

# 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 validation in low temperature sterilizers such as EtO, LTSF and  $H_2O_2$

## 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
- Refrigerators / Freezers / Cooling Rooms
- Smokehouse
- Cooker / Cooler (Reel and Spiral)



## Medical



- Steam Sterilization
- Washer disinfectors / bedpan washers
- H<sub>2</sub>O<sub>2</sub>-, LTSF- and EtO- Sterilization
- Depyrogenation / heat tunnel
- Incubators
- Refrigerators / Freezers / Cooling Rooms
- Stability Chambers



## Pharmaceutical



- Steam-, H<sub>2</sub>O<sub>2</sub> and EtO- Sterilization
- Washer disinfectors
- Depyrogenation / heat tunnel
- Lyophilization
- Incubators
- Refrigerators / 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

### Process 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 the device and the 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 2014/34/EU. 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) 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 CFR 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.



## 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 loggers 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 ... -90 °C)*<br>±0.5 °C (-90 °C ... -40 °C)*<br>±0.2 °C (-40 °C ... 0 °C)*<br>±0.1 °C (0 °C ... +120 °C)*<br>±0.05 °C (+120 °C ... +140 °C)*<br>± 0.1 °C (+140 °C ... +150 °C)*<br>± 0.5 °C (+150 °C ... +250 °C)*<br>± 0.8 °C (+250 °C ... +400 °C)* |
| Time accuracy at 25 °C                 | < 5 sec (24 h)   |
| Temperature resolution                 | 0.01 °C  |
| Sensor                                 | Pt 1000, Class A   |
| Interval                               | 250 ms ... 24 hours.*  |
| Measurement mode                       | <ul style="list-style-type: none"> <li>• Endless measurement</li> <li>• Start / stop measurement</li> <li>• Measure upon start temperature</li> <li>• Start immediately until end of memory</li> </ul>   |
| Storage temperature                    | -20 °C ... +70 °C (-4 °F ... +158 °F)  |
| Maximum operating pressure             | Temperature logger 10 bar (abs), 4 bar (abs) with flexible cable probes  |
| Minimum operating pressure             | Logger with flexible cable probe 20 mbar (abs)   |
| 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                       | IP68   |
| Certificate                            | Factory calibration certificate  |

\* Deviating specifications can be found in the product descriptions.

\*\* Dimensions and weight may be different depending on the type.

## Product lines



Data loggers with this symbol have flexible or bendable temperature sensors or, in addition to temperature, can also log other measurands such as pressure, humidity, conductivity. The measured values can be transmitted via radio mode. Field of applications for the data logger of the EBI 12 series are: medicine, pharmaceuticals, food & beverages, as well as industry.

Temperature data loggers with this symbol have usually rigid temperature probes. They are characterized by their easy handling and robustness. Data loggers in this line of products have good accuracy and data memory. Most data loggers have a mounting thread for easy fixation.

The data logger can be used in several measurement applications in the food and pharmaceutical industries. For example in stability chambers, retort sterilization and in paste station tunnels.

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



II1G Ex ia IIC T4 Ga

### Application samples

- For process monitoring during convenience food production
- For routine control in bedpan washers
- For temperature mappings
- To measure in raw material storage



### Technical Data

|                                       |   |
|---------------------------------------|---|
| Measurement range<br>(Use in EX Area) | EBI 12-T100: -90 °C ... +150 °C (-130 °F ... +302 °F)<br>EBI 12-T100-EX: -40 °C ... +85 °C (-40 °F ... +185 °F) |
| Data memory                           | 100,320 measurement values  |
| Factory calibration certificate       | -20 °C, 0 °C, +60 °C and +134 °C  |
| Radio mode                            | EBI 12-T100: Not possible<br>EBI 12-T100-EX: Selectable   |

- 1 internal temperature sensor
- Particularly robust

| Type               | Description                                 | Part No.       |
|--------------------|---|----------------|
| EBI 12-T100        | Internal temperature sensor                 | 1340-6600      |
| EBI 12-T100-EYELET | Internal temperature sensor and eyelet ring | 1340-6600-0100 |
| EBI 12-T100-EX     | Internal temperature sensor, EX type        | 1340-6600-EX   |

