

- **Simple operation by clear arranged menu guidance**
- **Good-size lighted graphic display**
- **Bleeding control of up to three cooling towers is possible**
- **Permanent indication of the current conductivity and temperature or further measurement parameters**
- **Additional monitoring measurements like pH or Redox can be integrated**



The measurement and controlling system Multronic Cooling Water comprises a full-automatic bleeding control of up to three cooling towers by recording the conductivity (optional with the maintenance-free inductive or the conductive measuring principle). For technical difficult processes it is possible to operate a cooling tower with pH-measurement and real-time module for time-depending dosing processes, like biocide dosage, amongst the bleeding control.

**Functions:**

- Lighted graphic display
- Protection against unauthorized use by access code
- Special conductivity measuring range for cooling water treatment
- Selectable conductivity measuring principle (inductive or conductive measurement)
- Automatic temperature compensation
- Biocide weekly timer, maximum of 7 dosing points per day (maximum of 49 per week) adjustable, freely selectable dosing time and application time per dosing point
- Adjustable interlocking between biocide dosing and bleeding (preferred bleeding)
- Communication with the circulation pump of the cooling circuit (pre-circulation)
- Additional measurement (incl. control output) integrable for pH or Redox measurement parameters
- Standard signal output (0/4-20 mA) for each measurement

The Multronic also includes a communication function to the circulation pump of the cooling tower. Logic links between the functions of bleeding, biocide dosing and circulation control provide adequate process reliability.

## Technical data:

### Bleeding inductive

Measuring range: 0 – 5000  $\mu\text{S/cm}$

### Bleeding conductive

(electrode measurement)

Measuring range: 0-5  $\mu\text{S/cm}$   
0-50  $\mu\text{S/cm}$   
0-500  $\mu\text{S/cm}$

### Biocide timer

Weekly timer, 7 dosing points per day selectable

These values have to be adjusted per dosing point:

Dosing time: 1-600 min  
Application time: 0-600 min  
Bleeding level for pre-bleeding: 0.0 – 99,9%  
Relay output: 1 or 2

### pH measurement

Measuring ranges: 0 - 14 pH  
2 - 12 pH  
3 - 8 pH

### Redox measurement

Measuring ranges: 0 to 1 000 mV  
-500 to 500 mV

### Outputs per measuring module

Switching output: 2 make contacts  
230 V AC / 3 V  
Analogue output: 0-20 mA  
4-20 mA

## Display of the Multronicbleeding device

Module 1: Bleeding control via inductive conductivity control

Module 2: Timer module for biocide dosing control

Module 3: pH- measurement for process monitoring



### Bleeding module with

- Data recorder in  $\mu\text{S/cm}$
- Temperature indication
- Upper bleeding limit W+
- Lower bleeding limit W-
- Motor (magnetic)-valve switch point

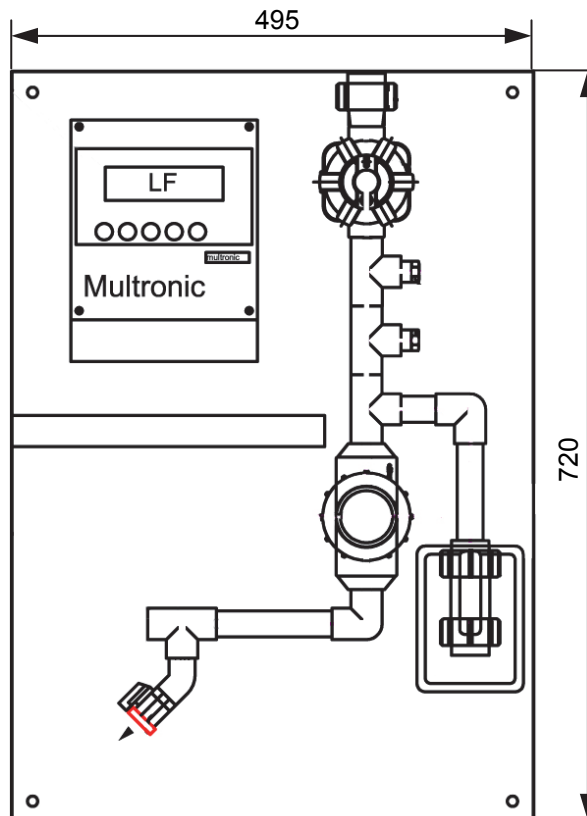
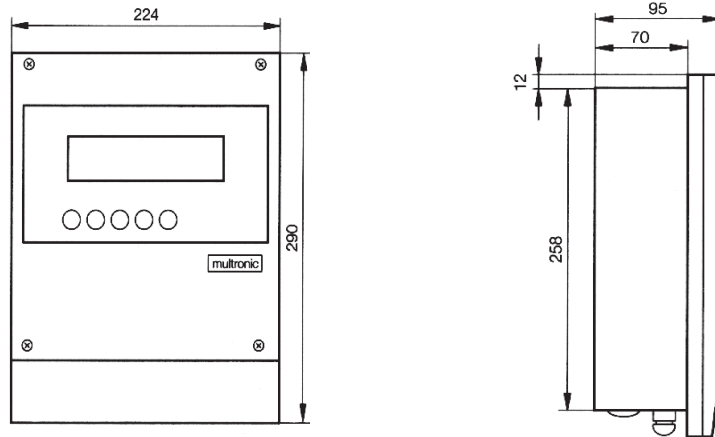
### Timer module with

