Professional Data Logger

FOR VALIDATION, ROUTINE CONTROL AND PROCESS MONITORING

MEDICINE
FOOD
PHARMACEUTICAL
LABORATORY

2018

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50 years of ebro®

Freiburg 01.04.1968. The Breisgau-founded company ebro Electronic used to only produce plug-in power supplies. From the middle of the seventies, ebro® used their own plastic injection department to manufacture police protection vests, as well as the formerly popular "Telegen" television lightning.

After ebro® moved to their current registered office in Ingolstadt, Bavaria, in 1976, they continued the production of the above-mentioned goods. The core business, developing and manufacturing temperature-measuring instruments, started only in 1980.

Today, ebro® is specialised in high-quality measurement technology such as hand-held meters, thermometers or dataloggers. They are mostly sold in the markets medicine, food, pharmacy, laboratory and industry.

You are looking for products or software to measure temperature, humidity, pH-value, oil quality, pressure and brix? Then you have found your partner in ebro®. From measuring and recording to analysing, we are offering quality goods and solutions.

KompetenzCentrum ebro

Seminar program 2018

Demands for solid technical Know How transfer are permanently increasing and therefore the requests for training and special workshops are on the rise. In the past we received these requests from practically all corners of the world. Due to the establishment of our own training centre here in Ingolstadt which includes especially equipped laboratories and a steam autoclave for testing procedures we offer ideal facilities to run seminars and workshops.

Theory and practice combined are the key to our successful transfer. Our instructors are all experts in their own fields. The aim is to achieve an in-depth understanding of hardware and software alike.

If you feel that you prefer an In-House seminar in your own facilities we are open to discussions and flexible to offer you a customized training program to match your demands. Please feel free in contacting us to tell us about your desired time schedule, what the training course should cover and how many participants will attend. We will gladly send you an offer.

You can find the current program on our homepage **www.ebro.com**

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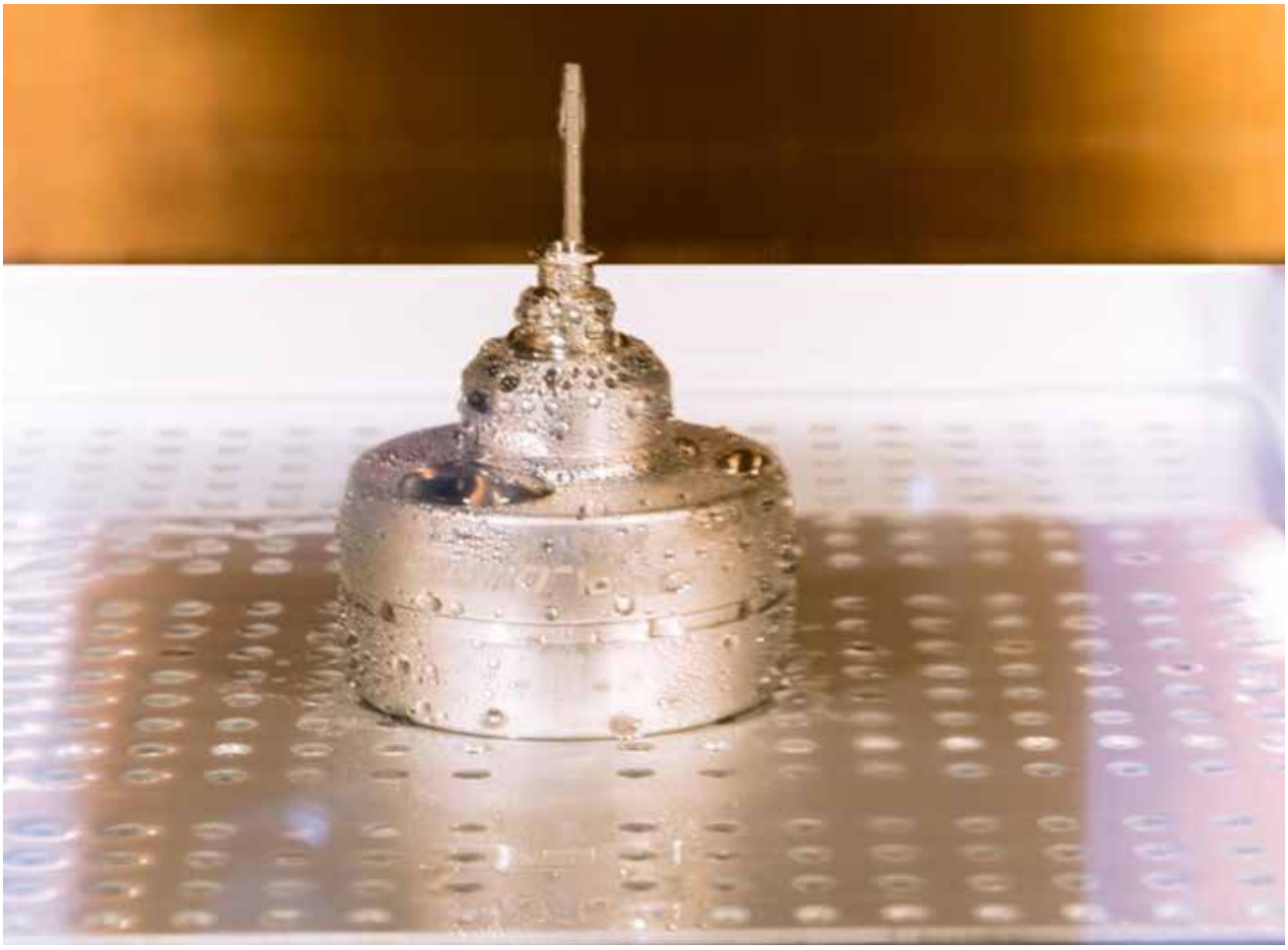
EBI 12 – The new data logger generation

- High quality stainless steel housing
- Application range from -90 °C to 150 °C
- High temperature accuracy up to 0.05 °C
- Extended temperature measurement range -200 °C to +400 °C
- Pressure measurement up to 4,000 mbar
- Precision pressure measurement 0.1 mbar
- High pressure accuracy up to 0.25 mbar
- Humidity measurement from 0% rH to 100% rH
- Conductivity measurement 1 to 2,000 µS/cm
- Radio mode for real-time monitoring
- ATEX approved
- Full compatibility Interface EBI IF-100, EBI IF-150 and EBI IF-200
- Full compatibility to Winlog software



Data Loggers

ebro offers data loggers for many different applications:

Operation and Process qualification

Description:

- Highly accurate temperature, pressure, humidity and conductivity data loggers for thermal validation processes
- Wide range of probe types and configurations
- Wireless data loggers for real time monitoring
- Data loggers for low space

Applications:

- Process validation in steam sterilizers, autoclaves, in the production of canning, a.s.o.
- Process validation in washer-disinfectors and washer-disinfectors for endoscopes
- F_0-value and A_0-value calculation
- Process control

Routine control / Mapping

Description:

- Highly accurate temperature, pressure, humidity and conductivity data loggers for thermal process control
- Electronic Bowie&Dick-Test according to ISO 17665 and EN 285 / EN 13060
- Data loggers for low space
- Data loggers for regular process controls

Applications:

- Routine control in steam sterilizers and autoclaves
- Routine control in washer-disinfectors and washer-disinfectors for endoscopes
- Routine control at canning
- Mapping

Room Monitoring and Process control

Description:

- Highly accurate temperature, pressure and humidity data loggers
- Standard temperature and humidity data loggers with automatic PDF report generation
- Wireless system to monitor temperature and humidity
- Multichannel Thermo Couple temperature data loggers

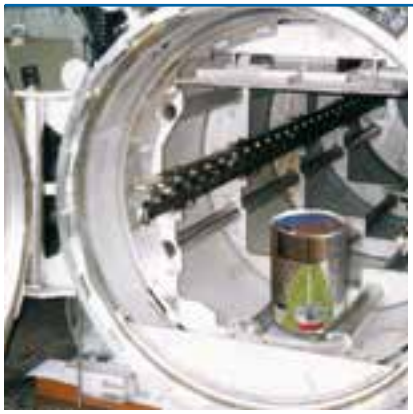
Applications:

- Room monitoring
- Transport and storage monitoring
- Clean room and freezer monitoring

