations Processes*

The EBI 10-TP X9X pressure / temperature logger is developed for a precise measurement of pressure and temperature in low pressure sterilization processes. The data logger is specially designed for accurate measurement from 0.1 mbar.



Characteristics:

- Continuous pressure monitoring in H₂O₂ (plasma), formaldehyde and ethylene oxide sterilization processes
- Range 0.1 ... 1050 mbar
- Accuracy ± 0.25 mbar
- High accurate pressure and temperature measurement in low-pressure processes
- Different configurations available

Temperature / Humidity Data Logger EBI 10-TH100

EBI 10-TH100 temperature / humidity logger is designed for accurate measurement of moisture in different environments. The humidity and the temperature sensor are arranged under the removable stainless steel-sinter-cap.

The sensor element is replaceable by user and replacement sensors are delivered calibrated.



Characteristics:

- Capacitive polymer sensor for precise measurement of humidity
- Humidity sensor resistant to aggressive environment
- Pt 1000 Technology for high accuracy and long term stability
- Wide humidity range 0 ... 100 % rH
- Wide temperature range -40 °C ... +85 °C
- Accuracy ± 0.1 K / ± 2 % rH
- Sampling rate 1 sec
- Online measurement possible
- Battery replaceable
- Exchangeable sensor, factory calibrated
- Calibration by user

Bowie-Dick-Test Logger EBI 16

The EBI 16 determines reliably and reproducibly the physical parameters for steam sterilization. This innovative electronic testing system creates a high precision, computer based measurement analysis, for a safe sterilization control.



Characteristics:

- Reliable: clear, reproducible measurement results
- Accurate: high-resolution graphical cycle display
- Secure: digital data recording and storage
- Easy: to use and evaluate

Applications:

- Vacuum test
- Steam penetration as alternative electronic Bowie-Dick test
- Conform to towel pack DIN EN 285 and DIN EN ISO 11140-4

Temperature Data Logger and Temperature / Pressure Data Logger

EBI 11-T and EBI 11-TP

The EBI 11 mini-temperature data logger and the EBI 11 temperature / pressure logger are designed for tight spaces. Whether with a temperature probe or as a temperature / pressure logger, through the various versions of the sensor opens up a wide field of application as well as temperature and pressure range.

The temperature logger is equipped with rigid or flexible metal probe.

The pressure logger has an internal temperature sensor.



Characteristics:

- Diameter only 16.5 mm
- Pt 1000 Technology for high accuracy and long term stability
- Wide temperature range -30 °C ... +150 °C
- Wide pressure range 1 ... 10000 mbar
- Pressure connection "LUERLOCK", as M5 hose connector or as ambient pressure sensor
- Accuracy ± 0.1 K / ± 15 mbar
- Sampling rate 1 sec
- Probe length up to 500 mm
- Sensor diameter <2 mm
- Battery replaceable
- Calibration by user
- Conform DIN EN ISO 17665 and DIN EN ISO 15883

Interface EBI-IF

The ebro data logger system and the software Winlog.validation is designed for an intuitive and easy use. This include the interface. It can be connected to the PC with a free USB port. The software recognizes automatically the connected interface.

Up to seven Interface are usable with the Winlog.validation.

Characteristics:

- EBI IF 100, one EBI 10 and one EBI 11
- EBI IF 150, one EBI 10 or one EBI 16
- EBI IF 200, up to four EBI 10
- EBI IF 300, up to four EBI 11
- Power supply from USB Port
- Status displayed by Multicolor LED



EBI IF100

EBI IF150

EBI IF200

EBI IF300

Multi-channel Temperature Data Logger EBI 40

The EBI 40 multi-channel temperature data logger is a wired system. To bring up to 12 thermocouples in your process maybe a feed through it is required. Process monitoring is very easy thanks to the large color display. Also, the EBI 40 may with a sampling rate of 100 ms records extremely fast changes in temperature and display directly.

There are various sensors such as the thermocouples TPN 601 or TPN 611 (SMP-Anschlüsse).



