

## 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 1521	SL 1621	SL 2002	SL 3001	SL 3101	SL 3111	SL 3302	SL 4002	SL 4021	SL 4102	SL 4121
	1250-1011	1250-1111	1250-1521	1250-1621	1250-2002	1250-3001	1250-3101	1250-3111	1250-3302	1250-4002	1250-4021	1250-4102	1250-4121
<b>Routine control in</b>													
Bedpan washer	✓				✓		✓	✓					
Washer disinfecter		✓		✓	✓		✓	✓	✓				
Endoscope washer disinfecter		✓			✓		✓	✓	✓				
Sterilizer < 60 l		✓	BD *	BD */ ✓	✓	✓	✓	✓	✓				
Sterilizer > 60 l		✓	BD *	BD */ ✓	✓	✓	✓	✓	✓				
<b>Validation of Processes in</b>													
Washer disinfecter				✓	✓		✓	✓	✓				
Endoscope washer disinfecter					✓		✓	✓	✓				
Sterilizer < 60 l					✓	✓	✓	✓	✓				
Sterilizer > 60 l							✓	✓					
DAC Universal									✓				
<b>Process control in</b>													
Pasteurization cans										✓	✓		
Pasteurization bottles												✓	✓

\* Bowie&Dick-Test

# Data Logger Sets



Complete Data Logger Sets for Process control and Monitoring, for Routine Control, Mapping and 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  $\pm 0.05$  °C
- TÜV certified, FDA 21 CFR Part 11 conform software
- 2 years warranty





## Complete Data Logger Sets for Operation and Process Qualification

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### Description:

- Data Loggers for validation with evaluation software and extensive equipment
  - TÜV certified
  - FDA 21 CFR Part 11 conform software
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### 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  $\pm 0.05$  °C
  - TÜV certified, FDA 21 CFR Part 11 conform software
  - 2 years warranty
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## Data Logger Sets for process and charge control, for routine control, mapping and Acceptable Quality Limit (AQL)

- EBI 11 Mini Data Logger Sets**  
 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 402X: 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<sub>0</sub> value calculation in bedpan washers



**The set contains:**

- 1 x EBI 12-T101 Temperature data logger (see page 11)
- Winlog.med Software
- EBI IF 150 Interface
- Carrying case „SYSTAINER“
- pH & conductivity tester (see page 59)

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

Data Logger Sets | Data Logger Sets for process and charge control, for routine control, mapping and acceptable quality limit (AQL)

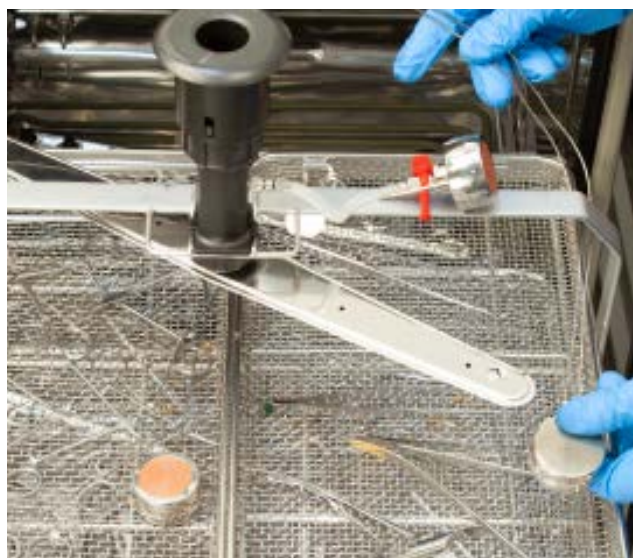
**SL 1111 Temperature / pressure data logger set**  
*for temperature and pressure monitoring as well as for A<sub>0</sub> value calculation in steam sterilizers, washer disinfectors and washer disinfectors for endoscopes*



**The set contains:**

- 1 x EBI 12-TP231 Pressure / temperature data logger with Luer-Lock connection (see page 21)
- AL 101 Silicone protection box
- Winlog.med Software
- EBI IF 150 Interface
- Carrying case „SYSTAINER“
- pH & conductivity tester (see page 59)