## EBI 12-T10X Temperature Data Logger with internal temperature sensor



### Application samples

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



### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | EBI 12-T101: -90 °C ... +105 °C (-130 °F ... +221 °F)<br>EBI 12-T102: -90 °C ... +60 °C (-130 °F ... +140 °F) |
| Accuracy                        | ± 0.5 °C (-90 °C ... -40 °C)<br>± 0.3 °C (-40 °C ... +105 °C)   |
| Sampling rate                   | 1 s ... 24 h  |
| Data memory                     | 27,840 measurement values   |
| Factory calibration certificate | EBI 12-T101: -20 °C, 0 °C and +60 °C<br>EBI 12-T102: -80 °C, 0 °C and +60 °C                                  |

- 1 internal temperature sensor
- Particularly robust

| Type               | Description                                 | Part No.       |
|--------------------|---|----------------|
| EBI 12-T101        | Internal temperature sensor                 | 1340-6601      |
| EBI 12-T101-EYELET | Internal temperature sensor and eyelet ring | 1340-6601-0100 |
| EBI 12-T102        | Internal temperature sensor for Dry Ice     | 1340-6636      |



## EBI 12-T21X Temperature Data Logger rigid metal probe



Application sample

- For process monitoring during convenience food production

### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | -55 °C ... +150 °C (-67 °F ... +302 °F)   |
| Accuracy                        | ± 0.5 °C (-55 °C ... -40 °C)<br>± 0.2 °C (-40 °C ... 0 °C)<br>± 0.1 °C (0 °C ... +150 °C) |
| Sampling rate                   | 1 s ... 24 h  |
| Data memory                     | 27,840 measurement values   |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C and +134 °C  |



- 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 Temperature Data Logger rigid metal probe



Application sample

- Ideal for use in canning for pasteurization control

### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | -55 °C ... +150 °C (-67 °F ... +302 °F)   |
| EBI 12-T230 - EBI 12-T233       | -40 °C ... +140 °C (-40 °F ... +284 °F)   |
| Accuracy                        | ± 0.5 °C (-55 °C ... -40 °C)<br>± 0.2 °C (-40 °C ... 0 °C)<br>± 0.1 °C (0 °C ... +150 °C) |
| Sampling rate                   | 1 s ... 24 h  |
| Data memory                     | 27,840 measurement values   |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C and +134 °C  |



- Axial pointed, M5 Thread
- 1 external temperature probe, Ø 3 mm
- Various needle lengths 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-T237 | Needle length = 100 mm | 1340-6637 |

## EBI 12-T43X Temperature Data Logger rigid metal probes



Application sample

- Ideal for use in canning for pasteurization control

### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | -55 °C ... +150 °C (-67 °F ... +302 °F)   |
| Accuracy                        | ± 0.5 °C (-55 °C ... -40 °C)<br>± 0.2 °C (-40 °C ... 0 °C)<br>± 0.1 °C (0 °C ... +150 °C) |
| Sampling rate                   | 1 s ... 24 h  |
| Data memory                     | 2 x 13,920 measurement values   |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C and +134 °C  |

- Axial pointed, M5 Thread
- 2 external temperature probes, Ø 3 mm
- Various needle lengths 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-T26X Temperature Data Logger for Pasteurization rigid metal probe



Application sample

- Temperature measurement in bottles during pasteurization

### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | -55 °C ... +140 °C (-67 °F ... 284 °F)                        |
| Accuracy                        | ± 0.8 °C (-55 °C ... -40 °C)<br>± 0.3 °C (-40 °C ... +140 °C) |
| Sampling rate                   | 1 s ... 24 h  |
| Data memory                     | 27.840 measurement values                                     |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C and +121 °C                              |

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

| Type        | Description            | Part No.  |
|-------------|------------------------|-----------|
| EBI 12-T261 | Needle length = 135 mm | 1340-6618 |
| EBI 12-T262 | Needle length = 190 mm | 1340-6619 |
| EBI 12-T263 | Needle length = 245 mm | 1340-6620 |
| EBI 12-T264 | Needle length = 270 mm | 1340-6621 |
| EBI 12-T265 | Needle length = 300 mm | 1340-6622 |