Characteristics:

- Large TFT Display
- No Interface required, USB communication
- Thermocouple Type K and Type T
- Wide temperature range -200 °C ... +1200 °C
- Accuracy ± 0.5 K
- Sampling rate 100 ms
- Battery monitoring
- Battery replaceable
- USB supply
- Calibration by user
- Conform DIN EN ISO 17665 and DIN EN 285

Technical Data

EBI 10-T

Measurands:	
Temperature	1-4 temperature channels
Measurement range:	
Series EBI 10-T probe length ≥ 100 mm	-85 to +400 °C
Series EBI 10-T cable probe (PTFE)	-20 to +150 °C
Series EBI 10-T other	-85 to +150 °C
Series EBI 10-T Type 101	-85 to +85 °C
Accuracy:	
Temperature	± 0.5 °C (-85 to -40 °C) ± 0.2 °C (-40 to 0 °C) ± 0.1 °C (0 to +140 °C) ± 0.2 °C (+140 to +250 °C) ± 0.5 °C (+250 to +400 °C)
Resolution:	
Temperature	0.01 °C
Data memory	100,000 measurement values
Sampling rate	250 ms to 24 h
Measurement mode	• Endless measurement immediately • Measure immediately until end of memory • Start / stop measurement
Sensor	Pt 1000
Interface	Wireless 2.4 GHz / IEEE 802.15.4
Operating temperature:	
Log mod	-85 to +150 °C
Radio mod	-30 to +150 °C
Storage	-40 to +125 °C
Protection class	IP68/NEMA 6P
Battery	Lithium cell 3,6 V replaceable
Battery lifetime	up to 2 Years
Dimension	(D x H) 46 x 24 mm
Housing material	Stainless steel (V4A), PEEK
Weight	approx. 45 g
Calibration	factory calibration, ISO or DAkkS certificate on request

Technical Data

EBI 10-TP

Measurands:	
Pressure	1 pressure channel
Temperature	1-3 temperature channels
Measurement range:	
Pressure	1 to 4000 mbar (0.1 to 400 kPa)
Temperature	0 to +150 °C
Accuracy:	
Pressure	±10 mbar (50 to 150 mbar) ±10 mbar (2050 to 2250 mbar) ±10 mbar (3000 to 3250 mbar) ±15 mbar (for the remaining range)
Temperature	±0.1 °C (0 to +140 °C) ±0.2 °C (+140 to +150 °C)
Resolution:	
Pressure	1 mbar (100 Pa)
Temperature	0.01 °C
Data memory	100,000 measurement values
Sampling rate	250 ms to 24 h
Measurement mode	• Endless measurement immediately • Measure immediately until end of memory • Start / stop measurement
Sensor	Pt 1000, piezoresistive pressure sensor
Interface	Wireless 2.4 GHz / IEEE 802.15.4
Operating temperature:	
Log mod	0 to +150 °C
Radio mod	0 to +150 °C
Storage	0 to +125 °C
Protection class	IP68/NEMA 6P
Battery	Lithium cell 3,6 V replaceable
Battery lifetime	up to 2 Years
Dimension	(D x H) 46 x 24 mm
Housing material	Stainless steel (V4A), PEEK
Weight	approx. 45 g
Calibration	factory calibration ISO or DAkkS certificate on request

EBI 10-TH

Measurands:	
Humidity	1 humidity channel
Temperature	1 temperature channel
Measurement range:	
Humidity	0 to 100 %
Temperature	-40 to +85 °C
Accuracy:	
Humidity	±2 %rH (10 - 90 % at 25 °C)
Temperature	±0.1 °C
Resolution:	
Humidity	0.1 % rH
Temperature	0.01 °C
Data memory	100,000 measurement values
Sampling rate	1 sec to 24 h
Measurement mode	• Endless measurement immediately • Measure immediately until end of memory • Start / stop measurement
Sensor	Pt 1000, capacitive humidity sensor
Interface	Wireless 2.4 GHz / IEEE 802.15.4
Operating temperature:	
Log mod	-40 to +85 °C
Radio mod	-30 to +85 °C
Storage	-40 to +85 °C
Protection class	IP52
Battery	Lithium cell 3,6 V replaceable
Battery lifetime	up to 2 Years
Dimension	(D x H) 46 x 24 mm
Housing material	Stainless steel (V4A), PEEK
Weight	approx. 45 g
Calibration	factory calibration ISO or DAkkS certificate on request

EBI 10-TPX9X

Measurands:	
Pressure	1 pressure channel
Temperature	1-3 temperature channels
Measurement range:	
Pressure	0.1 to 1050 mbar (10 Pa to 105 kPa)
Temperature	0 °C ... +85 °C
Accuracy:	
Pressure	0,25 mbar (0,1 to 50 mbar) ±5 % of measured value (50 to 100mbar) 1 % FS (100 to 1050 mbar)
Temperature	±0.1 °C (0 °C to +85 °C)
Resolution:	
Pressure	0,1 mbar (10 Pa)
Temperature	0.01 °C
Data memory	100,000 measurement values
Sampling rate	250 ms to 24 h
Measurement mode	• Endless measurement immediately • Measure immediately until end of memory • Start / stop measurement
Sensor	Pt 1000, piezoresistive pressure sensor
Interface	Wireless 2.4 GHz / IEEE 802.15.4
Operating temperature	0 to + 85 °C
Protection class	IP68/NEMA 6P
Battery	Lithium cell 3,6 V replaceable
Battery lifetime	up to 2 Years
Dimension	(D x H) 46 x 24 mm
Housing material	Stainless steel (V4A), PEEK
Weight	approx. 45 g
Calibration	factory calibration ISO or DAkkS certificate on request