Logger systems

and accessories for Process monitoring, Routine control and Validation

Food



Applications

- Autoclaves / Sterilizers / Pasteurization Processes
- Continuous Fryers
- Lyophilization
- Hydrostatic Retorts
- Refridgerators / Freezers / Cooling Rooms
- Smokehouse
- Cooker / Cooler (Reel and Spiral)

Medical

- Steam Sterilization
- Washer disinfectors / bedpan washers
- H_2O_2-, LTSF- and EtO- Sterilization
- Depyrogenation / heat tunnel
- Incubators
- Refrigerators / Freezers / Cooling Rooms
- Stability Chambers

Pharmaceutical

- Steam-,H_2O_2 and EtO- Sterilization
- Washer disinfectors
- Depyrogenation / heat tunnel
- Lyophilization
- Incubators
- Refridgerators / Freezers / Cooling Rooms
- Climatic Test Chambers / Stability Chambers

Products

EBI 11 Series

EBI 12 Series

EBI 310 Series

EBI 25 Series

EBI 40

EBI 11 Series

EBI 12 Series

EBI 16

EBI 310 Series

EBI 25 Series

EBI 40

EBI 11 Series

EBI 12 Series

EBI 16

EBI 310 Series

EBI 25 Series

EBI 40

Process monitoring, Routine Control and Validation easy and safe

Validation
Is a reproducible proof that a process permanently generates the required results.
Validation is a clear demonstration that processes, equipment, materials, work steps or systems actually lead to the expected results.

Routine Control
Routine control is a regular test to determine the performance of the equipment. It is the verification that the limits are in accordance to the validation.
The frequency depends on device and process.

Continuous Process Monitoring
The continuous process check as a validated status during the commercial manufacturing process ensures that the ongoing process remains under continuous control. The recognition of unplanned deviations from the plan is indispensable to the achievement of the set objectives and the conformity with the requirements.

EX Area
Hazardous areas (except for mining)
The categories 1 to 3 are classified according to the ATEX Directive 94/9 / EC. The letter "G" stands for gas. In the IEC 60079-0 for electrical components and devices, and thus for approvals according to the IECEx scheme, Equipment Protection Levels (EPL) (German: Device Protection Level) are defined.

Devices according to Category 1G or EPL Ga
Devices must be designed in such a way as to ensure a very high degree of safety. Devices of this category must also ensure the required degree of safety even in the case of infrequent disturbances. Even if there are two faults on the unit, ignition must not occur. They may be used in Zone 0 (Category 1G).

Requirement for reprocessing of medical devices
Reprocessing of medical devices coming to an intended application as low-germ or sterile is to perform. By using the manufacturer's instructions with suitable validated process and procedures, that the success of this procedure is reproducible and do not endanger the safety and health of patients, user and third parties.

Data Logger - Systems
ebro is specialist for measuring systems for flexible and reliable measurement and documentation systems for routine control and validation of various thermal processes in the medical field, the pharmaceutical and the food industry.
Our product range covers easy to use data loggers of the EBI 12 and EBI 11 series, which are placed directly in the process. An intuitive, TÜV certified software to routine testing or validation of processes assists to evaluate your process data.
In addition, we offer you the certified EBI 16 system to perform the daily Bowie&Dick-test with a clear „fail" or "passed" result.

TÜV certified evaluation software Winlog.med and Winlog.validation

With the Winlog.med / Winlog.validation we offer a TÜV certified, FDA 21 CRF Part 11 compliant software. The system is characterized by high data security. The automatic evaluation of the process is possible as well as the manual evaluation.
The software offers the possibility to create user defined evaluations. So it is possible to create individual process parameters and test criteria.

CERTIFICATE

Conformance

Our Systems are compliant with the relevant standards and guidelines.

DIN EN ISO 17665	Sterilization of health care products. – Moist heat – Requirements for the development, validation and routine control of a sterilization process for medical devices
DIN EN 285	Sterilization – Steam sterilizers – Large sterilizer
DIN EN ISO 15883	Washer disinfectors – General requirements, terms and definitions and tests
DIN EN 13060	Small steam sterilizers
DIN SPEC 58929	Operation of small steam sterilizers in health care - Guidelines for validation and routine monitoring of sterilization processes
DIN EN ISO 11135	Sterilization of health care products – Ethylene oxide – Requirements for the development, validation and routine control of a sterilization process for medical devices.
DIN EN ISO 25424	Sterilization of medical devices – Low temperature steam and formaldehyde – Requirements for development, validation and routine control of a sterilization process for medical devices.
DIN EN ISO 11140-4	Sterilization of health care products – Chemical indicators – Class 2 indicators as an alternative to the Bowie&Dick-type test for detection of steam penetration.
DIN EN ISO 9241	Ergonomics of human-system interaction: Dialogue principles
DIN 12880	Electrical laboratory equipment – heaters and incubators
DIN EN ISO 13408-3	Aseptic processing of healthcare products -- Part 3: Lyophilization
DIN EN ISO 14937	Sterilization of healthcare products -- General requirements for characterization of a sterilizing agent and the development, validation and routine control of a sterilization process for medical devices.
ISO/IEC 25051	Software engineering -- Systems and software Quality Requirements and Evaluation (SQuaRE) -- Requirements for quality of Ready to Use Software Product (RUSP) and instructions for testing
FDA 21 CFR Part 11	Is the part of the FDA regulations about electronic records and electronic signatures, specifies the criteria under which electronic records and electronic signatures can be considered trustworthy and reliable as a paper document
FDA 21 CFR Part 210-211	Defines minimum requirements for the methods to be dispatched in the manufacture, processing, packaging and warehousing of drugs and vaccine and distribution and controls to be used.
Guidelines	Guidelines from DGKH, DGSV and AKI for the validation and routine monitoring of machine cleaning and thermal disinfection processes for medical devices
Recommendations	DGKH recommendations for validation and routine monitoring of sterilization processes with moist heat for medical devices

Temperature data logger of EBI 12 series

General technical specifications for EBI 12 T series

Operating temperature: logger	-90 °C … +150 °C (-130 °F ... 302 °F)*
Operating temperature: radio operation	-30 °C … +150 °C (-22 °F ... 302 °F)
Temperature accuracy	±1.5 °C (-200 °C … -85 °C)* ±0.5 °C (-85 °C … -40 °C)* ±0.2 °C (-40 °C … 0 °C)* ±0.1 °C (0 °C ... +120 °C)* ±0.05 °C (+120 °C … +140 °C)* ± 0.1 °C (+140 °C … +150 °C)* ± 0.5 °C (+150 °C … +250 °C)* ± 0.8 °C (+250 °C … +400 °C)*
Time accuracy	< 5 sec (24 h)
Temperature resolution	0.01 °C
Memory	Max. 100,000 measurement values (total)*
Sensor	Pt 1000, Class A
Interval	250 ms ... 24 hours.*
Measurement mode	• Endless measurement • Start / stop measurement • Measure upon start temperature • Start immediately until end of memory
Storage temperature	0 °C … +125 °C
Battery	Lithium cell, 3.6 V, user replaceable
Dimensions (Ø x H)	48 mm x 24 mm**
Weight	Approximately 110 g **
Housing material	316 L Stainless steel / PEEK
Protection class	IP 68
Certificate	Factory calibration certificate

** Deviating specifications can be found in the product descriptions.*
*** Dimensions and weight may be differerent depending on the type.*

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EBI 12-T100 Temperature Data Logger
with internal temperature sensor

Application sample

- For process monitoring during convenience food production
- For routine control in badpan washers
- For temperature mappings

Technical Data

Measurement range	-90 °C ... +150 °C (-130 °F ... +302 °F)
Data memory	100,000 measurement values

- 1 internal temperature sensor
- Particularly robust

Type	Description	Part No.
EBI 12-T100	Internal temperature sensor	1340-6600

EBI 12-T100-EX Temperature Data Logger
with internal temperature sensor

Application sample

- To measure in raw material storage

Technical Data

Use in EX Area	-40 °C ... +85 °C (-40 °F ... +185 °F)
Data memory	100,000 measurement values

Approximately available from end of Q1 2018

- 1 internal temperature sensor
- Particularly robust

Type	Description	Part No.
EBI 12-T100-EX	Internal temperature sensor	1340-6600-EX