## EBI 12-T46X Temperature Data Logger for Pasteurization rigid metal probe



### Application sample

- Ideal for use in bottles

### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | -55 °C ... +150 °C (-67 °F ... +302 °F)   |
| Accuracy                        | ± 0.5 °C (-55 °C ... -40 °C)<br>± 0.2 °C (-40 °C ... 0 °C)<br>± 0.1 °C (0 °C ... +150 °C) |
| Sampling rate                   | 1 s ... 24 h  |
| Data memory                     | 2 x 13,920 measurement values   |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C and +121 °C  |

- 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-T220 to T221 Temperature Data Logger bendable metal probe



IIIG Ex ia IIC T4 Ga

### Application samples

- Measurement in the drain of sterilizers
- In oven (protected by Thermal Insulation Box see on Page 29)
- EtO sterilization (ATEX type)

### Technical Data

|                                  |  |
|----------------------------------|--|
| Measurement range                |  |
| EBI 12-T220:                     | -200 °C ... +200 °C (-328 °F ... +392 °F)                      |
| EBI 12-T220-EX: (Use in EX Area) | -40 °C ... +85 °C (-40 °F ... +185 °F)                         |
| EBI 12-T221:                     | -200 °C ... +400 °C (-328 °F ... +732 °F)                      |
| Data memory                      | 100.320 measurement values                                     |
| Factory calibration certificate  | -20 °C, 0 °C, +60 °C, +134 °C<br>(and +250 °C for EBI 12-T221) |



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

| Type           | Description         | Part No.     |
|----------------|---------------------|--------------|
| EBI 12-T220    | L = 250 mm          | 1340-6604    |
| EBI 12-T220-EX | L = 250 mm, EX type | 1340-6604-EX |
| EBI 12-T221    | L = 500 mm          | 1340-6605    |

## EBI 12-T222 Temperature Data Logger *rigid metal probe*



### Application samples

- Washer disinfectors
- H<sub>2</sub>O<sub>2</sub> sterilizers
- Steam sterilizer

### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | -55 °C ... +140 °C (-67 °F ... +284 °F) |
| Data memory:                    | 27,840 measurement values               |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C, +134 °C           |



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

| Type        | Description                             | Part No.  |
|-------------|---|-----------|
| EBI 12-T222 | Needle length = 40 mm, rigid, M5 thread | 1340-6610 |

## EBI 12-T24X Temperature Data Logger *bendable metal probe*



### Application samples

- In washer disinfectors
- H<sub>2</sub>O<sub>2</sub> sterilization

### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | -200 °C ... +200 °C (-328 °F ... +392 °F) |
| Data memory                     | 100,320 measurement values                |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C and +134 °C          |



- 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 samples

- In oven (protected by Thermal-Isolation-Box)
- In washer disinfectors

### Technical Data

|                                 |   |
|---------------------------------|---|
| Measurement range               | -200 °C ... +400 °C (-328 °F ... +752 °F) |
| Data memory                     | 2 x 50,160 measurement values             |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C, +134 °C and +250 °C |

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

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

## EBI 12-T441 Temperature Data Logger *bendable metal probes*



II1G Ex ia IIC T4 Ga



### Application samples

- In washer disinfectors
- H<sub>2</sub>O<sub>2</sub> sterilization
- EtO sterilization (ATEX type)

### Technical Data

|                                 |  |
|---------------------------------|--|
| Measurement range               | EBI 12-T441: -200 °C ... +200 °C (-328 °F ... +392 °F) |
| (Use in EX Area)                | EBI 12-T441-EX: -40 °C ... +85 °C (-40 °F ... +185 °F) |
| Data memory                     | 2 x 50,160 measurement values                          |
| Factory calibration certificate | -20 °C, 0 °C, +60 °C and +134 °C                       |

- 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 | Needle Length = 500 mm, EX type | 1340-6629-EX |

## EBI 12-T490 Temperature Data Logger flexible cable probes



Application sample

- Steam sterilizer



### Technical Data

|                                 |  |
|---------------------------------|--|
| Measurement range               | -20 °C ... +150 °C (-4 °F ... +302 °F) |
| Data memory                     | 2 x 50,160 measurement values          |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C               |

- 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 25,080 measurement values          |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C               |

- 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 sterilizer



### Technical Data

|                                 |  |
|---------------------------------|--|
| Measurement range               | -20 °C ... +150 °C (-4 °F ... +302 °F) |
| Data memory                     | 2 x 50,160 measurement values          |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C               |