Technical Data

EBI 11-T

Measurands:	
Temperature	1 temperature channel
Measurement range:	
Temperature	-30 to +150°C
Accuracy:	
Temperature	±0.1 °C
Resolution:	
Temperature	0.01 °C
Data memory	15,000 measurement values
Sampling rate	1 sec to 24 h
Measurement mode	• Endless measurement immediately • Measure immediately until end of memory • Start / stop measurement
Sensor	Pt 1000
Operating temperature	-30 to +150 °C
Storage	-40 to +125 °C
Protection class	IP68/NEMA 6P
Battery	2 x Lithium high temperature 3 V replaceable
Battery lifetime	20 days at a sampling rate of 1 sec and 120°C ambient temperature
Dimension	(D x H) 16,5 x 22 mm (without probe)
Housing material	Stainless steel (V4A), PEEK
Weight	approx. 30 g
Calibration	factory calibration ISO or DAkkS certificate on request

EBI 11-TP

Measurands:	
Pressure	1 pressure channel
Temperature	1 temperature channel
Measurement range:	
Pressure	0 to 4000 mbar (0 to 400 kPa)
Temperature	0 to +150 °C
Accuracy:	
Pressure	±20 mbar (±2 kPa)
Temperature	±0.1 °C
Resolution:	
Pressure	1 mbar (100 Pa)
Temperature	0.01 °C
Data memory	15,000 measurement values
Sampling rate	1 sec to 24 h
Measurement mode	• Endless measurement immediately • Measure immediately until end of memory • Start / stop measurement
Sensor	Pt 1000, piezoresistive pressure sensor
Operating temperature	0 to +150 °C
Storage	0 to +60 °C
Protection class	IP68/NEMA 6P
Battery	2 x Lithium high temperature 3 V replaceable
Battery lifetime	20 days at a sampling rate of 1 sec and 120°C ambient temperature
Dimension	(D x H) 16,5 x 22 mm (without probe)
Housing material	Stainless steel (V4A), PEEK
Weight	approx. 30 g
Calibration	factory calibration ISO or DAkkS certificate on request

EBI 16

Measurands:	
Temperature	1 pressure channel
Pressure	2 temperature channels
Measurement range:	
Temperature	0 °C ... +150 °C
Pressure	1 to 4000 mbar
Accuracy:	
Temperature	±0.1 °C
Pressure	±15 mbar
Resolution:	
Temperature	0.01 °C
Pressure	1 mbar (100 Pa)
Data memory	6,750 measurement values
Sampling rate	1 sec
Measurement mode	Start / stop measurement
Sensor	Pt 1000, piezoresistive pressure sensor
Interface	Wireless 2.4 GHz / IEEE 802.15.4
Operating temperature:	0 to + 150 °C
Protection class	IP68/NEMA 6P
Battery	Lithium cell 3,6 V replaceable
Battery lifetime	up to 2 Years
Dimension	(D x H) 90 x 15 mm
Housing material	Stainless steel (V4A), PEEK
Weight	approx. 500 g (incl. battery)
Calibration	factory calibration

EBI 40

Measurands:	
Temperature	6 or 12 temperature channels
Measurement range:	
Temperature Type K	-200 to +1200 °C
Temperature Type T	-50 to +350 °C
Accuracy:	
Temperature	±0.5 °C
Resolution:	
Temperature	0.1 °C
Data memory	240,000 measurement values
Sampling rate	100 ms to 24 h
Sensor	pluggable thermocouple type K, thermocouple type T
Display	TFT 3,5" (324x240)
Operating temperature	0 to +60 °C
Storage	0 to +70 °C
Protection class	IP40
Battery	2 x battery type AA replaceable
Dimension	(L x W x H) 140 x 118 x 35 mm (without probe)
Housing material	ABS, PC
Weight	approx. 100 g
Calibration	factory calibration ISO or DAkkS certificate on request

Holding clamps to fix the flexible cable probes of the EBI 10 wireless data loggers

Characteristics:

- Secure for your sensors
- Execution in stainless steel
- Reusable
- Permanent temperature stable



Silicone protection box

Characteristics:

