

Consort

2014

Product catalogue

LABOMODERNE



LABOMODERNE

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Artistic in Science

PRODUCTS

ELECTROCHEMISTRY



ELECTROPHORESIS



THERMOMETERS



CONDITIONS

PRICES

Prices are subject to change without notice. Ask for written quotations or an updated price-list if any doubt about availability and price of a product. For orders less than 250 EUR we reserve the right to add a handling fee and banking costs to the invoice. Letters of credit are NOT accepted for orders less than 25,000 EUR!

TERMS

All invoices are payable cash on the address of the invoice unless otherwise stipulated in the documents committing the parties or unless an expiry date is stated on the invoice.

SHIPMENTS

All shipments are ex factory unless otherwise agreed. Without specific instructions from the buyer, we will determine the most efficient means of transportation and make partial shipments when necessary. Transport or dispatch of our goods is at the consignee's risk, even with carriage prepaid.

LIABILITY

All products of this catalogue are intended for laboratory use only. CONSORT is not liable for consequential damages arising out of the use or handling of its products.

CLAIMS

Our products are manufactured with the latest technology and need no particular maintenance.

We certify that the goods are thoroughly inspected and tested at the factory prior to shipment and found to meet all requirements defined by contract under which it is furnished.

However, should damage have occurred, keep all original packing material and report eventual claims immediately to the carrier and to us.

DESIGN CHANGES

Design and specifications of all products described in this catalogue are subject to change without notice in the course of product improvement.

WARRANTY

Warranty marked products are guaranteed against defective material and workmanship for the indicated period from the date of shipment ex factory. Accessories and breakable items such as electrodes are not warranted unless proven to be defective before shipment.

The original purchase order numbers, Consort invoice numbers and serial numbers of the products must be provided.

CONSORT will repair all defective equipment re-

turned to it during the warranty period without charge (CIF Turnhout prepaid by sender), provided the equipment has been used under normal laboratory conditions and in accordance with the operating limitations and maintenance procedures described in the instruction manual and when not having been subject to accident, alteration, misuse or abuse.

If the products have been used with or have come into contact with fluids, an MSDS (material safety data sheet) must be supplied prior to issuing a return authorisation.

A written authorisation must be obtained from Consort before returning any product. Our shipping instructions should be followed by the sender.

We reserve the right to refuse any unauthorised return.

SALES SERVICE

Call (+32)(0)14411279 between working hours.

Fax (+32)(0)14429179 for any service.

Mail to sales@consort.be for commercial information.

Mail to support@consort.be for technical assistance.

Mail to info@consort.be for any other inquiry.

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pH: -2...+16 pH
 mV: ±2000 mV
 Ion: 0.01 ng/l...100 g/l
 Conductivity: 0...2000 mS/cm
 Resistivity: 0...200 MΩ.cm
 Salinity: 0.0...70.0
 TDS: 0...100 g/l
 Dissolved oxygen: 0...60 mg/l
 0...600%
 Air pressure: 600...1300 hPa
 Temperature: -5...+105°C

Ion: C303x only
Dissolved oxygen: C302x, C303x only

**Two independent channels
 for all measurements!**

pH

Multi-point (1...5) calibration for more linearity.
 Selectable resolution from 0.001 pH to 0.1 pH.
 Automatic calibration with any of eleven pre-programmed and five user specified pH buffers. *Create your own buffer/temperature tables!*
 Accepts pH electrodes with any zero point (Eo) between ±999 mV.

mV

Features mV calibration for accurate ORP measurements.
 Selectable resolution from 0.1 mV to 1 mV.

Ion (C3030, C3031 only)

Direct concentration measurement.
 Multi-point (2...5) calibration and an additional blank correction for measuring low concentrations.

Conductivity

Multi-point (1...3) calibration for more linearity.
 An electrode with a typical cell constant of 1 cm⁻¹ permits to measure from 0.01 µS/cm to 200 mS/cm in five ranges.
 An electrode with a typical cell constant of 0.1 cm⁻¹ permits to measure from 0.001 µS/cm to 20 mS/cm in five ranges.
 An electrode with a typical cell constant of 10 cm⁻¹ permits to measure from 0.1 µS/cm to 2000 mS/cm in five ranges.
 Automatically selects correct range and frequency.
 Selectable reference temperature: 20° or 25°C.
 Automatic calibration with any of three preprogrammed and three user specified standard solutions. *Create your own standard/temp. tables!*
 Allows to lock the initial conductivity range to avoid non-linear titration curves.
 Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

Dissolved oxygen (C3020, C3021, C3030, C3011 only)

Operates with a galvanic dissolved oxygen electrode requiring no polarisation time and no zero calibration.
 Selectable resolution from 0.01 mg/l (0.1%) to 0.1 mg/l (1%).
 Automatic air pressure compensation 600-1300 hPa.

CODE	Description	CODE	Description
C3010	pH/conductivity meter (USB version) + USB cable	C3011	pH/conductivity meter (Ethernet version) + UTP cable
C3020	pH/conductivity/DO meter (USB version) + USB cable	C3021	pH/conductivity/DO meter (Ethernet version) + UTP cable
C3030	pH/Ion/conductivity/DO meter (USB version) + USB cable	C3031	pH/Ion/conductivity/DO meter (Ethernet version) + UTP cable
C30xxP	Meter kit for pH: meter + pH/ATC electrode SP10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl)		
C30xxK	Meter kit for conductivity: meter + conductivity/ATC electrode SK10T + 50 ml conductivity standard (0.01 M KCl)		
C30xxZ	Meter kit for oxygen: meter (not C3010 or C3011) + dissolved oxygen electrode SZ10T		
C30xxT	Meter kit complete: meter + pH/ATC electrode SP10T + conductivity/ATC electrode SK10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl) (C302x and C303x: + dissolved oxygen electrode SZ10T)		
C30xxX	Meter kit without electrodes: meter + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl)		
SH300	Flexible electrode holder (optional)		
A4800	Wall mounting kit (optional)		
A4049	Car adaptor, 12 V (optional)		

➔ Supplied with a mains adaptor (100...240 VAC, EU/US)

(Add a UK-sign for UK plug versions, e.g.: C3050-UK) (Add a CH-sign for Swiss plug versions, e.g.: C3050-CH)

Temperature

Reads temperatures with 0.1 °C resolution.

Manual or automatic temperature compensation (O₂: 0...50 °C).

Calibrates temperature probe for quality measurements.

Inputs

Two inputs for pH, mV, Ion, dissolved oxygen or conductivity + corresponding temperature and reference inputs.

Outputs

Two versions available:

C3010, C3020, C3030: with USB communication port (galvanically isolated) and RS232 interface.

C3011, C3021, C3031: with Ethernet communication port and RS232 interface.

Display

A large bright LCD screen with white backlight enables to view all channels individually or simultaneously.

Stability indicator prompts the user when readings should be taken.

Hold function allows to freeze the display for convenient reading or recording.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Shows a GLP report on the LCD screen.

Data-logging

Up to 12000 data sets can be stored manually or at a programmable interval.

Allows to mix data from all ranges in the same table.

Download **free data acquisition software** from www.consort.be to view, store and edit the measurements in your computer.

Cabinet

Robust dust and splash-proof cabinet.

An optional wall mounting kit allows to fix the meter to any wall making more space available on the desk.

Special features

Two-way communication with a computer using USB, Ethernet or RS232.

Can be programmed to continue automatically with the measurements or data-logging after a power failure.

Password protection prevents any unauthorised modification of the instrument's settings.

No electrical interference between pH/ORP/Ion and conductivity electrodes in the same solution.

Optional 12 V car adaptor.

Three year warranty.

GLP

All procedures for a "Good Laboratory Practice" are on board.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25 °C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25 °C).

SPECIFICATIONS	C30x0 - C30x1	
pH	Range	-2...+16 pH
	Resolution	0.001 pH
	Accuracy	0.1% ± 1 digit
	Calibration	1...5 points
	Buffers	11 pre-programmed 5 user specified
	Temperature compensation	-5...+105 °C
	ISO-pH	6...8 pH
	Slope	80...120%
mV	Zero point (Eo)	±999 mV
	Range	±2000 mV
	Resolution	0.1 mV
	Accuracy	0.1% ± 1 digit
ION (C303x only)	Calibration	1 point
	Range	0.01 ng/l...100 g/l
	Resolution	3 digits
	Accuracy	0.5% ± 1 digit
CONDUCTIVITY	Calibration	2...5 points + blank
	Range (cc dependent)	0...2000 mS/cm
	Resolution (cc dependent)	0.001 µS/cm
	Accuracy	0.5% f.s. of range
	Calibration	1...3 points
	Standards	3 pre-programmed 3 user specified
	Cell constant (cc)	0.07...13 cm ⁻¹
	Temperature compensation	-5...+105 °C
	Reference temperature	20° or 25° C
	Temperature coefficient	natural waters (EN27888)
	Range lock	✓
RESISTIVITY	Capacitive compensation	✓
	Range	0...200 MΩ.cm
SALINITY	Resolution	1 Ω.cm
	Range	0.0...70.0
TDS	Reference temperature	15° C
	Range	0...100 g/l
DISSOLVED OXYGEN (C302x, C303x only)	Resolution	0.01 mg/l
	Range	0...60 mg/l (0...600%)
	Resolution	0.01 mg/l (0.1%)
	Accuracy	1% ± 1 digit
	Calibration	1 point
	Temperature compensation	0...50° C
	Salinity compensation	0...40
	Air pressure compensation	600...1300 hPa
TEMPERATURE	Range	-5...+105 °C
	Resolution	0.1 °C
	Accuracy	0.1 °C
	Calibration	1 point
AIR PRESSURE (C302x, C303x only)	Range	600...1300 hPa
	Calibration	1 point
CHANNELS	Measurement	2
	Temperature	2
INPUTS	Measurement	2 BNC, 10 ¹² Ω
	Temperature	2x2 banana, for Pt1000
CALIBRATION	Reminder	0...999 h
	GLP	✓
DISPLAY	LCD	240x64 pixels
	White backlight	✓
	Hold function	✓
	Selectable resolution	✓
	Real time clock	✓
COMMUNICATION	Interface with computer	USB or Ethernet
	RS232, baud rate	1200...115200 b/s
	Printer	✓
DATA-LOGGING	Data sets	12000 + °C/date/time
	Modes	all
	Manual or timed	✓
	Interval	1...9999 s
SECURITY	Identification number	✓
	Password protection	✓
AMBIENT CONDITIONS	Temperature	0...40° C
	Humidity	0...95%, non condensing
POWER SUPPLY	Mains	100...240 VAC, 50/60 Hz
	Low voltage	9...15 VDC
DIMENSIONS	WxDxH	26x18x9 cm
WEIGHT	Meter	1 kg



→ You will find ordering codes and descriptions of electrodes, calibration solutions, accessories... on pages 19...



pH:	-2...+16 pH
mV:	±2000 mV
Ion:	0.01 ng/l...100 g/l
Conductivity:	0...2000 mS/cm
Resistivity:	0...200 MΩ.cm
Salinity:	0.0...70.0
TDS:	0...100 g/l
Dissolved oxygen:	0...60 mg/l 0...600%
Air pressure:	600...1300 hPa
Temperature:	-5...+105°C

Ion: C343x only

Dissolved oxygen: C342x, C343x only

**Two independent channels
for all measurements!**

**Accepts also 4-pole
conductivity electrodes!**

pH

Multi-point (1...5) calibration for more linearity.

Selectable resolution from 0.001 pH to 0.1 pH.

Automatic calibration with any of eleven pre-programmed and five user specified pH buffers. *Create your own buffer/temperature tables!*

Accepts pH electrodes with any zero point (E₀) between ±999 mV.

mV

Features mV calibration for accurate ORP measurements.

Selectable resolution from 0.1 mV to 1 mV.

Ion (C3430, C3431 only)

Direct concentration measurement.

Multi-point (2...5) calibration and an additional blank correction for measuring low concentrations.

Conductivity

Multi-point (1...3) calibration for more linearity.

The 4-pole design reduces considerably the problems of polarisation and fouling. By utilising four electrodes, no current flows through the measuring circuit. The AC-current is only applied to the outer pair of rings allowing the inner pair of electrodes to measure the voltage without any polarisation effects. **A 4-pole electrode permits to measure with the highest degree of accuracy and linearity.**

An electrode with a typical cell constant of 1 cm⁻¹ permits to measure from 0.01 μS/cm to 200 mS/cm in five ranges.

An electrode with a typical cell constant of 0.1 cm⁻¹ permits to measure from 0.001 μS/cm to 20 mS/cm in five ranges.

An electrode with a typical cell constant of 10 cm⁻¹ permits to measure from 0.1 μS/cm to 2000 mS/cm in five ranges.

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25°C.

Automatic calibration with any of three preprogrammed and three user specified standard solutions. *Create your own standard/temp. tables!*

Allows to lock the initial conductivity range to avoid non-linear titration curves.

Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

Dissolved oxygen (C3420, C3421, C3430, C3431 only)

Operates with a galvanic dissolved oxygen electrode requiring no polarisation time and no zero calibration.

Selectable resolution from 0.01 mg/l (0.1%) to 0.1 mg/l (1%).

Automatic air pressure compensation 600-1300 hPa.



CODE	DESCRIPTION	CODE	DESCRIPTION
C3410	pH/conductivity meter (USB version) + USB cable	C3411	pH/conductivity meter (Ethernet version) + UTP cable
C3420	pH/conductivity/DO meter (USB version) + USB cable	C3421	pH/conductivity/DO meter (Ethernet version) + UTP cable
C3430	pH/Ion/conductivity/DO meter (USB version) + USB cable	C3431	pH/Ion/conductivity/DO meter (Ethernet version) + UTP cable
C34xxX	Meter kit without electrodes: meter + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standards (0.01 M KCl) + UTP cable		
SH300	Flexible electrode holder (optional)		
A4800	Wall mounting kit (optional)		
A4049	Car adaptor, 12 V (optional)		
<p>➔ Supplied with a mains adaptor (100...240 VAC, EU/US)</p> <p>(Add a UK-sign for UK plug versions, e.g.: C3050-UK) (Add a CH-sign for Swiss plug versions, e.g.: C3050-CH)</p>			

Temperature

Reads temperatures with 0.1 °C resolution.

Manual or automatic temperature compensation (O₂: 0...50 °C).

Calibrates temperature probe for quality measurements.

Inputs

Two inputs for pH, mV, Ion, dissolved oxygen or conductivity + corresponding temperature and reference inputs.

Two extra DIN-8 connectors for 4-pole conductivity electrodes with built-in Pt1000.

Outputs

Two versions available:

C3410, C3420, C3430: with USB communication port (galvanically isolated) and RS232 interface.

C3411, C3421, C3431: with Ethernet communication port and RS232 interface.

Display

A large bright LCD screen with white backlight enables to view all channels individually or simultaneously.

Stability indicator prompts the user when readings should be taken.

Hold function allows to freeze the display for convenient reading or recording.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Shows a GLP report on the LCD screen.

Data-logging

Up to 12000 data sets can be stored manually or at a programmable interval.

Allows to mix data from all ranges in the same table.

Download **free data acquisition software** from www.consort.be to view, store and edit the measurements in your computer.

Cabinet

Robust dust and splash-proof cabinet.

An optional wall mounting kit allows to fix the meter to any wall making more space available on the desk.

Special features

Two-way communication with a computer using USB, Ethernet or RS232.

Can be programmed to continue automatically with the measurements or data-logging after a power failure.

Password protection prevents any unauthorised modification of the instrument's settings.

No electrical interference between pH/ORP/Ion and conductivity electrodes in the same solution.

Optional 12 V car adaptor.

Three year warranty.

GLP

All procedures for a "Good Laboratory Practice" are on board.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25 °C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25 °C).



SPECIFICATIONS	C34x0 - C34x1		
pH	Range	-2...+16 pH	
	Resolution	0.001 pH	
	Accuracy	0.1% ± 1 digit	
	Calibration	1...5 points	
	Buffers	11 pre-programmed 5 user specified	
	Temperature compensation	-5...+105 °C	
	ISO-pH	6...8 pH	
	Slope	80...120%	
mV	Zero point (Eo)	±999 mV	
	Range	±2000 mV	
ION (C343x only)	Resolution	0.1 mV	
	Accuracy	0.1% ± 1 digit	
	Calibration	1 point	
	Range	0.01 ng/l...100 g/l	
CONDUCTIVITY	Resolution	3 digits	
	Accuracy	0.5% ± 1 digit	
	Calibration	2...5 points + blank	
	Standards	3 pre-programmed 3 user specified	
	Cell constant (cc)	0.07...13 cm ⁻¹	
	Temperature compensation	-5...+105 °C	
	Reference temperature	20° or 25 °C	
	Temperature coefficient	natural waters (EN27888)	
	Range lock	✓	
	Capacitive compensation	✓	
	RESISTIVITY	Range	0...200 MΩ.cm
		Resolution	1 Ω.cm
SALINITY	Range	0.0...70.0	
	Reference temperature	15 °C	
TDS	Range	0...100 g/l	
	Resolution	0.01 mg/l	
DISSOLVED OXYGEN (C342x, C343x only)	Range	0...60 mg/l (0...600%)	
	Resolution	0.01 mg/l (0.1%)	
	Accuracy	1% ± 1 digit	
	Calibration	1 point	
	Temperature compensation	0...50 °C	
	Salinity compensation	0...40	
	Air pressure compensation	600...1300 hPa	
TEMPERATURE	Range	-5...+105 °C	
	Resolution	0.1 °C	
	Accuracy	0.1 °C	
	Calibration	1 point	
AIR PRESSURE (C342x, C343x only)	Range	600...1300 hPa	
	Calibration	1 point	
CHANNELS	Measurement	2	
	Temperature	2	
INPUTS	Measurement	2 BNC, 10 ¹² Ω	
	Temperature	2x2 banana, for Pt1000	
	Four-pole conductivity cell	2 DIN-8	
CALIBRATION	Reminder	0...999 h	
	GLP	✓	
DISPLAY	LCD	240x64 pixels	
	White backlight	✓	
	Hold function	✓	
	Selectable resolution	✓	
	Real time clock	✓	
COMMUNICATION	Interface with computer	USB or Ethernet	
	RS232, baud rate	1200...115200 b/s	
	Printer	✓	
DATA-LOGGING	Data sets	12000 + °C/date/time	
	Modes	all	
	Manual or timed	✓	
	Interval	1...9999 s	
SECURITY	Identification number	✓	
	Password protection	✓	
AMBIENT CONDITIONS	Temperature	0...40 °C	
	Humidity	0...95%, non condensing	
POWER SUPPLY	Mains	100...240 VAC, 50/60 Hz	
	Low voltage	9...15 VDC	
DIMENSIONS	WxDxH	26x18x9 cm	
WEIGHT	Meter	1 kg	

→ You will find ordering codes and descriptions of electrodes, calibration solutions, accessories... on pages 19...



pH:	-2...+16 pH
mV:	±2000 mV
Ion:	0.01 ng/l...100 g/l
Conductivity:	0...2000 mS/cm
Resistivity:	0...200 MΩ.cm
Salinity:	0.0...70.0
TDS:	0...100 g/l
Dissolved oxygen:	0...60 mg/l 0...600%
Air pressure:	600...1300 hPa
Temperature:	-5...+105°C

**Six independent channels
for all measurements!**

(conductivity: only 2 channels)

pH

Multi-point (1...5) calibration for more linearity.

Selectable resolution from 0.001 pH to 0.1 pH.

Automatic calibration with any of eleven pre-programmed and five user specified pH buffers. *Create your own buffer/temperature tables!*

Accepts pH electrodes with any zero point (Eo) between ±999 mV.

mV

Features mV calibration for accurate ORP measurements.

Selectable resolution from 0.1 mV to 1 mV.

Ion

Direct concentration measurement.

Multi-point (2...5) calibration and an additional blank correction for measuring low concentrations.

Conductivity

Multi-point (1...3) calibration for more linearity.

An electrode with a typical cell constant of 1 cm⁻¹ permits to measure from 0.01 μS/cm to 200 mS/cm in five ranges.

An electrode with a typical cell constant of 0.1 cm⁻¹ permits to measure from 0.001 μS/cm to 20 mS/cm in five ranges.

An electrode with a typical cell constant of 10 cm⁻¹ permits to measure from 0.1 μS/cm to 2000 mS/cm in five ranges.

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25°C.

Automatic calibration with any of three preprogrammed and three user specified standard solutions. *Create your own standard/temp. tables!*

Allows to lock the initial conductivity range to avoid non-linear titration curves.

Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

Dissolved oxygen

Operates with a galvanic dissolved oxygen electrode requiring no polarisation time and no zero calibration.

Selectable resolution from 0.01 mg/l (0.1%) to 0.1 mg/l (1%).

Automatic air pressure compensation 600-1300 hPa.

Temperature

Reads temperatures with 0.1°C resolution.

Manual or automatic temperature compensation (O₂: 0...50°C).

Calibrates temperature probe for quality measurements.

Inputs

Two inputs for pH, mV, Ion, dissolved oxygen or conductivity + corresponding temperature and reference inputs.

Four extra inputs for pH, mV, Ion or dissolved oxygen + corresponding temperature and reference inputs.

Outputs

Two versions available:

C3040: with USB communication port (galvanically isolated) and RS232 interface.

C3041: with Ethernet communication port and RS232 interface.

Display

A large bright LCD screen with white backlight enables to view all channels individually or simultaneously.

Stability indicator prompts the user when readings should be taken.

Hold function allows to freeze the display for convenient reading or recording.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Shows a GLP report on the LCD screen.

Data-logging

Up to 12000 data sets can be stored manually or at a programmable interval.

Allows to mix data from all ranges in the same table.

Download **free data acquisition software** from www.consort.be to view, store and edit the measurements in your computer.

Cabinet

Robust dust and splash-proof cabinet.

An optional wall mounting kit allows to fix the meter to any wall making more space available on the desk.

Special features

Two-way communication with a computer using USB, Ethernet or RS232.

Can be programmed to continue automatically with the measurements or data-logging after a power failure.

Password protection prevents any unauthorised modification of the instrument's settings.

No electrical interference between pH/ORP/Ion and conductivity electrodes in the same solution.

Optional 12 V car adaptor.

Three year warranty.

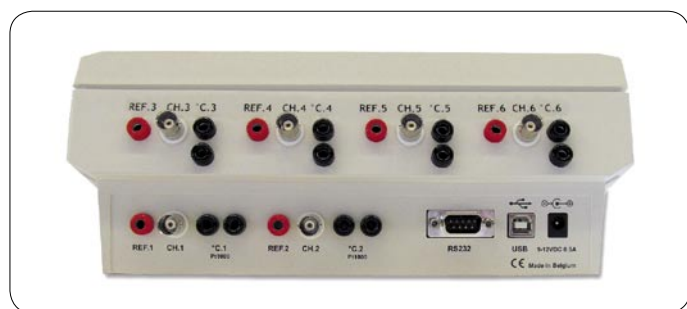
GLP

All procedures for a "Good Laboratory Practice" are on board.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25 °C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25 °C).