EBI 12-T101 Temperature Data Logger
with internal temperature sensor

Application sample

- For use in dry ice and in cryogenic
- In bedpan washers and washing machines

Technical Data

Measurement range	-90 °C ... +105 °C (-130 °F ... +221 °F)
Accuracy	± 0.5 °C (-90 °C … -40 °C) ± 0.3 °C (-40 °C … +105 °C)
Sampling rate	1 s ... 24 h
Data memory	27,000 measurement values

- 1 internal temperature sensor
- Particularly robust

Type	Description	Part No.
EBI 12-T101	Internal temperature sensor	1340-6601

EBI 12-T21X Temperature Data Logger
rigid metal probe

Application sample

- For process monitoring during convenience food production

Technical Data

Measurement range	-40 °C ... +150 °C (-40 °F ... +302 °F)
Accuracy	± 0.1 °C (0 °C … +150 °C) ± 0.3 °C (-40 °C … 0 °C)
Sampling rate	1 s ... 24 h
Data memory	27,000 measurement values

- 1 external temperature probe, Ø 3 mm
- Radial pointed

Type	Description	Part No.
EBI 12-T210	Needle length = 50 mm	1340-6602
EBI 12-T211	Needle length = 75 mm	1340-6603

EBI 12-T23X Deep Temperature Data Logger
rigid metal probe

Application sample

- Ideal for use in canning for pasteurization control

Technical Data

Measurement range	-40 °C ... +150 °C (-40 °F ... +302 °F)
Accuracy	± 0.1 °C (0 °C … +150 °C) ± 0.3 °C (-40 °C … 0 °C)
Sampling rate	1 s ... 24 h
Data memory	27,000 measurement values

- Axial pointed, M5 Thread
- 1 external temperature probe, Ø 3 mm
- Various needle length available

Type	Description	Part No.
EBI 12-T230	Needle length = 50 mm	1340-6606
EBI 12-T231	Needle length = 75 mm	1340-6607
EBI 12-T232	Needle length = 100 mm	1340-6608
EBI 12-T233	Needle length = 150 mm	1340-6609

EBI 12-T43X Temperature Data Logger
rigid metal probes

Application sample

- Ideal for use in canning for pasteurization control

Technical Data

Measurement range	-40 °C ... +150 °C (-40 °F ... +302 °F)
Accuracy	± 0.1 °C (0 °C … +150 °C) ± 0.3 °C (-40 °C… 0 °C)
Sampling rate	1 s ... 24 h
Data memory	2 x 13,500 measurement values

Approximately available from end of Q2 2018

- Axial pointed, M5 Thread
- 2 external temperature probes, Ø 3 mm
- Various needle length available

Type	Description	Part No.
EBI 12-T430	Needle length = 50 mm	1340-6614
EBI 12-T431	Needle length = 75 mm	1340-6615
EBI 12-T432	Needle length = 100 mm	1340-6616
EBI 12-T433	Needle length = 150 mm	1340-6617

EBI 12-T46X Bottle Logger
rigid metal probe

Application sample

- Ideal for use in bottles

Technical Data

Measurement range	-40 °C ... +150 °C (-40 °F ... +302 °F)
Accuracy	± 0.3 °C (-40 °C … +150 °C)
Sampling rate	1 s ... 24 h
Data memory	2 x 13,500 measurement values

Approximately available from end of Q2 2018

- Axial, blunt, M10 thread
- 1 external temperature probe, Ø 6 mm
- 1 external temperature probe, Ø 3 mm
- Various needle lengths available

Type	Description	Part No.
EBI 12-T461	Needle length = 135 mm	1340-6623
EBI 12-T462	Needle length = 190 mm	1340-6624
EBI 12-T463	Needle length = 245 mm	1340-6625
EBI 12-T464	Needle length = 270 mm	1340-6626
EBI 12-T465	Needle length = 300 mm	1340-6627

EBI 12-T22X Temperature Data Logger
bendable metal probe

Application sample

- Measurement in drain of sterilizers
- In oven (protected by Thermal-Isolation-Box)

Technical Data

Measurement range	**EBI 12-T220:** -200 °C ... +200 °C (-328 °F ...+392 °F) **EBI 12-T221:** -200 °C ... +400 °C (-328 °F ... +752 °F)
Data memory	100,000 measurement values

- 1 external temperature probe, Ø 1.5 mm
- Radial arranged

Type	Description	Part No.
EBI 12-T220	Needle length = 250 mm	1340-6604
EBI 12-T221	Needle length = 500 mm	1340-6605

EBI 12-T220-EX Temperature Data Logger
bendable metal probe

Application sample

- EtO sterilization

Technical Data

Use in EX Area	-40 °C ... +85 °C (-40 °F ... +185 °F)
Data memory	100,000 measurement values

Approximately available from end of Q1 2018

- 1 external temperature probe, Ø 1,5 mm
- Radial arranged

Type	Description	Part No.
EBI 12-T220-EX	Needle Length = 250 mm	1340-6604-EX

EBI 12-T24X Temperature Data Logger
bendable metal probe

Application sample

- In washer disinfectors
- H_2O_2 sterilization

Technical Data

Measurement range	-200 °C ... +200 °C (-328 °F ... +392 °F)
Data memory	100,000 measurement values

- 1 external temperature probe, Ø 1,5 mm
- Axial arranged

Type	Description	Part No.
EBI 12-T240	Needle Length = 250 mm	1340-6611
EBI 12-T241	Needle Length = 500 mm	1340-6612

EBI 12-T421 Temperature Data Logger
bendable metal probes

Application sample

- In oven (in combination with Thermal-Insulation-Box)
- In washer disinfectors

Technical Data

Measurement range	-200 °C ... +400 °C (-328 °F ... +752 °F)
Data memory	2 x 50,000 measurement values

Approximately available from end of Q1 2018

- 2 external temperature probes, Ø 1.5 mm
- Radial arranged

Type	Description	Part No.
EBI 12-T421	Needle Length = 500mm	1340-6630

EBI 12-T441 Temperature Data Logger
bendable metal probes

Application sample

- In washer disinfectors
- H_2O_2 sterilization

Technical Data

Measurement range	-200 °C ... +200 °C (-328 °F ... +392 °F)
Data memory	2 x 50,000 measurement values

- 2 external temperature probes, Ø 1.5 mm
- Axial arranged

Type	Description	Part No.
EBI 12-T441	Needle Length = 500 mm	1340-6629

EBI 12-T441-EX Temperature Data Logger
bendable metal probes

Application sample

- EtO sterilization

Technical Data

Use in EX Area	-40 °C ... +85 °C (-40 °F ... +185 °F)
Data memory	2 x 50,000 measurement values

Approximately available from end of Q1 2018

- 2 external temperature probes, Ø 1.5 mm
- Axial arranged

Type	Description	Part No.
EBI 12-T441-EX	Needle Length = 500 mm	1340-6629-EX

EBI 12-T490 Temperature Data Logger
flexible cable probes

Application sample

- Steam serilizer

Technical Data

Measurement range	-20 °C ... +150 °C (-4 °F ... +302 °F)
Data memory	2 x 50,000 measurement values

- 2 external temperature probes, Ø 1.2 mm
- Radial arranged

Type	Description	Part No.
EBI 12-T490	Cable Length = 600 mm	1340-6634

EBI 12-T690 Temperature Data Logger
flexible cable probes

Application sample

- Steam sterilizer

Technical Data

Measurement range	-20 °C ... +150 °C (-4 °F ... +302 °F)
Data memory	4 x 25,000 measurement values

- 4 external temperature probes, Ø 1.2 mm
- Radial arranged

Type	Description	Part No.
EBI 12-T690	Cable Length = 600 mm	1340-6635

EBI 12-T47X Temperature Data Logger
flexible cable probes

Application sample

- Steam serilizer

Technical Data

Measurement range	-20 °C ... +150 °C (-4 °F ... +302 °F)
Data memory	2 x 50,000 measurement values

- 2 external temperature probes, Ø 1.2 mm
- Axial arranged

Type	Description	Part No.
EBI 12-T470	Cable Length = 600 mm	1340-6640
EBI 12-T471	Cable Length = 1,200 mm	1340-6644