- Silicone model
- Protects temperature logger against heat peaks
- Protects temperature logger against mechanical damage
- Extends the life of temperature data loggers



For EBI 10-T and EBI 10-TP with flexible probes

Thermal isolation boxes EBI TIB and EBI TIB 2

Characteristics:

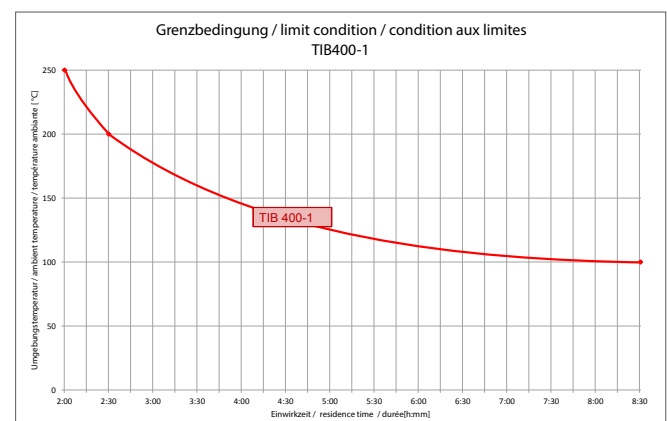
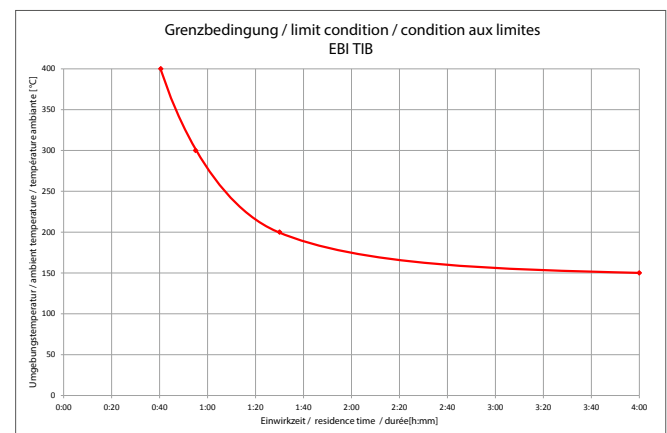
For EBI 10-T22x and EBI. 10-T421

- Up to 40 minutes at +400.°C
- Thermal protection of data loggers
- Stainless steel
- EBI TIB: Dimensions (L x W x H) 160 x 160 x 82 mm
- EBI TIB 2: Dimensions (L x W x H) 160 x 160 x 60 mm



For EBI 40

- EBI TIB 400-1: Dimensions (L x W x H) 247 x 210 x 131 mm
- Up to 120 minutes at +250 °C



Complete Validation Sets

Data logger Set SL 3100

For the validation of steam sterilizers according to ISO 17665 as well as for the validation of washer disinfectors and washer-disinfectors for endoscopes according to ISO 15883.

The set contains:

- 5 x EBI 10-T471 temperature data loggers with AL107 silicone protection boxes
- EBI 10-TP453 temperature / pressure data logger with AL101 silicone protection box
- EBI IF 200 4-port Interface with USB connection and antenna
- 12 x holding clamps for probes
- Certified Winlog.validation software
- Aluminium carrying case



Data logger Set SL 3300

Very flexible data logger system to perform validations for various thermal processes in the DAC Universal and bench top autoclaves according to ISO 17665/DIN 58929 as well as washer disinfectors according to ISO 15883.

The set contains:

- 2 x EBI 11-T235 Mini Temperature Data Logger, Needle length = 25 mm
- 2 x EBI 11-T236 Mini Temperature Data Logger, Needle length = 80 mm
- 1 x EBI 11-T237 Mini Temperature Data Logger, Needle length = 165 mm
- 1 x EBI 11-P111 Mini Pressure Data Logger
- 1 x Sealing-kit for DAC
- 1 x EBI IF 300, 4-port Interface
- 1 x Winlog.validation, Software
- 1 x EBI-TAK-ALU, Alloy carrying case

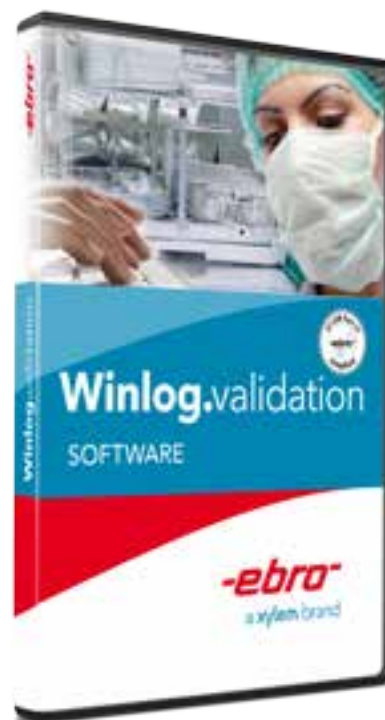


Winlog.validation Software

The Winlog.validation software is suitable for programming and readout of ebro data loggers as well as for evaluating the measurement values. The software guides you step by step through the validation process and evaluates the measurement automatically.