- Operation time t1 indication (\* = active)
- Time data for dosing t2
- Time data for slow running t3
- Bleeding limit count Ws
- Number of the active output relays

### pH module with

- pH indication
- Temperature indication
- Controller configuration
- Set point data W
- Number of the active output relays

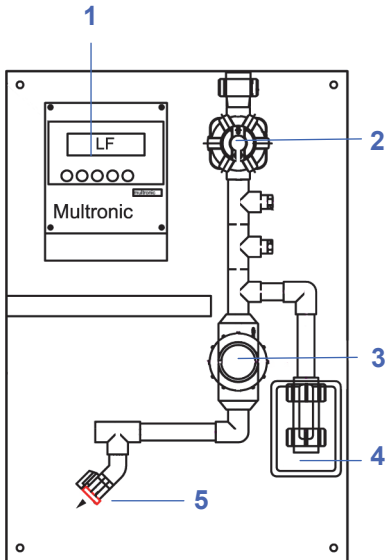
**Dimensions:**



**Complete device:**

**Article/name**

**Material No.**



**MULTRONIC Cooling Water basic device**

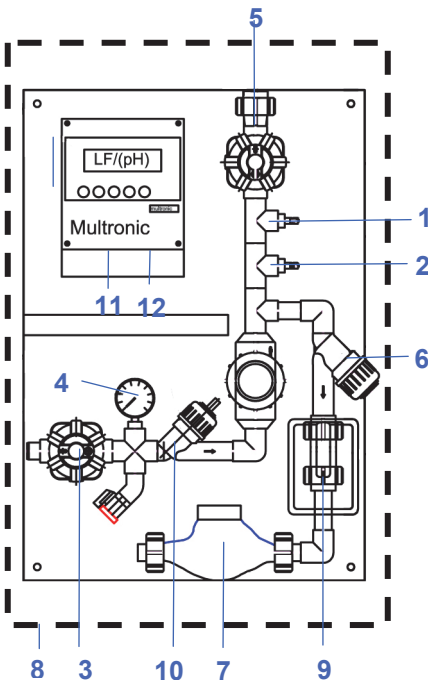
Bleeding device MULTRONIC Cooling Water with pre-circulation control pre-assembled on a mounting plate (500 x 720 mm)

on request

Bleeding device MULTRONIC Cooling Water with integrated timer for biocide metering and pre-circulation pre-assembled on a mounting plate (500 x 720 mm)

on request

- Extent of supply:
- MULTRONIC Cooling Water conductivity measuring unit (1)
  - Manual diaphragm valve (2)
  - Conductivity measuring probe (3)
  - Motor driven ball cock 230 V (4)
  - Test portion cock (5)



**MULTRONIC Cooling Water options**

on request

- Option 1** Metering valve 1 for biocide metering, ready-assembled
- Option 2** Metering valve 2 for metering of a 2nd biocide or a anticorrosive, ready-assembled
- Option 3** Manual diaphragm valve on inlet side
- Option 4** Manometer 0-10 bar
- Option 5** Orifice (-30 %), on outlet side
- Option 6** Filter in front of drain valve, DN 20, PVC, 0.5 mm
- Option 7** Contact water meter with pulse output 1 pulse/litre
- Option 8** Unit in a GFK cabinet with heating
- Option 9** Motor diaphragm valve instead of motor driven ball cock
- Option 10** additional pH measuring incl. probe, ready-assembled
- Option 11** MCT software and connection cable for PC/laptop
- Option 12** Profibus connection

**Ordering data single components:**

<b>Artikel/Bezeichnung</b>	<b>Material-Nr.</b>
<b>MULTRONIC Cooling Water basic device</b>	
MULTRONIC Cooling Water basic device 115 / 230 V AC	255116
MULTRONIC Cooling Water basic device 115 / 230 V AC ProfibusDP	on request
<b>Measuring modules for MULTRONIC Cooling Water</b>	
Measuring module bleeding inductive	255165
Measuring module bleeding conductive (electrode measuring)	255179
Timer module	255164
pH	35516210
Redox -500 to 500 mV	255180
Redox 0-1000 mV	255181
Relay PCB (4 change-over contacts)	255119
(Required when switching output of measuring module 2 and 3 is used)	

**Inductive conductivity measurement probes with integrated temperature sensor**

Construction:	Oval spherical cap, streamline-shaped with 8 mm meter flume diameter
Material:	PP (polypropylene)
Dimensions:	39 x 50 (Ø * h)
Pressure resistance:	PN = 10 bar at 20° C
Temperature resistance:	max. 90° C
Temperature sensor:	NTC resistor (R25 = 10 kΩ)
Time of response of temperature sensor in measurement cell:	approx. 30 s (90 %-value) with stainless steel sensor
Material sensor's protecting tube:	Stainless steel, 1.4571
Sealing element:	O-ring, EPDM 281
Length connection cable:	10 m, possible extension with terminal box 288101
Type of lead:	6-pin special measurement lead
Measuring lead connection:	- sensor side: permanent connection - unit side: plug-in screw-type terminals