- 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 sterilizer



### Technical Data

|                                 |  |
|---------------------------------|--|
| Measurement range               | -20 °C ... +150 °C (-4 °F ... +302 °F) |
| Data memory                     | 4 x 25,080 measurement values          |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C               |

- 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)<br>±0.05 °C (+120 °C ... +140 °C)<br>±0.1 °C (+140 °C ... +150 °C)  |
| Accuracy: pressure                     | ±15 mbar (1 mbar ... 49 mbar)<br>±10 mbar (50 mbar ... 150 mbar)<br>±15 mbar (151 mbar ... 2.049 mbar)<br>±10 mbar (2.050 mbar ... 2.250 mbar)<br>±15 mbar (2.251 mbar ... 2.999 mbar)<br>±10 mbar (3.000 mbar ... 3.250 mbar)<br>±15 mbar (3.251 mbar ... 3.499 mbar)<br>±20 mbar (3.500 mbar ... 4.000 mbar) |
| Resolution: temperature                | 0.01 °C  |
| Resolution: pressure                   | 1 mbar   |
| Data memory                            | Max. 100,320 total measurement values  |
| Sensor: temperature                    | Pt 1000, Class A   |
| Sensor: pressure                       | Piezoresistive pressure sensor (temperature compensated)   |
| Sampling rate                          | 250 ms ... 24 h  |
| Measurement mode                       | <ul style="list-style-type: none"> <li>• Endless measurement</li> <li>• Measure upon start time</li> <li>• Start immediately until end of memory</li> <li>• Start / Stop measurement</li> </ul>  |
| Storage temperature                    | -20 °C ... +70 °C (-4 °F ... +158 °F)  |
| Maximum operating pressure             | Pressure logger: 7 bar (abs), 4 bar (abs) with flexible cable probes   |
| Minimum operating pressure             | Logger with flexible cable probe: 20 mbar (abs)  |
| Time accuracy (24h) at 25 °C           | < 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                       | IP68   |
| Certificate                            | Factory calibration certificate  |

\* Dimensions and weight may be different depending on the type.

### EBI 12-T480 Temperature Data Logger with strip to connect external probes



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 50,160 measurement values  |
| Measurement mode                | <ul style="list-style-type: none"> <li>• Endless measurement immediately</li> <li>• Start / Stop measurement</li> <li>• Measure immediately until end of memory</li> </ul> |
| 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                | IP52   |
| Factory calibration certificate | -200 °C, -50 °C, 0 °C, +60 °C, +134 °C, +250 °C and +400 °C  |



- Strip for 2 external Pt 1000 probes

| Type          | Description                                 | Part No.  |
|---------------|---|-----------|
| EBI 12-T480   | Temperature Data Logger with terminal strip | 1340-6633 |
| PT 1000 Probe | 10 cm long wires                            | 1341-1810 |



## EBI 12-TP222 Temperature / Pressure Data Logger bendable metal probe and Luer-Lock-Connection



### Application samples

- 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 33,440 measurement values  |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C<br>100 mbar and 3100 mbar at +25 °C and<br>3100 mbar at +134 °C |

- 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 |

## EBI 12-TP226 Temperature / Pressure Data Logger bendable metal probe



### Application samples

- 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 33,440 measurement values  |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C<br>100 mbar and 3100 mbar at +25 °C and<br>3100 mbar at +134 °C |

- 1 external temperature probe, axial, bendable, Ø 1.5 mm
- 1 internal pressure sensor
- Small size

| Type         | Description            | Part No.  |
|--------------|------------------------|-----------|
| EBI 12-TP226 | Needle Length = 250 mm | 1340-6657 |

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



II1G Ex ia IIC T4 Ga



### Application samples

- Washer disinfectors
- Sterilizer
- EtO sterilizer (ATEX type)

### Technical Data

|  |  |
|--|--|
| Measurement range: temperature<br>(Use in EX Area) | EBI 12-TP231: 0 °C ... +150 °C (+32 °F ... +302 °F)<br>EBI 12-TP231-EX: 0 °C ... +85 °C (+32 °F ... +185 °F) |
| Measurement range: pressure                        | 1 ... 4,000 mbar   |
| Data memory  | 2 x 33,440 measurement values  |
| Factory calibration certificate                    | 0 °C, +60 °C and +134 °C<br>100 mbar and 3100 mbar at +25 °C and<br>3100 mbar at +134 °C                     |