EBI 12-T671 Temperature Data Logger
flexible cable probes

Application sample

- Steam serilizer

Technical Data

Measurement range	-20 °C ... +150 °C (-4 °F ... +302 °F)
Data memory	4 x 25,000 measurement values

- 4 external temperature probes, Ø 1.2 mm
- Axial arranged

Type	Description	Part No.
EBI 12-T671	Cable Length = 1,200 mm	1340-6645

Temperature / Pressure Data Loggers EBI 12 series

General technical specifications: valid for all EBI 12-TP data loggers

Operating temperature: pressure logger	0 °C ... +150 °C (+32 °F ... +302 °F)
Accuracy: temperature	±0.1 °C (0 °C ... +120 °C) ±0.05 °C (+120 °C ... +140 °C) ±0.1 °C (+140 °C … +150 °C)
Accuracy: pressure	±10 mbar (50 mbar … 150 mbar) ±10 mbar (2,050 mbar … 2,250 mbar) ±10 mbar (3,000 mbar … 3,250 mbar) ±15 mbar (for the remaining measurement range)
Resolution: temperature	0.01 °C
Resolution: pressure	1 mbar
Data memory	Max. 100,000 measurements (total)
Sensor: temperature	Pt 1000, Class A
Sensor: pressure	Piezoresistive pressure sensor (temperature compensated)
Sampling rate	250 ms ... 24 h
Measurement mode	• Endless measurement • Measure upon start time • Start immediately until end of memory • Start- / Stop measurement
Storage temperature	0 °C ... +125 °C (+32 °F ... +257 °F)
Time accuracy (24h)	< 5 sec
Battery	Lithium cell, 3.6 V, user replaceable
Dimensions (Ø x H)	48 mm x 32 mm*
Weight	Approximately 120 g *
Housing material	316 L Stainless steel / PEEK
Protection class	IP 68
Certificate	Factory calibration certificate

** Dimensions and weight may be differerent depending on the type.*

EBI 12-TP222 Temperature / Pressure Data Logger

bendable metal probe and Luer-Lock-Connection

Application sample

- Washer disinfectors
- Sterilizer

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 ... 4,000 mbar
Data memory	2 x 33,400 measurement values

- 1 external temperature probe, axial, bendable, Ø 1.5 mm
- 1 internal pressure sensor with Luer-Lock-Connection

Type	Description	Part No.
EBI 12-TP222	Needle Length = 500 mm, Luer-Lock-Connection	1340-6653

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EBI 12-TP231 Temperature / Pressure Data Logger
rigid metal probe and Luer-Lock-Connection

Application sample

- Washer disinfectors
- Sterilizer

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 ... 4,000 mbar
Data memory	2 x 33,400 measurement values

- 1 external temperature probe, axial, Ø 1.95 mm
- 1 internal pressure sensor with Luer-Lock-Connection

Type	Description	Part No.
EBI 12-TP231	Needle Length = 40 mm	1340-6655

EBI 12-TP231-EX Temperature / Pressure Data Logger
rigid metal probe and Luer-Lock-Connection

Application sample

- EtO sterilizer

Technical Data

Use in EX Area	0 °C ... +85 °C (+32 °F ... +185 °F)
Measurement range: pressure	1 ... 4,000 mbar
Data memory	2 x 33,400 measurement values

Approximately available from end of Q1 2018

- 1 external temperature probe, axial, Ø 1.95 mm
- 1 internal pressure sensor with Luer-Lock-Connection

Type	Description	Part No.
EBI 12-TP231-EX	Needle Length = 40 mm	1340-6655-EX

EBI 12-TP234 Temperature / Pressure Data Logger
tube connection and M 10x1 internal thread

Application sample

- Drainages

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 ... 4,000 mbar
Data memory	2 x 33,400 measurement values

- 1 external temperature probe, axial, Ø 1.95 mm
- 1 internal pressure sensor with tube connection

Type	Description	Part No.
EBI 12-TP234	Needle Length = 40 mm	1340-6652

EBI 12-TP322 Temperature / Pressure Data Logger
bendable metal probes with Luer-Lock-Connection

Application sample

- Washer disinfectors
- Sterilizer

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 ... 4,000 mbar
Data memory	3 x 25,000 measurement values

- 2 external temperature probes, axial, bendable, Ø 1.5 mm
- 1 internal pressure sensor with Luer-Lock-Connection

Type	Description	Part No.
EBI 12-TP322	Luer-Lock-Connection	1340-6664

EBI 12-TP422 Temperature / Pressure Data Logger
bendable metal probes with Luer-Lock-Connection

Application sample

- Washer disinfectors
- Sterilizer

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 ... 4,000 mbar
Data memory	4 x 20,000 measurement values

- 3 external temperature probes, axial, bendable, Ø 1.5 mm
- 1 internal pressure sensor with Luer-Lock-Connection

Type	Description	Part No.
EBI 12-TP422	Needle Length = 500 mm, Luer-Lock-Connection	1340-6662

EBI 12-TP45X Temperature / Pressure Data Logger
flexible cable probes

Application sample

- Sterilization

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 ... 4,000 mbar
Data memory	4 x 20,000 measurement values

- 3 external temperature probes, axial, flexible, Ø 1.2 mm
- 1 internal pressure sensor with Luer-Lock-Connection

Type	Description	Part No.
EBI 12-TP451	Cable Length = 600 mm, Luer-Lock-Connection	1340-6643
EBI 12-TP453	Cable Length = 1,200 mm, Luer-Lock-Connection	1340-6647

EBI 12-TP460 Temperature / Pressure Data Logger
flexible cable probes

Application sample

- In limited spaces e.g. in containers

- 3 external temperature probes, radial, Ø 1.2 mm
- 1 internal pressure sensor

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 ... 4,000 mbar
Data memory	4 x 20,000 measurement values

Type	Description	Part No.
EBI 12-TP460	Cable Length = 600 mm	1340-6648

EBI 12-TPX9X Precision Pressure Logger
high precision pressure measurement down to 0.1 mbar

In the process of H_2O_2 Sterilizers a very precise pressure measurement is necessary. The system works with pressures down to 1 mbar abs. A Highly accurate pressure data logger is necessary caused by the very low pressure nearly by vacuum.

- 1 internal or 1 external temperature sensor, Ø 1.95 mm
- 1 internal pressure sensor

Technical Data

Measurement range: temperature	0 °C ... +85 °C (+32 °F ... +185 °F)
Measurement range: pressure	0.1 … 1,050 mbar (0.1 ... 788 Torr)
Accuracy: temperature	±0.1 °C
Accuracy: pressure	± 0.25 mbar (0.1 mbar … 50 mbar) ± 5% of measured value (50 mbar … 100 mbar) ± 1% FS (100 mbar … 1,050 mbar)
Resolution: temperature	0.01 °C
Resolution: pressure	0.1 mbar
Data memory	**TP190:** 50,000 measurement values **TP290:** 2 x 33,400 measurement values
Sensor: temperature	Pt 1000
Sensor: pressure	Piezoresistive pressure sensor
Measurement mode	• Endless measurement immediately • Start / Stop measurement • Measure immediately until end of memory
Operating temperature	0 °C … +85 °C
Max. operating pressure	0.1 mbar … 2,000 mbar abs.
Battery	Lithium cell, 3.6 V, user replaceable
Dimensions (D x H)	48 mm x 35 mm
Housing material	316 L Stainless steel / PEEK
Protection class	IP 68

Type	Description	Part No.
EBI 12-TP190	Internal temp. sensor	1340-6665
EBI 12-TP290	Needle Length = 40 mm	1340-6666

EBI 12-TC230 Temperature / Conductivity Data Logger
Conductivity measurement

In processes like e.g. washer disinfectors, the measurement of conductivity in the last dishwater is required. This is reasonably done in the running process without any interruption.