Powerful report and evaluation software fitting the requirements of validation and qualification of pharmaceutical and medical market.

- TÜV Industrial Services certified
- User-friendly
- Calculation of A_0 , F_0 and Lethality
- Automatic report generation
- Automatic user-defined calculations
- Automatic identification of process cycles
- Creation of user-defined masters for specific devices and thermal processes
- Sensor placement in digital pictures possible
- FDA 21 CFR Part 11
- IQ / OQ available



System Requirements

To enable the software to operate smoothly, your computer must meet the following requirements:

Hardware requirements:

- Processor speed minimum 1 GHz
- Working memory 1 GB
- 1 GB free hard disc space
- USB (Universal Serial Bus)

Software requirements:

Operating System Microsoft®

- Windows Vista
- Windows 7
- Windows 8

A short report of the process or a tabular report with all measurement values - this all is possible by the Winlog.validation Software

- Audit Trail
- Setup report
- Compact process report
- Process report
- Tabular report
- You can export the displayed reports as file type (XLS, XLSX, PDF, RTF)

The compact report presents in one page all important information.

Tabular Report

07.11.2013 09:58:22, Descr: 01_07_11_2013_EC260 2-B&D

ebro Electronic Ingolstadt

Winlog-validation

Winlog validation 3.51

07.11.2013

	#10393313				#15089898				#15086064		#15086065		#15086066		#15086957		
	1	2	3	4	1	2	3	4	5	1	2	1	2	1	2	1	2
	mbar	°C	°C	°C	mbar	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
09:59:09	1000	24.19	24.07	24.07													
09:59:10	1000	24.19	24.07	24.07	991	24.61	23.98	24.06	99.47			25.06	25.00				
09:59:11	1000	24.19	24.08	24.07	992	24.62	23.98	24.05	99.50			25.06	25.00	25.26	25.13		
09:59:12	1000	24.20	24.09	24.07	991	24.64	23.99	24.06	99.47			25.06	25.00	25.26	25.13		
09:59:13	1000	24.18	24.08	24.08	992	24.65	24.00	24.06	99.47			25.06	25.00	25.26	25.13		
09:59:14	1000	24.18	24.09	24.07	992	24.66	24.00	24.07	99.50			25.06	25.00	25.26	25.13		
09:59:15	1000	24.19	24.09	24.08	991	24.67	24.01	24.08	99.47			25.05	25.01	25.24	25.13		
09:59:16	1000	24.18	24.10	24.08	991	24.68	24.02	24.09	99.47			25.06	25.01	25.24	25.13		
09:59:17	1000	24.18	24.09	24.09	992	24.68	24.02	24.09	99.50			25.06	25.00	25.24	25.13		
09:59:18	1000	24.19	24.11	24.10	992	24.69	24.03	24.10	99.50			25.06	25.00	25.25	25.13		
09:59:19	1000	24.20	24.10	24.11	992	24.70	24.03	24.11	99.50			25.06	24.99	25.25	25.13		
09:59:20	1000	24.20	24.11	24.11	992	24.71	24.03	24.11	99.50			25.06	25.00	25.25	25.13		
09:59:21	1000	24.20	24.11	24.12	992	24.72	24.04	24.12	99.50			25.06	24.99	25.25	25.13		
09:59:22	1000	24.21	24.12	24.12	992	24.73	24.04	24.12	99.50			25.06	25.00	25.25	25.13		
09:59:23	1000	24.21	24.12	24.13	992	24.73	24.05	24.13	99.50			25.06	25.00	25.25	25.13		
09:59:24	1000	24.22	24.13	24.14	992	24.75	24.06	24.13	99.50			25.06	25.00	25.25	25.13		
09:59:25	1000	24.22	24.13	24.15	992	24.75	24.05	24.14	99.50			25.06	25.00	25.25	25.13		
09:59:26	1000	24.23	24.13	24.15	992	24.76	24.06	24.14	99.50			25.06	25.00	25.25	25.13		
09:59:27	1000	24.24	24.14	24.15	992	24.77	24.06	24.13	99.50			25.06	24.99	25.25	25.13		
09:59:28	1000	24.24	24.14	24.15	992	24.78	24.07	24.14	99.50	24.86	24.73	25.06	24.99	25.25	25.13		
09:59:29	1000	24.24	24.15	24.16	992	24.78	24.08	24.15	99								

All relevant actions will be logged with the respective time stamps and users in the audit trail.