CODE	DESCRIPTION
C3040	pH/Ion/conductivity/DO meter (USB version) + USB cable
C3041	pH/Ion/conductivity/DO meter (Ethernet version) + UTP cable
SH300	Flexible electrode holder (optional)
A4800	Wall mounting kit (optional)
A4049	Car adaptor, 12 V (optional)
<p>➔ Supplied with a mains adaptor (100...240 VAC, EU/US) (Add a UK-sign for UK plug versions, e.g.: C3040-UK) (Add a CH-sign for Swiss plug versions, e.g.: C3040-CH)</p>	

SPECIFICATIONS	C3040 - C3041		
pH	Range	-2...+16 pH	
	Resolution	0.001 pH	
	Accuracy	0.1% ± 1 digit	
	Calibration	1...5 points	
	Buffers	11 pre-programmed 5 user specified	
	Temperature compensation	-5...+105 °C	
	ISO-pH	6...8 pH	
	Slope	80...120%	
mV	Zero point (Eo)	+999 mV	
	Range	±2000 mV	
	Resolution	0.1 mV	
	Accuracy	0.1% ± 1 digit	
	Calibration	1 point	
	ION	Range	0.01 ng/l...100 g/l
		Resolution	3 digits
		Accuracy	0.5% ± 1 digit
Calibration		2...5 points + blank	
CONDUCTIVITY		Standards	0.01/0.1/1 M KCl 3 user specified
		Range (cc dependent)	0...2000 mS/cm
		Resolution (cc dependent)	0.001 µS/cm
		Accuracy	0.5% f.s. of range
	Calibration	1...3 points	
	Standards	0.01/0.1/1 M KCl 3 user specified	
	Cell constant (cc)	0.07...13 cm ⁻¹	
	Temperature compensation	-5...+105 °C	
	Reference temperature	20° or 25 °C	
	Temperature coefficient	natural waters (EN27888)	
Range lock	✓		
Capacitive compensation	✓		
RESISTIVITY	Range	0...200 MΩ.cm	
	Resolution	1 Ω.cm	
SALINITY	Range	0.0...70.0	
	Reference temperature	15 °C	
TDS	Range	0...100 g/l	
	Resolution	0.01 mg/l	
DISSOLVED OXYGEN	Range	0...60 mg/l (0...600%)	
	Resolution	0.01 mg/l (0.1%)	
	Accuracy	1% ± 1 digit	
	Calibration	1 point	
	Temperature compensation	0...50 °C	
	Salinity compensation	0...40	
TEMPERATURE	Air pressure compensation	600...1300 hPa	
	Range	-5...+105 °C	
	Resolution	0.1 °C	
	Accuracy	0.1 °C	
AIR PRESSURE	Calibration	1 point	
	Range	600...1300 hPa	
CHANNELS	Measurement	6 (conductivity: 2)	
	Temperature	6	
INPUTS	Measurement	6 BNC, 10 ¹² Ω	
	Temperature	6x2 banana, for Pt1000	
CALIBRATION	Reminder	0...999 h	
	GLP	✓	
DISPLAY	LCD	240x64 pixels	
	White backlight	✓	
	Hold function	✓	
	Selectable resolution	✓	
	Real time clock	✓	
COMMUNICATION	Interface with computer	USB or Ethernet	
	RS232, baud rate	1200...115200 b/s	
	Printer	✓	
DATA-LOGGING	Data sets	12000 + °C/date/time	
	Modes	all	
	Manual or timed	✓	
	Interval	1...9999 s	
SECURITY	Identification number	✓	
	Password protection	✓	
AMBIENT CONDITIONS	Temperature	0...40 °C	
	Humidity	0...95%, non condensing	
POWER SUPPLY	Mains	100...240 VAC, 50/60 Hz	
	Low voltage	9...15 VDC	
DIMENSIONS	WxDxH	26x18x9 cm	
WEIGHT	Meter	1 kg	

➔ You will find ordering codes and descriptions of electrodes, calibration solutions, accessories... on pages 19...



rH ₂ :	0...42 rH ₂
pH:	-2...+16 pH
mV:	±2000 mV
Conductivity:	0...2000 mS/cm
Resistivity:	0...200 MΩ.cm
Salinity:	0.0...70.0
TDS:	0...100 g/l
μW:	0...400000 μW
Temperature:	-5...+105°C

**Three independent channels
for all measurements!**

(conductivity: only 2 channels)

rH₂

Bio-electronic multimeter for the study of the biological water quality or illnesses in body fluids according to Vincent's method.

pH

Multi-point (1...5) calibration for more linearity.

Selectable resolution from 0.001 pH to 0.1 pH.

Automatic calibration with any of eleven pre-programmed and five user specified pH buffers. *Create your own buffer/temperature tables!*

Accepts pH electrodes with any zero point (E₀) between ±999 mV.

mV

Features mV calibration for accurate ORP measurements.

Selectable resolution from 0.1 mV to 1 mV.

Can also show mV referred to the standard hydrogen electrode.

Conductivity

Multi-point (1...3) calibration for more linearity.

An electrode with a typical cell constant of 1 cm⁻¹ (standard) permits to measure from 0.01 μS/cm to 200 mS/cm in five ranges.

An electrode with a typical cell constant of 0.1 cm⁻¹ permits to measure from 0.001 μS/cm to 20 mS/cm in five ranges.

An electrode with a typical cell constant of 10 cm⁻¹ permits to measure from 0.1 μS/cm to 2000 mS/cm in five ranges.

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25°C.

Automatic calibration with any of three preprogrammed and three user specified standard solutions. *Create your own standard/temperature tables!*

Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

μW

Calculates the resistance (Ω) and the quantification of Vincent (μW).

Temperature

Manual or automatic temperature compensation.

Calibrates temperature probe for quality measurements.

CODE	DESCRIPTION
C3050	Bio-electronic meter (USB version) + USB cable
C3051	Bio-electronic meter (Ethernet version) + UTP cable
C3050T	Meter kit complete: meter + pH/ORP electrode SP35B + conductivity electrode SK20T + 2x50 ml buffers (pH 4 and 7) + 50 ml conductivity standard (0.01 M KCl) + 50 ml electrolyte (3M KCl) + 50 ml redox standard (358 mV) + flexible electrode holder SH300
A4800	Wall mounting kit (optional)
A4049	Car adaptor, 12 V (optional)
→ Supplied with a mains adaptor (100...240 VAC, EU/US)	
<i>(Add a UK-sign for UK plug versions, e.g.: C3050-UK) (Add a CH-sign for Swiss plug versions, e.g.: C3050-CH)</i>	

Inputs

Two inputs for pH, mV or conductivity + corresponding temperature and reference inputs.

One extra input for pH or mV + corresponding temperature and reference input.

Outputs

Two versions available:

C3050: with USB communication port and RS232 interface.

C3051: with Ethernet communication port and RS232 interface.

Data-logging

Up to 12000 data sets can be stored manually or at a programmable interval.

Allows to mix data from all ranges in the same table.

Download **free data acquisition software** from www.consort.be to view, store and edit the measurements in your computer.

Cabinet

Robust dust and splash-proof cabinet.

An optional wall mounting kit allows to fix the meter to any wall making more space available on the desk.

Display

A large bright LCD screen with white backlight enables to view all channels individually or simultaneously.

Stability indicator prompts the user when readings should be taken.

Hold function allows to freeze the display for convenient reading or recording.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Shows a GLP report on the LCD screen.

Special features

Two-way communication with a computer using USB or RS232.

Can be programmed to continue automatically with the measurements or data-logging after a power failure.

Password protection prevents any unauthorised modification of the instrument's settings.

No electrical interference between pH/ORP and conductivity electrodes in the same solution.

Optional 12 V car adaptor.

Three year warranty.

GLP

All procedures for a "Good Laboratory Practice" are on board.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25 °C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25 °C).

SPECIFICATIONS		C3050 - C3051
pH	Range	-2...+16 pH
	Resolution	0.001 pH
	Accuracy	0.1% ± 1 digit
	Calibration	1...5 points
	Buffers	11 pre-programmed 5 user specified
	Temperature compensation	-5...+105 °C
	ISO-pH	6...8 pH
	Slope	80...120%
	Zero point (Eo)	±999 mV
mV	Range	±2000 mV
	Resolution	0.1 mV
	Accuracy	0.1% ± 1 digit
	Calibration	1 point
rH ₂	Range	0...42 rH ₂
	Resolution	0.01 rH ₂
	Accuracy	0.1% ± 1 digit
CONDUCTIVITY	Range (cc dependent)	0...2000 mS/cm
	Resolution (cc dependent)	0.001 µS/cm
	Accuracy	0.5% f.s. of range
	Calibration	1...3 points
	Standards	3 pre-programmed 3 user specified
	Cell constant (cc)	0.07...13 cm ⁻¹
	Temperature compensation	-5...+105 °C
	Reference temperature	20° or 25 °C
	Temperature coefficient	natural waters (EN27888)
	Range lock	✓
	Capacitive compensation	✓
RESISTIVITY	Range	0...200 MΩ.cm
	Resolution	1 Ω.cm
SALINITY	Range	0...70
	Reference temperature	15 °C
TDS	Range	0...100 g/l
	Resolution	0.01 mg/l
µW	Range	0...400000 µW
TEMPERATURE	Range	-5...+105 °C
	Resolution	0.1 °C
	Accuracy	0.1 °C
	Calibration	1 point
CHANNELS	Measurement	3 (conductivity: 2)
	Temperature	3
INPUTS	Measurement	3 BNC, 10 ¹² Ω
	Temperature	3x2 banana, for Pt1000
CALIBRATION	Reminder	0...999 h
	GLP	✓
DISPLAY	LCD	240x64 pixels
	White backlight	✓
	Hold function	✓
	Selectable resolution	✓
	Real time clock	✓
COMMUNICATION	Interface with computer	USB
	RS232, baud rate	1200...115200 b/s
	Printer	✓
DATA-LOGGING	Data sets	12000 + °C/date/time
	Modes	all
	Manual or timed	✓
	Interval	1...9999 s
SECURITY	Identification number	✓
	Password protection	✓
AMBIENT CONDITIONS	Temperature	0...40 °C
	Humidity	0...95%, non condensing
POWER SUPPLY	Mains	100...240 VAC, 50/60 Hz
	Low voltage	9...15 VDC
DIMENSIONS	WxDxH	26x18x9 cm
WEIGHT	Meter	1 kg

Electrodes supplied with kit versions



SP35B

- pH + ORP
- Glass body, 1 m cable
- 0...14 pH, 0...±2000 mV
- Single junction, refillable



SK20T

- Conductivity + ATC
- Glass body, 1 m cable
- 1 cm⁻¹, 0...110 °C
- Dual graphite plates

rH₂

The rH₂ is a measurement for the level of electronic exchanges between water and dissolved ions. It enables to study incomplete, indeterminate and very diluted aqueous redox solutions.



pH:	-2...+16 pH
mV:	±2000 mV
Ion:	0.01 ng/l...100 g/l
Conductivity:	0...2000 mS/cm
Resistivity:	0...200 MΩ.cm
Salinity:	0.0...70.0
TDS:	0...100 g/l
Temperature:	-5...+105°C

**Eight independent channels
for all measurements!**

(conductivity: only 2 channels)

pH

Multi-point (1...5) calibration for more linearity.

Selectable resolution from 0.001 pH to 0.1 pH.

Automatic calibration with any of eleven pre-programmed and five user specified pH buffers. *Create your own buffer/temperature tables!*

Accepts pH electrodes with any zero point (E₀) between ±999 mV.

mV

Features mV calibration for accurate ORP measurements.

Selectable resolution from 0.1 mV to 1 mV.

Ion

Direct concentration measurement.

Multi-point (2...5) calibration and an additional blank correction for measuring low concentrations.

Conductivity

Multi-point (1...3) calibration for more linearity.

An electrode with a typical cell constant of 1 cm⁻¹ permits to measure from 0.01 μS/cm to 200 mS/cm in five ranges.

An electrode with a typical cell constant of 0.1 cm⁻¹ permits to measure from 0.001 μS/cm to 20 mS/cm in five ranges.

An electrode with a typical cell constant of 10 cm⁻¹ permits to measure from 0.1 μS/cm to 2000 mS/cm in five ranges.

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25°C.

Automatic calibration with any of three preprogrammed and three user specified standard solutions. *Create your own standard/temp. tables!*

Allows to lock the initial conductivity range to avoid non-linear titration curves.

Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

Temperature

Reads temperatures with 0.1°C resolution.

Manual or automatic temperature compensation.

Calibrates temperature probe for quality measurements.

Inputs

Two inputs for pH, mV, Ion or conductivity + corresponding temperature and reference inputs.

Six extra inputs for pH, mV or Ion + corresponding reference inputs.

Outputs

Two versions available:

C3060: with USB communication port (galvanically isolated) and RS232 interface.

C3061: with Ethernet communication port and RS232 interface.

Display

A large bright LCD screen with white backlight enables to view all channels individually or simultaneously.

Stability indicator prompts the user when readings should be taken.

Hold function allows to freeze the display for convenient reading or recording.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Shows a GLP report on the LCD screen.

Data-logging

Stores up to 12000 values including temperature, time and date.

Allows to mix data from all ranges in the same table.

Download **free data acquisition software** from www.consort.be to view, store and edit the measurements in your computer.

Cabinet

Robust dust and splash-proof cabinet.

An optional wall mounting kit allows to fix the meter to any wall making more space available on the desk.

Special features

Two-way communication with a computer using USB, Ethernet or RS232.

Can be programmed to continue automatically with the measurements or data-logging after a power failure.

Password protection prevents any unauthorised modification of the instrument's settings.

No electrical interference between pH/ORP/Ion and conductivity electrodes in the same solution.

Optional 12 V car adaptor.

Three year warranty.

GLP

All procedures for a "Good Laboratory Practice" are on board.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25 °C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25 °C).



SPECIFICATIONS		C3060 - C3061
pH	Range	-2...+16 pH
	Resolution	0.001 pH
	Accuracy	0.1% ± 1 digit
	Calibration	1...5 points
	Buffers	11 pre-programmed 5 user specified
	Temperature compensation	-5...+105 °C
	ISO-pH	6...8 pH
	Slope	80...120%
mV	Zero point (Eo)	+999 mV
	Range	±2000 mV
ION	Resolution	0.1 mV
	Accuracy	0.1% ± 1 digit
	Calibration	1 point
CONDUCTIVITY	Range	0.01 ng/l...100 g/l
	Resolution	3 digits
	Accuracy	0.5% ± 1 digit
	Calibration	2...5 points + blank
	Standards	3 pre-programmed 3 user specified
	Cell constant (cc)	0.07...13 cm ⁻¹
	Temperature compensation	-5...+105 °C
	Reference temperature	20° or 25 °C
	Temperature coefficient	natural waters (EN27888)
	Range lock	✓
	Capacitive compensation	✓
	RESISTIVITY	Range
Resolution		1 Ω.cm
SALINITY	Range	0.0...70.0
	Reference temperature	15 °C
TDS	Range	0...100 g/l
	Resolution	0.01 mg/l
TEMPERATURE	Range	-5...+105 °C
	Resolution	0.1 °C
	Accuracy	0.3 °C
	Calibration	1 point
CHANNELS	Measurement	8 (conductivity: 2)
	Temperature	2
INPUTS	Measurement	8 BNC, 10 ¹² Ω
	Temperature	2x2 banana, for Pt1000
CALIBRATION	Reminder	0...999 h
	GLP	✓
DISPLAY	LCD	240x64 pixels
	White backlight	✓
	Hold function	✓
	Selectable resolution	✓
COMMUNICATION	Real time clock	✓
	Interface with computer	USB or Ethernet
	RS232, baud rate	1200...115200 b/s
	Printer	✓
	DATA-LOGGING	Data sets
SECURITY	Modes	all
	Manual or timed	✓
	Interval	1...9999 s
AMBIENT CONDITIONS	Identification number	✓
	Password protection	✓
POWER SUPPLY	Temperature	0...40 °C
	Humidity	0...95%, non condensing
DIMENSIONS	Mains	100...240 VAC, 50/60 Hz
	Low voltage	9...15 VDC
WEIGHT	WxDxH	26x18x9 cm
	Meter	1 kg

CODE	DESCRIPTION
C3060	pH/Ion/conductivity/DO meter (USB version) + USB cable
C3061	pH/Ion/conductivity/DO meter (Ethernet version) + UTP cable
SH300	Flexible electrode holder (optional)
A4800	Wall mounting kit (optional)
A4049	Car adaptor, 12 V (optional)
<p>➔ Supplied with a mains adaptor (100...240 VAC, EU/US) (Add a UK-sign for UK plug versions, e.g.: C3060-UK) (Add a CH-sign for Swiss plug versions, e.g.: C3060-CH)</p>	

ZERO POINT (Eo)

Standard pH meters assume a pH electrode to supply a zero potential at 7 pH. Electrodes for special applications (e.g. stomach pH measurements) may have a different zero point. An adjustable zero point correction feature will allow users to measure with these electrodes.

➔ You will find ordering codes and descriptions of electrodes, calibration solutions, accessories... on pages 19...



pH:	-2...+16 pH
mV:	±2000 mV
Ion:	0.01 ng/l...100 g/l
Conductivity:	0...2000 mS/cm
Resistivity:	0...200 MΩ.cm
Salinity:	0...70.0
TDS:	0...100 g/l
Dissolved oxygen:	0...60 mg/l 0...600%
Air pressure:	600...1300 hPa
Temperature:	-5...+105°C

Ion: C6030 only

One channel for all measurements!

Dissolved oxygen

Operates with a galvanic dissolved oxygen electrode requiring no polarisation time and no zero calibration.

Selectable resolution from 0.01 mg/l (0.1%) to 0.1 mg/l (1%).

Manual salinity compensation 0-40.

Automatic air pressure compensation 600-1300 hPa.

Temperature

Reads temperatures with 0.1°C resolution.

Manual or automatic temperature compensation.

Calibrates temperature probe for quality measurements.

pH

Multi-point (1...5) calibration for more linearity.

Selectable resolution from 0.001 pH to 0.1 pH.

Automatic calibration with any of eleven pre-programmed and five user specified pH buffers. *Create your own buffer/temperature tables!*

Accepts pH electrodes with any zero point (E₀) between ±999 mV.

mV

Features mV calibration for accurate ORP measurements.

Selectable resolution from 0.1 mV to 1 mV.

Ion (C6030 only)

Direct concentration measurement.

Multi-point (2...5) calibration and an additional blank correction for measuring low concentrations.

Stores calibration curves for up to 9 different electrodes.

Conductivity

Multi-point (1...3) calibration for more linearity.

An electrode with a typical cell constant of 1 cm⁻¹ permits to measure from 0.01 µS/cm to 200 mS/cm in five ranges.

An electrode with a typical cell constant of 0.1 cm⁻¹ permits to measure from 0.001 µS/cm to 20 mS/cm in five ranges.

An electrode with a typical cell constant of 10 cm⁻¹ permits to measure from 0.1 µS/cm to 2000 mS/cm in five ranges.

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25°C.

Automatic calibration with any of three preprogrammed and three user specified standard solutions. *Create your own standard/temperature tables!*

Allows to lock the initial conductivity range to avoid non-linear titration curves.

Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

CODE	DESCRIPTION
C6010	pH/conductivity/DO meter + USB cable
C6030	pH/Ion/conductivity/DO meter + USB cable
C60x0P	Meter kit for pH: meter + pH/ATC electrode SP10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + carrying case
C60x0K	Meter kit for conductivity: meter + conductivity/ATC electrode SK10T + 50 ml conductivity standard (0.01 M KCl) + carrying case
C60x0Z	Meter kit for oxygen: meter + dissolved oxygen electrode SZ10T + carrying case
C60x0T	Meter kit complete: meter + pH/ATC electrode SP10T + conductivity/ATC electrode SK10T + dissolved oxygen electrode SZ10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl) + carrying case
C60x0X	Meter kit without electrodes: meter + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl) + carrying case
SH300	Flexible electrode holder (optional)
A4049	Car adaptor, 12 V (optional)
→ Supplied with a mains adaptor (100...240 VAC, EU/US) + 4 NiMH batteries (add a UK-sign for UK plug versions, e.g.:C6030-UK)	

Inputs

One common input for all ranges + corresponding reference input.

One input for a Pt1000 automatic temperature probe.

Outputs

Galvanically isolated USB communication port for connection to a computer.

Display

Large bright LCD screen for better readability.

A white backlight automatically illuminates when operated on the mains.

Stability indicator prompts the user when readings should be taken.

Hold function allows to freeze the display for convenient reading or recording.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Shows a GLP report on the LCD screen.

Data-logging

Up to 12000 data sets can be stored manually or at a programmable interval.

Allows to mix data from all ranges in the same table.

Download **free data acquisition software** from www.consort.be to view, store and edit the measurements in your computer.

Cabinet

Robust dust and splash-proof cabinet.

Special features

Three year warranty.

Calibration reminder 0...999 h.

Programmable recorder output.

Programmable identification number for use with a printer or computer.

Password protection prevents any unauthorised modification of the instrument's settings.

Two-way communication with a printer or computer using USB.

Mains and rechargeable battery operation with programmable automatic switch-off.

Shows percentage of remaining battery capacity.

Optional 12 V car adaptor.

GLP

All procedures for a "Good Laboratory Practice" are on board.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25 °C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25 °C).