- 1 external temperature probe
- 1 external conductivity probe

Technical Data

Measurement range: temperature	0 °C ... +125 °C (+32 °F ... +257 °F)
Measurement range: conductivity	1 … 2,000 µS/cm
Accuracy: temperature	± 0.1 °C
Accuracy: conductivity	± 0,5µS/cm (1 … 100 µS/cm) ± 1 % measurement values (100 … 2,000 µS/cm)
Data memory	2 x 50,000 measurement values
Sensor: temperature	Pt 1000
Sensor: conductivity	Conductivity electrode
Measurement mode	• Endless measurement immediately • Start / Stop measurement • Measure immediately until end of memory
Operating temperature	0 °C ... +125 °C (+32 °F ... +257 °F)
Battery	Lithium cell, user replaceable
Dimensions (D x H)	48 mm x 130 mm
Housing material	316 L Stainless steel / PEEK
Protection class	IP 68

Approximately available from end of Q1 2018

Type	Description	Part No.
EBI 12-TC230	Needle Length = 40 mm	1340-6667

EBI 12-TH100 Temperature / Humidity Data Logger
insensitive against chemicals

- 1 external temperature sensor (Pt 1000)
- 1 external humidity sensor (capacitive)
- Combined sensor replaceable

Technical Data

Measurement range: temperature	-20 °C ... +85 °C (-4 °F ... +185 °F)
Measurement range: humidity	0% rF … 100% rF
Accuracy: temperature	± 0.1 °C
Accuracy: humidity	± 2% rH, non-condensing at 25 °C
Resolution: temperature	0.01 °C
Resolution: humidity	0.1 % rH
Data memory	2 x 50,000 measurement values
Measurement channels: temperature	external (Pt 1000)
Measurement channels: humidity	(capacitive); combined sensor replaceable
Measurement mode	• Endless measurement immediately • Start / Stop measurement • Measure immediately until end of memory
Storage temperature	-20 °C ... +70 °C (-4 °F ... +158 °F)
Battery	Lithium cell (3.6 V), user replaceable
Dimensions (D x H)	48 mm x 70 mm
Housing material	316 L Stainless steel / PEEK
Protection class	IP 52

Type	Description	Part No.
EBI 12-TH100	Temperature/Humidity	1340-6671

EBI 12-TH100-EX Temperature / Humidity Data Logger
usable with EtO

- 1 external temperature sensor (Pt 1000)
- 1 external humidity sensor (capacitive)
- Combined sensor replaceable

Technical Data

Use in EX area	-20 °C ... +85 °C (-4 °F ... +185 °F)
Accuracy: temperature	± 0.1 °C
Accuracy: humidity	± 2% rH, non-condensing at 25 °C
Resolution: temperature	0.01 °C
Resolution: humidity	0.1 % rH
Data memory	2 x 50,000 measurement values
Measurement channels: temperature	external (Pt 1000)
Measurement channels: humidity	(capacitive); combined sensor replaceable
Measurement mode	• Endless measurement immediately • Start / Stop measurement • Measure immediately until end of memory
Operating temperature	-20 °C ... +70 °C
Battery	Lithium cell, 3.6 V, user replaceable
Dimensions (D x H)	48 mm x 70 mm
Housing material	316 L Stainless steel / PEEK
Protection class	IP 52

Approximately available from end of Q1 2018

Type	Description	Part No.
EBI 12-TH100-EX	Temperature/Humidity	1340-6671-EX

EBI 12-T480 Temperature Data Logger
with strip to connect an external sensors

Sometimes it is necessary to record data with independent probes.

Technical Data

Measurement range	-200 °C ... +400 °C (-328 °F ... +732 °F)
Data memory	2 x 50,000 measurement values
Measurement mode	• Endless measurement immediately • Start / Stop measurement • Measure immediately until end of memory
Operating temperature	-90 °C ... +150 °C (-130 °F ... +302 °F)
Battery	Lithium cell, 3.6 V, user replaceable
Dimensions (D x H)	46 mm x 35 mm
Housing material	316 L Stainless steel / PEEK
Protection class	IP 52

- Strip for 2 external Pt 1000 sensors

Type	Description	Part No.
EBI 12-T480	Terminal strip	1340-6633

Data Loggers and Systems for special applications

EBI 16 Electronic Bowie&Dick-Test
accordance to DIN EN 285 / ISO 17665 / ISO 11140-4

The EBI 16 Data Logger forms together with the evaluation software Winlog.med an easy to use and reliable electronic measurement system.

This allows implementing a comprehensive routine control of steam sterilizers by means of the electronic Bowie&Dick-Test according to EN 285 / DIN EN ISO 17665. In addition to checking the penetration of steam, the relevant sterilization parameters are also checked.

A vacuum test can also be carried out with this device.

The EBI 16 is designed to ensure the use of 500 cycles or 2 years without calibration or service.

Technical Data

Measurement range	temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
	pressure	1 mbar ... 4,000 mbar
Accuracy	temperature	± 0.1 °C
	pressure	± 15 mbar
Resolution	temperature	0.01 °C
	pressure	1 mbar
Data memory		6,750 measurement values
Sampling rate		1 sec
Measurement mode		Start / Stop measurement
Sensor: temperature		Pt 1000
Sensor: pressure		Piezoresistive pressure sensor
Operating temperature		0 °C … +150 °C
Storage temperature		0 °C … +125 °C
Start temperature		+15 °C … +35 °C
Protection class		IP68
Battery		Lithium cell (3,6 V), replaceable
Battery lifetime		Up to 2 Years
Dimension (D x H)		90 mm x 150 mm
Housing material		316 L Stainless steel / PEEK
Weight		Approx. 500 g (incl. battery)
Calibration		Factory calibration certificate

Accordance to EN ISO 11140-4 certified by an indipendent laboratory

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

Type	Description	Part No.
EBI 16	Electronic Bowie&Dick-Test	1340-6697

Accessories and Interface-Sets

Battery replacement set AL 120
for EBI 12
Consisting of 3 batteries, 6 O-rings with grease and opening tool EBI 12

Battery set AL 104
for EBI 12
Consisting of 3 batteries, 8 O-rings with grease

AL 121 opening tool EBI 12
To open the data loggers e.g. for battery change

AL 122 eyelet ring EBI 12
For securing the EBI 12 data loggers in process

Holding clamps probes
To hold the flexible cable probes of the EBI 12 data loggers.

AL 190 Silicone cable strap
To hold the flexible cable probes of the EBI 12 data loggers

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Silicone protection box

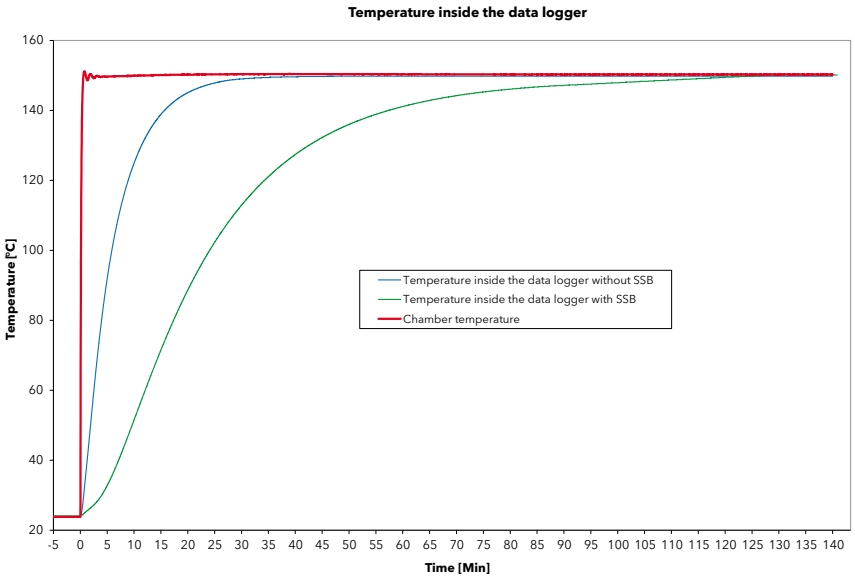
- Protects EBI 12 Data Loggers against heat peaks
- Protects EBI 12 Data Loggers against mechanical damage
- Extends the life of EBI 12 Data Loggers

Silicone protection box AL 101
for e.g.
EBI 12-TP222,
EBI 12- TP322,
EBI 12-TP422 and
EBI 12-TP45x

Ø 78 mm,
Height: 50 mm

Silicone protection box AL 107
for e.g.
EBI 12- T24x,
EBI 12-T441,
EBI 12- T67x und
EBI 12-T471