Re Evaluation

Order: 01_07_11_2013_EC260 2.8&D

01.11.2013 09:58:22

Winlogg... validation

Winlog validation 3.51

euro Electronic Import/Export

General parameters

Device	SOP
EC260	
Program	Standard
BM2-Test	DIN EN 28515/EN 17665
Creator	Charge number
Admin	2378
Responsible	Validated
Robert Streller	16.02.2015 11:12:40
Remark	
Norm-Testpaket	

Loggers in process

#10303313	Calibration date 15.10.2013 12:01:05
#15080998	Calibration date 16.10.2013 08:21:43
#15080604	Calibration date 24.09.2013 07:20:12
#15080605	Calibration date 24.09.2013 07:20:20
#15080606	Calibration date 01.10.2013 09:30:27
#15080657	Calibration date 21.10.2013 13:00:38

Overall result

Passed

Detailed results

	Nominal	Actual
Max. variance	<= 2.00 K	0.87 K
Min. sterilization time	>= 198 sec.	258 sec.
Max. equilibration time	<= 15 sec.	11 sec.
Temperature range	134.00 - 137.00 °C	134.85 - 135.93 °C

Total measurement

Verified by

1/1

[illegible]

Detailed process report

Results overall and in detail combined on a page.

Values such as measuring cycle, last calibration or serial number and device type can be seen on this page at a glance.

Re Evaluation

Descr.: 01_07_11_2013_EC260 2-B&D
07.11.2013 09:58:22 Winlog validation 3.51
ebro Electronic Ingolstadt

Loggers in process

Duration Interval 5400sec. 1sec. Measurement mode Start Start immediately 07.11.2013 09:59:28

10393313 Logger type: EBI 10-P Version: 3.07.0 Calibration date 15.10.2013 12:01:05

Channel	Type	Name
1	Pressure	
2	Temperature	
3	Temperature	
4	Temperature	

15086065 Logger type: EBI 10-T Version: 3.07.0 Calibration date 24.09.2013 07:20:20

Channel	Type	Name
1	Temperature	
2	Temperature	

15089998 Logger type: EBI 10-P Version: 3.07.0 Calibration date 18.10.2013 08:21:43

Channel	Type	Name
1	Pressure	
2	Temperature	
3	Temperature	
4	Temperature	

15086066 Logger type: EBI 10-T Version: 3.07.0

Channel	Type	Name
1	Temperature	
2	Temperature	

15086957 Logger type: EBI 10-T Version: 3.07.0

Channel	Type	Name
1	Temperature	
2	Temperature	

15086064 Logger type: EBI 10-T Version: 3.07.0

Channel	Type	Name
1	Temperature	
2	Temperature	

Re Evaluation

Descr.: 01_07_11_2013_EC260 2-B&D
07.11.2013 09:58:22 Winlog validation 3.51
ebro Electronic Ingolstadt

Overall result

Passed

Detailed results	Nominal	Actual
Max. variance	<= 2.00 K	0.87 K
Min. sterilization time	>= 198 sec.	258 sec.
Max. equilibration time	<= 15 sec.	11 sec.
Temperature range	134.00 - 137.00 °C	134.85 - 135.93 °C

Range overview

Cycle	From	To	Duration
Gesamter Prozess	07.11.2013 10:08:59	07.11.2013 10:51:52	00:42:53
Evakuierung	07.11.2013 10:08:59	07.11.2013 10:20:28	00:11:29
Heizen	07.11.2013 10:20:28	07.11.2013 10:25:51	00:05:23
Ausgleichen	07.11.2013 10:25:51	07.11.2013 10:26:02	00:00:11
Plateau-Zeit	07.11.2013 10:25:51	07.11.2013 10:30:20	00:04:29
Sterilisieren	07.11.2013 10:26:02	07.11.2013 10:30:20	00:04:18
Trocknen	07.11.2013 10:30:20	07.11.2013 10:51:52	00:21:32