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



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 402X EBI 12 Data Logger Set for Pasteurization and Sterilization for temperature monitoring in tins



### The set contains:

- 1 x EBI 12-T43X 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 4021	EBI 12-T430 set for pasteurization and sterilization	1250-4021
SL 4022	EBI 12-T431 set for pasteurization and sterilization	1250-4022
SL 4023	EBI 12-T432 set for pasteurization and sterilization	1250-4023
SL 4024	EBI 12-T433 set for pasteurization and sterilization	1250-4024

## 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



## SL 412X EBI 12 Data Logger Set for Pasteurization for temperature monitoring in bottles and cans



### The set contains:

- 1 x EBI 12-T46X Temperature data logger, needle length: 135 mm, 190 mm, 245 mm, 270 mm or 300 mm
- EBI FL-S Bottle Adapter
- EBI DA Can Adapter
- EBI IF 100 Interface
- Winlog.pro Software
- Carrying case „SYSTAINER“

Type	Description	Part No.
SL 4121	EBI 12-T461 Data logger set for pasteurization	1250-4121
SL 4122	EBI 12-T462 Data logger set for pasteurization	1250-4122
SL 4123	EBI 12-T463 Data logger set for pasteurization	1250-4123
SL 4124	EBI 12-T464 Data logger set for pasteurization	1250-4124
SL 4125	EBI 12-T465 Data logger set for pasteurization	1250-4125

## SL 4211 EBI 12 Basic Temperature Monitoring Set Temperature monitoring system for different applications



### The set contains:

- 1 x EBI 12-T101 Temperature data logger
- EBI IF 100 Interface
- Winlog.pro Software
- Carrying case „SYSTAINER“

Type	Description	Part No.
SL 4211	EBI 12 Basic temperature monitoring set	1250-4211

# Data Logger Sets for Operation and Process Qualification

- **EBI 11 Mini Data Logger Sets**  
SL 3302: Validation set for DAC Universal MK IV (see page 53)
- **EBI 12 Precision Data Logger Sets**  
SL 2002: for washer disinfectors (see page 50)  
SL 3001: for benchtop sterilizers (see page 51)  
SL 3101: for large steam sterilizers (see page 51)

The sets can individually be expanded or compiled by 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 2002 Complete Validation Set for washer disinfectors



For the validation of washer disinfectors processes according to ISO 15883. The set can individually be expanded or compiled yourself from one or more data loggers (EBI 12 or EBI 11), the appropriate interface and corresponding TÜV certified software. Talk to us!



### The set contains:

- 1 x EBI 12-T220 Temperature data logger
- 2 x EBI 12-T441 Temperature data loggers
- 1 x EBI 12-TP231 Temperature/pressure data logger
- 1 x EBI 12-TC230 Temperature/conductivity data logger
- EBI IF 200, 4-port Interface with USB connection and antenna
- Software Winlog.validation
- Carrying case „SYSTAINER“

Type	Description	Part No.
SL 2002	Validation set for washer-disinfectors	1250-2002

## SL 3001 Complete Validation Set for benchtop steam sterilizers



For the validation of processes with small steam sterilizers according to ISO 17665.

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

### The set contains:

- 1 x EBI 12-TP453 Temperature/ pressure data logger with AL 101 silicone protection box
- EBI IF 200 4-port Interface with USB connection and antenna
- Software Winlog.validation
- Carrying case „SYSTAINER“



Type	Description	Part No.
SL 3001	Validation set for small steam sterilizers	1250-3001

## SL 3101 Complete Validation Set with flexible wired probes for large steam sterilizers



For the validation of steam sterilizer processes according to ISO 17665.

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

### The set contains:

- 5 x EBI 12-T471 Temperature data loggers with AL 107 silicone protection boxes
- 1 x EBI 12-TP453 Temperature/ pressure data logger with AL 101 silicone protection box
- EBI IF 200, 4-port Interface with USB connection and antenna
- Software Winlog.validation
- 2 x AL 190 silicone cable strap sets
- Carrying case „SYSTAINER“



Type	Description	Part No.
SL 3101	Validation set for large steam sterilizers	1250-3101

## SL 3111 Complete Validation Set with bendable metal probes for large steam sterilizers



For the validation of steam sterilizer processes according to ISO 17665.