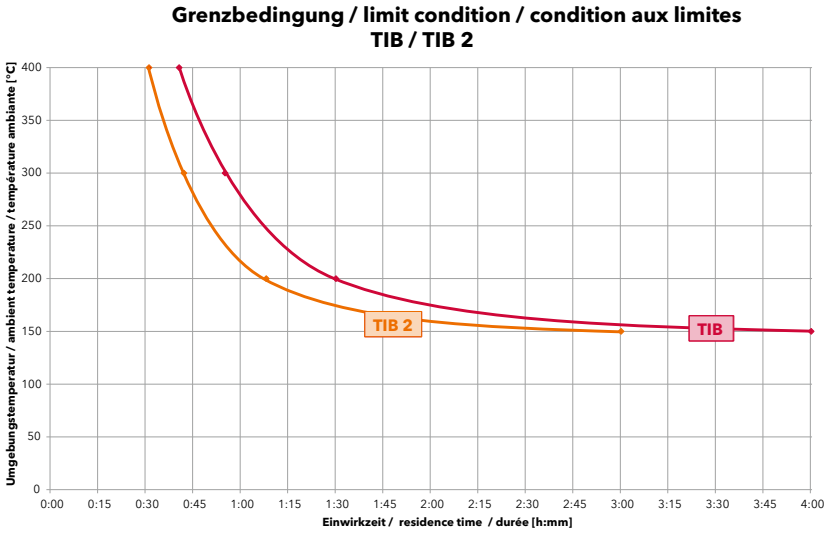
Ø 78 mm,
Height: 44 mm



Thermal Insulation Boxes

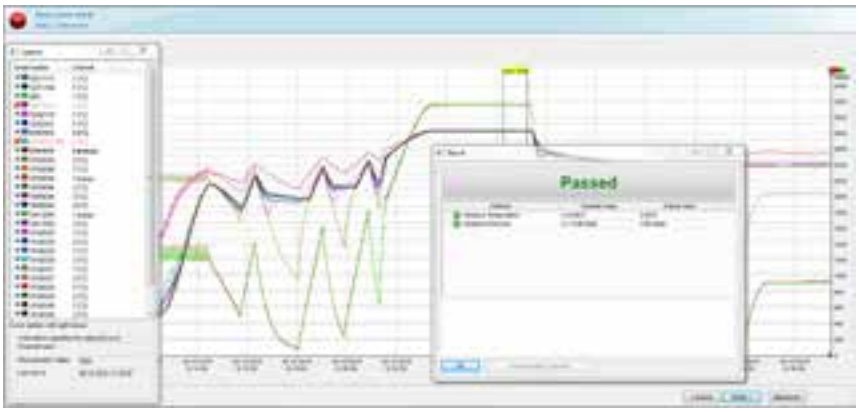
- Usable from +150 °C ... +400 °C
- Thermal protection of data loggers
- Stainless steel

Thermal insulation boxes EBI TIB and EBI TIB 2
for EBI 12-T221 and EBI 12-T421
- EBI TIB: 160 mm x 160 mm x 82 mm
- EBI TIB 2: 160 mm x 160 mm x 60 mm



AL 285 Logger-Check
For thermal validation DAC UNIVERSAL

In combination with the software Winlog.validation the AL 285 offers you a simple, on site functional check of the measuring channels.



EN ISO 17665-1, paragraph 9.1.4

Verification of the calibration value of the measuring instrument that is used for the validation of the sterilization process at process condition.

- Easy and reproducible test with automatic generation of reports.
- The tests are stored permanently in the database

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Set SI 1100
for EBI 12 and EBI 11

- 2-port Interface IF 100
- Software Winlog.pro
- USB connection
- Colored LEDs signaling programming, readout and incorrect development
- Includes antenna

Set SI 1200
for EBI 12

- 4-port Interface IF 200
- Software Winlog.pro
- USB connection
- Colored LEDs signaling programming, readout and incorrect development
- Includes antenna

Set SI 2100
for EBI 12 and EBI 11

- 2-port Interface IF 100
- Software Winlog.med
- USB connection
- Colored LEDs signaling programming, readout and incorrect development
- Includes antenna

Set SI 2110
for EBI 12

- 4-port Interface IF 200
- Software Winlog.med
- USB connection
- Colored LEDs signaling programming, readout and incorrect development
- Includes antenna

Set SI 2150
for EBI 12 and EBI 16

- 1-port Interface IF 150
- Software Winlog.med
- USB connection
- Colored LEDs signaling programming, readout and incorrect development

Set SI 3200
for EBI 12

- 4-port Interface IF 200
- Software Winlog.validation
- USB connection
- Colored LEDs signaling programming, readout and incorrect development
- Includes antenna

AL 112
for IF100 and IF 200

- Developed for real time monitoring
- AL 112 is a cable with 3 m lenght
- Antenna placement in the field of the door seal of a sterilizer or washer-disinfector
- Antenna steam-tight
- It is possible by a sealing to introduce it in the chamber

Can adapter set
EBI DA-Set
With this adapter set you can fix the data loggers at cans or plastic bags. Designed for data loggers of the EBI 12 series with axial, radial or external probes. Hereby you assure the use to ensure proper probes placement.

Can adapter EBI DA
for bottle loggers
(*see page 14*)

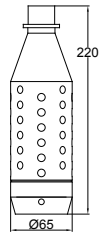
Bottle adapter EBI FL-S
silicone
for bottle loggers
(*see page 14*)

Grommets for sensor fixing EBI NI-140
Allows precise mounting of the logger sensor
in cans and glass.

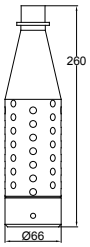
Compression fitting EBI KV-3
Allows precise mounting of the logger sensor
in glass (caps).

Dummy bottle

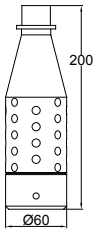
Please find EBI 12-T23X Temperature data logger from page 13.



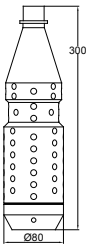
Dummy C



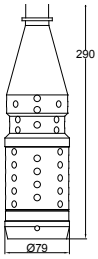
Dummy 0,5 l



Dummy E



Dummy 1 l



Dummy 0,7 l

The dummy bottles can be screwed to the ground. This allows the EBI 12 to be positioned within the bottle.

Type	Description	Part No.
SI 1100	Set: Interface EBI IF 100 and Software Winlog.pro	1340-6061
SI 1200	Set: Interface EBI IF 200 and Software Winlog.pro	1340-6062
SI 2100	Set: Interface EBI IF 100 and Software Winlog.med	1340-6064
SI 2110	Set: Interface EBI IF 200 and Software Winlog.med	1340-6095
SI 2150	Set: Interface EBI IF 150 and Software Winlog.med	1340-6193
SI 3200	Set: Interface EBI IF 200 and Software Winlog.validation	1340-6068
AL 100	Silicone protection box for EBI 12 Temperature Data Logger	1340-6020
AL 101	Silicone protection box for EBI 12 Pressure Data Logger	1340-6021
AL 102	Silicone protection box for EBI 12 Temperature Data Logger	1340-6022
AL 120	Battery change set for EBI 12	1100-0130
AL 121	Battery change tool (2 parts) EBI 12	1100-0131
AL 122	Eyelet ring EBI 12	1100-0132
AL 104	Battery set for EBI 12	1100-0118
AL 106	Silicone protection box for EBI 12 Temperature Data Logger	1340-6023
AL 107	Silicone protection box for EBI 12 Temperature Data Logger	1340-6024
AL 112	Antenna steam sterilizer	1340-6007
AL 190	Silicone cable strap set	1248-0190
AL 285	Logger-Check	1248-0285
Clamp	Holding clamps for probes	1340-0005
EBI TIB	Thermal Isolation box, 160 x 160 x 82 mm	1340-1894
EBI TIB 2	Thermal Isolation box, 160 x 160 x 60 mm	1340-1892
EBI DA	Can adapter for bottle loggers	1340-1963
EBI DA-Set	Can adapter set for bottle loggers	1340-1984
EBI FL-S	Bottle adapter, silicone	1340-1961
EBI NI-140	Grommets for sensor fixing up to 140 °C (100 pieces)	1340-1988
EBI KV-3	Compression fitting	1340-2005
Dummy C	Dummy Bottle POM 220x65mm	1340-2255
Dummy 0,5L	Dummy Bottle POM 0,5l	1340-2256
Dummy E	Dummy Bottle POM 200x60mm	1340-2257
Dummy 1L	Dummy Bottle POM 1l	1340-2258
Dummy 0,7L	Dummy Bottle POM 0,7l	1340-2259