- 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 | Needle Length = 40 mm, EX type | 1340-6655-EX |



## EBI 12-TP23X Temperature / Pressure Data Logger tube connection and M 10x1 internal thread



EBI 12-TP234

Application sample

- Washer disinfectors

### Technical Data

|  |  |
|--|--|
| Measurement range: temperature   |  |
| <b>EBI 12-TP237</b>  | 0 °C ... +140 °C (+32 °F ... +284 °F)  |
| <b>EBI 12-TP234</b>  | 0 °C ... +150 °C (+32 °F ... +302 °F)  |
| Measurement range: pressure  |  |
| 1 ... 4,000 mbar   |  |
| Data memory  |  |
| 2 x 33,440 measurement values  |  |
| Accuracy: pressure   |  |
| <b>EBI 12-TP237</b>  | ±20 mbar   |
| <b>EBI 12-TP234</b>  | ±15 mbar (1 mbar ... 49 mbar)<br>±10 mbar (50 mbar ... 150 mbar)<br>±10 mbar (2,050 mbar ... 2,250 mbar)<br>±10 mbar (3,000 mbar ... 3,250 mbar)<br>±15 mbar (3,250 mbar ... 3,500 mbar)<br>± 0.5 % FS (3,500 mbar ... 4,000 mbar) |
| Factory calibration certificate  |  |
| 0 °C, +60 °C and +134 °C<br>100 mbar and 3100 mbar at +25 °C and<br>3100 mbar at +134 °C |  |

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

| Type         | Description                           | Part No.  |
|--------------|---------------------------------------|-----------|
| EBI 12-TP237 | Needle Length = 20 mm, Tube connector | 1340-6658 |
| EBI 12-TP234 | Needle Length = 40 mm, Tube connector | 1340-6652 |

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



Application samples

- 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 25,080 measurement values  |  |
| Factory calibration certificate  |  |
| 0 °C, +60 °C and +134 °C<br>100 mbar and 3100 mbar at +25 °C and<br>3100 mbar at +134 °C |  |

- 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 samples

- 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 20,064 measurement values  |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C<br>100 mbar and 3100 mbar at +25 °C and<br>3100 mbar at +134 °C |

- 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 with Luer-Lock-Connection



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 20,064 measurement values  |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C<br>100 mbar and 3100 mbar at +25 °C and<br>3100 mbar at +134 °C |

- 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

### Technical Data

|                                 |  |
|---------------------------------|--|
| Measurement range: temperature  | 0 °C ... +150 °C (+32 °F ... +302 °F)  |
| Measurement range: pressure     | 1 ... 4,000 mbar   |
| Data memory                     | 4 x 20,064 measurement values  |
| Factory calibration certificate | 0 °C, +60 °C and +134 °C<br>100 mbar and 3100 mbar at +25 °C and<br>3100 mbar at +134 °C |

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

| 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



A very precise pressure measurement is required in the process of the H<sub>2</sub>O<sub>2</sub> sterilizer. The data logger measures from an absolute pressure of 0.1 mbar. Due to the very low working pressure, close to the vacuum, is a special measuring system required.



Not for use in steam sterilizer



### 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)<br>± 5 % of measured value (50 mbar ... 100 mbar)<br>± 1 % FS (100 mbar ... 1,050 mbar)   |
| Resolution: temperature         | 0.01 °C  |
| Resolution: pressure            | 0.1 mbar   |
| Data memory                     | TP190: 50,160 measurement values<br>TP290: 33,440 measurement values   |
| Sensor: temperature             | Pt 1000  |
| Sensor: pressure                | Piezoresistive pressure sensor   |
| Measurement cycle               | 250 ms ... 24 hours  |
| Measurement mode                | <ul style="list-style-type: none"> <li>• Endless measurement immediately</li> <li>• Start / Stop measurement</li> <li>• Measure immediately until end of memory</li> </ul> |
| Operating temperature           | 0 °C ... +85 °C  |
| Max. operating pressure         | 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                | IP68   |
| Factory calibration certificate | 0 °C and +60 °C<br>≤0.5 mbar, 50 mbar at +25 °C and<br>≤0.5 mbar, 10 mbar, 50 mbar at +60 °C   |