SPECIFICATIONS	C60x0	
pH	Range	-2...+16 pH
	Resolution	0.001 pH
	Accuracy	0.1% ± 1 digit
	Calibration	1...5 points
	Buffers	11 pre-programmed 5 user specified
	Temperature compensation	-5...+105 °C
	ISO-pH	6...8 pH
	Slope	80...120%
mV	Zero point (Eo)	±999 mV
	Range	±2000 mV
ION (C6030 only)	Resolution	0.1 mV
	Accuracy	0.1% ± 1 digit
	Calibration	1 point
	Range	0.01 ng/L... 100 g/L
CONDUCTIVITY	Resolution	3 digits
	Accuracy	0.5% ± 1 digit
	Calibration	2...5 points + blank 9 individual curves
	Standards	3 pre-programmed 3 user specified
	Range (cc dependent)	0...2000 mS/cm
	Resolution (cc dependent)	0.001 µS/cm
	Accuracy	0.5% f.s. of range
	Calibration	1...3 points
	Cell constant (cc)	0.07...13 cm ⁻¹
	Standards	3 pre-programmed 3 user specified
	Temperature compensation	-5...+105 °C
RESISTIVITY	Reference temperature	20° or 25° C
	Temperature coefficient	natural waters (EN27888)
	Range lock	✓
	Capacitive compensation	✓
	Range	0...200 MΩ.cm
	Resolution	1 Ω.cm
SALINITY	Range	0.0...70.0
	Reference temperature	15° C
TDS	Range	0...100 g/l
	Resolution	0.01 mg/l
DISSOLVED OXYGEN	Range	0...60 mg/l (0...600%)
	Resolution	0.01 mg/l (0.1%)
	Accuracy	1% ± 1 digit
	Calibration	1 point
	Temperature compensation	0...50° C
	Salinity compensation	0...40
TEMPERATURE	Air pressure compensation	600...1300 hPa
	Range	-5...+105 °C
	Resolution	0.1 °C
	Accuracy	0.1 °C
AIR PRESSURE	Calibration	1 point
	Range	600...1300 hPa
INPUTS	Measurement	BNC, 10 ¹² Ω
	Temperature	2 banana, for Pt1000
CALIBRATION	Reminder	0...999 h
	GLP	✓
DISPLAY	LCD	128x64 pixels
	White backlight	✓
	Hold function	✓
	Selectable resolution	✓
	Real time clock	✓
COMMUNICATION	Interface with computer	USB, insulated
DATA-LOGGING	Data sets	12000 + °C/date/time
	Modes	all (9)
	Manual or timed	✓
	Interval	1...9999 s
SECURITY	Identification number	✓
	Password protection	✓
AMBIENT CONDITIONS	Temperature	0...40° C
	Humidity	0...95%, non condensing
POWER SUPPLY	Mains	100...240 VAC, 50/60 Hz
	Low voltage	9...15 VDC
	Batteries	4x1.2 V, AA, NiMH
DIMENSIONS	WxDxH	12x25x5 cm
WEIGHT	Meter	600 g

→ You will find ordering codes and descriptions of electrodes, calibration solutions, accessories... on pages 19...



pH	0...14 pH
mV	±1000 mV
Conductivity	0...100 mS/cm
	0...1000 mS/cm
Salinity	0.0...70.0
TDS	0...100 g/l
Dissolved oxygen	0...20 mg/l
	0...200%
Temperature	0...100 °C
	(C1020 only)

One pH/mV channel
 One conductivity/oxygen channel
 One temperature channel

pH

Multi-point (1...3) calibration with up to three buffers out of eleven pre-programmed pH buffers.

Reads pH with 0.01 pH resolution.

mV

Features mV calibration for accurate ORP measurements.

Reads potentials with 1 mV resolution.

Conductivity

Use a 1 cm¹ electrode to measure from 0.1 µS/cm to 100 mS/cm.

Use a 0.1 cm¹ electrode to measure from 0.01 µS/cm to 10 mS/cm.

(C1020 only)

Use a 10 cm¹ electrode to measure from 1 µS/cm to 1000 mS/cm.

(C1020 only)

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25°C.

One-point calibration.

Dissolved oxygen

Operates with a galvanic oxygen electrode requiring no polarisation time and no zero calibration.

Reads dissolved oxygen with 0.01 mg/l or 0.1% resolution.

Rapid air calibration.

Temperature

Reads temperatures with 0.1 °C resolution.

Manual or automatic temperature compensation.

Calibrates temperature probe for quality measurements.

Inputs

One common input for pH and mV.

One common input for conductivity and dissolved oxygen.

One input for a Pt1000 automatic temperature probe.

Display

Bright LCD screen for better readability.

A white backlight automatically illuminates when operated on the mains.

Stability indicator prompts the user when readings should be taken.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Shows a GLP report on the LCD screen.

Data-logging (C1020 only)

Storage memory for 300 values including temperature.

Cabinet

Robust dust and splash-proof cabinet.

Special features

Three year warranty.

Optional 12 V car adaptor.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25°C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25°C).

CODE	DESCRIPTION
C1010	pH/conductivity/DO meter
C1020	pH/conductivity/DO meter
C10x0P	Meter kit for pH: meter + pH/ATC electrode SP10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl)
C10x0K	Meter kit for conductivity: meter + conductivity/ATC electrode SK10T + 50 ml conductivity standard (0.01 M KCl)
C10x0Z	Meter kit for oxygen: meter (not C1010) + dissolved oxygen electrode SZ10T
C10x0T	Meter kit complete: meter + pH/ATC electrode SP10T + conductivity/ATC electrode SK10T + dissolved oxygen electrode SZ10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl)
C10x0X	Meter kit without electrodes: meter + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl)
A4049	Car adaptor, 12 V (optional)
→ Supplied with a mains adaptor (100...240 VAC, EU/US) (add a UK-sign for UK plug versions, e.g.:C1020-UK)	

SPECIFICATIONS		C10x0	
pH	Range	0...14 pH	
	Resolution	0.01 pH	
	Accuracy	0.2% ± 1 digit	
	Calibration	1...3 points	
	Buffers	11 pre-programmed	
	Temperature compensation	0...100 °C	
	ISO-pH	6...8 pH	
	Slope	80...120%	
mV	Range	±1000 mV	
	Resolution	1 mV	
	Accuracy	0.2% ± 1 digit	
	Calibration	1 point	
rH ₂	Range		
	Resolution		
CONDUCTIVITY	Range (cc dependent)	0...100 mS/cm (C1010) 0...1000 mS/cm (C1020)	
	Resolution (cc dependent)	0.1 µS/cm (C1010) 0.01 µS/cm (C1020)	
	Accuracy	1% f.s. of range	
	Calibration	1 point	
	Standards	3 pre-programmed	
	Cell constant (cc)	1 cm ⁻¹ ±30% (C1010) 0.1/1/10 cm ⁻¹ ±30% (C1020)	
	Temperature compensation	0...100 °C	
	Reference temperature	20° or 25 °C	
	Temperature coefficient	natural waters (EN27888)	
	SALINITY (C1020 only)	Range	0.0...70.0
		Reference temperature	15 °C
TDS (C1020 only)	Range	0...100 g/l	
	Resolution	0.1 mg/l	
DISSOLVED OXYGEN	Range	0...20 mg/l (0...200%)	
	Resolution	0.01 mg/l (0.1%)	
	Accuracy	1% ± 1 digit	
	Calibration	1 point	
	Temperature compensation	0...10 °C	
	Salinity compensation	0...40	
	Air pressure compensation	800...1200 hPa	
	TEMPERATURE	Range	0...100 °C
	Resolution	0.1 °C	
	Accuracy	0.5 °C	
	Calibration	1 point	
INPUTS	pH/mV	BNC, 10 ¹² Ω	
	Conductivity/Dissolved oxygen	BNC	
	Temperature	2 banana, for Pt1000	
STORAGE MEMORY (C1020 only)	Data sets	300	
DISPLAY	LCD	128x64 pixels	
	White backlight	✓	
AMBIENT CONDITIONS	Temperature	0...40 °C	
	Humidity	0...95%, non condensing	
POWER SUPPLY	Mains	100...240 VAC, 50/60 Hz	
	Low voltage	9...15 VDC	
DIMENSIONS	WxDxH	13x18x10 cm	
WEIGHT	Meter	600 g	

SOME THEORY ABOUT pH

pH is a measurement for the acidity or alkalinity of a solution. In pure water the hydrogen ion (H⁺) and hydroxyl ion (OH⁻) concentrations are equal at 10⁻⁷ M (25 °C). To provide a convenient and effective means of defining acidity and alkalinity, the pH is defined as the negative logarithm of hydrogen activity:

$$\text{pH} = -\log [\text{H}^+]$$

The heart of a pH measuring system is a membrane made from special pH-selective glass on which a very thin layer of hydrogen ions is formed when dipped in water. At high pH values, this layer will have a low hydrogen concentration. However, at low pH values a large number of H⁺ ions diffuse in the layer. By measuring the generated electrical potential (E) in the layer the corresponding pH can be computed.

Solution-1: sample to be measured

Solution-2: known buffer solution (7 pH)

Reference-1: silver wire in a salt-bridge (KCl)

Reference-2: silver wire in a salt-bridge (KCl)

Membrane layer-1: H⁺ ions generated by the sample

Membrane layer-2: H⁺ ions generated by the buffer

The potential (E) between both wires will vary with the pH difference between sample and known buffer according the Nernst equation: (-59.2 mV/pH at 25 °C). A salt-bridge around each wire prevents direct metal contact with the solutions by using a wet junction for a stable electrical behaviour.

Combination Electrode

A combination electrode has an indicating and a reference electrode combined into a single body that is easy to use and popular because of its compactness. A minimum amount of sample is required due to the close proximity of the pH responsive membrane and the liquid junction.

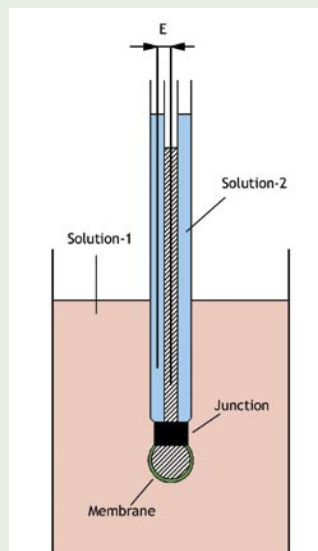
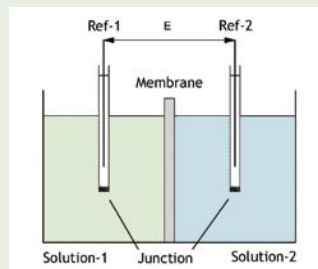
Junction Types

Glass combination electrodes mostly feature an anti-fouling annular ceramic junction. The annular junction is formulated with a special ceramic which encircles the glass bulb. Numerous pores in the ceramic provide lower resistance and more stable pH readings.

Epoxy body combination electrodes come standard with a specially formulated porous ceramic plug junction.

Sleeve junctions provide the highest flow rate for difficult samples.

A double junction reference is constructed with an Ag/AgCl inner chamber and a chemically compatible reference solution in the outer chamber. It is recommended for samples containing organic compounds, proteins, heavy metals, and other compounds that interact with silver, such as bromides, iodides, cyanides, and sulphides.



Electrodes supplied with kit versions



SP10T

- pH + ATC
- Epoxy body, 1 m cable
- 0...14 pH, 0...80 °C
- Single junction, sealed



SK10T

- Conductivity + ATC
- Epoxy body, 1 m cable
- 1 cm², 0...80 °C
- Dual graphite plates



SZ10T

- Galvanic type + ATC
- Epoxy body, 1 m cable
- 0...60 mg/l, 0...50 °C
- 3 m submersible cable

→ You will find ordering codes and descriptions of electrodes, calibration solutions, accessories... on pages 19...



pH	0...14 pH
mV	±1000 mV
Conductivity	0...100 mS/cm
	0...1000 mS/cm
Salinity	0.0...70.0
TDS	0...100 g/l
Dissolved oxygen	0...20 mg/l
	0...200%
Temperature	0...100°C
	(C5020 only)



One pH/mV channel
 One conductivity/oxygen channel
 One temperature channel

pH

Multi-point (1...3) calibration with up to three buffers out of eleven pre-programmed pH buffers.

Reads pH with 0.01 pH resolution.

mV

Features mV calibration for accurate ORP measurements.

Reads potentials with 1 mV resolution.

Conductivity

Use a 1 cm⁻¹ electrode to measure from 0.1 µS/cm to 100 mS/cm.

Use a 0.1 cm⁻¹ electrode to measure from 0.01 µS/cm to 10 mS/cm.

(C5020 only)

Use a 10 cm⁻¹ electrode to measure from 1 µS/cm to 1000 mS/cm.

(C5020 only)

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25°C.

One-point calibration.

Dissolved oxygen

Operates with a galvanic oxygen electrode requiring no polarisation time and no zero calibration.

Reads dissolved oxygen with 0.01 mg/l or 0.1% resolution.

Rapid air calibration.

Temperature

Reads temperatures with 0.1°C resolution.

Manual or automatic temperature compensation.

Calibrates temperature probe for quality measurements.

Inputs

One common input for pH and mV.

One common input for conductivity and dissolved oxygen.

One input for a Pt1000 automatic temperature probe.

Display

Bright LCD screen for better readability.

A white backlight automatically illuminates when operated on the mains.

Stability indicator prompts the user when readings should be taken.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Shows a GLP report on the LCD screen.

Data-logging (C5020 only)

Storage memory for 300 values including temperature.

Cabinet

Robust dust and splash-proof cabinet.

Special features

Three year warranty.

Mains and rechargeable battery operation with programmable automatic switch-off.

Optional 12 V car adaptor.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25°C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25°C).

C5030 Bio-electronic meter



**One pH/mV channel
One mV-H₂/mV channel
One temperature channel**

rH₂
Bio-electronic multimeter for the study of the biological water quality according to Vincent's method.

mV-H₂
Features mV calibration for accurate ORP measurements.

Reads potentials referred to the standard hydrogen electrode with 1 mV resolution.

Connect a special pH/ORP combination electrode to the meter and reads rH₂ directly on the screen.

rH₂

The rH₂ is a measurement for the level of electronic exchanges between water and dissolved ions. It enables to study incomplete, indeterminate and very diluted aqueous redox solutions.

SPECIFICATIONS		C50x0	C5030
pH	Range	0...14 pH	0...14 pH
	Resolution	0.01 pH	0.01 pH
	Accuracy	0.2% ± 1 digit	0.2% ± 1 digit
	Calibration	1...3 points	1...3 points
	Buffers	11 pre-programmed	11 pre-programmed
	Temperature compensation	0...100 °C	0...100 °C
	ISO-pH	6...8 pH	6...8 pH
	Slope	80...120%	80...120%
mV	Range	±1000 mV	±1000 mV
	Resolution	1 mV	1 mV
	Accuracy	0.2% ± 1 digit	0.2% ± 1 digit
	Calibration	1 point	1 point
rH ₂	Range		0...42 rH ₂
	Resolution		0.1 rH ₂
CONDUCTIVITY	Range (cc dependent)	0...100 mS/cm (C5010) 0...1000 mS/cm (C5020)	
	Resolution (cc dependent)	0.1 µS/cm (C5010) 0.01 µS/cm (C5020)	
	Accuracy	1% f.s. of range	
	Calibration	1 point	
	Standards	3 pre-programmed	
	Cell constant (cc)	1 cm ⁻¹ ±30% (C5010) 0.1/1/10 cm ⁻¹ ±30% (C5020)	
	Temperature compensation	0...100 °C	
	Reference temperature	20° or 25 °C	
	Temperature coefficient	natural waters (EN27888)	
	SALINITY (C5020 only)	Range	0.0...70.0
Reference temperature		15 °C	
TDS (C5020 only)	Range	0...100 g/l	
	Resolution	0.1 mg/l	
DISSOLVED OXYGEN	Range	0...20 mg/l (0...200%)	
	Resolution	0.01 mg/l (0.1%)	
	Accuracy	1% ± 1 digit	
	Calibration	1 point	
	Temperature compensation	0...50 °C	
	Salinity compensation	0...40	
	Air pressure compensation	800...1200 hPa	
TEMPERATURE	Range	0...100 °C	0...100 °C
	Resolution	0.1 °C	0.1 °C
	Accuracy	0.5 °C	0.5 °C
	Calibration	1 point	1 point
INPUTS	pH/mV	BNC, 10 ¹² Ω	BNC, 10 ¹² Ω
	Conductivity/Dissolved oxygen	BNC	
	Temperature	2 banana, for Pt1000	2 banana, for Pt1000
MEMORY (C5020 only)	Data sets	300	300
DISPLAY	LCD	122x32 pixels	122x32 pixels
	White backlight	✓	✓
AMBIENT CONDITIONS	Temperature	0...40 °C	0...40 °C
	Humidity	0...95%, non condensing	0...95%, non condensing
POWER SUPPLY	Mains	100...240 VAC, 50/60 Hz	100...240 VAC, 50/60 Hz
	Low voltage	9...15 VDC	9...15 VDC
	Batteries	4x1.2 V, NiMH	4x1.2 V, NiMH
DIMENSIONS	WxDxH	10x20x4 cm	10x20x4 cm
WEIGHT	Meter	350 g	350 g

CODE	DESCRIPTION
C5010	pH/conductivity/DO meter
C5020	pH/conductivity/DO meter
C50x0P	Meter kit for pH: meter + pH/ATC electrode SP10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + carrying case
C50x0K	Meter kit for conductivity: meter + conductivity/ATC electrode SK10T + 50 ml conductivity standard (0.01 M KCl) + carrying case
C50x0Z	Meter kit for oxygen: meter + dissolved oxygen electrode SZ10T + carrying case
C50x0T	Meter kit complete: meter + pH/ATC electrode SP10T + conductivity/ATC electrode SK10T + dissolved oxygen electrode SZ10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl) + carrying case
C50x0X	Meter kit without electrodes: meter + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl) + carrying case
C5030	Bio-electronic meter
C5030T	Meter kit: meter + pH/°C electrode SP10T + ORP electrode SP50X + cable SC01B + 2x50 ml buffers (pH 4 and 7) + 50 ml ORP standard (358 mV) + 50 ml electrolyte (3M KCl) + carrying case
C5030L	Meter kit: meter + rH ₂ glass combination electrode SP35B + temperature probe ST10N + 2x50 ml buffers (pH 4 and 7) + 50 ml ORP standard (358 mV) + 50 ml electrolyte (3M KCl) + carrying case
A4049	Car adaptor, 12 V (optional)
→ Supplied with a mains adaptor (100...240 VAC, EU/US) + 4 NiMH batteries (add a UK-sign for UK plug versions, e.g.:C5010-UK)	



pH: 0...14 pH
mV: ±2000 mV
Ion: 0...100 g/l
Conductivity: 0...2000 mS/cm
TDS: 0...100 g/l
Dissolved oxygen: 0...60 mg/l
Temperature: -5...+105 °C

4...28 pH/mV/Ion channels
 4...28 conductivity channels
 4...28 oxygen channels
 4...28 temperature channels

Modular system

Built in a standard 19" rack and cabinet the central unit accepts up to 7 modules. Different modules can be mixed in one unit.

There are two modules available: with four pH/mV/Ion/O₂ + four temperature channels or with four conductivity/TDS + four temperature channels.

All parameters including set-up, calibration and display are controlled through any computer via a single RS232 connection.

Up to 16 units can be combined with each other to increase the number of channels to a maximum of 448.

pH

One- or two-point calibration.

Selectable resolution from 0.001 pH to 0.1 pH.

Automatic calibration with any of nine pre-programmed and two user specified pH buffers.

mV

Features mV calibration for accurate ORP measurements.

Selectable resolution from 0.1 mV to 1 mV.

Ion

Direct concentration measurement.

Shows concentration in any unit.

Ion mode is easily calibrated with any two standards and a blank correction.

Dissolved oxygen

Selectable resolution from 0.01 mg/l (0.1%) to 0.1 mg/l (1%).

Rapid air calibration, no zero calibration required.

Manual salinity compensation 0-40.

Manual air pressure compensation 800-1200 hPa.

Temperature

Manual or automatic temperature compensation.

Calibrates temperature probe for quality measurements.

Conductivity

One-point calibration.

Use a 1 cm¹ electrode (standard) to measure from 0.1 µS/cm to 200 mS/cm.

Use a 0.01 cm¹ electrode to measure from 0.001 µS/cm to 2 mS/cm.

Use a 0.1 cm¹ electrode to measure from 0.01 µS/cm to 20 mS/cm.

Use a 10 cm¹ electrode to measure from 1 µS/cm to 2000 mS/cm.

Selectable reference temperature: 20° or 25 °C.

Automatic calibration with any of three preprogrammed and three user specified standard solutions.

Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

Special features

Three year warranty.

No electrical interference between electrodes in the same solution.

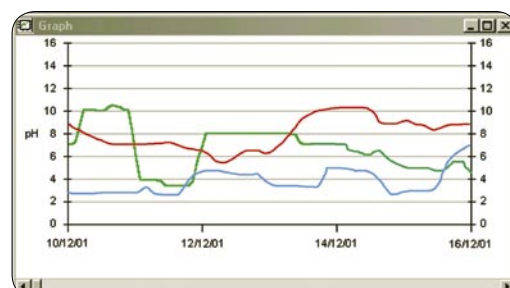
Data acquisition

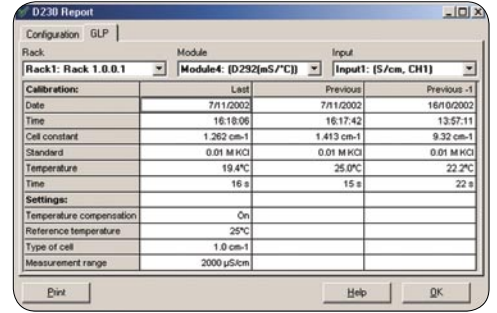
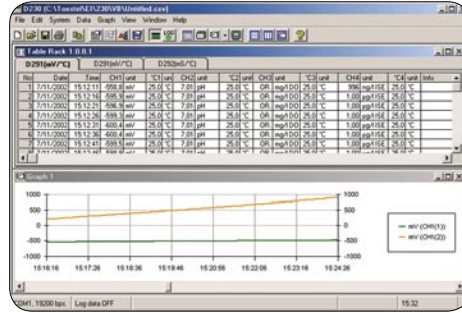
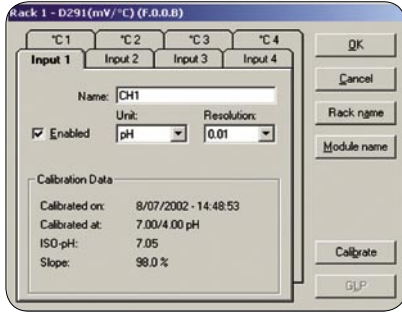
The software package supplied with the D230 is specially designed to control, collect and store data. Runs under Windows™ 2000 or higher.

All channels are processed at the same time, each in its own window.

The software automatically detects the maximum number and type of available channels.

Data is collected on-line at a programmable interval determined by the program (4 s ... 24 h).





Table

Data is always stored in a table.

Each module has its own programmable table containing an unlimited number of lines (maximum depends on available computer memory).

Comments can easily be added to each line in a special information column.

Starting

Data-logging can start/stop automatically or at a programmable date/time.

Data-logging can be stopped or continued at any moment.

Files

All data is saved in a user defined file. Just open the file to view, process or print the stored data.

All measurements are saved in CSV format which is easily transferred into spreadsheets.

Graphs

Graphs are generated using automatic or user defined settings.

The number of visible values can be changed at any time.

Programmable alarm limits for each graph allow to print a report indicating when limits have been exceeded.

Shows statistics about minima, maxima, averages etc...

Settings

Languages: English, Dutch or French.

The style of each window can be set up separately.

Choose fonts, colours etc...

Documented printouts will show:

- file name.
- date and time.
- name of the operator.
- name of the company.
- name of the division.
- optional notes by the operator.

All settings are stored in a configuration file and automatically recalled when opening the program.

Functions

All functions are accessible through the menu.

Only valid options appear in the menu to eliminate set-up errors.

Special buttons, icons and short-keys allow the user to easily access the most useful functions.

The contents of each window can be transferred to other programs by using a copy function.

Tile or cascade the windows and arrange the icons fully automatically or rearrange them manually.