Mini Temperature Data Loggers EBI 11 Series

General technical specifications: valid for all EBI 11-T logger types

Operating temperature	-30 °C ... +150 °C (-22°F ... +302 °F)
Accuracy	±0.2 °C (-30 °C ... +0 °C) ±0.1 °C (0 °C … +150 °C)
Time accuracy (24h)	< 5 sec
Resolution: temperature	0.01 °C
Data memory	15,000 measurements (total)
Sensor	Pt 1000, Class A
Sampling rate	1 sec ... 24 h
Measurement mode	• Endless measurement • Start- / Stop measurement • Measure upon start time • Start immediately until end of memory
Storage temperature	0 °C ... +60 °C (+32 °F ... +140 °F)
Battery	Lithium button cell, 2 x BR1225 A, 3V, replaceable
Dimensions (Ø x H)	16,5 mm x 24 mm*
Weight	Approximately 45 g *
Housing material	Stainless Steel (V4A)
Protection class	IP 68
Certificate	Factory calibration certificate

** Dimensions and weight may be differerent depending on the type.*

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EBI 11-T230 to T233 Mini Temperature Data Logger
rigid metal probe

Technical Data

Measurement range: temperature	-30 °C ... +150 °C (-22 °F ... +302 °F)
Data memory	15,000 measurement values

- 1 external temperature probe, axial, pointed, Ø 3 mm
- Probe with M5 external thread

Type	Description	Part No.
EBI 11-T230	Needle Length = 20 mm	1340-6290
EBI 11-T231	Needle Length = 50 mm	1340-6292
EBI 11-T233	Needle Length = 100 mm	1340-6293

EBI 11-T235 to T237 Mini Temperature Data Logger
rigid metal probe

Technical Data

Measurement range: temperature	-30 °C ... +150 °C (-22 °F ... +302 °F)
Data memory	15,000 measurement values

- 1 exernal temperature probe, axial, blunt, Ø 1.95 mm
- Probe with M5 external thread

Type	Description	Part No.
EBI 11-T235	Needle Length = 25 mm	1340-6270
EBI 11-T236	Needle Length = 80 mm	1340-6271
EBI 11-T237	Needle Length = 165 mm	1340-6272

EBI 11-T240 Mini Temperature Data Logger
bendable metal probe

Technical Data

Measurement range: temperature	-30 °C ... +150 °C (-22 °F ... +302 °F)
Data memory	15.000 measurement values

- 1 exernal temperature probe, axial, bendable, Ø 1.5 mm

Type	Description	Part No.
EBI 11-T240	Needle Length = 250 mm	1340-6291

Mini Temperature / Pressure Data Loggers EBI 11 Series

General technical specifications: valid for all EBI 11-P logger types

Operating temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Accuracy: temperature	±0.1 °C (0 °C … +150 °C)
Accuracy: pressure	±15 mbar (0 mbar ... 4,000 mbar) ±20 mbar (4,000 mbar ... 10,000 mbar)
Time accuracy (24h)	< 5 sec
Resolution: temperature	0.01 °C
Resolution: pressure	1 mbar
Data memory	7,500 measurement values per channel
Sensor: temperature	Pt 1000, Class A
Sensor: pressure	Piezoresistive (temperature compensated)
Sampling rate	1 sec ... 24 h
Measurement mode	• Endless measurement • Start- / Stop measurement • Measure upon start time • Start immediately until end of memory
Storage temperature	0 °C ... +60 °C (+32 °F ... +140 °F)
Battery	Lithium, 2x BR1225A, 3V, user replaceable
Dimensions (Ø x H)	16,5 mm x 48 mm*
Weight	Approximately 45 g *
Housing material	Stainless Steel (V4A)
Protection class	IP 68
Certificate	Factory calibration certificate

** Dimensions and weight may be differerent depending on the type.*

EBI 11-P100 Mini Temperature / Pressure Data Logger *internal sensor*

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 mbar ... 10,000 mbar
Data memory	2 x 7,500 measurement values

- 1 internal temperature sensor
- 1 internal pressure sensor

Type	Description	Part No.
EBI 11-P100	Without pressure connector	1340-6295

EBI 11-P111 Mini Temperature / Pressure Data Logger *Luer-Lock connection*

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 mbar ... 10,000 mbar
Data memory	2 x 7,500 measurement values

- 1 internal temperature sensor
- 1 internal pressure sensor

Type	Description	Part No.
EBI 11-P111	Luer-Lock connection	1340-6296

EBI 11-TP110 Mini Temperature / Pressure Data Logger
M5 thread connection

Technical Data

Measurement range: temperature	0 °C ... +150 °C (+32 °F ... +302 °F)
Measurement range: pressure	1 mbar ... 10,000 mbar
Data memory	2 x 7,500 measurement values

- 1 internal temperature sensor
- 1 internal pressure sensor

Type	Description	Part No.
EBI 11-TP110	M5 thread	1340-6297

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Accessories for EBI 11and 12

Set SI 1100
for EBI 12 and EBI 11

- 2-port Interface IF 100
- Software Winlog.pro
- USB connection
- Colored LEDs signaling programming, readout and incorrect development
- With antenna

Set SI 1300
for EBI 11

- 4-port Interface IF 300
- Software Winlog.pro
- USB connection
- Colored LED signalling programming, readout and incorrect development

Set SI 2100
for EBI 12 and EBI 11

- 2-port Interface IF 100
- Software Winlog.med
- USB connection
- Colored LEDs signaling programming, readout and incorrect development
- With antenna

Set SI 3300
for EBI 11

- 4-port Interface IF 300
- Software Winlog.validation
- USB connection
- Colored LED signalling programming, readout and incorrect development

Battery change set AL 113
for EBI 11
Suitable for 3 battery exchanges; contains 6 batteries, 3 O-rings with grease and changing tools.

AL 114 can / bag adapter set
for EBI 11-T230, EBI 11-T231 and EBI 11- T233

Bottle adapter set AL 115
for EBI 11-T230

Battery change set AL 113L
for EBI 11
Suitable for 10 battery exchanges; contains 20 batteries, 10 O-rings with grease and changing tools.

Sealing kit EBI11-Valiset
The set contains 5 seals. Developed for DAC universal and spypach dummy .

Type	Description	Part No.
SI 1100	Set: EBI IF 100 interface and Winlog.pro software	1340-6061
SI 1300	Set: EBI IF 300 interface and Winlog.pro software	1340-6063
SI 2100	Set: EBI IF 100 interface and Winlog.med sofware	1340-6064
SI 3300	Set: EBI IF 300 interface and Winlog.validation software	1340-6069
AL 113	Battery changing set for EBI 11	1100-0120
AL 113L	Battery changing set for EBI 11	1100-0125
AL 114	Can / bag adapter set for EBI 11-T230, EBI 11-T231 and EBI 11-T233	1340-6298
AL 115	Bottle adapter set for EBI 11-T230	1340-6299
Sealing kit	Sealing kit EBI11-Valiset	1340-0006

Validation-, routine- and Process control sets

Due to the different requirements for the process control, the routine control and validation of processes, there are different sets at ebro.

As an example, applications for the different sets are clearly displayed in the table. So, it is possible to choose the set suitable for your application at a glance.