**Article**

**Material No.**



**Conductivity measuring probe as above, with adapter for PP flow fitting or PVC flow fitting**

287422

Measuring probe material: PP  
Adapter material: PP



**Calibration resistance** for inductive bleeding for the measurement range 0 - 5000 µS/cm

255198



**Flow fitting**

287514

Material: PVC  
Temperature resistance: up to 50° C  
Connections: d50 adhesive muffs  
To be used with probe 287502 or 287521



**Article** **Material No.**



**Conductive conductivity measurement probe  
as described above**  
installed in PVC-flow fitting seat  
Temperature: max. 55° C  
Connections: d 32 adhesive muffs

255143



**Calibration box** for bleeding (conductive)  
with simulation resistances  
for the measurement ranges 0 ... 5, 0 ... 50, 0 ... 500  $\mu$ S/cm

255199



**Article**

**Material No.**



**pH-Combination Electrode**

with screw-in thread PG 13.5 and plug-in screw connection, glass shaft = 120 mm, Ø = 12 mm, collector Ag/AgCl, sintered.

**pH-Combination Electrode**

with dirt-repelling PTFE-circular diaphragm  
pH range: 0..12  
Temperature range: -15° C ...+80° C  
Pressure: up to 6 bar  
Minimum conductivity: 100 µS/cm

418853008

**Redox Combination Electrode**

with screw-in thread PG 13.5 and plug-in screw connection, glass shaft Ø = 12 mm, L = 120 mm, platinum electrode, Ag/AgCl sintered collector, in KCl gel, ceramic diaphragm  
Temperature up to approx. 80° C

418853010



**Temperature sensor Pt 100**

with PG 13.5 screw-in thread and screw connection  
glass shaft Ø = 12 mm, L = 120 mm  
Temperature up to 100° C

418853004





**Article**

**Material No.**

**Impedance converter**

418853005

We recommend the installation of the impedance converter in order to prevent negative influences to the measurement signal of pH-measurement due to electrical fields of near live wires, dirt or moistures.

The impedance converter is also used to short-out higher distances (more than 10 m) between measurement chain and measurement unit.

The impedance converter is screwed onto the measurement chain directly.

The delivery performance includes also an battery (live approx. 5 years).

Internal resistance:  $R_i \leq 5 \Omega$

Permitted surrounding temp.: -10...+50° C

Permitted storing temp.: -10...+60° C

Housing: PVC

Length: 108 mm

Weight: 0.09 kg



**Connection cable with rotating matching plug for Redox-measurement**

Length 2 m

418853101

Length 5 m

418853102

Length 10 m

418853103

Length 20 m

418853104

**Connection cable (doubly shielded) with rotating matching plug for pH-measurement**

Length 5 m

418853106

Length 10 m

418853107

Length 15 m

418853108

Length 20 m

418853109

**Connection cable (3-conductor connection) with rotating matching plug for temperature-measurement**

255197

Length 10 m

**Connection cable (doubly shielded) with rotating matching plug for pH electrode with integrated temperature sensor Pt 100**

on request

Length 10 m



**Article** **Material No.**

#### Buffer solutions



pH 4,01	20 ml	418853125
pH 7,00	20 ml	418853126
pH 9,21	20 ml	418853127

pH 4,01	1 l	418853121
pH 7,00	1 l	418853122
pH 9,21	1 l	418853123

Redox-buffer solution 468 mV	250 ml	418853124
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**Detergent for Combination pH and ORP/Redox Electrodes** 418853128

Pepsin-hydrochloric acid solution 250 ml

**Angle seat flow fitting** 418853202

for Combination pH or ORP/Redox Electrodes



Material:	transparent PVC
Operational temperature:	max. 60° C
Pressure resistance:	10 bar (at 20° C) 5 bar (at 40° C) 1 bar (at 60° C)
Nominal diameter:	DN 25, 1" (d = 32)
Connections:	d32 adhesive muffs

**Flow fitting** 418853213

for 3 measuring probes



Material:	PP
Angle support:	stainless steel
Operational temperature:	max. 80° C
Pressure resistance:	10 bar (at 20° C)
Connection thread:	G1/2
Hose connection:	6/12 mm (int. Ø/ext. Ø)

**Article**

**Material No.**



**Motor driven ball cock**

on request

Type: closed when currentless  
 Nominal voltage: 230 V AC 50/60 Hz  
 Nominal width DN20  
 Material  
 Armature: brass nickel-plated  
 Closing body and spindle: stainless steel  
 Spindle seal: O-ring, EPDM  
 Ball seat: PTFE, O-ring Viton



**MCT Software**

255152

Software for configuration and data transfer via RS232 interface

**Connection cable 5 m**

255157

for data exchange of Multronic and PC