SPECIFICATIONS		D230
pH	Range	0...14 pH
	Resolution	0.001 pH
	Accuracy	0.1% ± 1 digit
	Calibration	1...2 points
	Buffers	9 pre-programmed 2 user specified
	Temperature compensation	-5...+105 °C
	ISO-pH	6...8 pH
mV	Slope	80...120%
	Range	±2000 mV
ION	Resolution	0.1 mV
	Accuracy	0.1% ± 1 digit
	Calibration	1 point
	Range	0.01 ng/L...100 g/l
DISSOLVED OXYGEN	Resolution	3 digits
	Accuracy	0.5% ± 1 digit
	Calibration	2 points + blank
	Range	0...60 mg/l (0...600%)
	Resolution	0.01 mg/l (0.1%)
	Accuracy	1% ± 1 digit
	Calibration	1 point
CONDUCTIVITY	Temperature compensation	0...50 °C
	Salinity compensation	0...40
	Air pressure compensation	800...1200 hPa
	Range (cc dependent)	0...2000 mS/cm
	Resolution (cc dependent)	0.001 µS/cm
	Accuracy	0.5% f.s. of range
	Calibration	1 point
	Standards	3 pre-programmed 3 user specified
	Cell constant (cc)	0.01/0.1/1/10 cm ⁻¹ ±30%
	Temperature compensation	-5...+105 °C
Reference temperature	20° or 25 °C	
Temperature coefficient	natural waters (EN27888)	
Capacitive compensation	✓	
TDS	Range	0...100 g/l
	Resolution	0.01 mg/l
TEMPERATURE	Range	-5...+105 °C
	Resolution	0.1 °C
	Accuracy	0.3 °C
CHANNELS	Calibration	1 point
	pH/mV/Ion/Dissolved oxygen	4...28
	Conductivity	4...28
INPUTS	Temperature	4...28
	pH/mV/Ion/Dissolved oxygen	BNC, 10 ¹² Ω
	Conductivity	BNC
CALIBRATION	Temperature	2 banana, for Pt1000
	GLP	✓
	DATA-LOGGING	Data sets
	Interval	4 s ... 24 h
SOFTWARE	Languages	EN, NL, FR
SECURITY	Password protection	✓
AMBIENT CONDITIONS	Temperature	0...40 °C
	Humidity	0...95%, non condensing
POWER SUPPLY	Mains	210...250 VAC, 50/60 Hz
DIMENSIONS	WxDxH	48x24x13 cm
WEIGHT	Meter	10 kg

CODE	DESCRIPTION
D230	Data-logger: central unit for 7 modules + software + RS232 cable
D291	Module for pH/mV/Ion/O ₂ /°C with 4+4 channels
D292	Module for conductivity/TDS/°C with 4+4 channels
D298	Data cable to connect 2 data-loggers with each other (optional)
D299	Blanc frontpanel to cover unused module space (optional)
➔ Supplied with a european mains cord	
(Add a US-sign for US plug 120 VAC versions, e.g.: D230-US)	
(Add a UK-sign for UK plug versions, e.g.: D230-UK)	
(Add a CH-sign for Swiss plug versions, e.g.: D230-CH)	

➔ You will find ordering codes and descriptions of electrodes, calibration solutions, accessories... on pages 19...

Standard pH electrodes

Supplied with 1 m of cable and BNC plug + 2 banana plugs

SP10B

- General purpose, pH
- Glass body, 0...14 pH, 0...80 °C
- Single junction, sealed
- 110xØ12 mm

SP10T = SP10B + ATC/temperature (Pt1000)

SP10B-KIT = SP10B + 3x50 ml (pH 4, pH 7, 3 M KCl)

SP10T-KIT = SP10T + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Field use, Production, Education, Agriculture, ...

SP21B

- General purpose, pH
- Glass body, 0...14 pH, 0...100 °C
- Single junction, refillable
- 110xØ12 mm

SP21T = SP21B + ATC/temperature (Pt1000)

SP21B-KIT = SP21B + 3x50 ml (pH 4, pH 7, 3 M KCl)

SP21T-KIT = SP21T + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Laboratory use, Research, Production, Education, Agriculture, ...

Special pH electrodes

Supplied with S7 plug head

SP11X

- Rugged Tuff-Tip®, pH
- Epoxy body, 0...14 pH, 0...100 °C
- Double junction, sealed
- 110xØ12 mm

SP11X-KIT = SP11X + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Resistant to fouling, Easy to clean, Dairy, Dough, Cosmetics, Waste water, Soil, ...

SP21X

- General purpose, pH
- Glass body, 0...14 pH, 0...100 °C
- Single junction, refillable
- 110xØ12 mm

SP21X-KIT = SP21X + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Laboratory use, Research, Production, Education, Agriculture, ...

SP22X

- High temperature, pH
- Glass body, 0...14 pH, 5...110 °C
- Double junction, sealed
- 110xØ12 mm

SP22X-KIT = SP22X + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Alkaline solutions, High temperature fluids, Photo bath, Ink, Agar, Tris buffer, ...

SP24X

- Spear tip, pH
- Ultem/Glass body, 0...14 pH, 0...80 °C
- Double junction, sealed
- 25xØ5 mm

SP24X-KIT = SP24X + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Semi-solids, Meat, Cheese, Bread, Fish, Soil, ...

SP26X

- Sleeve junction, pH
- Glass body, 0...14 pH, 0...100 °C
- Double junction, refillable
- 110xØ12 mm

SP26X-KIT = SP26X + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Suspensions, Emulsions, High viscosity, Distilled water, Oil in water, ...

SP27X

- Flat surface, pH
- Epoxy body, 0...14 pH, 0...80 °C
- Single junction, sealed
- 110xØ12 mm

SP27X-KIT = SP27X + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Surface applications, Paper, Skin, Small flat volumes, Fruit, ...

SP28X

- Micro electrode, pH
- Glass body, 0...14 pH, 0...80 °C
- Single junction, refillable
- 130xØ4 mm

SP28X-KIT = SP28X + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Micro volumes (min. 10 mm depth), Test tubes, ...

SP29X

- Test tube, pH
- Glass body, 0...14 pH, 0...100 °C
- Single junction, refillable
- 250xØ8 mm

SP29X-KIT = SP29X + 3x50 ml (pH 4, pH 7, 3 M KCl)



Application: Tall form laboratory flasks, Micro volumes, ...

ORP electrodes

Supplied with S7 plug head

SP50X

- General purpose, platinum ORP
- Epoxy body
- 0...±2000 mV, 0...80°C
- Single junction, sealed
- 110xØ12 mm



Application: Field or laboratory use, Redox determinations, Swimming pool control, ...

SP60X

- Platinum ORP)
- Glass body
- 0...±2000 mV, 0...100°C
- Single junction, refillable
- 110xØ12 mm



Application: Laboratory use, Redox determinations, ...

SP65X

- Silver ORP
- Glass body
- 0...±2000 mV, 0...100°C
- Single junction, refillable
- 110xØ12 mm



Application: Laboratory use, Silver and halide titrations, ...

pH/ORP electrode

Supplied with 1 m of cable and 2 BNC plugs

SP35B

- pH/ORP combination electrode
- 0...12 pH, 0...±2000 mV
- Glass body, sealed
- 0...100°C
- 110xØ12 mm



Application: Bio-electronic measurements (rH₂), Fruit, Juice, Vegetables, Tap water, etc...

Titration electrode

Supplied with S7 plug head

SP04X

- General purpose, double platinum
- Titration electrode
- Glass body
- 0...100°C
- 110xØ12 mm



Application: Laboratory use, Free chlorine control in swimming pools, ...

Sterilisable pH electrodes

Supplied with S8 plug head

SP9xY

- For all sterile biotech applications, pH
- 0...13 pH, -5...135°C, max. 10 bar
- Glass body, double junction, sealed
- Steam sterilisable
- Needs no pressurisation



SP91Y: 110xØ12 mm SP92Y: 120xØ12 mm SP93Y: 130xØ12 mm SP94Y: 160xØ12 mm SP95Y: 210xØ12 mm
 SP96Y: 260xØ12 mm SP97Y: 310xØ12 mm SP98Y: 360xØ12 mm SP99Y: 420xØ12 mm

Electrode cables and accessories

CODE	DESCRIPTION
SC01B	S7/S8 cable, 1 m, with BNC plug
SC03B	S7/S8 cable, 3 m, with BNC plug
SC06B	S7/S8 cable, 6 m, with BNC plug
SC15B	S7/S8 cable, 15 m, with BNC plug
SC30B	S7/S8 cable, 30 m, with BNC plug
A4021	Adaptor, BNC to DIN socket
A4022	Adaptor, BNC to 2 banana
S295	Storage bottle for electrodes, 8 ml
→ Other lengths or plugs on demand	



Standard conductivity electrodes

Supplied with 1 m of cable and BNC plug + 2 banana plugs

SK10B

- General purpose, conductivity
- Epoxy body
- 1 cm², 0...80°C
- Dual graphite plates
- 110xØ12 mm



Application: Field use, Low and medium conductivities, Education, Agriculture, ...

SK10T = SK10B + ATC/temperature (Pt1000)

SK20B

- General purpose, conductivity
- Glass body
- 1 cm², 0...110°C
- Dual platinum rings
- 110xØ12 mm



Application: Laboratory use, Low and high conductivities, Research, Production, Education, ...

SK20T = SK20B + ATC/temperature (Pt1000)

Special conductivity electrodes

Supplied with 1 m of cable and BNC plug + 2 banana plugs

SK12T

- Low conductivities + ATC/temperature (Pt1000)
- Epoxy body
- 0.1 cm², 0...80°C
- Dual graphite plates
- 110xØ12 mm



Application: Field use, Very low conductivities, Distilled water, ...

SK21T

- Low conductivities + ATC/temperature (Pt1000)
- Glass body
- 0.1 cm², 0...110°C
- Dual platinum plates
- 110xØ12 mm



Application: Laboratory use, Very low conductivities, Distilled water, ...

SK23T

- High conductivities + ATC/temperature (Pt1000)
- Glass body
- 10 cm², 0...110°C
- Dual platinum rings
- 130xØ12 mm



Application: Laboratory use, Very high conductivities, Sea water, ...

SK24T

- Micro electrode + ATC/temperature (Pt1000)
- Glass body, 1 cm², 0...100°C
- Dual platinum plates
- 110xØ6 mm



Application: Micro volumes (min. 30 mm depth), Test tubes, ...

Four-pole conductivity electrodes

Supplied with 1 m of cable and DIN-8 plug

SK40T

- **Only to be used with suitable meters!**
- Epoxy body
- 0.5 cm², 0...80°C
- Four graphite electrodes
- build-in ATC/temperature (Pt1000)
- 110xØ15 mm



Application: Field use, Permits to measure low and high conductivities with only one electrode, ...

SK41T

- **Only to be used with suitable meters!**
- Glass body
- 1 cm², 0...100°C
- Four platinum rings
- build-in ATC/temperature (Pt1000)
- 110xØ12 mm



Application: Laboratory use, Permits to measure low and high conductivities with only one electrode, ...

SK43T

- **Only to be used with suitable meters!**
- Glass body
- 10 cm², 0...100°C
- Four platinum rings
- build-in ATC/temperature (Pt1000)
- 110xØ12 mm



Application: Laboratory use, Permits to measure low and high conductivities with only one electrode, ...

Dissolved oxygen electrode

Supplied with BNC plug + 2 banana plugs + electrolyte + membranes

SZ10T

- Galvanic type + ATC/temperature (Pt1000)
- Delrin body
- 0...60 mg/l, 0...50 °C
- With 3 m submersible cable
- 110xØ12 mm



Application: Field use, Dissolved oxygen measurements in watery solutions, ...

SZ02K

- set of 3 membranes + electrolyte

Temperature Compensators

Supplied with 1 m of cable and 2 banana plugs

ST10N

- General purpose, ATC/temperature
- Stainless steel body, PTFE coated
- -30...+130 °C
- Pt1000
- 110xØ4 mm



Application: Field use, Not suitable for very aggressive fluids, ...

ST20N

- General purpose, ATC/temperature
- Glass body
- -30...+130 °C
- Pt1000
- 110xØ8 mm



Application: Laboratory use, Suitable for all types of fluids, ...

AP414

Thermal printer



- Serial (RS232) and parallel (Centronix) input.
- Thermal dot matrix 9x320 dots.
- Prints 40 columns (normal) or 80 columns (condensed).
- Paper width: 112 mm.
- Roll length: ±28 m.
- For direct connection to all meters with a digital output.
- Supplied with manual, 1 roll of thermal paper, mains adaptor (230 VAC) and RS232 cable.
- Optional rechargeable battery pack.

SH300

Electrode holder



Model SH300 holds up to three standard electrodes. Its heavy base and very stable flexible arm allow the electrodes to move sideways or up and down while keeping them at a constant vertical angle.

CODE	DESCRIPTION
AP414	Serial printer + mains adaptor + RS232 cable
AM112	Replacement paper, 112 mm x 25 m
AP4005	Rechargeable battery pack (optional)

CODE	DESCRIPTION
SH300	Flexible electrode holder

Ion selective electrodes

Supplied with 1 m of cable and BNC plug

- Polymer membrane electrodes consist of various ion-exchange materials in an inert matrix such as PVC, polythene or silicone rubber. The potential developed at the membrane surface is related to the concentration of the species of interest.
- Solid state electrodes utilise relatively insoluble inorganic salts in a membrane. Solid state electrodes exist in homogeneous or heterogeneous forms. In both types, potentials are developed at the membrane surface due to the ion-exchange process.
- Glass membrane electrodes are formed by the doping of the silicon dioxide glass matrix with various chemicals. The most common of the glass membrane electrodes is the pH electrode. Glass membrane electrodes are also available for the measurement of sodium ions.
- Gas sensing electrodes are available for the measurement of ammonia, carbon dioxides and nitrogen oxides. These electrodes have a gas permeable membrane and an internal filling solution. The pH of the filling solution changes as the gas reacts with it which is detected by the built-in pH sensor.
- All models are combination electrodes and have an epoxy body.
- Dimensions: 110xØ12 mm.
- Each electrode comes with user instructions.
- **Two versions available:** standard (ISE20B...ISE52B) or with replaceable membrane (ISE60B...ISE82B).



MODEL	ION	SENSOR	RANGE (M)	RANGE (ppm)	°C	INTERFERENCES	pH	ELECTROLYTE
ISE20B ISE60B	Ammonium NH ₄ ⁺	polymer	5.10 ⁻⁶ - 10 ⁰	0.1 - 18000	0 - 50	K ⁺	4 - 10	NaCl
ISE21B ISE61B	Bromide Br ⁻	solid state	5.10 ⁻⁶ - 10 ⁰	0.4 - 79900	0 - 50	I ⁻ , CN ⁻ , S ²⁻ , high levels of Cl ⁻ and NH ₃	2 - 14	KNO ₃
ISE22B ISE62B	Cadmium Cd ²⁺	solid state	10 ⁻⁷ - 10 ⁻¹	0.01 - 11200	0 - 50	Cu ²⁺ , Hg ²⁺ , Ag ⁺ , high levels of Fe ²⁺ and Pb ²⁺	2 - 12	KNO ₃
ISE23B ISE63B	Calcium Ca ²⁺	polymer	5.10 ⁻⁶ - 10 ⁰	0.2 - 40000	0 - 50	Pb ²⁺ , Hg ²⁺ , Cu ²⁺ , Ni ²⁺	3 - 10	KCl
ISE24B ISE64B	Chloride Cl ⁻	solid state	5.10 ⁻⁵ - 10 ⁰	1.8 - 35500	0 - 50	I ⁻ , Br ⁻ , CN ⁻ , S ²⁻	1 - 12	KNO ₃
ISE25B ISE65B	Copper Cu ²⁺	solid state	10 ⁻⁸ - 10 ⁻¹	0.00064 - 6350	0 - 50	Hg ²⁺ , Ag ⁺ , high levels of Cl ⁻ , Br ⁻ , Fe ²⁺ and Cd ²⁺	2 - 12	KNO ₃
ISE26B ISE66B	Cyanide CN ⁻	solid state	5.10 ⁻⁶ - 10 ⁻²	0.13 - 260	0 - 50	Cl ⁻ , Br ⁻ , I ⁻ , S ²⁻	11 - 13	KNO ₃
ISE27B ISE67B	Fluoride F ⁻	solid state	10 ⁻⁶ - sat.	0.02 - sat.	0 - 50	OH ⁻	5 - 8	KCl
ISE28B ISE68B	Fluoroborate BF ₄ ⁻	polymer	7.10 ⁻⁶ - 10 ⁰	0.1 - 10800	0 - 50	I ⁻ , ClO ₄ ⁻ , CN ⁻	2.5 - 11	(NH ₄) ₂ SO ₄
ISE29B ISE69B	Iodide I ⁻	solid state	5.10 ⁻⁸ - 10 ⁰	0.006 - 127000	0 - 50	S ²⁻ , CN ⁻ , Cl ⁻ , Br ⁻ , S ₂ O ₃ ²⁻ , NH ₃	0 - 14	KNO ₃
ISE30B ISE70B	Lead Pb ²⁺	solid state	10 ⁻⁶ - 10 ⁻¹	0.2 - 20700	0 - 50	Hg ²⁺ , Ag ⁺ , Cu ²⁺ , high levels of Fe ²⁺ and Cd ²⁺	3 - 8	KNO ₃
ISE31B ISE71B	Nitrate NO ₃ ⁻	polymer	7.10 ⁻⁶ - 10 ⁰	0.5 - 62000	0 - 50	I ⁻ , ClO ₄ ⁻ , CN ⁻ , BF ₄ ⁻	2.5 - 11	(NH ₄) ₂ SO ₄
ISE32B ISE72B	Perchlorate ClO ₄ ⁻	polymer	7.10 ⁻⁶ - 10 ⁰	0.7 - 99500	0 - 50	-	2.5 - 11	(NH ₄) ₂ SO ₄
ISE33B ISE73B	Potassium K ⁺	polymer	10 ⁻⁶ - 10 ⁰	0.04 - 39000	0 - 50	Cs ⁺ , NH ₄ ⁺	2 - 12	NaCl
ISE34B ISE74B	Silver/Sulphide Ag ⁺ /S ²⁻	solid state	10 ⁻⁷ - 10 ⁰	0.01 - 107900 0.003 - 32000	0 - 50	Hg ⁺ , Hg ²⁺	2 - 12	KNO ₃
ISE35B	Sodium Na ⁺	glass	10 ⁻⁶ - sat.	0.02 - sat.	0 - 50	H ⁺ , K ⁺ , Li ⁺ , Ag ⁺ , Cs ⁺ , Tl ⁺	5 - 12	NH ₄ Cl
ISE36B ISE76B	Surfactant X ⁻ /X ⁻	polymer	10 ⁻⁵ - 5.10 ⁻²	1 - 12000	0 - 50	similar types of surfactants	2 - 12	KCl
ISE37B ISE77B	Water hardness Ca ²⁺ /Mg ²⁺	polymer	10 ⁻⁵ - 10 ⁰	0.4 - 4000 (Ca ²⁺)	0 - 50	Cu ²⁺ , Zn ²⁺ , Ni ²⁺ , Fe ²⁺	5 - 10	KCl
ISE50B ISE80B	Ammonia NH ₃	gas sensing	5.10 ⁻⁷ - 10 ⁰	0.01 - 17000	0 - 50	volatile amines	11 - 13	NH ₄ Cl
ISE51B ISE81B	Carbon dioxide CO ₂ /CO ₃ ²⁻	gas sensing	10 ⁻⁴ - 10 ⁻²	4.4 - 440	0 - 50	volatile weak acids	4.8 - 5.2	NaHCO ₃
ISE52B ISE82B	Nitrogen oxides NO _x	gas sensing	5.10 ⁻⁶ - 5.10 ⁻³	0.2 - 220	0 - 50	SO ₂ , HF, acetic acid	1.1 - 1.7	NaNO ₂

Solutions

Ion - pH - mV - Redox - Conductivity

Necessary solutions for ion selective electrodes

CODE	DESCRIPTION	
ISC20	Calibration solution, 1000 ppm ammonium	475 ml
ISC21	Calibration solution, 1000 ppm bromide	475 ml
ISC23	Calibration solution, 1000 ppm calcium	475 ml
ISC24	Calibration solution, 1000 ppm chloride	475 ml
ISC25	Calibration solution, 1000 ppm copper	475 ml
ISC27	Calibration solution, 1000 ppm fluoride	475 ml
ISC28	Calibration solution, 1000 ppm fluoroborate	475 ml
ISC29	Calibration solution, 1000 ppm iodide	475 ml
ISC31	Calibration solution, 1000 ppm nitrate	475 ml
ISC32	Calibration solution, 1000 ppm perchlorate	475 ml
ISC33	Calibration solution, 1000 ppm potassium	475 ml
ISC34	Calibration solution, 1000 ppm silver/sulphide	475 ml
ISC35	Calibration solution, 1000 ppm sodium	475 ml
ISC36	Calibration solution, 1000 ppm surfactant	475 ml
ISC37	Calibration solution, 1000 ppm water hardness	475 ml
ISC50	Calibration solution, 1000 ppm ammonia	475 ml
ISC51	Calibration solution, 1000 ppm carbon dioxides	475 ml
ISA20	ISA solution for ammonium, potassium	475 ml
ISA21	ISA solution for bromide	475 ml
ISA22	ISA solution for cadmium	475 ml
ISA23	ISA solution for calcium	475 ml
ISA24	ISA solution for chloride	475 ml
ISA25	ISA solution for copper	475 ml
ISA27A	ISA solution for fluoride, TISAB-1	3800 ml
ISA27B	ISA solution for fluoride, TISAB-2	3800 ml
ISA27C	ISA solution for fluoride, TISAB-3	3800 ml
ISA28	ISA solution for fluoroborate	475 ml
ISA29	ISA solution for iodide	475 ml
ISA30	ISA solution for lead	475 ml
ISA31	ISA solution for nitrate	475 ml
ISA32	ISA solution for perchlorate	475 ml
ISA33	ISA solution for potassium	475 ml
ISA34	ISA solution for silver/sulphide	475 ml
ISA35	ISA solution for sodium	475 ml
ISA36	ISA solution for surfactant	475 ml
ISA37	ISA solution for water hardness	475 ml
ISA51	ISA solution for carbon dioxides	475 ml
ISA52	ISA solution for nitrogen oxides	475 ml
→ Other solutions should be prepared locally.		



- All solutions are offered in sealed bottles.
- pH buffers are colour coded to reduce errors. They are certified to 0.02 pH.
- Conductivity standards are certified to 0.5 %.
- Redox standards are certified to 1 mV at 25°C.
- In addition to the reference, a test number is indicated revealing the charge number.
- Each solution is supplied with a certificate.
- The indicated values are at 25°C. Where necessary, a value/temperature comparison chart is printed on the label.
- Expiry date is mentioned on each bottle.
- Always store solutions cool and away from sunlight.