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

### The set contains:

- 5 x EBI 12-T441 Temperature data loggers
- 1 x EBI 12-TP 226 Temperature / pressure data logger with AL 101 silicone protection box
- EBI IF 200, 4-port Interface with USB connection and antenna
- Winlog. validation evaluation software
- Carrying case „SYSTAINER“



Type	Description	Part No.
SL 3111	Validation set for large steam sterilizers	1250-3111

## Equipment for operation or process qualification

### AL 3305 DAC Adapter Set for validation of the thermal process in DAC UNIVERSAL MK IV

**NEW** With the Adapter set is an independent process qualification of a DAC Universal MK III and MK IV in combination with ebro EBI 11 data loggers possible. No modification on the customers lid necessary.

**i** Systainer inlay is also prepared for some of adapters AL 3306 to AL 3308 (see page 56)

### The set contains:

- 1 x Logger mount
- 1 x PCD test body incl. adapter for ISO, Sirona and KaVo
- Carrying case „SYSTAINER“



Type	Description	Part No.
AL 3305	DAC-Adapter Set	1248-3305



## SL 3302 Complete Validation Set for DAC UNIVERSAL, small steam sterilizers as wells as washer disinfectors



Very flexible data logger system to perform validations for DAC Universal MK IV according to ISO 15883. This reliable system consists of user-friendly mini data loggers that can be placed directly in the processes and an evaluation software package that has been certified by the TÜV.

### The set contains:

- 2 x EBI 11-T235 Mini temperature data logger, needle length: 25 mm
- 2 x EBI 11-T236 Mini temperature data logger, needle length: 80mm
- 1 x EBI 11-P111 Mini pressure data logger
- Sealing-kit for EBI 11
- EBI IF 300, 4-port Interface
- Winlog.validation Software
- Carrying case „SYSTAINER“



Type	Description	Part No.
SL 3302	Validation set for DAC Universal MK IV	1250-3302
EBI 11-T237	additional temperature logger to validate DAC Universal MK III	1340-6272





PCD test body matching to the logger holder for the thermal test and for indicators.

*Developed for usage with test soil fittings supplied by SMP GmbH Tübingen.*



**AL 3304** Central Column for thermal validation of the DAC UNIVERSAL MK IV



**AL 3306 - AL 3308** DAC Cleaning adapters for different plugs.



**AL 3309** PCD Test Body



**AL 3310** Logger holder



**AL 3311** Thermal Load simulator

Type	Description	Part No.
AL 3304	Central Column	1248-3304
AL 3306	DAC Cleaning adapter matching to ISO connector	1248-3306
AL 3307	DAC Cleaning adapter matching to Sirona connector	1248-3307
AL 3308	DAC Cleaning adapter matching to KaVo connector	1248-3308
AL 3309	PCD Test Body	1248-3309
AL 3310	Logger holder	1248-3310
AL 3311	Thermal Load simulator	1248-3311