	SL 1011	SL 1111	SL 1201	SL 1521	SL 1621	SL 1221	SL 2001	SL 3001	SL 3101	SL 3301	SL 4011	SL 4102	SL 4121
	1250-1011	1250-1111	1250-1201	1250-1521	1250-1621	1250-1221	1250-2001	1250-3001	1250-3101	1250-3301	1250-4011	1250-4102	1250-4121
Routine control in													
Bedpan washer	✓												
Washer disinfector		✓	✓		✓	✓							
Endoscope washer disinfector		✓	✓			✓							
Sterilizer < 60 l		✓	✓	BD *	BD */ ✓	✓							
Sterilizer > 60 l		✓	✓	BD *	BD */ ✓	✓		✓		✓			
Validation of Processes in													
Washer disinfector							✓			✓			
Endoscope washer disinfector						✓	✓			✓			
Sterilizer < 60 l							✓	✓	✓	✓			
Sterilizer > 60 l									✓				
DAC Universal										✓			
Process control in													
Pasteurization cans											✓		
Pasteurization bottles												✓	✓

** Bowie&Dick-Test*

Data Logger Sets

Complete Data Logger Sets for Process control and Monitoring, for Routine Control, Mapping and against Acceptable Quality Limit (AQL)

Description:

- Data Loggers with evaluation software and extensive equipment
- FDA 21 CFR Part 11 conform software

Applications:

- Process control, Monitoring and routine control in steam sterilizers, washer disinfectors, washer disinfectors for endoscopes as well as bedpan washers.
- Implementation of the electronic Bowie&Dick-Test.
- Process and routine control of pasteurization and bottle cleaning processes
- Process and routine control in cooking processes
- Process and routine control in other thermal processes in the food, pharma or medical sector

Advantages:

- Fully automatic and tamper-proof evaluation
- Individual evaluation by user-defined evaluations
- Wide range of wireless data loggers for different applications
- Highly flexible temperature cable probe
- High precision Pt 1000 temperature sensors
- High accuracy up to ±0,05 °C
- TÜV certified, FDA 21 CFR Part 11 conform software
- 2 years warranty

Complete Data Logger Sets for Operation and Process Qualification

Description:

- Data Loggers for validation with evaluation software and extensive equipment
- TÜV certified
- FDA 21 CFR Part 11 conform software

Applications:

- Operation and Process Qualification in pasteurization and bottle cleaning processes.
- Operation and Process Qualification in steam sterilizers, washer disinfectors, washer disinfectors for endoscopes as well as DAC-Universal
- Operation and Process Qualification in cooking processes
- Operation and Process Qualification in other thermal processes in the food, pharma or medical sector

Advantages:

- Fully automatic and tamper-proof evaluation
- Individual evaluation by user-defined evaluations
- Wide range of wireless data loggers for different applications
- Highly flexible temperature cable probe
- High precision Pt 1000 temperature sensors
- High accuracy up to ±0,05 °C
- TÜV certified, FDA 21 CFR Part 11 conform software
- 2 years warranty

Data Logger Sets for process- and charge control, for routine control, mapping and Acceptable Quality Limit (AQL)

- **EBI 11 Mini Data Logger Sets**
  SL 1201: for washer-disinfectors for endoscope (*see page 45)*
  SL 400X: for temperature monitoring in cans (*see page 47*)
  SL 4102: for temperature monitoring in bottles (*see page 48*)

- **EBI 16 Bowie&Dick-Test Sets**
  according to EN 285 / ISO 17665
  SL 1521: for steam sterilizers (*see page 46*)
  SL 1621: for steam sterilizers and washer-disinfectors (*see page 46*)

- **EBI 12 Precision Data Logger Sets**
  For process and routine control of food and pharma processes as well as medical processes according to the German guideline.
  SL 1011: for bedpan washers (*see page 44*)
  SL 1111: for steam sterilizers and washer-disinfectors (*see page 45*)
  SL 401X: for temperature monitoring in tins (*see page 48*)
  SL 412X: for temperature monitoring in bottles and cans (*see page 49*)
  SL 4211: for temperature monitoring in different applications (*see page 49*)

The sets can individually be expanded or compiled yourself from one or more data loggers (EBI 11, EBI 16 or EBI 12), the appropriate interface and the corresponding software. Talk to us!

SL 1011 Temperature Data Logger Set

For temperature monitoring and A_0 value calculation in bedpan washers

The set contains:

- 1 x EBI 12-T100 Temperature data logger (*see page 11*)
- Winlog.med Software
- EBI IF 150 Interface
- Carrying case „SYSTAINER“
- pH & conductivity tester (*see page 57*)

Type	Description	Part No.
SL 1011	EBI 12 data logger set for bedpan washers	1250-1011

SL 1111 Temperature / pressure data logger set *for temperature and pressure monitoring as well as for A_0 value calculation in steam sterilizers, washer-disinfectors and washer-disinfectors for endoscopes*

The set contains:

- 1 x EBI 12-TP231 Pressure / temperature data logger with Luer-Lock connection *(see page 21)*
- AL 101 Silicone protection box for loggers
- Winlog.med Software
- EBI IF 150 Interface
- Carrying case „SYSTAINER"
- pH & conductivity tester (*see page 57*)

Type	Description	Part No.
SL 1111	EBI 12 Data logger set for steam sterilizers and washer-disinfectors	1250-1111

SL 1201 Routine Control Set *for Washer-Disinfectors for Endoscopes*

For the routine control of washer-disinfectors for endoscopes according ISO 15883.

This reliable system consists of user-friendly mini data loggers and an Endoscope-Dummy that can be placed directly in the processes.

The set contains:

- 1 x EBI 11-T235 Mini temperature data logger, needle length: 25 mm
- 1 x EBI 11-P111 Mini pressure data logger
- Sealing kit DAC-validation set
- EBI IF 300, 4-port Interface
- Winlog.med, evaluation software
- spypach Endoscope-Dummy "spo-pro" Basic
- Aluminum carrying case EBI TAK ALU

Type	Description	Part No.
SL 1201	Endoscope set routine control BASIC	1250-1201

SL 1521 EBI 16 Bowie&Dick-Test Set
for steam sterilizers certified according to ISO 11140-4

The set contains:

- 1 x Bowie&Dick-Test EBI 16 *(see page 27)*
- Winlog.med software
- EBI IF 150 interface
- Carrying case „SYSTAINER"

Type	Description	Part No.
SL 1521	EBI 16 Bowie&Dick-Test Set for steam sterilizers	1250-1521

SL 1621 EBI 16 Bowie&Dick-Test and Process Control Set
for steam sterilizers and washer-disinfectors

The set contains:

- 1 x Bowie&Dick-Test EBI 16 *(see page 27)*
- 1 x EBI 12-TP231 Temperature / pressure data logger *(see page 21)*
- Winlog.med software
- EBI IF 150 interface
- Carrying case „SYSTAINER"

Type	Description	Part No.
SL 1621	EBI 16 Bowie&Dick-Test Set for steam sterilizers and washer-disinfectors	1250-1621

SL 400X EBI 11 Mini Data Logger Set for Pasteurization and Sterilization

for temperature monitoring in cans

The set contains:

- 1 x EBI 11-T23x Mini temperature data logger, needle length: 20 mm, 50 mm or 100 mm
- AL 114 can adapter set
- EBI IF 100 interface
- Winlog.pro software
- Carrying case „SYSTAINER“

Mini Temperature Data Logger, 1-channel

Type	
EBI 11-T230	Needle length: 20 mm
EBI 11-T231	Needle length: 50 mm
EBI 11-T233	Needle length: 100 mm

Type	Description	Part No.
SL 4002	EBI 11-T230 Set for pasteurization and sterilization	1250-4002
SL 4003	EBI 11-T231 Set for pasteurization and sterilization	1250-4003
SL 4004	EBI 11-T233 Set for pasteurization and sterilization	1250-4004

SL 401X EBI 12 Data Logger Set for Pasteurization and Sterilization
for temperature monitoring in tins

The set contains:

- 1 x EBI 12-T23X Temperature data logger, needle length: 50 mm, 75 mm, 100 mm or 150 mm
- EBI DA-SET Can Adapter
- EBI IF 100 Interface
- Winlog.pro Software
- Carrying case „SYSTAINER"

Type	Description	Part No.
SL 4011	EBI 12-T230 set for pasteurization and sterilization	1250-4011
SL 4012	EBI 12-T231 set for pasteurization and sterilization	1250-4012
SL 4013	EBI 12-T232 set for pasteurization and sterilization	1250-4013
SL 4014	EBI 12-T233 set for pasteurization and sterilization	1250-4014

SL 4102 EBI 11 Mini Data Logger Set for Pasteurization
for temperature monitoring in bottles

The set contains:

- 1 x EBI 11-T230 Mini temperature data logger, needle length: 20 mm
- AL 115 Bottle adapter set
- EBI IF 100 interface
- Winlog.pro software
- Carrying case „SYSTAINER"

Type	Description	Part No.
SL 4102	EBI 11-T230 Mini data logger set for pasteurization	1250-4102