Spare parts for ion selective electrodes

CODE	DESCRIPTION	
ISM50	Set of spare membranes for ISE50B	10 pcs
ISM51	Replacement membrane kit for ISE51B	3 pcs
ISM52	Replacement membrane kit for ISE52B	3 pcs
ISM60	Replacement membrane kit for ISE60B	3 pcs
ISM61	Replacement membrane kit for ISE61B	3 pcs
ISM62	Replacement membrane kit for ISE62B	3 pcs
ISM63	Replacement membrane kit for ISE63B	3 pcs
ISM64	Replacement membrane kit for ISE64B	3 pcs
ISM65	Replacement membrane kit for ISE65B	3 pcs
ISM66	Replacement membrane kit for ISE665B	3 pcs
ISM67	Replacement membrane kit for ISE67B	3 pcs
ISM68	Replacement membrane kit for ISE68B	3 pcs
ISM69	Replacement membrane kit for ISE69B	3 pcs
ISM70	Replacement membrane kit for ISE70B	3 pcs
ISM71	Replacement membrane kit for ISE71B	3 pcs
ISM72	Replacement membrane kit for ISE72B	3 pcs
ISM73	Replacement membrane kit for ISE73B	3 pcs
ISM74	Replacement membrane kit for ISE74B	3 pcs
ISM76	Replacement membrane kit for ISE76B	3 pcs
ISM77	Replacement membrane kit for ISE77B	3 pcs
ISM80	Replacement membrane kit for ISE80B	3 pcs
ISM81	Replacement membrane kit for ISE81B	3 pcs
ISM82	Replacement membrane kit for ISE82B	3 pcs
ISF50	Membrane filling solution for ISE50B/ISE80B	125 ml
ISF51	Membrane filling solution for ISE51B/ISE81B	125 ml
ISF52	Membrane filling solution for ISE52B/ISE82B	125 ml

CODE	DESCRIPTION	
B502	Coloured buffer 2.00 pH	500 ml
B504	Coloured buffer 4.00 pH	500 ml
B507	Coloured buffer 7.00 pH	500 ml
B510	Coloured buffer 10.01 pH	500 ml
B512	Coloured buffer 12.00 pH	500 ml
B560	Calibration solution 0.01 M KCl (1413 µS/cm at 25°C)	500 ml
B561	Calibration solution 0.1 M KCl (12.88 mS/cm at 25°C)	500 ml
B562	Calibration solution 1 M KCl (111.8 mS/cm at 25°C)	500 ml
B566	Calibration solution 200 mS/cm (at 25°C)	500 ml
B571	Redox standard solution 124 mV	500 ml
B572	Redox standard solution 358 mV	500 ml
B520	Electrolyte, 3M KCl	500 ml
B530	Electrode cleaning solution	500 ml

GOOD MEASUREMENT PRACTICES!

- While calibrating or measuring all solutions should be stirred gently (e.g. with a magnetic stirrer) to ensure the electrode gives a true representation of the beaker contents.
- Calibration solutions should be chosen which have values near the expected sample value.
- Only fresh calibration solutions should be used! Changing all solutions daily is a good practice.
- All solutions should be maintained at equal temperature.
- Rinse the electrode twice between measurements: first thoroughly in distilled water and then with a small amount of the next sample to be measured.
- Allow the electrodes sufficient time to stabilise while calibrating or measuring. A stability indicator on all of our meters prompts the user when readings should be taken.



pH:	-2...+16 pH
mV:	±2000 mV
Ion:	0.01 ng/l...100 g/l
Conductivity:	0...2000 mS/cm
Dissolved oxygen:	0...60 mg/l 0...600%
Air pressure:	600...1300 hPa
Temperature:	-5...+105 °C

Ion: R362x only

Two independent channels
for all measurements!

R3624: + one extra connector for
4-pole conductivity electrodes!

Control

Two independent channels allow to control any two functions simultaneously, each with its own temperature compensation.

On/off or proportional control.

Four solid state relays programmable for high/low level control, wash program or alarm functions.

Allows to stop temporarily the control (relays off) without holding the measurements.

Wash program for an automatic periodical cleaning of the electrodes.

A programmable alarm function prevents the overdosing of chemicals in the process liquid. Each time a pre-set level is exceeded the corresponding relay is closed and the alarm timer starts to count down. When this level is still exceeded after count down of the timer all relays will be opened and an alarm be given. The system should then be checked thoroughly for e.g. broken electrodes, interrupted cables, empty vessels, etc...

pH

Multi-point (1...5) calibration for more linearity.

Selectable resolution from 0.001 pH to 0.1 pH.

Automatic calibration with any of eleven pre-programmed and five user specified pH buffers. *Create your own buffer/temperature tables!*

mV

Features mV calibration for accurate ORP measurements.

Selectable resolution from 0.1 mV to 1 mV.

Ion (R362x only)

Direct concentration measurement.

Multi-point (2...5) calibration and an additional blank correction for measuring low concentrations.

Conductivity

Multi-point (1...3) calibration for more linearity.

The 4-pole design reduces considerably the problems of polarisation and fouling. By utilising four electrodes, no current flows through the measuring circuit. The AC-current is only applied to the outer pair of rings allowing the inner pair of electrodes to measure the voltage without any polarisation effects. **A 4-pole electrode permits to measure with the highest degree of accuracy and linearity (R3624 only).**

An electrode with a typical cell constant of 1 cm⁻¹ permits to measure from 0.01 µS/cm to 200 mS/cm in five ranges.

An electrode with a typical cell constant of 0.1 cm⁻¹ permits to measure from 0.001 µS/cm to 20 mS/cm in five ranges.

An electrode with a typical cell constant of 10 cm⁻¹ permits to measure from 0.1 µS/cm to 2000 mS/cm in five ranges.

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25 °C.

Automatic calibration with any of three preprogrammed and three user specified standard solutions. *Create your own standard/temp. tables!*

Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

Dissolved oxygen

Operates with a galvanic oxygen electrode requiring no polarisation time and no zero calibration.

Selectable resolution from 0.01 mg/l (0.1%) to 0.1 mg/l (1%).

Rapid air calibration.

Manual salinity compensation 0-40.

Automatic air pressure compensation 600-1300 hPa.



CODE	DESCRIPTION
R3610	Controller for pH/mV/ion/conductivity/dissolved oxygen
R3620	Controller for pH/mV/ion/conductivity/dissolved oxygen
R3624	Controller for pH/mV/ion/conductivity/dissolved oxygen
A2002	Data acquisition software DIS-2 + RS232/RS485 adaptor (optional)
A2003	Data acquisition software DIS-2 + RS485/Ethernet adaptor (optional)
→ Add a US-sign for 120 VAC versions, e.g.: R3610-US	

Temperature

Reads temperatures with 0.1 °C resolution.

Manual or automatic temperature compensation.

Calibrates temperature probe for quality measurements.

Inputs

Two inputs for pH, mV, Ion, conductivity or dissolved oxygen.

Two inputs for temperature.

R3624: one DIN-8 connector for 4-pole conductivity electrodes with built-in Pt1000.

Outputs (R362x only)

Two programmable 4-20 mA analogue outputs, for connection to a proportional pump, a PLC or an industrial recorder.

RS485 interface permits to connect up to 31 controllers in a network system with a computer.

Display

A large bright LCD screen with white backlight enables to view all channels simultaneously.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Shows a GLP report on the LCD screen.

Connections

All connections, except for the inputs, can be done through internal screw terminals.

Cabinet

Robust dust and splash-proof cabinet for wall mounting.

Data-logging (R362x only)

Stores up to 12000 values including temperature, time and date at a programmable interval.

An optional powerful data acquisition software for PC + RS485/RS232 or RS485/Ethernet adaptor is available separately.

Can be connected in a network system with up to 31 controllers and a computer.

Two-way communication with any computer using RS485.

Programmable identification number.

Stores minimum/maximum readings for each channel.

Special features

Three year warranty.

No electrical interference between electrodes in the same solution.

Galvanic input/output isolation eliminates ground loop interferences.

A first special timer can start a wash program for an automatic periodical cleaning of the electrodes.

A second special timer can give alarm to interrupt the process control in case of a pump overfeed or an electrode failure.

Password protection prevents any unauthorised modification of the instrument's settings.

GLP

All procedures for a "Good Laboratory Practice" are on board.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25 °C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25 °C).

SPECIFICATIONS		R3610 - R3620 - R3624
pH	Range	-2...+16 pH
	Resolution	0.001 pH
	Accuracy	0.1% ± 1 digit
	Calibration	1...5 points
	Buffers	11 pre-programmed + 5 user specified
	Temperature compensation	-5...+105 °C
	ISO-pH	6...8 pH
Slope	Slope	80...120%
	Range	±2000 mV
mV	Resolution	0.1 mV
	Accuracy	0.1% ± 1 digit
	Calibration	1 point
	Range	0.01 ng/l...100 g/l
ION (R362x only)	Resolution	3 digits
	Accuracy	0.5% ± 1 digit
	Calibration	2...5 points + blank
	Range (cc dependent)	0...2000 mS/cm
CONDUCTIVITY	Resolution (cc dependent)	0.001 µS/cm
	Accuracy	0.5% f.s. of range
	Calibration	1...3 points
	Standards	3 pre-programmed + 3 user specified
	Cell constant (cc)	0.1/1/10 cm ⁻¹ ±30%
	Temperature compensation	-5...+105 °C
	Reference temperature	20 ° or 25 °C
	Temperature coefficient	natural waters (EN27888)
	Capacitive compensation	✓
	DISSOLVED OXYGEN	Range
Resolution		0.01 mg/l (0.1%)
Accuracy		1% ± 1 digit
Calibration		1 point
Temperature compensation		0...50 °C
Salinity compensation		0...40
Air pressure compensation		600...1300 hPa
TEMPERATURE	Range	-5...+105 °C
	Resolution	0.1 °C
	Accuracy	0.1 °C
	Calibration	1 point
AIR PRESSURE	Range	600...1300 hPa
	Calibration	1 point
CHANNELS	Measurement	2
	Temperature	2
INPUTS	Measurement	2 BNC, 10 ¹² Ω
	Temperature	2 BNC, for Pt1000
	Four-pole conductivity cell	1 DIN-8 (R3624 only)
CALIBRATION	Reminder	0...999 h
	GLP	✓
CONTROL	On/Off	✓
	Proportional	✓
	Wash program	✓
	Alarm timer	✓
DISPLAY	LCD	240x64 pixels
	White backlight	✓
	Real time clock	✓
ANALOG OUTPUT (R362x only)	Two outputs	4...20 mA max. 300 Ω load
COMMUNICATION	RS485, baud rate	300...19200 b/s
	Computer	via RS485/RS232 interface
DATA-LOGGING (R362x only)	Data sets	12000 + °C/date/time
	Modes	all
	Interval	1 s...4 h
RELAY OUTPUT	Four relays	4 solid state
	Voltage	12...250 VAC/ min. 1 mA/ max. 1 A
SECURITY	Identification number	✓
	Password protection	✓
AMBIENT CONDITIONS	Temperature	0...40 °C
	Humidity	0...95%, non condensing
POWER SUPPLY	Mains	210...250 VAC, 50/60 Hz
DIMENSIONS	WxDxH	28x17x6 cm
WEIGHT	Meter	1.3 kg

→ You will find ordering codes and descriptions of electrodes, calibration solutions, accessories... on pages 19...



pH:	-2...+16 pH
mV:	±2000 mV
Conductivity:	0...2000 mS/cm
Free chlorine:	0...10 mg/l
Dissolved oxygen:	0...60 mg/l 0...600%
Air pressure:	600...1300 hPa
Temperature:	-5...+105°C

Two measurement channels
One free chlorine channel
One temperature channel

Control

Two independent channels allow to control any two functions simultaneously, each with its own temperature compensation.

On/off or proportional control.

Four solid state relays programmable for high/low level control, wash program or alarm functions.

Allows to stop temporarily the control (relays off) without holding the measurements.

Wash program for an automatic periodical cleaning of the electrodes.

A programmable alarm function prevents the overdosing of chemicals in the process liquid. Each time a pre-set level is exceeded the corresponding relay is closed and the alarm timer starts to count down. When this level is still exceeded after count down of the timer all relays will be opened and an alarm be given. The system should then be checked thoroughly for e.g. broken electrodes, interrupted cables, empty vessels, etc...

pH

Multi-point (1...5) calibration for more linearity.

Selectable resolution from 0.001 pH to 0.1 pH.

Automatic calibration with any of eleven pre-programmed and five user specified pH buffers. **Create your own buffer/temperature tables!**

mV

Features mV calibration for accurate ORP measurements.

Selectable resolution from 0.1 mV to 1 mV.

Conductivity

Multi-point (1...3) calibration for more linearity.

An electrode with a typical cell constant of 1 cm⁻¹ permits to measure from 0.01 µS/cm to 200 mS/cm in five ranges.

An electrode with a typical cell constant of 0.1 cm⁻¹ permits to measure from 0.001 µS/cm to 20 mS/cm in five ranges.

An electrode with a typical cell constant of 10 cm⁻¹ permits to measure from 0.1 µS/cm to 2000 mS/cm in five ranges.

Automatically selects correct range and frequency.

Selectable reference temperature: 20° or 25°C.

Automatic calibration with any of three preprogrammed and three user specified standard solutions. **Create your own standard/temp. tables!**

Accurate low conductivity measurements by eliminating the capacitive component of the electrode and its cable (avoid the use of long cables!).

Free chlorine

Operates with a double platinum titration electrode in tubings of a water system.

Selectable resolution from 0.01 mg/l to 0.1 mg/l.

The rate of flow should be at least 20 cm/s and kept constant by using a special bypass vessel.

Calibration is performed by adjusting the controller to a value measured with a photometer.

Dissolved oxygen

Operates with a galvanic oxygen electrode requiring no polarisation time and no zero calibration.

Selectable resolution from 0.01 mg/l (0.1%) to 0.1 mg/l (1%).

Rapid air calibration.

Manual salinity compensation 0-40.

Automatic air pressure compensation 600-1300 hPa.

Temperature

Reads temperatures with 0.1°C resolution.

Manual or automatic temperature compensation.

Calibrates temperature probe for quality measurements.

CODE	DESCRIPTION
R3630	Controller for pH/mV/conductivity/dissolved oxygen/free chlorine
A2002	Data acquisition software DIS-2 + RS232/RS485 adaptor (optional)
A2003	Data acquisition software DIS-2 + RS485/Ethernet adaptor (optional)
→ Add a US-sign for 120 VAC versions, e.g.: R3630-US	

Inputs

Two inputs for pH, mV, conductivity or dissolved oxygen.

One input for free chlorine.

One input for temperature.

Outputs

Two programmable 4-20 mA analogue outputs, for connection to a proportional pump, a PLC or an industrial recorder.

RS485 interface permits to connect up to 31 controllers in a network system with a computer.

Connections

All connections, except for the inputs, can be done through internal screw terminals.

Cabinet

Robust dust and splash-proof cabinet for wall mounting.

Display

A large bright LCD screen with white backlight enables to view all channels simultaneously.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Shows a GLP report on the LCD screen.

Data-logging

Stores up to 12000 values including temperature, time and date at a programmable interval.

An optional powerful data acquisition software for PC + RS485/RS232 or RS485/Ethernet adaptor is available separately.

Can be connected in a network system with up to 31 controllers and a computer.

Two-way communication with any computer using RS485.

Programmable identification number.

Stores minimum/maximum readings for each channel.

Special features

Three year warranty.

No electrical interference between electrodes in the same solution.

Galvanic input/output isolation eliminates ground loop interferences.

A first special timer can start a wash program for an automatic periodical cleaning of the electrodes.

A second special timer can give alarm to interrupt the process control in case of a pump overfeed or an electrode failure.

Password protection prevents any unauthorised modification of the instrument's settings.

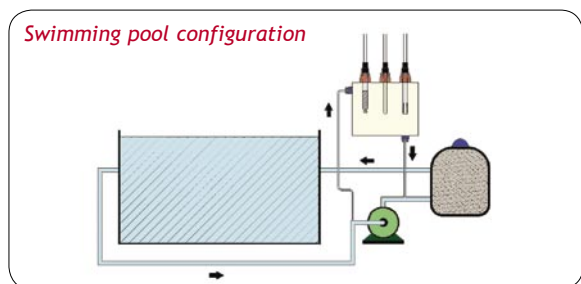
GLP

All procedures for a "Good Laboratory Practice" are on board.

Pre-programmed standards

pH buffers: 1.68, 2.00, 4.00, 4.01, 6.87, 7.00, 9.18, 9.21, 10.01, 12.00, 12.45 (at 25°C).

Conductivity: 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm (at 25°C).



SPECIFICATIONS		R3630
pH	Range	-2...+16 pH
	Resolution	0.001 pH
	Accuracy	0.1% ± 1 digit
	Calibration	1...5 points
	Buffers	11 pre-programmed + 5 user specified
	Temperature compensation	-5...+105°C
	ISO-pH	6...8 pH
mV	Slope	80...120%
	Range	±2000 mV
CONDUCTIVITY	Resolution	0.1 mV
	Accuracy	0.1% ± 1 digit
	Calibration	1 point
	Range (cc dependent)	0...2000 mS/cm
	Resolution (cc dependent)	0.001 µS/cm
	Accuracy	0.5% f.s. of range
	Calibration	1...3 points
	Standards	3 pre-programmed + 3 user specified
	Cell constant (cc)	0.1/1/10 cm ⁻¹ ±30%
	Temperature compensation	-5...+105°C
DISSOLVED OXYGEN	Reference temperature	20° or 25°C
	Temperature coefficient	natural waters (EN27888)
	Capacitive compensation	✓
	Range	0...60 mg/l (0...600%)
	Resolution	0.01 mg/l (0.1%)
	Accuracy	1% ± 1 digit
	Calibration	1 point
FREE CHLORINE	Temperature compensation	0...50°C
	Salinity compensation	0...40
	Air pressure compensation	600...1300 hPa
	Range	0...10 mg/l
	Resolution	0.01 mg/l
	Accuracy	5% ± 1 digit
TEMPERATURE	Calibration	1 point
	pH compensation	5...9 pH
	Temperature compensation	10...40°C
	Range	-5...+105°C
AIR PRESSURE	Resolution	0.1°C
	Accuracy	0.1°C
	Calibration	1 point
CHANNELS	Range	600...1300 hPa
	Calibration	1 point
INPUTS	Measurement	2
	Free chlorine	1
	Temperature	1
CALIBRATION	Measurement	2 BNC, 10 ¹² Ω
	Free chlorine	1 BNC
	Temperature	1 BNC, for Pt1000
CONTROL	Reminder	0...999 h
	GLP	✓
DISPLAY	On/Off	✓
	Proportional	✓
	Wash program	✓
ANALOG OUTPUTS	Alarm timer	✓
	LCD	240x64 pixels
	White backlight	✓
COMMUNICATION	Real time clock	✓
	Two outputs	4...20 mA, max. 300 Ω load
DATA-LOGGING	RS485, baud rate	300...19200 b/s
	Computer	via RS485/RS232 interface
	Interval	1 s...4 h
RELAY OUTPUT	Data sets	12000 + °C/date/time
	Modes	all
SECURITY	Four relays	4 solid state
	Voltage	12...250 VAC/ min. 1 mA/ max. 1 A
AMBIENT CONDITIONS	Identification number	✓
	Password protection	✓
POWER SUPPLY	Temperature	0...40°C
	Humidity	0...95%, non condensing
DIMENSIONS	Mains	210...250 VAC, 50/60 Hz
	WxDxH	28x17x6 cm
WEIGHT	Meter	1.3 kg



Data acquisition

This software package is specially designed to collect, store and manage data from the following controllers when equipped with an RS485 interface:

R3620, R3630

It can also be used with the following previous models or versions when equipped with an RS485 interface:

R305, R315, R335.

Runs under Windows™ 2000 or higher.

All measurements of all instruments are processed at the same time, each in its own window.

Data is collected on-line at a programmable interval determined by the program (1 s ... 24 h).

Starting

By using a program-key, the data-logging will start automatically after opening the program.

Data-logging can be stopped or continued at any moment.

Data, which is stored in the internal memory of the connected instrument, can also be read and processed.

Table

Data is always stored in a table.

Comments can be added to each line in a special information column.

Files

All data is saved in a user defined file. Just open the file to view, process or print the stored data.

The incoming data from the RS232 or Ethernet port can be stored immediately in a file.

All measurements are saved in CVS format which is easily transferred into spreadsheets.

Graphs

Graphs are generated using automatic or user defined settings.

The number of visible values can be changed at any time.

Programmable alarm limits for each graph allow to print a report indicating when limits have been exceeded.

Shows statistics about minima, maxima and averages.

Communication port

COM1 to COM9 can be used to connect up to nine series of max. 31 instruments.

Baud rate: 300..9600 b/s.

Terminal

The terminal window shows exactly how data is received through the RS232 or Ethernet port.

It enables the user to check for possible errors in the data transmission.

Settings

Languages: English, Dutch or French.

The style of each window can be set up separately.

Choose fonts, colours etc...

Documented printouts will show:

- file name.
- date and time.
- name of the operator.
- name of the company.
- name of the division.
- optional notes by the operator.

All settings are stored in a configuration file and automatically recalled when opening the program.

Functions

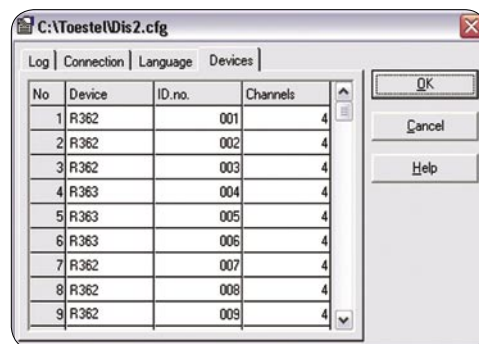
All functions are accessible through the menu.

Only valid options appear in the menu to eliminate set-up errors.

Special buttons, icons and short-keys allow the user to easily access the most useful functions.

The contents of each window can be transferred to other programs by using a copy function.

Tile or cascade the windows and arrange the icons fully automatically or rearrange them manually.



CODE	DESCRIPTION
A2002	Data acquisition software DIS-2 + RS485/RS232
A2003	Data acquisition software DIS-2 + RS485/Ethernet adaptor

Industrial electrodes

Supplied with S8 plug head

SP11Y

- Rugged easy to clean Tuff-Tip®, pH
- Epoxy body
- 0...14 pH, 0...100°C
- Double junction, sealed
- 110xØ12 mm



Application: Resistant to fouling, Easy to clean, Swimming pool, Waste water, ...

SP23Y

- High temperature, pH
- Glass body
- 0...14 pH, 5...110°C
- Double junction, sealed
- 110xØ12 mm



Application: Alkaline solutions, High temperature fluids, Photo bath, Ink, ...