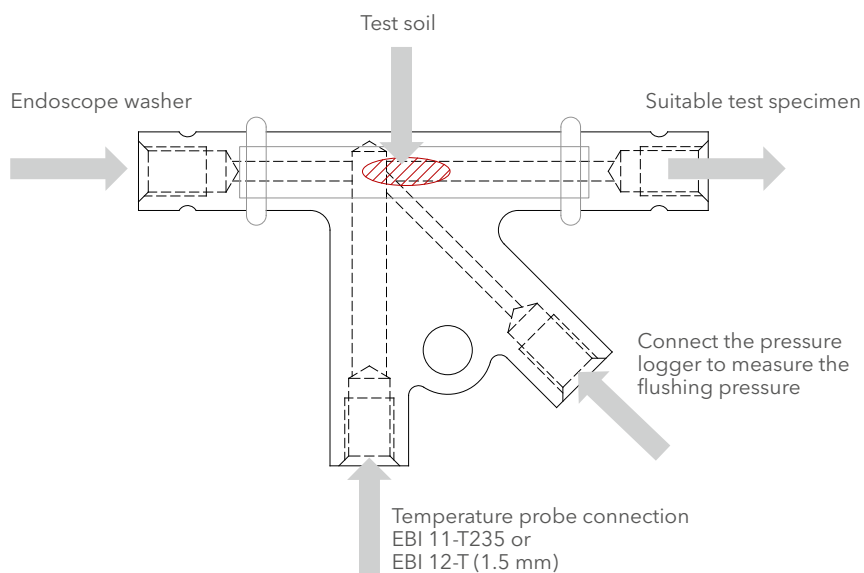
## Other additional Accessories

### AL 126 Test adapter for hollow bodies and hoses for validation in washer disinfector and endoscope washer



The test adapter offers a simple solution in connection with cleaning indicator (test soil) to perform a routine test in relation to cleaning performance as well as performance qualification during validation processes according to national standards.

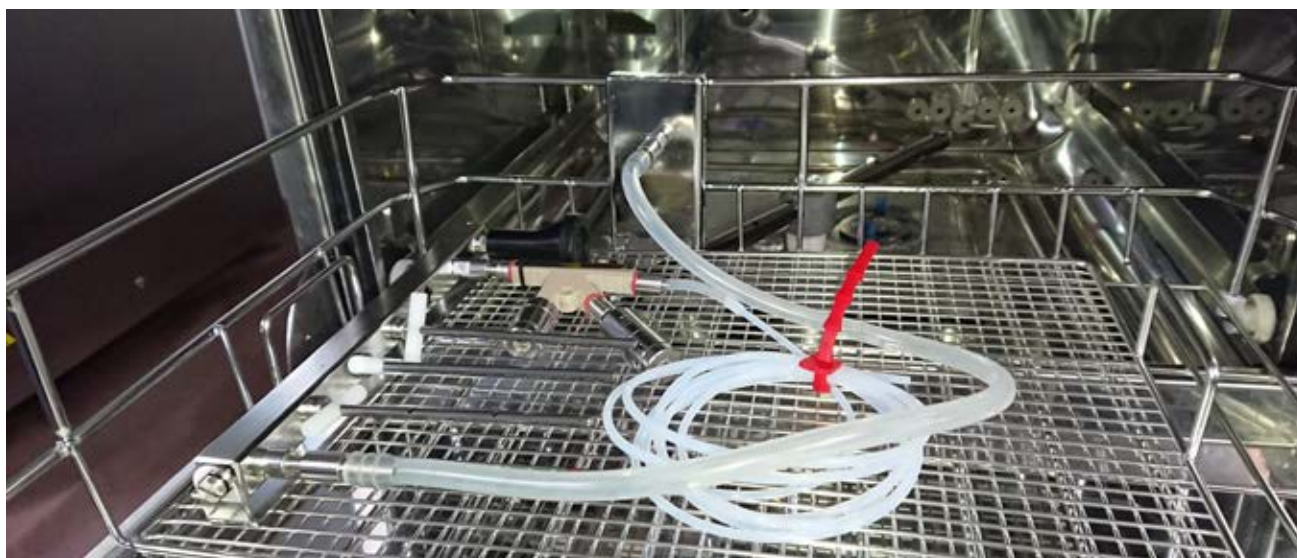
In addition to AL 126 we recommend also to use a combination of pressure and temperature logger.