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

| 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 dishwasher 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 µS/cm ... 2,000 µS/cm  |
| Accuracy: temperature                    | ± 0.2 °C   |
| Accuracy: conductivity                   | ± 0.5 µS (1 µS/cm .. 20 µS/cm)<br>± 1.0 µS (20.1 µS/cm .. 100 µS/cm)<br>± 3.0 % of measured value (100.1µS/cm...1500µS/cm)<br>± 5 % from the measurement range (remaining range) |
| Resolution: temperature                  | 0.01 °C  |
| Resolution: conductivity                 | 0.1 µS/cm  |
| Data memory                              | 2 x 50,160 measurement values  |
| Sensor: temperature                      | Pt 1000  |
| Sensor: conductivity                     | Conductivity electrode   |
| Measurement mode                         | <ul style="list-style-type: none"> <li>• Endless measurement immediately</li> <li>• Start / Stop measurement</li> <li>• Measure immediately until end of memory</li> </ul>       |
| Measuring interval                       | • 1s ... 24h   |
| Storage temperature                      | 0 °C ... +125 °C (+32 °F ... +257 °F)  |
| Max. operating pressure (burst pressure) | 2.5 bar (abs.)   |
| Battery                                  | Lithium cell, user replaceable   |
| Dimensions (D x H)                       | 48 mm x 130 mm   |
| Housing material                         | 316 L Stainless steel / PEEK   |
| Protection class                         | IP68   |
| Factory calibration certificate          | 0 °C, +60 °C and +121 °C<br>5 µS/cm, 100 µS/cm, 1413 µS/cm at +25 °C   |
| Radio mode                               | Not possible   |

| Type         | Description                   | Part No.  |
|--------------|-------------------------------|-----------|
| EBI 12-TC230 | Temperature/Conductivity      | 1340-6667 |
| AL 132       | Flow adapter for EBI 12-TC230 | 1248-0132 |



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



II1G Ex ia IIC T4 Ga

### Application samples

- EtO Sterilization



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

### Technical Data

|   |  |
|---|--|
| Measurement range: Temperature (Use in EX area) | -20 °C ... +85 °C (-4 °F ... +185 °F)  |
| Measurement range: Humidity                     | 0 % rH ... 100 % rH  |
| 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 50,160 measurement values  |
| Measurement channels: temperature               | external (Pt 1000)   |
| Measurement channels: humidity                  | (capacitive); combined sensor replaceable  |
| Measurement mode                                | <ul style="list-style-type: none"> <li>• Endless measurement immediately</li> <li>• Start / Stop measurement</li> <li>• Measure immediately until end of memory</li> </ul> |
| Measuring interval                              | 1s ... 24h   |
| Storage temperature                             | -20 °C ... +70 °C  |
| Max. operating pressure                         | 2 bar (abs.)   |
| 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                                | IP52   |
| Factory calibration certificate                 | 0 °C and +60 °C<br>32.8 % rH, 52.9 % rH and 75.4 % rH at +25 °C  |

| Type            | Description                          | Part No.     |
|-----------------|--------------------------------------|--------------|
| EBI 12-TH100-EX | Temperature/Humidity, Ex type        | 1340-6671-EX |
| AL 175 TH probe | Replacement probe for EBI12-TH100-EX | 1341-6145    |



# Electronic Bowie&Dick-Test for measuring steam penetration in the steam sterilizer

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



The EBI 16 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 alternative 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 1,000 cycles or 3 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                   | 6,960 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 (+32 °F ... +302 °F) |
| Storage temperature           | -20 °C ... +70 °C (-4 °F ... +158 °F) |
| Start temperature             | +15 °C ... +35 °C (+59 °F ... +95 °F) |
| Max. operating pressure       | 7 bar (abs.)                          |
| 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 independent 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 | Alternative 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



**AL 121 opening tool EBI 12**

To open the data loggers e.g. for battery change. The set consists of 2 parts.