SP50Y

- General purpose, ORP
- Epoxy body
- 0...±2000 mV, 0...80°C
- Single junction, sealed
- 110xØ12 mm



Application: Redox determinations, Swimming pool control, ...

SP61Y

- General purpose, ORP
- Glass body
- 0...±2000 mV, 0...100°C
- Single junction, sealed
- 110xØ12 mm



Application: Redox determinations, High temperature fluids, ...

SK10Y

- General purpose, conductivity
- Epoxy body
- 1 cm⁻¹, 0...80°C
- Dual graphite plates
- 110xØ12 mm



Application: Low and medium conductivities, Agriculture, ...

SK20Y

- General purpose, conductivity
- Glass body
- 1 cm⁻¹, 0...110°C
- Dual platinum rings
- 110xØ12 mm



Application: Low and high conductivities, Production, ...

SK22Y

- Low conductivities
- Glass body
- 0.1 cm⁻¹, 0...110°C
- Dual platinum plates
- 110xØ12 mm



Application: Very low conductivities, Distilled water, ...

SK23Y

- High conductivities
- Glass body
- 10 cm⁻¹, 0...110°C
- Dual platinum rings
- 110xØ12 mm



Application: Very high conductivities, Sea water, ...

ST21Y

- General purpose, ATC/temperature
- Glass body
- -30...+130°C
- Pt1000
- 110xØ12 mm



Application: Suitable for all types of fluids, ...

SZ12T

- Dissolved oxygen, galvanic type + ATC (Pt1000)
- Delrin body
- 0...60 mg/l
- 0...50°C
- With 15 m cable + 2 BNC plugs
- 110xØ12 mm



Application: Dissolved oxygen control in watery solutions, ...

SZ02K

- set of 3 membranes + electrolyte

CODE	DESCRIPTION
SC01B	S7/S8 cable, 1 m, with BNC plug
SC03B	S7/S8 cable, 3 m, with BNC plug
SC06B	S7/S8 cable, 6 m, with BNC plug

CODE	DESCRIPTION
SC15B	S7/S8 cable, 15 m, with BNC plug
SC30B	S7/S8 cable, 30 m, with BNC plug
→ Other lengths or plugs on demand	



EV231:	300 V,	1000 mA,	150 W
EV202:	300 V,	2000 mA,	300 W
EV245:	400 V,	500 mA,	50 W
EV265:	600 V,	500 mA,	150 W
EV261:	600 V,	1000 mA,	300 W
EV215:	1200 V,	500 mA,	300 W
EV233:	3000 V,	300 mA,	300 W
EV262:	6000 V,	150 mA,	300 W

Manual or Method programming
 Computer control using RS232
 Stores up to 3600 output values

Manual programming

The manual mode allows to set voltage, current, power and time for a routine electrophoresis run. Parameters can be changed temporarily without interrupting the run.

Method programming

Up to 9 different programs, each with 9 steps, of frequently used parameters can be stored in the non-volatile memory for future recall. Reads voltage in 1 V steps, current in 1 mA steps and power in 1 W steps. Each step is able to recall a next one, providing a flexible multiple step function for special techniques. Parameters of the running step can be changed temporarily without interrupting the run.

Voltage ramp

The method mode also allows to program a linear voltage gradient for any step provided the limiting current or power is not attained.

Timer

Timer or volt-hour controlled operation is a useful standard feature on all models. The microcomputer will automatically terminate the run and sound an alarm when the count down of the selected value is achieved.

Automatic cross-over

Each model has constant voltage, constant current, constant power capabilities with automatic cross-over and shows which parameter is kept constant.

Password protection

Prevents any unauthorised modification of the instrument's settings allowing the user only to run or stop an electrophoresis.

Automatic recovery after power failure

After a mains power failure the instrument will automatically continue the run for the remaining time.

Display

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Data-logging

Stores up to 3600 output values (voltage, current and power) including program number and step.

Data Transfer

Free data acquisition software for PC can be downloaded from our website. It allows to visualize and examine the stored run details via RS232.

Remote control

All power supplies can be controlled by a computer using special commands.

Safety precautions

The user is protected from potential shock hazard since the AC line is automatically disconnected from the high voltage transformer when a ground leakage path is detected.

The instrument is fully protected against any overload condition including accidental short circuit of the output.

The high voltage cannot suddenly appear at the outputs. It will always increase smoothly up to one of the pre-set limits is reached.

Galvanically isolated RS232 input/output connection prevents ground loop interferences when connected to a computer.

Warranty

Three year warranty.

Comprises: manual and mains lead.

SPECIFICATIONS	EV231	EV202	EV245	EV265
VOLTAGE	0...300 V	0...300 V	0...400 V	0...600 V
CURRENT	0...1000 mA	0...2000 mA	0...500 mA	0...500 mA
POWER	0...150 W	0...300 W	0...50 W	0...150 W
PARAMETER RANGE	1...100% of full scale	1...100% of full scale	1...100% of full scale	1...100% of full scale
TIMER	0...99:59 h	0...99:59 h	0...99:59 h	0...99:59 h
VOLT-HOURS	0...99.99 kWh	0...99.99 kWh	0...99.99 kWh	0...99.99 kWh
DISPLAY	LCD, 2x16 characters	LCD, 2x16 characters	LCD, 2x16 characters	LCD, 2x16 characters
RESOLUTION	1 V, 1 mA, 1 W	1 V, 1 mA, 1 W	1 V, 1 mA, 1 W	1 V, 1 mA, 1 W
PROGRAMS	9x9 set of parameters	9x9 set of parameters	9x9 set of parameters	9x9 set of parameters
OUTPUTS	4 in parallel, 4 mm sockets	4 in parallel, 4 mm sockets	3 in parallel, 4 mm sockets	4 in parallel, 4 mm sockets
MINIMUM LOAD RESISTANCE	10 Ω	5 Ω		30 Ω
NO LOAD DETECTION	on/off, programmable	on/off, programmable	on/off, programmable	on/off, programmable
GROUND LEAKAGE DETECTION	✓	✓	✓	✓
OVERLOAD DETECTION	✓	✓	✓	✓
COMPUTER CONTROL	✓	✓	✓	✓
PASSWORD PROTECTION	✓	✓	✓	✓
DATA-LOGGING	3600 values	3600 values	3600 values	3600 values
INTERVAL	1...60 seconds	1...60 seconds	1...60 seconds	1...60 seconds
RS232 INTERFACE	9600 b/s	9600 b/s	9600 b/s	9600 b/s
AMBIENT TEMPERATURE	0...40°C	0...40°C	0...40°C	0...40°C
RELATIVE HUMIDITY	0...95%, non condensing	0...95%, non condensing	0...95%, non condensing	0...95%, non condensing
POWER REQUIREMENTS	210...250 VAC, 50/60 Hz, 200 W	210...250 VAC, 50/60 Hz, 360 W	210...250 VAC, 50/60 Hz, 75 W	210...250 VAC, 50/60 Hz, 200 W
DIMENSIONS (WxDxH)	31x26x15 cm	31x26x15 cm	24x20x13 cm	31x26x15 cm
WEIGHT	6 kg	10 kg	3 kg	6 kg

SPECIFICATIONS	EV261	EV215	EV233	EV262
VOLTAGE	0...600 V	0...1200 V	0...3000 V	0...6000 V
CURRENT	0...1000 mA	0...500 mA	0...300 mA	0...150 mA
POWER	0...300 W	0...300 W	0...300 W	0...300 W
PARAMETER RANGE	1...100% of full scale	1...100% of full scale	1...100% of full scale	1...100% of full scale
TIMER	0...99:59 h	0...99:59 h	0...99:59 h	0...99:59 h
VOLT-HOURS	0...99.99 kWh	0...99.99 kWh	0...99.99 kWh	0...99.99 kWh
DISPLAY	LCD, 2x16 characters	LCD, 2x16 characters	LCD, 2x16 characters	LCD, 2x16 characters
RESOLUTION	1 V, 1 mA, 1 W	1 V, 1 mA, 1 W	1 V, 1 mA, 1 W	1 V, 1 mA, 1 W
PROGRAMS	9x9 set of parameters	9x9 set of parameters	9x9 set of parameters	9x9 set of parameters
OUTPUTS	4 in parallel, 4 mm sockets	4 in parallel, 4 mm sockets	4 in parallel, 4 mm sockets	4 in parallel, 2 mm sockets
MINIMUM LOAD RESISTANCE	15 Ω	70 Ω	600 Ω	1200 Ω
NO LOAD DETECTION	on/off, programmable	on/off, programmable	on/off, programmable	on/off, programmable
GROUND LEAKAGE DETECTION	✓	✓	✓	✓
OVERLOAD DETECTION	✓	✓	✓	✓
COMPUTER CONTROL	✓	✓	✓	✓
PASSWORD PROTECTION	✓	✓	✓	✓
DATA-LOGGING	3600 values	3600 values	3600 values	3600 values
INTERVAL	1...60 seconds	1...60 seconds	1...60 seconds	1...60 seconds
RS232 INTERFACE	9600 b/s	9600 b/s	9600 b/s	9600 b/s
AMBIENT TEMPERATURE	0...40°C	0...40°C	0...40°C	0...40°C
RELATIVE HUMIDITY	0...95%, non condensing	0...95%, non condensing	0...95%, non condensing	0...95%, non condensing
POWER REQUIREMENTS	210...250 VAC, 50/60 Hz, 360 W	210...250 VAC, 50/60 Hz, 360 W	210...250 VAC, 50/60 Hz, 360 W	210...250 VAC, 50/60 Hz, 360 W
DIMENSIONS (WxDxH)	31x26x15 cm	31x26x15 cm	31x26x15 cm	31x26x15 cm
WEIGHT	10 kg	10 kg	10 kg	10 kg

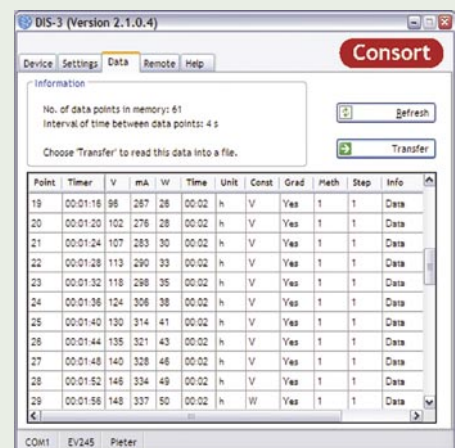
CODE	DESCRIPTION
EV231	Power supply, 300 V, 1000 mA, 150 W
EV202	Power supply, 300 V, 2000 mA, 300 W
EV245	Power supply, 400 V, 500 mA, 50 W
EV265	Power supply, 600 V, 500 mA, 150 W
EV261	Power supply, 600 V, 1000 mA, 300 W
EV215	Power supply, 1200 V, 500 mA, 300 W
EV233	Power supply, 3000 V, 300 mA, 300 W
EV262	Power supply, 6000 V, 150 mA, 300 W

➔ Supplied with a european mains cord + USB cable
 (Add a US-sign for US plug 120 VAC versions, e.g.: EV245-US)
 (Add a UK-sign for UK plug versions, e.g.: EV245-UK)
 (Add a CH-sign for Swiss plug versions, e.g.: EV245-CH)

Accessories

CODE	DESCRIPTION
E200	Pair of adaptors, 4 mm plug to 2 mm socket
E201	Pair of cables M/F, 4+4 mm
E204	Pair of adaptors, 2 mm plug to 4 mm socket
AK2315	RS232 comuter cable

Free data acquisition software for PC can be downloaded from www.consort.be



Voltage (V)	Model	Parameter range	Optimum voltage (V)	Optimum current (mA)	Maximum power (W)	Min. load resistance	Number of programs	Recommended application
6000	EV262	60...6000 V 2...150 mA 3...300 W	100...6000 V	0...150 mA	300 W	1200 Ω	9x9	DNA Sequencing Flat bed Isoelectric Focusing Long Vertical Gel
3000	EV233	30...3000 V 3...300 mA 3...300 W	50...3000 V	0...300 mA	300 W	600 Ω	9x9	DNA Sequencing Flat bed Isoelectric Focusing Horizontal Gel, Vertical Gel, Electro-elution
1200	EV215	12...1200 V 5...500 mA 3...300 W	20...1200 V	0...500 mA	300 W	70 Ω	9x9	Flat bed Isoelectric Focusing Horizontal Gel, Vertical Gel Electro-elution
600	EV261	6...600 V 10...1000 mA 3...300 W	10...600 V	0...1000 mA	300 W	15 Ω	9x9	Horizontal Gel Vertical Gel Electro-elution
600	EV265	6...600 V 5...500 mA 2...150 W	10...600 V	0...500 mA	150 W	30 Ω	9x9	Horizontal Gel Vertical Gel Electro-elution
400	EV245	4...400 V 5...500 mA 1...50 W	10...400 V	0...500 mA	50 W	30 Ω	9x9	Horizontal Gel Vertical Gel Electro-elution
300	EV202	3...300 V 20...2000 mA 3...300 W	5...300 V	0...2000 mA	300 W	5 Ω	9x9	Western Blotting Semi-dry Blotting Horizontal Gel, Vertical Gel
300	EV231	3...300 V 10...1000 mA 2...150 W	5...300 V	0...1000 mA	150 W	10 Ω	9x9	Mini Western Blotting Mini Semi-dry Blotting Horizontal Gel, Vertical Gel

E3xxx series

Horizontal units

**Injection mulded construction**

Durable, leak-proof environment for complete safety and long life.

Cassette type electrodes

Inexpensive, easy to replace. Made of 99.99% corrosion resistant, pure platinum.

Electrical safety

Lid can be located in one way only. On removal, power is disconnected from buffer chamber.

UV transparent trays

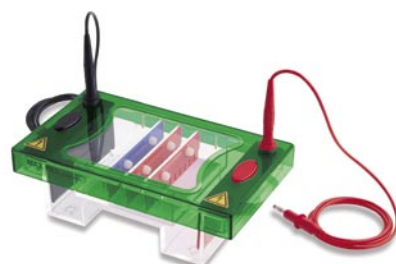
All units contain removable UV transparent trays.

Multiple gel trays

Gel size and sample number requirements can be exactly matched in each unit, with the option of additional gel tray sizes. This eliminates the need for multiple gel tanks for changes in gel size or application. With no indentations or casting gate grooves in the tray to interfere with sample progression, traditional tape casting can be used, should this be preferred.

Easy to use

Leak proof "Plug and Go" casting dams allow gels to be rapidly cast externally while the tank remains in use for electrophoresis.



E3800**Isoelectric focusing**

- This IEF system has been designed to perform all flat bed IEF techniques, including wick-based electrophoresis with horizontal and hand-cast IEF gels, and focusing with IPG strips.
- The unit includes a large cooling platform which offers increased strip capacity and active gel area.
- Uniform cooling of the platform is achieved using a large ceramic plate that may be connected to any standard chiller via quick-fit connectors for enhanced gel or strip cooling.
- An optional rehydration tray is also available for overnight rehydration of up to twelve IPG strips before use.
- Unit dimensions (WxDxH): 55x35x10 cm
- Recommended power supply: EV215



CODE	DESCRIPTION
E3800	Isoelectric focusing system, 26x26 cm
E3830	Replacement positive electrode cassette (red)
E3831	Replacement negative electrode cassette (black)
E3832	Replacement glass platform
E3833	Replacement electrode frame
E3834	Rehydration tray

E3100**Mini rapid horizontal unit**

- The mini rapid horizontal unit is a completely self contained system designed for quick checks of samples. Gel casting, running and analysis are all performed in the same ultra compact unit.
- Buffer and gel volumes have been kept to a minimum and the parallel electrode arrangement allows ultra efficient current transfer, enabling resolution to be completed within 30 minutes.
- The UV transparent base allows direct viewing on a UV Transilluminator with no need for time consuming transfer and potential gel damage.
- Dual comb slots allow the loading of up to 40 samples per gel while multichannel pipette compatible combs further enhance the speed and convenience.
- Gel dimensions (WxL): 10x8 cm
- Buffer volume: 50 ml
- Maximum sample capacity: 40
- Unit dimensions (WxDxH): 15x15x4 cm
- Recommended power supply: EV245



For routine, rapid checking of samples

CODE	DESCRIPTION
E3100	Mini rapid system, 10x8 cm + dams + 2 combs, 1.5 mm thick, 8 samples
E3120	Replacement casting dams, pk/2
E1091	Replacement platinum wire, 0.2 mm thick, 50 cm

Combs

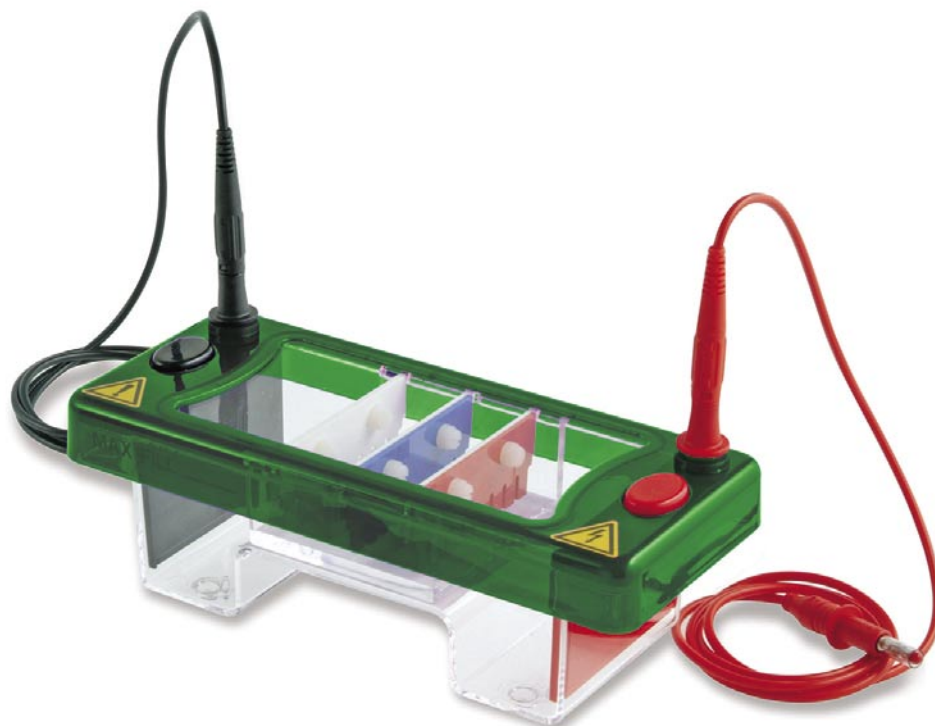
CODE	DESCRIPTION	SAMPLE VOLUME
E3140	Comb, 1 mm thick, 1 sample, 1 dye	330 µl
E3141	Comb, 1 mm thick, 4 sample	90 µl
E3142	Comb, 1 mm thick, 8 sample	40 µl
E3143	Comb, 1 mm thick, 12 sample	25 µl
E3144	Comb, 1 mm thick, 16 sample	15 µl
E3145	Comb, 1 mm thick, 20 sample MC	10 µl

MC = compatible with multi-channel pipettes

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3146	Comb, 1.5 mm thick, 1 sample, 1 dye	495 µl
E3147	Comb, 1.5 mm thick, 4 sample	135 µl
E3148	Comb, 1.5 mm thick, 8 sample	60 µl
E3149	Comb, 1.5 mm thick, 12 sample	38 µl
E3150	Comb, 1.5 mm thick, 16 sample	23 µl
E3151	Comb, 1.5 mm thick, 20 sample MC	15 µl

MC = compatible with multi-channel pipettes



- The mini horizontal unit is the smallest unit in the range, designed for low to medium numbers of samples.
- The small gel size maximises run economy but does not compromise versatility as two tray options are available, 7x7 cm and 7x10 cm, and combs ranging from preparative up to 16 samples.
- Simply by altering the gel tray or comb, this compact unit is capable of resolving up to 64 different samples, prepping 1 ml of sample or separating sample bands over a distance of 9 cm.
- Gel dimensions (WxL):
7x7 or 7x10 cm
- Buffer volume: 225 ml
- Maximum sample capacity: 64
- Unit dimensions (WxDxH):
21x9x9 cm
- Recommended power supplies:
EV245, EV231

Designed for quick checks of low to medium numbers of samples

CODE	DESCRIPTION
E3200	Complete mini horizontal system + 7x7 & 7x10 cm gel casting trays + loading guides + dams + 2 combs, 1 mm thick, 8 samples
E3201	Mini horizontal unit + 7x7 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 8 samples
E3202	Mini horizontal unit + 7x10 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 8 samples

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3240	Comb, 0.75 mm thick, prep 1, marker 1	142 µl
E3241	Comb, 0.75 mm thick, prep 2, marker 2	68 µl
E3242	Comb, 0.75 mm thick, prep 4, marker 2	36 µl
E3243	Comb, 0.75 mm thick, 8 sample MC	8 µl
E3244	Comb, 0.75 mm thick, 8 sample	19 µl
E3245	Comb, 0.75 mm thick, 10 sample	14 µl
E3246	Comb, 0.75 mm thick, 12 sample MC	10 µl
E3247	Comb, 0.75 mm thick, 16 sample	7 µl
E3248	Comb, 1 mm thick, prep 1, marker 1	203 µl
E3249	Comb, 1 mm thick, prep 2, marker 2	90 µl
E3250	Comb, 1 mm thick, prep 4, marker 4	48 µl
E3251	Comb, 1 mm thick, 8 sample MC	11 µl
E3252	Comb, 1 mm thick, 8 sample	25 µl
E3253	Comb, 1 mm thick, 10 sample	18 µl
E3254	Comb, 1 mm thick, 12 sample MC	14 µl
E3255	Comb, 1 mm thick, 16 sample	10 µl

MC = compatible with multi-channel pipettes

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3256	Comb, 1.5 mm thick, prep 1, marker 1	303 µl
E3257	Comb, 1.5 mm thick, prep 2, marker 2	135 µl
E3258	Comb, 1.5 mm thick, prep 4, marker 4	72 µl
E3259	Comb, 1.5 mm thick, 8 sample MC	17 µl
E3260	Comb, 1.5 mm thick, 8 sample	37 µl
E3261	Comb, 1.5 mm thick, 10 sample	27 µl
E3262	Comb, 1.5 mm thick, 12 sample MC	20 µl
E3263	Comb, 1.5 mm thick, 16 sample	14 µl
E3264	Comb, 2 mm thick, prep 1, marker 1	405 µl
E3265	Comb, 2 mm thick, prep 2, marker 2	180 µl
E3266	Comb, 2 mm thick, prep 4, marker 4	96 µl
E3267	Comb, 2 mm thick, 8 sample MC	23 µl
E3268	Comb, 2 mm thick, 8 sample	50 µl
E3269	Comb, 2 mm thick, 10 sample	36 µl
E3270	Comb, 2 mm thick, 12 sample MC	27 µl
E3271	Comb, 2 mm thick, 16 sample	20 µl