#### The set contains:

- Test adapter
- Luer-Lock connection to connect a pressure logger
- 2 x Tube adapter 4 mm
- 1 x clamp connection 1.5 mm
- 2 x O-rings for fitting test soil

Type	Description	Part No.
AL 126	Test adapter for hollow bodies, hoses and endoscopes	1248-0126



## AL 127 Trolley „SYSTAINER“ for the easy transport of Systainers



For transport of systainers  
Fixed seat of the systainers on the trolley

Type	Description	Part No.
AL 127	Trolley „Systainer“	1248-0127

## AL 128 Carrying Case



### Technical Data

Housing	ABS
Dimension (L x W x D)	105 mm x 396 mm x 296 mm
Weight	1,3 kg

- Combined
- Modular construction
- Loggers are safely stored

Type	Description	Part No.
AL 128	Carrying Case	1248-0128

## Suitable Inlays for AL 128

Type	Description	Part No.
AL 1100	Inlay for EBI 12 and interface especially for validation sets	1248-1100
AL 1101	Inlay for EBI 12 and silicone protection boxes	1248-1101
AL 1102	Inlay for EBI 16 and interface IF 150	1248-1102
AL 1103	Inlay for EBI 11 or EBI 12 and interface especially for pasteurization	1248-1103
AL 1105	Inlay for EBI 11 and interface especially for DAC Set	1340-6096-0001
AL 1106	Inlay for PHT 830 or CT 830	1340-6096-0003
AL 1107	Inlay for 7 pcs. of EBI 12 data loggers	1340-6096-0009
AL 1108	Inlay for small parts	1340-6096-0010

## Adequate pH- and Conductivity Meters for Validation Sets

### PHT 830 pH Meter with temperature compensation



Calibration solutions on page 56

- Configuration directly on device using 5 buttons and display
- Graphic LCD display with backlight
- Logging function
- Temperature compensated
- Software connection by IF 830, Winlog.pro, Winlog.med, Winlog.validation

#### Technical Data

Measurement range	pH:	0 pH ... 14 pH
	mV:	-1,999 ... 1,999 mV
	temperature:	-10 °C ... +100 °C
Resolution	pH:	0.01 pH;
	mV:	1 mV
	temperature:	0.1 °C
Accuracy	pH:	± 0.03 (± 2 pH-units)
	temperature:	± 0.1 °C
Memory		4,000 measurement values
Temperature		-10 °C ... +100 °C
Display		128 x 64 pixel, backlight
Interface		USB with "Interface HMG USB", galvanically isolated
Battery		3 Batteries Type AA, IEC R6, LR6, 1.5 V
Ambient		-10 °C ... +55 °C
Relative humidity		Max. < 95% (not condensating)
Connections		Connectors BK (4-pin interface socket)
Housing		ABS
Protection class		IP65
Dimension (L x W x D)		200 mm x 95 mm x 40 mm
Weight		290 g incl. Batteries

### CT 830 Conductivity Meter with auto range



- Configuration directly on device using 5 buttons and display
- Graphic LCD display with backlight
- Logging function
- Temperature compensated
- Software connection by IF 830, Winlog.pro, Winlog.med, Winlog.validation

#### Technical Data

Measurement range		0 ... 200 µS	TDS 0 ... 200 mg/l
		0 ... 2,000 µS	TDS 0 ... 2,000 mg/l
Resolution		0.1 µS; 1 µS	
Accuracy	conductivity:	± 0.5 % of the measuring range	
	temperature:	± 0.1 °C	
Memory		4,000 measurement values	
Temperature		-10 °C ... +100 °C	
Display		128 x 64 pixel, backlight	
Interface		USB with "Interface HMG USB", galvanically isolated	
Battery		3 Batteries Type AA, IEC R6, LR6, 1.5 V	
Ambient		-10 °C ... +55 °C	
Relative humidity		< 95% (not condensating)	
Connections		Connectors BK (4-pin interface socket)	
Housing		ABS	
Protection class		IP65	
Dimension (L x W x D)		200 mm x 95 mm x 40 mm	
Weight		290 g incl. Batteries	

Type	Description	Part No.
PHT 830 SET 1	pH Meter with plastic electrode	1340-5812
CT830 SET	Conductivity Meter with plastic electrode	1340-5835

## Various electrodes for PHT 830



**AT 830 pH K Binder**  
Temperature compensated

- Housing material: plastic
- Cable length: 150 cm
- Diameter: 12 mm
- Shaft length: 120 mm



**AT 830 pH G Binder, laboratory electrode**  
Temperature compensated

- Shaft housing material: glass
- Cable length: 100 cm
- Shaft diameter: 12 mm
- Shaft length: 120 mm



**AT 830 pH E Binder, penetration electrode**  
Temperature compensated for measurements in semi-solid food products and other materials.