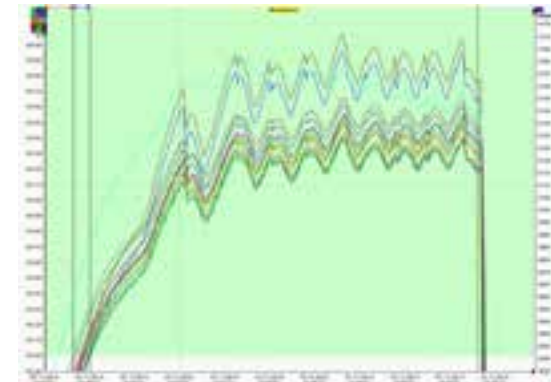
Legend

Serial	Channel	Name
# 10393313	1	
# 10393313	2	
# 10393313	3	
# 10393313	4	
# 15086065	1	
# 15086065	2	
# 15089998	1	
# 15089998	2	
# 15089998	3	
# 15089998	4	
# 15089998	5	Th. pressure temp.
# 15086066	1	
# 15086066	2	
# 15086957	1	
# 15086957	2	
# 15086064	1	
# 15086064	2	

Re Evaluation

Descr.: 01_07_11_2013_EC260 2-B&D
07.11.2013 09:58:22 Winlog validation 3.51
ebro Electronic Ingolstadt

Sterilisieren



Statistics (Sterilisieren)

Variance 0,87K

	1	2	3	4
Max	3171 mbar	135.40 °C	135.38 °C	135.40 °C
Min	3050 mbar	134.03 °C	134.02 °C	134.80 °C

	1	2	1	2
Max	135.43 °C	135.55 °C	3164 mbar	135.54 °C
Min	134.06 °C	134.12 °C	3042 mbar	134.32 °C

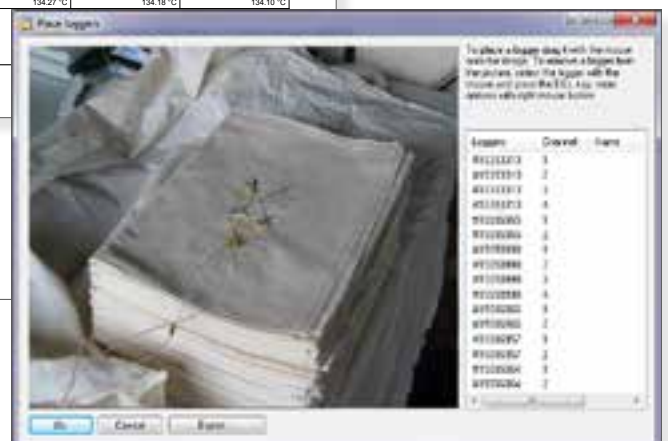
	3	4	5	1
Max	135.93 °C	135.40 °C	135.48 °C	135.51 °C
Min	134.72 °C	134.09 °C	134.13 °C	134.14 °C

	2	1	2	1
Max	135.49 °C	135.66 °C	135.61 °C	135.54 °C
Min	134.12 °C	134.27 °C	134.18 °C	134.10 °C

Graphical and statistical analysis

Image management

Image management, you can place your sensors directly in digital images and paste it into your validation report.