MC = compatible with multi-channel pipettes



Casting dams allow gels to be rapidly cast externally while the unit is in use for gel running

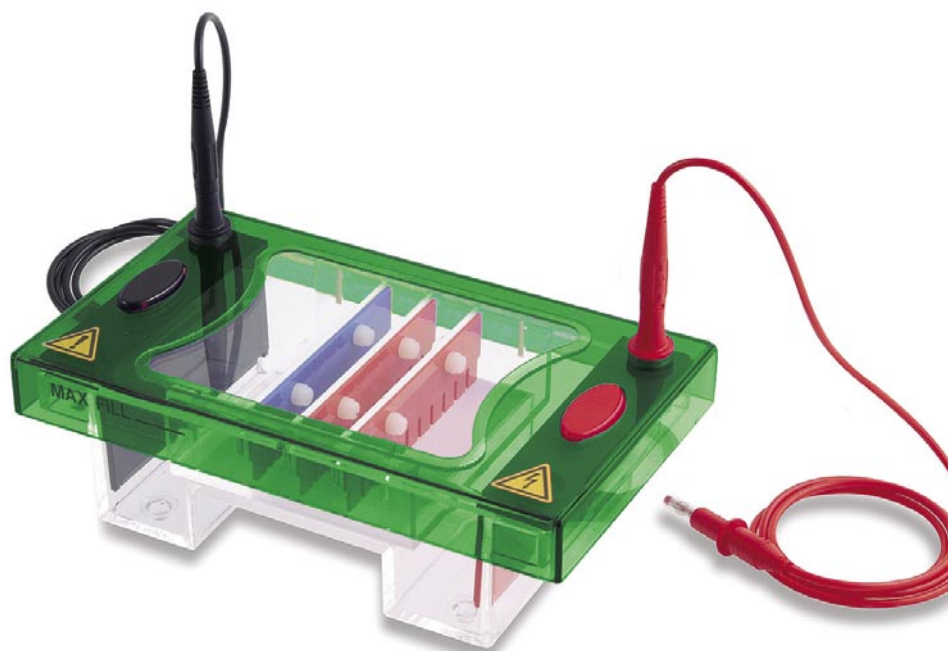
Replacement parts & Accessories

CODE	DESCRIPTION
E3220	Gel casting tray, 7x7 cm
E3221	Gel casting tray, 7x10 cm
E3229	Casting dams, pk/2
E3230	Positive electrode cassette (red)
E3231	Negative electrode cassette (black)
E3232	Adhesive loading guides
E3233	Buffer saving blocks, pk/2 (saves 100 ml of buffer)
E3234	Cool-pack and platform
E3235	Gel scoop, 7 cm

E3300

Midi horizontal unit

- With gel tray options of 10x7 cm and 10x10 cm, the midi horizontal unit has been designed for routine horizontal gel electrophoresis.
- Extending only the width of this unit allows more samples to be resolved per gel than the midi horizontal without a significant increase in buffer or gel volumes.
- A maximum of 100 samples per gel can be resolved making this unit ideal for those routinely checking medium numbers of samples over short to medium gel run lengths.
- Gel dimensions (WxL):
10x7 or 10x10 cm
- Buffer volume: 300 ml
- Maximum sample capacity: 100
- Unit dimensions (WxDxH):
22x12.5x9 cm
- Recommended power supplies:
EV245, EV231



Ideal for quick checks of samples from PCR and cloning

CODE	DESCRIPTION
E3300	Complete midi horizontal system + 10x7 & 10x10 cm gel casting trays + loading guides + dams + 2 combs, 1 mm thick, 16 samples
E3301	Midi horizontal unit + 10x7 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 16 samples
E3302	Midi horizontal unit + 10x10 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 16 samples

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3340	Comb, 0.75 mm thick, prep 1, marker 1	270 µl
E3341	Comb, 0.75 mm thick, prep 2, marker 2	118 µl
E3342	Comb, 0.75 mm thick, prep 4, marker 2	57 µl
E3343	Comb, 0.75 mm thick, 8 sample	30 µl
E3344	Comb, 0.75 mm thick, 10 sample MC	20 µl
E3345	Comb, 0.75 mm thick, 12 sample	17 µl
E3346	Comb, 0.75 mm thick, 16 sample	12 µl
E3347	Comb, 0.75 mm thick, 20 sample MC	10 µl
E3348	Comb, 0.75 mm thick, 25 sample	7 µl
E3349	Comb, 1 mm thick, prep 1, marker 1	360 µl
E3350	Comb, 1 mm thick, prep 2, marker 2	158 µl
E3351	Comb, 1 mm thick, prep 4, marker 4	77 µl
E3352	Comb, 1 mm thick, 8 sample	41 µl
E3353	Comb, 1 mm thick, 10 sample MC	27 µl
E3354	Comb, 1 mm thick, 12 sample	23 µl
E3355	Comb, 1 mm thick, 16 sample	16 µl
E3356	Comb, 1 mm thick, 20 sample MC	14 µl
E3357	Comb, 1 mm thick, 25 sample	10 µl

MC = compatible with multi-channel pipettes

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3358	Comb, 1.5 mm thick, prep 1, marker 1	540 µl
E3359	Comb, 1.5 mm thick, prep 2, marker 2	236 µl
E3360	Comb, 1.5 mm thick, prep 4, marker 4	115 µl
E3361	Comb, 1.5 mm thick, 8 sample	61 µl
E3362	Comb, 1.5 mm thick, 10 sample MC	41 µl
E3363	Comb, 1.5 mm thick, 12 sample	34 µl
E3364	Comb, 1.5 mm thick, 16 sample	24 µl
E3365	Comb, 1.5 mm thick, 20 sample MC	20 µl
E3366	Comb, 1.5 mm thick, 25 sample	15 µl
E3367	Comb, 2 mm thick, prep 1, marker 1	720 µl
E3368	Comb, 2 mm thick, prep 2, marker 2	315 µl
E3369	Comb, 2 mm thick, prep 4, marker 4	153 µl
E3370	Comb, 2 mm thick, 8 sample	81 µl
E3371	Comb, 2 mm thick, 10 sample MC	54 µl
E3372	Comb, 2 mm thick, 12 sample	45 µl
E3373	Comb, 2 mm thick, 16 sample	32 µl
E3374	Comb, 2 mm thick, 20 sample MC	27 µl
E3375	Comb, 2 mm thick, 25 sample	20 µl

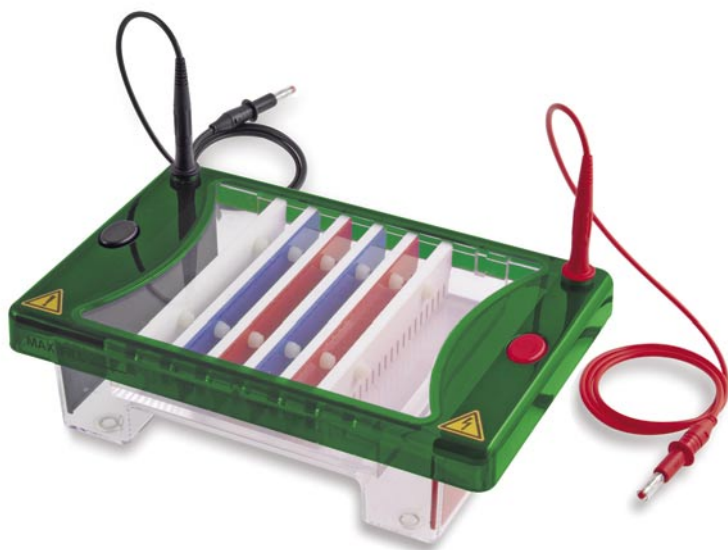
MC = compatible with multi-channel pipettes

Replacement parts & Accessories

CODE	DESCRIPTION
E3320	Gel casting tray, 10x7 cm
E3321	Gel casting tray, 10x10 cm
E3329	Casting dams, pk/2
E3330	Positive electrode cassette (red)
E3331	Negative electrode cassette (black)
E3332	Adhesive loading guides
E3333	Buffer saving blocks, pk/2 (saves 100 ml of buffer)
E3334	Cool-pack and platform
E3335	Gel scoop, 10 cm



Loading guides allow easy well identification and sample loading



Ideal for restriction fragment analysis, sample prep or checking of high numbers of samples

- The midi-plus horizontal unit offers a wide degree of versatility.
- Three tray options are available, 15x7 cm, 15x10 cm and 15x15 cm, allowing the choice of one, two or all three gel length options at the time of purchase.
- Further purchases of additional accessories are no longer required.
- Maximising comb and tray options allow up to 210 samples to be resolved per gel.
- The 15 cm total run length allows restriction fragment or other close MW sample bands to be easily separated and identified.
- Speed loading is accomplished using 10, 14, 16, 18, 28 and 30 sample multi-channel pipette compatible combs.
- Gel dimensions (WxL): 15x7, 15x10 or 15x15 cm
- Buffer volume: 500 ml
- Maximum sample capacity: 210
- Unit dimensions (WxDxH): 26.5x17.5x9 cm
- Recommended power supplies: EV245, EV231

CODE	DESCRIPTION
E3400	Complete midi-plus horizontal system + 15x7, 15x10 & 15x15 cm gel casting trays + loading guides + dams + 2 combs, 1 mm thick, 20 samples
E3401	Midi-plus horizontal unit + 15x7 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 20 samples
E3402	Midi-plus horizontal unit + 15x10 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 20 samples
E3403	Midi-plus horizontal unit + 15x15 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 20 samples

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3440	Comb, 0.75 mm thick, prep 1, marker 1	371 µl
E3441	Comb, 0.75 mm thick, prep 2, marker 2	169 µl
E3442	Comb, 0.75 mm thick, prep 4, marker 2	91 µl
E3443	Comb, 0.75 mm thick, 10 sample	34 µl
E3444	Comb, 0.75 mm thick, 12 sample	30 µl
E3445	Comb, 0.75 mm thick, 20 sample	16 µl
E3446	Comb, 0.75 mm thick, 35 sample	7 µl
E3447	Comb, 0.75 mm thick, 10 sample MC	22 µl
E3448	Comb, 0.75 mm thick, 14 sample MC	22 µl
E3449	Comb, 0.75 mm thick, 16 sample MC	20 µl
E3450	Comb, 0.75 mm thick, 18 sample MC	8 µl
E3451	Comb, 0.75 mm thick, 28 sample MC	8 µl
E3452	Comb, 0.75 mm thick, 30 sample MC	9 µl
E3453	Comb, 1 mm thick, prep 1, marker 1	495 µl
E3454	Comb, 1 mm thick, prep 2, marker 2	225 µl
E3455	Comb, 1 mm thick, prep 4, marker 4	122 µl
E3456	Comb, 1 mm thick, 10 sample	45 µl
E3457	Comb, 1 mm thick, 12 sample	41 µl
E3458	Comb, 1 mm thick, 20 sample	21 µl
E3459	Comb, 1 mm thick, 35 sample	10 µl
E3460	Comb, 1 mm thick, 10 sample MC	29 µl
E3461	Comb, 1 mm thick, 14 sample MC	29 µl
E3462	Comb, 1 mm thick, 16 sample MC	27 µl
E3463	Comb, 1 mm thick, 18 sample MC	11 µl
E3464	Comb, 1 mm thick, 28 sample MC	11 µl
E3465	Comb, 1 mm thick, 30 sample MC	13 µl

MC = compatible with multi-channel pipettes

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3466	Comb, 1.5 mm thick, prep 1, marker 1	743 µl
E3467	Comb, 1.5 mm thick, prep 2, marker 2	338 µl
E3468	Comb, 1.5 mm thick, prep 4, marker 4	182 µl
E3469	Comb, 1.5 mm thick, 10 sample	68 µl
E3470	Comb, 1.5 mm thick, 12 sample	61 µl
E3471	Comb, 1.5 mm thick, 20 sample	32 µl
E3472	Comb, 1.5 mm thick, 35 sample	15 µl
E3473	Comb, 1.5 mm thick, 10 sample MC	44 µl
E3474	Comb, 1.5 mm thick, 14 sample MC	44 µl
E3475	Comb, 1.5 mm thick, 16 sample MC	41 µl
E3476	Comb, 1.5 mm thick, 18 sample MC	17 µl
E3477	Comb, 1.5 mm thick, 28 sample MC	17 µl
E3478	Comb, 1.5 mm thick, 30 sample MC	19 µl
E3479	Comb, 2 mm thick, prep 1, marker 1	990 µl
E3480	Comb, 2 mm thick, prep 2, marker 2	450 µl
E3481	Comb, 2 mm thick, prep 4, marker 4	243 µl
E3482	Comb, 2 mm thick, 10 sample	90 µl
E3483	Comb, 2 mm thick, 12 sample	81 µl
E3484	Comb, 2 mm thick, 20 sample	43 µl
E3485	Comb, 2 mm thick, 35 sample	20 µl
E3486	Comb, 2 mm thick, 10 sample MC	59 µl
E3487	Comb, 2 mm thick, 14 sample MC	59 µl
E3488	Comb, 2 mm thick, 16 sample MC	54 µl
E3489	Comb, 2 mm thick, 18 sample MC	23 µl
E3490	Comb, 2 mm thick, 28 sample MC	23 µl
E3491	Comb, 2 mm thick, 30 sample MC	25 µl

MC = compatible with multi-channel pipettes

Replacement parts & Accessories

CODE	DESCRIPTION
E3420	Gel casting tray, 15x7 cm
E3421	Gel casting tray, 15x10 cm
E3422	Gel casting tray, 15x15 cm
E3429	Casting dams, pk/2
E3430	Positive electrode cassette (red)

Replacement parts & Accessories

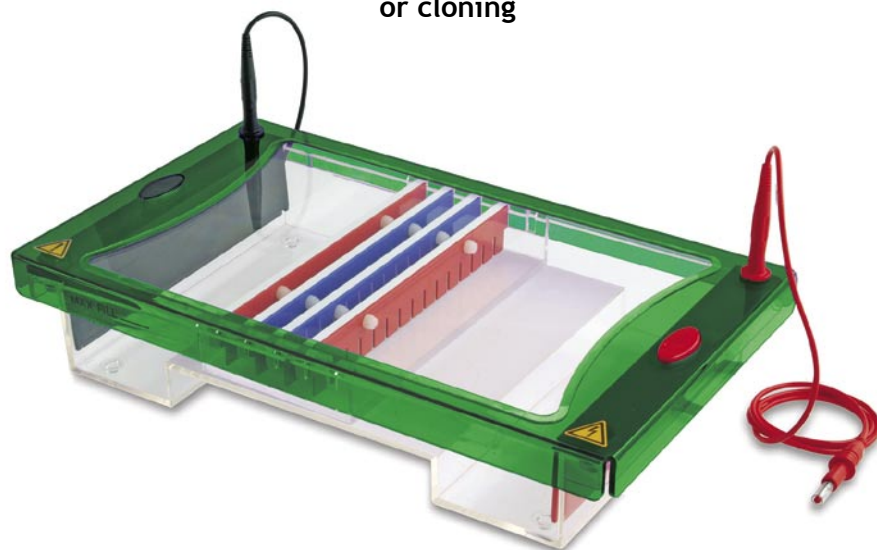
CODE	DESCRIPTION
E3431	Negative electrode cassette (black)
E3432	Adhesive loading guides
E3433	Buffer saving blocks, pk/2 (saves 190 ml of buffer)
E3434	Cool-pack and platform
E3435	Gel scoop, 15 cm

E3500

Maxi horizontal unit

- The maxi horizontal unit is primarily designed for resolution of high numbers of samples such as from cloning or PCR. It allows ultra high-resolution separations over extended runs.
- Tray sizes correspond to standard blotter sizes. It also allows easy sample transfer onto a membrane for further analysis.
- Three tray sizes are available, 20x20 cm, 20x25 cm and a half-length 20x10 cm. Multichannel pipette compatible combs up to 40 sample facilitate speed loading of up to 440 samples per gel while 50 sample combs allow maximum sample capacity of 550 samples per gel.
- Gel dimensions (WxL): 20x10, 20x20 or 20x25 cm
- Buffer volume: 1200 ml
- Maximum sample capacity: 550
- Unit dimensions (WxDxH): 39.5x23x9 cm
- Recommended power supplies: EV231, EV265

Primarily designed for separating high numbers of samples from PCR or cloning



CODE	DESCRIPTION
E3500	Complete maxi horizontal system + 20x10 & 20x20 cm gel casting trays + loading guides + dams + 2 combs, 1 mm thick, 20 samples
E3501	Maxi horizontal unit + 20x10 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 20 samples
E3502	Maxi horizontal unit + 20x20 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 20 samples
E3503	Maxi Horizontal unit + 20x25 cm gel casting tray + loading guides + dams + 2 combs, 1 mm thick, 20 samples

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3540	Comb, 0.75 mm thick, prep 1, marker 1	506 µl
E3541	Comb, 0.75 mm thick, prep 2, marker 2	236 µl
E3542	Comb, 0.75 mm thick, prep 4, marker 2	115 µl
E3543	Comb, 0.75 mm thick, 10 sample	54 µl
E3544	Comb, 0.75 mm thick, 16 sample	30 µl
E3545	Comb, 0.75 mm thick, 20 sample MC	20 µl
E3546	Comb, 0.75 mm thick, 25 sample	16 µl
E3547	Comb, 0.75 mm thick, 30 sample	13 µl
E3548	Comb, 0.75 mm thick, 36 sample	11 µl
E3549	Comb, 0.75 mm thick, 40 sample	8 µl
E3550	Comb, 0.75 mm thick, 50 sample	8 µl
E3551	Comb, 1 mm thick, prep 1, marker 1	675 µl
E3552	Comb, 1 mm thick, prep 2, marker 2	315 µl
E3553	Comb, 1 mm thick, prep 4, marker 2	153 µl
E3554	Comb, 1 mm thick, 10 sample	72 µl
E3555	Comb, 1 mm thick, 16 sample	41 µl
E3556	Comb, 1 mm thick, 20 sample MC	27 µl
E3557	Comb, 1 mm thick, 25 sample	21 µl
E3558	Comb, 1 mm thick, 30 sample	17 µl
E3559	Comb, 1 mm thick, 36 sample	14 µl
E3560	Comb, 1 mm thick, 40 sample MC	11 µl
E3561	Comb, 1 mm thick, 50 sample	10 µl

MC = compatible with multi-channel pipettes

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E3562	Comb, 1.5 mm thick, prep 1, marker 1	1013 µl
E3563	Comb, 1.5 mm thick, prep 2, marker 2	473 µl
E3564	Comb, 1.5 mm thick, prep 4, marker 2	230 µl
E3565	Comb, 1.5 mm thick, 10 sample	108 µl
E3566	Comb, 1.5 mm thick, 16 sample	61 µl
E3567	Comb, 1.5 mm thick, 20 sample MC	41 µl
E3568	Comb, 1.5 mm thick, 25 sample	32 µl
E3569	Comb, 1.5 mm thick, 30 sample	26 µl
E3570	Comb, 1.5 mm thick, 36 sample	22 µl
E3571	Comb, 1.5 mm thick, 40 sample	17 µl
E3572	Comb, 1.5 mm thick, 50 sample	16 µl
E3573	Comb, 2 mm thick, prep 1, marker 1	1350 µl
E3574	Comb, 2 mm thick, prep 2, marker 2	630 µl
E3575	Comb, 2 mm thick, prep 4, marker 2	306 µl
E3576	Comb, 2 mm thick, 10 sample	144 µl
E3577	Comb, 2 mm thick, 16 sample	81 µl
E3578	Comb, 2 mm thick, 20 sample MC	54 µl
E3579	Comb, 2 mm thick, 25 sample	42 µl
E3580	Comb, 2 mm thick, 30 sample	34 µl
E3581	Comb, 2 mm thick, 36 sample	29 µl
E3582	Comb, 2 mm thick, 40 sample MC	23 µl
E3583	Comb, 2 mm thick, 50 sample	21 µl

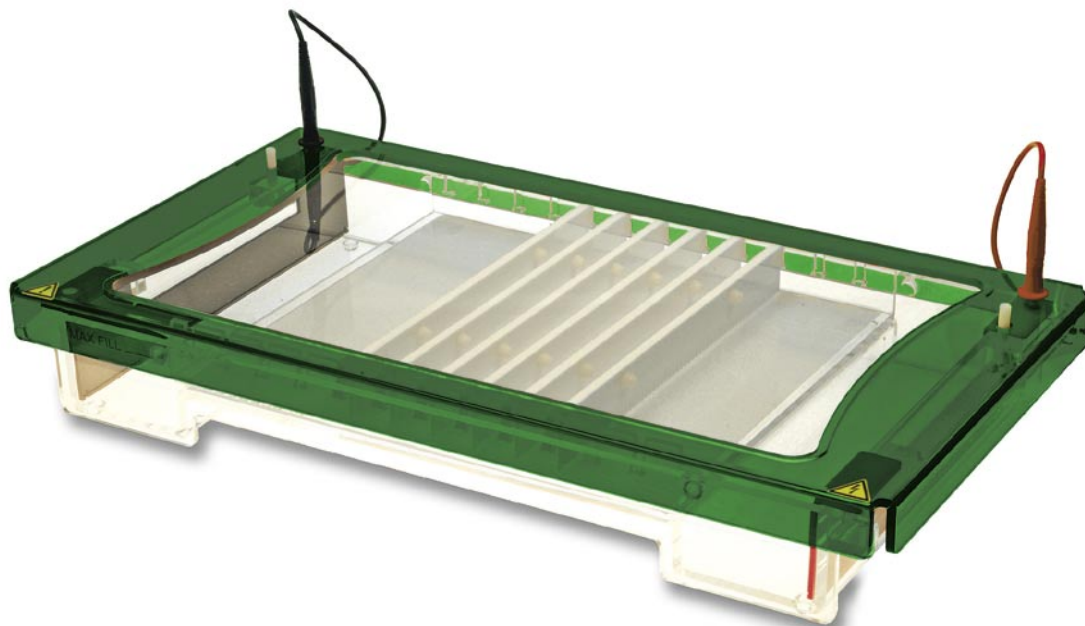
MC = compatible with multi-channel pipettes

Replacement parts & Accessories

CODE	DESCRIPTION
E3520	Gel casting tray, 20x10 cm
E3521	Gel casting tray, 20x20 cm
E3522	Gel casting tray, 20x25 cm
E3529	Casting dams, pk/2
E3530	Positive electrode cassette (red)

Replacement parts & Accessories

CODE	DESCRIPTION
E3531	Negative electrode cassette (black)
E3532	Adhesive loading guides
E3533	Buffer saving blocks, pk/2 (saves 450 ml of buffer)
E3534	Cool-pack and platform
E3535	Gel scoop, 20 cm