**AL 122 eyelet ring EBI 12**

Eyelet ring incl. sealing rings for EBI 12 to mount the data logger

**Battery set AL 104**

for EBI 12

Consisting of 3 batteries, 6 O-rings with grease



**AL 190 Silicone cable strap**

To hold the flexible cable probes of the EBI 12 data loggers



**AL 132 Flow adapter**

For a stabilized conductivity measurement in WD with EBI 12-TC230



## 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

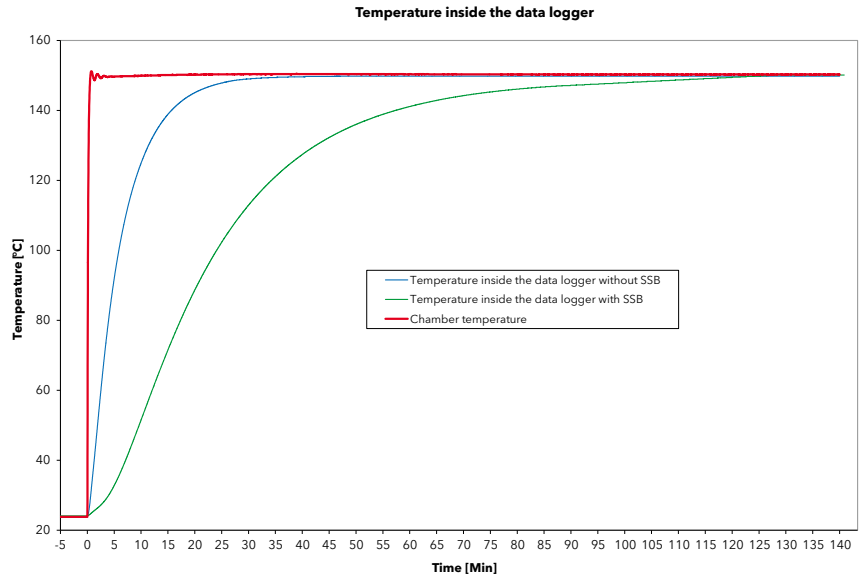
for e.g.  
EBI 12-TP222,  
EBI 12-TP322,  
EBI 12-TP422 and  
EBI 12-TP45x

Ø 78 mm,  
Height: 50 mm

### Silicone protection box AL 102

for e.g.  
EBI 12-T24x,  
EBI 12-T441 and  
EBI 12-T421

Ø 78 mm,  
Height: 44 mm



## Thermal Insulation Boxes

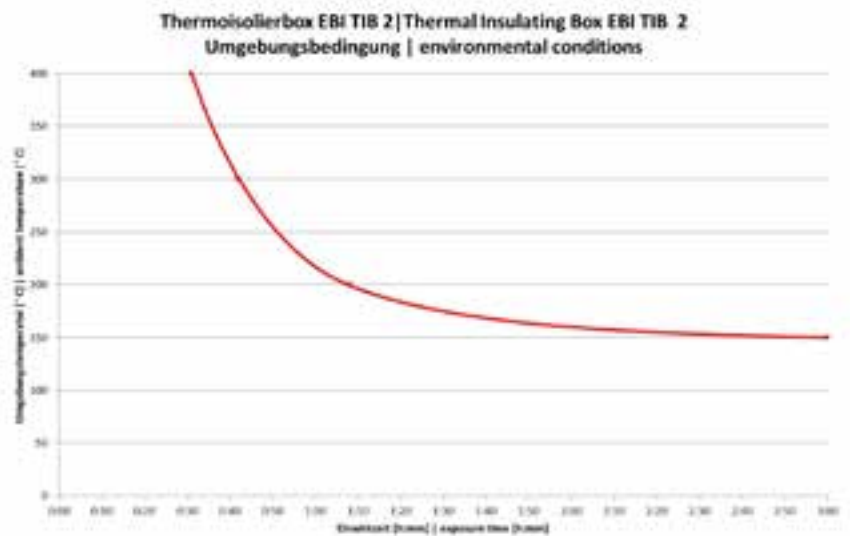
- Usable from +150 °C ... +400 °C
- Thermal protection of data loggers
- Stainless steel