- Housing material: glass
- Cable length: 100 cm
- Shaft/electrode diameter: 15 mm/5 mm
- Shaft/electrode length: 65 mm/12 mm

Technical Data	AT 830 pH K	AT 830 pH G	AT 830 pH E
pH measurement range	0 pH ... 14 pH	0 pH ... 14 pH	2 pH ... 13 pH
Temperature measurement range	0 °C ... +100 °C (+32 °F ... +212 °F)	0 °C ... +100 °C (+32 °F ... +212 °F)	+5 °C... +80 °C (+41 °F... +176 °F)
Electrolyte	Gel	Gel	Referid®

Type	Description	Part No.
AT 830 pH K Binder	Plastic electrode	1339-0661
AT 830 pH G Binder	Measurement electrode for laboratories	1339-0662
AT 830 pH E Binder	Penetration electrode	1339-0663

## Electrode for CT 830



**AT 830 C Binder**  
Temperature compensated

- Housing material: plastic
- Cable length: 150 cm
- Diameter: 12 mm
- Shaft length: 120 mm

Technical Data	AT 830 C
Conductivity measurement range	0 µS ... 500 mS
Temperature measurement range	0 °C ... +100 °C (+32 °F ... +212 °F)

Type	Description	Part No.
AT 830 C Binder	Plastic electrode	1339-0660

## Calibration and Buffer solutions



**Buffer bottles**

Standard (DIN/NIST) buffer solutions

Type	Description	Part No.
PL 4	Standard (DIN / NIST) buffer solution, pH 4,006 - 250ml	109110
PL 7	Standard (DIN / NIST) buffer solution, pH 6,865 - 250 ml	109120
PL 9	Standard (DIN / NIST) buffer solution, pH 9,180 - 250 ml	109130
KCI-250	Reference electrolyte, KCl-solution 3 mol/l - 250 ml	109705
E-Set Trace	Calibration Standard, 0.01 mol/KCl (6x 50 ml)	300572



## Interface cable for PHT 830 and CT 830

### EBI IF 830

For reading out the memory of the PHT 830 and CT 830

- Software connection  
Winlog.pro, Winlog.med,  
Winlog.validation



Type	Description	Part No.
EBI IF 830	Interface for PHT 830 and CT 830	1340-6011

## PHX 800 Basic pH Tester with acoustic signal



- Automatic deactivation
- Battery charge indicator
- Replaceable battery

### Technical Data

pH measurement range	0 pH ... 14 pH
pH measurement accuracy	0.1 pH
pH resolution	±0.2 pH
Operating temperature	0 °C ... +50 °C (+32 °F ... 122 °F)
Storage temperature	-25 °C ... +60 °C (-13 °F ... 140 °F)
Housing material	ABS plastic
Protection class	IP65
Dimension (L x W x H)	170 x 32 x 15 mm
Weight	Approximately 70 g
Battery	1.5 V A76/LR44
Battery lifetime	Approximately 150 hours
Deactivation	Automatically after 15 minutes

Type	Description	Part No.
PHX 800	Basic pH Tester	1340-5800

## TDS 3 Basic Conductivity Tester Dual Display



- Battery charge indicator
- Replaceable battery

### Technical Data

Measurement range	0 ... 1,999 µS	0 ... 1,999 ppm
	0 ... 19.99 mS	0 ... 19.99 ppt
Measurement accuracy	1 µS	
Resolution	1 µS	
Operating temperature	0 °C ... +50 °C (+32 °F ... 122 °F)	
Storage temperature	-25 °C ... +60 °C (-13 °F ... 140 °F)	
Housing material	ABS plastic	
Protection class	IP67	
Dimension (L x W x H)	170 x 32 x 15 mm	
Weight	Approximately 70 g	
Battery	4 x 1.5 V A76/LR44	
Battery lifetime	Approximately 150 hours	

Type	Description	Part No.
TDS 3	Basic Conductivity Tester	1340-5831