Calibration and verification of the measurement equipment

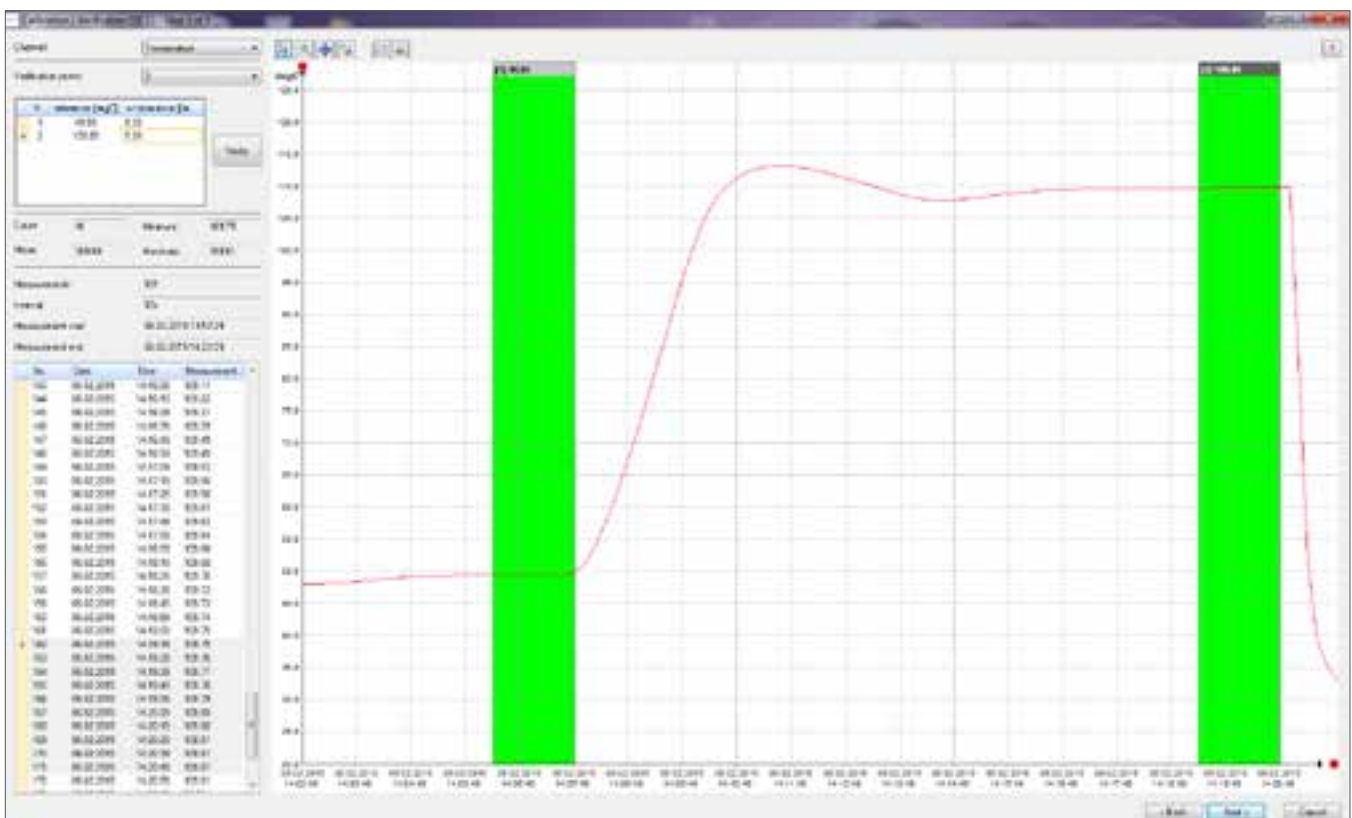


With the Winlog.validation Software it is possible to verify or calibrate your measurement equipment by yourself.

A certificate is generated after the calibration automatically.

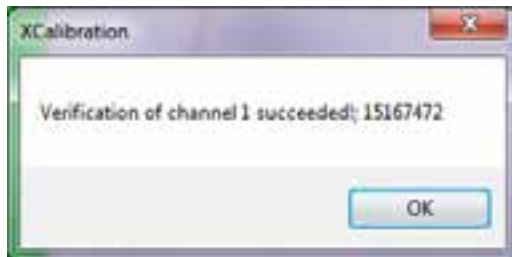
This certificate can be stored in the Winlog.validation and used in the report.

Example for a graphical diagram of the calibration operation



Summary after the verification

Successful verification message



Calibration / Verification EBI 11 - Step 6 of 7

Summary		Verification		EBI11	
Logger		Check			
Loggertyp:	EBI11	Type of check:	Verification		
Serial number:	15167472	Date/Time:	06.02.2015 14:38:09		
Location:		Creator:	Admin		
Channel:	Temperature	Show log entries			

Verification points

number	measur	reference [degC]	measured [degC]	deviance [degC]	tolerance [d]
1	10	49.50	49.54	0.04	+/- 0.30
2	10	109.80	109.80	0.00	+/- 0.30

Rating
Success
Verification of channel 1 succeeded: 15167472

< Zurück Weiter > Abbrechen

Report with deviance table

Verification report

Loggertyp: EBI11

Serial: 15167472

Location:

Used equipment: Block calibrator

Run by: Admin
Administrator

Date / Time: 06.02.2015 14:29:55

Verification report

Date / Time: 06.02.2015 14:29:55

Serial number: 15167472

Channel: 1 (Temperature)

Rating: Success

Comment: Verification of channel 1 succeeded: 15167472

Verification point	Measurements	Reference [degC]	measured [degC]	Deviance [degC]	Tolerance [degC]
1	10	49.50	49.54	0.04	+/- 0.30
2	10	109.80	109.80	0.00	+/- 0.30

Location, Date, Supervisor



Our Services For You

At ebro service is more than just a word – ebro offers solution according to customer wishes.

Service And Calibrations

ebro offers a calibration service for temperature, pressure and relative humidity by our accredited DAkkS laboratory. Please contact us.

Training

Validation and software trainings on request.

IQ / OQ Documentation according GAMP

It is possible to receive from us an IQ / OQ documentation of the system according the GAMP guidelines.

On request, we can send you a technician who performs the system IQ/OQ with you on-site.



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