### Thermal insulation box EBI TIB 2

for EBI 12-T221 and EBI 12-T421

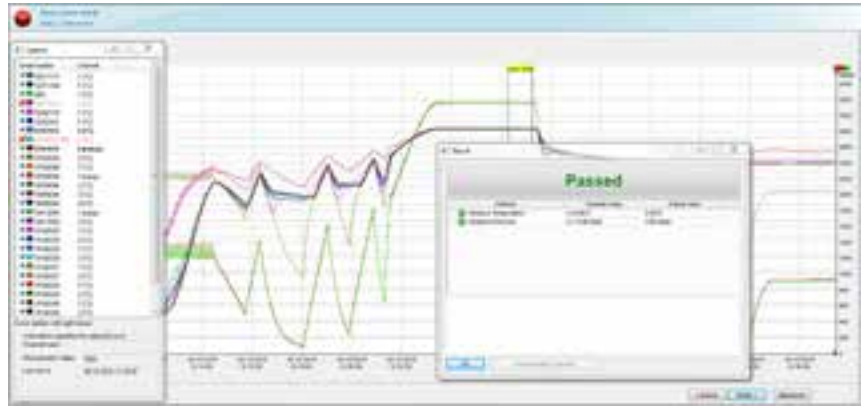
- EBI TIB 2: 160 mm x 160 mm x 60 mm



## AL 285 **Logger-Check**

### *For thermal measuring system control in steam sterilizer*

In combination with the software Winlog.validation the AL 285 offers you a simple 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





**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



**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



**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 length
- 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 fixation of the logger sensor, with a 3 mm diameter, in cans and glasses.



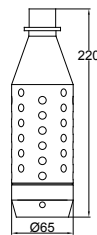
**Compression fitting EBI KV-3**  
Allows exact positioning of the logger sensor, with a diameter of 3 mm, in glasses (lid).



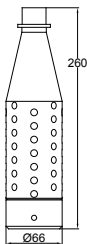
## Dummy bottle

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

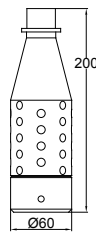
The dummy bottles can be screwed to the ground. This allows the EBI 12 to be positioned within the bottle.



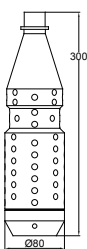
Dummy C



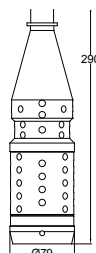
Dummy 0,5 l



Dummy E



Dummy 1 l



Dummy 0,7 l

| 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 101     | Silicone protection box for EBI 12 Pressure Data Logger                         | 1340-6021 |
| AL 102     | Silicone protection box for EBI 12 Temperature Data Logger with 2 radial probes | 1340-6022 |
| AL 104     | Battery Set for EBI 12  | 1100-0118 |
| AL 106     | Silicone protection box for EBI 12 Temperature Data Logger with 1 radial probe  | 1340-6023 |
| AL 107     | Silicone protection box for EBI 12 Temperature Data Logger with axial probes    | 1340-6024 |
| AL 111     | Replacement antenna for Interface EBI-IF 200                                    | 1340-6006 |
| AL 112     | Antenna steam sterilizer  | 1340-6007 |
| AL 120     | Battery Replacement Set incl. opening Tool for EBI 12                           | 1100-0130 |
| AL 121     | Battery change tool (2 parts) EBI 12  | 1100-0131 |
| AL 122     | Eyelet ring EBI 12  | 1248-0122 |
| AL 123     | Standard connector for EBI 12 Pressure data logger                              | 1248-0123 |
| AL 124     | Tube connector for EBI 12 Pressure data logger                                  | 1248-0124 |
| AL 125     | Luer-Lock connector for EBI 12 Pressure data logger                             | 1248-0125 |
| AL 132     | Flow adapter for EBI 12-TC 230  | 1248-0132 |
| AL 190     | Silicone cable strap set, consisting of 10 pcs.                                 | 1248-0190 |
| AL 285     | Logger-Check  | 1248-0285 |
| EBI TIB2   | Thermal Insulation box 160 mm x 160 mm 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 220 mm x 65 mm   | 1340-2255 |
| Dummy 0,5L | Dummy Bottle POM 0,5 l  | 1340-2256 |
| Dummy E    | Dummy Bottle POM 200 mm x 60 mm   | 1340-2257 |
| Dummy 1L   | Dummy Bottle POM 1 l  | 1340-2258 |
| Dummy 0,7L | Dummy Bottle POM 0,7 l  | 1340-2259 |