- Designed for rapid screening of very large numbers of clonal or PCR samples, the maxi-plus horizontal unit has a 672 maximum sample capacity per gel. This allows loading and analysis of exactly seven 96 well format micro titre plates.
- The large gel run length of 32 cm also allows resolution of samples over a long distance for separation of complex sample bands such as in restriction fragment analysis.
- The unit is available with a full length tray, with other tray length options of 16 or 24 cm or with all three gel tray lengths so that the user's exact requirements can be matched.
- Buffer recirculation ports are included as standard to allow enhanced resolution over extended runs.
- Gel dimensions (WxL): 26x16, 26x24, 26x32 cm
- Buffer volume: 1400 ml
- Maximum sample capacity: 672
- Unit dimensions (WxDxH): 50x28x9 cm
- Recommended power supplies: EV265, EV215

Ideal for checking very large numbers of samples or extended high resolution separations

CODE	DESCRIPTION
E3600	Complete maxi-plus horizontal system + 26x16, 26x24 & 26x32 cm gel casting trays + loading guides + 6 combs, 1 mm thick, 28 samples
E3601	Maxi-plus horizontal unit + 26x16 cm gel casting tray + loading guides + dams + 6 combs, 1 mm thick, 28 samples
E3602	Maxi-plus horizontal unit + 26x24 cm gel casting tray + loading guides + dams + 6 combs, 1 mm thick, 28 samples
E3603	Maxi-plus horizontal unit + 26x32 cm gel casting tray + loading guides + dams + 6 combs, 1 mm thick, 28 samples

Combs

CODE	DESCRIPTION	
E3640	Comb, 0.75 mm thick, 28 sample MC	25 µl
E3641	Comb, 0.75 mm thick, 56 sample MC	10 µl
E3642	Comb, 1 mm thick, 28 sample MC	34 µl
E3643	Comb, 1 mm thick, 56 sample MC	14 µl
E3644	Comb, 1.5 mm thick, 28 sample MC	51 µl
E3645	Comb, 1.5 mm thick, 56 sample MC	20 µl
E3646	Comb, 2 mm thick, 28 sample MC	68 µl
E3647	Comb, 2 mm thick, 56 sample MC	27 µl

MC = compatible with multi-channel pipettes

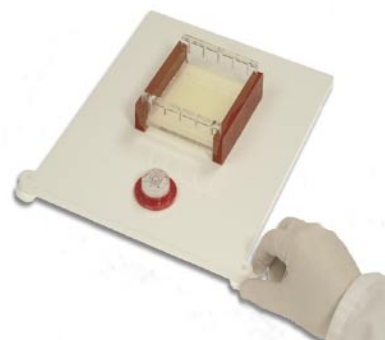
Replacement parts & Accessories

CODE	DESCRIPTION
E3620	Gel casting tray, 26x16 cm
E3621	Gel casting tray, 26x24 cm
E3622	Gel casting tray, 26x32 cm
E3629	Gel tray sealing tape, 65 m x 25.4 mm
E3630	Positive electrode cassette (red)
E3631	Negative electrode cassette (black)
E3632	Adhesive loading guides
E3633	Buffer saving blocks, pk/2 (saves 625 ml of buffer)
E3634	Cool-pack and platform
E3635	Gel scoop, 26 cm

E1020

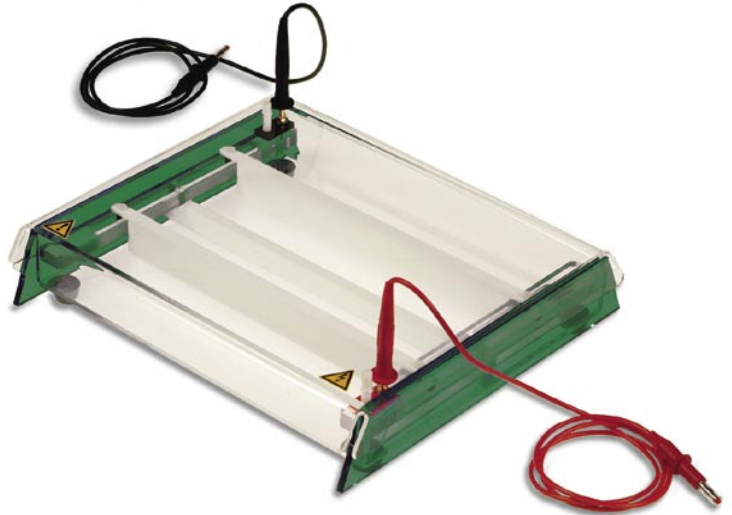
Gel levelling table

- The gel levelling table provides a useful way of pouring gels of uniform thickness.
- The table features a large 32x26 cm platform with large thumbwheel levelling feet at each corner.
- A levelling bubble is supplied.



CODE	DESCRIPTION
E1020	Gel Levelling Table

- This cellulose acetate system is the ideal tank for both standard and wet cellulose acetate electrophoresis. This unit is designed for both routine and research requirements and is built to our high quality standard.
- The unit includes an adjustable support which enables easy and fast adjustment for different lengths of cellulose acetate strip.
- Strip dimensions up to 24x20 cm.
- A new complete range of wet cellulose acetate gels is available. These have the advantage that they can be used for a wide variety of clinical electrophoresis applications including haemoglobin, serum proteins for monoclonal gammopathies, urine proteins, isoenzymes, lipo and glycoproteins. CellasGEL cellulose acetate gels are available in a variety of sizes and applications: 2.5x14 cm, 2.5x17 cm, 5.7x14 cm, 5.7x17 cm, 5x24 cm, 17x17 cm, 6x7.6 cm (Helena), 5.7x 0.2 (arched).
- Kits are available for multiple tests on serum proteins, haemoglobin, urine proteins and for immunofixation.
- Bridges are available in a variety of formats for cellulose acetate sheets.
- A universal densitometer scanner and software able to read 144 tests per minute is offered.
- Recommended power supply: EV245



Clinical electrophoresis tests: Haemoglobin, Serum Proteins for Monoclonal Gammopathies, Urine Proteins, Isoenzymes, Lipo and Glycoproteins and for Immunofixation

CODE	DESCRIPTION
E3700	Horizontal unit for cellulose acetate electrophoresis (without accessories!)
E3701	Scan software (computer and flatbed scanner not included!)
E3702	Flatbed scanner

Accessories

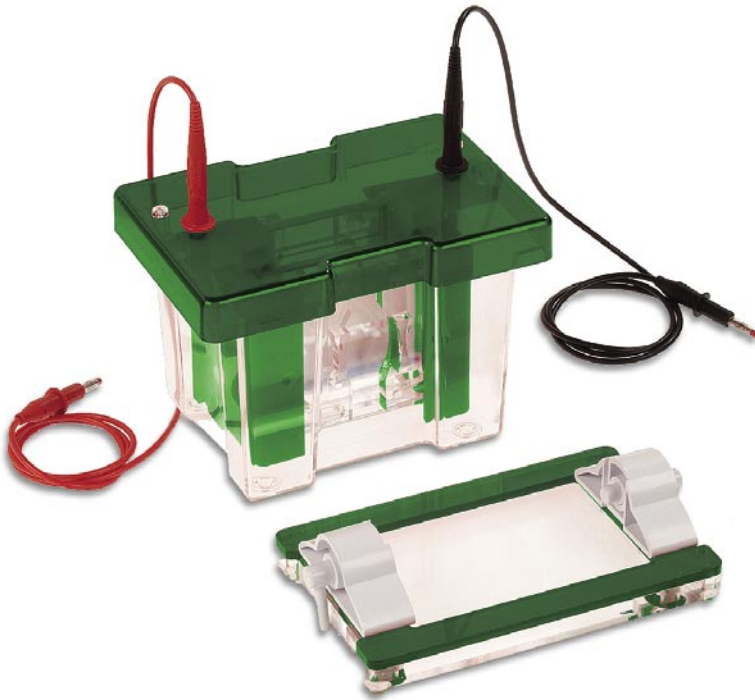
CODE	DESCRIPTION
E3720	CellasGEL, 2.5x14, 250 micron
E3721	CellasGEL, 2.5x14, 200 micron
E3722	CellasGEL, 2.5x17, 200 micron
E3723	CellasGEL, 5.7x14, 250 micron
E3724	CellasGEL, 5.7x14, 200 micron
E3725	CellasGEL, 5.7x14, 250 micron, Pratiga perforate
E3726	CellasGEL, 5.7x14, 200 micron, Pratiga perforate
E3727	CellasGEL, 5x24, RS 190 micron, Rectangular H.R.
E3728	CellasGEL, 17x17, 200 micron
E3729	CellasGEL/Myl, 6x7.6 (Helena size)
E3730	CellasGEL/Myl, 5.7x10.2, for arched position electrophoresis
E3737	CellasKIT IFE Serum + Concentrated urine (5+5 tests for 5 patients) on CellasGEL
E3738	CellasKIT Immunifixation (24 semimicro or 32 micro tests) on CellasGEL
E3739	CellasKIT serum proteins (100 semimicro or 200 micro tests) on CellasGEL
E3740	CellasKIT high resolution of serum proteins (150 semimicro or 200 micro tests) on CellasGEL
E3741	CellasKIT hemoglobins (100 semimicro tests) on CellasGEL
E3742	CellasKIT IFE 1 patient (10 semimicro tests) 10.2x12 cm for CellasClear
E3743	CellasKIT serum proteins (480 micro tests) on CellasClear
E3744	Bridge 8.5 cm for CellasGEL sheets 18.3x14 cm
E3745	Bridge 11 cm for CellasGEL sheets 17x17 cm
E3746	Bridge 8.5 cm (standard size for CellasGEL kits) for CellasGEL strips 5.7x14 or 2.5x14 cm
E3747	Bridge 14 cm for CellasGEL RS Wedge 5x18.5 cm
E3748	Bridge 11 cm for CellasGEL strips 5.7x17 cm
E3749	Bridge for in arched position electrophoresis
E3750	Bridge for horizontal position electrophoresis Helena type



A variety of rapid sample applicators is available for a selection of applications:

- Two specimen applicator for semi micro samples on strips 2.5 cm wide.
- Two specimen applicator for semi micro samples on strips 2.5 cm wide.
- Four specimen applicator for semi micro samples on strips 5.7 cm wide.
- TwoFour specimen applicator for Haemoglobin samples on strips 5.7 cm wide.
- Six specimen applicator for samples on strips 5.7 cm wide.

CODE	DESCRIPTION
E3731	Applicator semimicro 2+2 for CellasGEL 2.5x14 cm + CellasKIT IFE Serum + Concentrated urine (5+5 tests for 5 patients) on CellasGEL
E3732	Applicator semimicro 4 for 1.2 µl/9 mm - First type
E3733	Applicator micro 8 for CellasGEL
E3734	Applicator micro 8 for CellasGEL/Myl
E3735	Applicator semimicro 18 for CellasGEL sheets 18.3x14 & x17 cm
E3736	Applicator semimicro 18 for CellasGEL/Myl sheets 19.85x7.6 cm



- The preferred unit for routine mini protein electrophoresis, the mini vertical unit is constructed using the latest injection moulding manufacturing techniques. This gives a high quality, low cost product with unsurpassed finish, durability and strength.
- The unit incorporates a sealing system which is compatible with all major types of 8x10 cm and 10x10 cm precast gel. Runs up to four 1 mm thick gels.
- Gel casting and running utilise the same insert, no transfer of glass plates during gel casting is necessary.
- The insert contains the option of sliding clamps or just one screw per clamping bar side allowing very rapid set up of both hand cast and precast gels.
- Ultra soft silicone seals and pressure bars which surround the glass plates guarantee leak proof gel casting.
- 2 mm thick glass plates prevent breakage and have bonded spacers for convenience. Reversible gasket for use with Bio-Rad 'non-eared' or short glass plates.
- Accessory electroblotting and tube gel modules are available which use the same outer tank and lid.
- Plate dimensions (WxL): 10x10 cm
- Gel dimensions (WxL): 7.5x8 cm
- Buffer volume: 250...1200 ml
- Maximum sample capacity: 80 (20 per gel)
- Unit dimensions (WxDxH): 19x13x15 cm
- Recommended power supplies: EV245, EV231

Mini SDS PAGE, Native PAGE, Gradient, Second dimension and Nucleic acid separations

CODE	DESCRIPTION
E4100	Mini vertical unit + 2 sets of glass plates with bonded 1 mm thick spacers + 2 combs, 1 mm thick, 12 samples + cooling pack + dummy plate + casting base

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E4140	Comb, 0.75 mm thick, prep 1, marker 1	500 µl
E4141	Comb, 0.75 mm thick, 5 sample	70 µl
E4142	Comb, 0.75 mm thick, 8 sample MC	40 µl
E4143	Comb, 0.75 mm thick, 9 sample	35 µl
E4144	Comb, 0.75 mm thick, 10 sample	30 µl
E4145	Comb, 0.75 mm thick, 12 sample	25 µl
E4146	Comb, 0.75 mm thick, 16 sample MC	20 µl
E4147	Comb, 0.75 mm thick, 20 sample	15 µl
E4148	Comb, 1 mm thick, prep 1, marker 1	650 µl
E4149	Comb, 1 mm thick, 5 sample	100 µl
E4150	Comb, 1 mm thick, 8 sample MC	60 µl
E4151	Comb, 1 mm thick, 9 sample	50 µl
E4152	Comb, 1 mm thick, 10 sample	40 µl
E4153	Comb, 1 mm thick, 12 sample	35 µl
E4154	Comb, 1 mm thick, 16 sample MC	25 µl
E4155	Comb, 1 mm thick, 20 sample	20 µl

MC = compatible with multi-channel pipettes

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E4156	Comb, 1.5 mm thick, prep 1, marker 1	1000 µl
E4157	Comb, 1.5 mm thick, 5 sample	140 µl
E4158	Comb, 1.5 mm thick, 8 sample MC	80 µl
E4159	Comb, 1.5 mm thick, 9 sample	70 µl
E4160	Comb, 1.5 mm thick, 10 sample	60 µl
E4161	Comb, 1.5 mm thick, 12 sample	50 µl
E4162	Comb, 1.5 mm thick, 16 sample MC	40 µl
E4163	Comb, 1.5 mm thick, 20 sample	30 µl
E4164	Comb, 2 mm thick, prep 1, marker 1	1300 µl
E4165	Comb, 2 mm thick, 5 sample	200 µl
E4166	Comb, 2 mm thick, 8 sample MC	120 µl
E4167	Comb, 2 mm thick, 9 sample	100 µl
E4168	Comb, 2 mm thick, 10 sample	80 µl
E4169	Comb, 2 mm thick, 12 sample	70 µl
E4170	Comb, 2 mm thick, 16 sample MC	50 µl
E4171	Comb, 2 mm thick, 20 sample	40 µl

MC = compatible with multi-channel pipettes

Replacement parts & Accessories

CODE	DESCRIPTION
E4120	Gel casting base, 10 cm
E4121	Replacement silicone mat for gel casting base, 10 cm
E4122	Inner running module
E4123	Mini cooling pack
E4124	Notched glass plates, 10x10 cm, 2 mm thick, pk/2
E4125	Plain glass plates, 10x10 cm, 2 mm thick, pk/2
E4126	Plain glass plates, 10x10 cm, + 0.75 mm bonded spacers, pk/2
E4127	Plain glass plates, 10x10 cm, + 1 mm bonded spacers, pk/2
E4128	Plain glass plates, 10x10 cm, + 1.5 mm bonded spacers, pk/2
E4129	Plain glass plates, 10x10 cm, + 2 mm bonded spacers, pk/2

Replacement parts & Accessories

CODE	DESCRIPTION
E4130	Dummy plate, 10x10 cm
E4131	Spacers, 0.75 mm thick, 10 cm, pk/2
E4132	Spacers, 1 mm thick, 10 cm, pk/2
E4133	Spacers, 1.5 mm thick, 10 cm, pk/2
E4134	Spacers, 2 mm thick, 10 cm, pk/2
E4191	Gel caster for 6 gels, 8x10 cm or 10x10 cm
E4192	Gel caster for 12 gels, 8x10 cm or 10x10 cm
E4193	Gel caster for 24 gels, 8x10 cm or 10x10 cm
E1091	Replacement platinum wire, 0.2 mm thick, 50 cm

E4200

Mini-wide vertical unit

- The mini-wide vertical unit with a gel width of 20 cm effectively allows double the number of samples to be resolved as the mini unit. This allows consistency of sample comparison on a single gel and is designed for those with greater than 20 samples to compare and resolve.
- Simple set up using ultra soft silicone seals guarantees trouble free glass plate loading and gel casting.
- Dual gaskets on the gel running insert along with notched and plain glass plates ensure leak proof gel running.
- Rapid set up cooling retains resolution in extended separations and also saves on buffer volume without affecting run quality.
- Ultra soft silicone seals and pressure bars which surround the glass plates guarantee leak proof gel casting.
- 4 mm thick glass plates prevent breakage and have bonded spacers for convenience.
- A wide range of accessories is available allowing many techniques, such as capillary gel IEF and electroblotting, to be performed using the same unit.
- Plate dimensions (WxL): 20x10 cm
- Gel dimensions (WxL): 18x8 cm
- Buffer volume: 600...2800 ml
- Maximum sample capacity: 192 (48 per gel)
- Unit dimensions (WxDxH): 26x16x16 cm
- Recommended power supplies: EV231, EV265



Mini SDS PAGE, Native PAGE, Gradient, Second dimension and Nucleic acid separations

CODE	DESCRIPTION
E4200	Mini-wide vertical unit + 2 sets of glass plates with bonded 1 mm thick spacers + 2 combs, 1 mm thick, 24 samples + cooling pack + dummy plate + casting base

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E4340	Comb, 0.75 mm thick, prep 1, marker 1	1100 µl
E4341	Comb, 0.75 mm thick, 5 sample	160 µl
E4342	Comb, 0.75 mm thick, 10 sample	80 µl
E4343	Comb, 0.75 mm thick, 18 sample MC	40 µl
E4344	Comb, 0.75 mm thick, 24 sample	30 µl
E4345	Comb, 0.75 mm thick, 30 sample	25 µl
E4346	Comb, 0.75 mm thick, 36 sample MC	20 µl
E4347	Comb, 0.75 mm thick, 48 sample	15 µl
E4348	Comb, 1 mm thick, prep 1, marker 1	1500 µl
E4349	Comb, 1 mm thick, 5 sample	200 µl
E4350	Comb, 1 mm thick, 10 sample	100 µl
E4351	Comb, 1 mm thick, 18 sample MC	50 µl
E4352	Comb, 1 mm thick, 24 sample	40 µl
E4353	Comb, 1 mm thick, 30 sample	35 µl
E4354	Comb, 1 mm thick, 36 sample MC	25 µl
E4355	Comb, 1 mm thick, 48 sample	20 µl

MC = compatible with multi-channel pipettes

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E4356	Comb, 1.5 mm thick, prep 1, marker 1	2200 µl
E4357	Comb, 1.5 mm thick, 5 sample	320 µl
E4358	Comb, 1.5 mm thick, 10 sample	160 µl
E4359	Comb, 1.5 mm thick, 18 sample MC	80 µl
E4360	Comb, 1.5 mm thick, 24 sample	60 µl
E4361	Comb, 1.5 mm thick, 30 sample	50 µl
E4362	Comb, 1.5 mm thick, 36 sample MC	40 µl
E4363	Comb, 1.5 mm thick, 48 sample	30 µl
E4364	Comb, 2 mm thick, prep 1, marker 1	3000 µl
E4365	Comb, 2 mm thick, 5 sample	400 µl
E4366	Comb, 2 mm thick, 10 sample	200 µl
E4367	Comb, 2 mm thick, 18 sample MC	100 µl
E4368	Comb, 2 mm thick, 24 sample	80 µl
E4369	Comb, 2 mm thick, 30 sample	70 µl
E4370	Comb, 2 mm thick, 36 sample MC	50 µl
E4371	Comb, 2 mm thick, 48 sample	40 µl

MC = compatible with multi-channel pipettes

Replacement parts & Accessories

CODE	DESCRIPTION
E4320	Gel casting base, 20 cm
E4321	Replacement silicone mat for gel casting base, 20 cm
E4222	Inner running module
E4323	Maxi cooling pack
E4224	Notched glass plates, 20x10 cm, 4 mm thick, pk/2
E4225	Plain glass plates, 20x10 cm, 4 mm thick, pk/2
E4226	Plain glass plates, 20x10 cm, + 0.75 mm bonded spacers, pk/2
E4227	Plain glass plates, 20x10 cm, + 1 mm bonded spacers, pk/2

Replacement parts & Accessories

CODE	DESCRIPTION
E4228	Plain glass plates, 20x10 cm, + 1.5 mm bonded spacers, pk/2
E4229	Plain glass plates, 20x10 cm, + 2 mm bonded spacers, pk/2
E4230	Dummy plate, 20x10 cm
E4131	Spacers, 0.75 mm thick, 10 cm, pk/2
E4132	Spacers, 1 mm thick, 10 cm, pk/2
E4133	Spacers, 1.5 mm thick, 10 cm, pk/2
E4134	Spacers, 2 mm thick, 10 cm, pk/2
E1091	Replacement platinum wire, 0.2 mm thick, 50 cm



- The new E4300 Maxi System is our latest product innovation for large-format vertical gel electrophoresis. Designed to perform a variety of separations, including first- and second-dimension SDS-PAGE, native, preparative, gradient and high-resolution nucleic acid electrophoresis, plus capillary tube gel IEF and electroblotting, the E4300 is one of the most versatile maxi vertical systems available.
- By introducing innovative, new vertical leak-free casting with vertical screw-pin technology only four screws are now necessary to secure as many 20x20 cm gels.
- Glass plates compress gently against a flat, level gasket to prevent current leakage from the inner buffer chamber during electrophoresis.
- Detachable inner cooling coil connects to the laboratory water supply or a recirculating chiller to provide uniform, smile-free electrophoresis, while allowing runs to be performed at higher voltage.
- 4 mm thick glass plates reduce breakage and have bonded spacers for added convenience.
- A wide range of accessories is available allowing many techniques to be performed using the same unit.
- Prep combs can be used to maximize sample loading and recovery.
- Accessory electroblotting and tube gel modules are available which use the same outer tank and lid.
- Plate dimensions (WxL): 20x20 cm
- Gel dimensions (WxL): 16x17.5 cm
- Buffer volume: 1200...5600 ml
- Maximum sample capacity: 192 (48 per gel)
- Unit dimensions (WxDxH): 30x18x27 cm
- Recommended power supplies: EV265, EV215, EV202

CODE	DESCRIPTION
E4300	Maxi vertical unit + 2 sets of glass plates with bonded 1 mm thick spacers + 2 combs, 1 mm thick, 24 samples + cooling coil + dummy plate + casting base

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E4340	Comb, 0.75 mm thick, prep 1, marker 1	1100 µl
E4341	Comb, 0.75 mm thick, 5 sample	160 µl
E4342	Comb, 0.75 mm thick, 10 sample	80 µl
E4343	Comb, 0.75 mm thick, 18 sample MC	40 µl
E4344	Comb, 0.75 mm thick, 24 sample	30 µl
E4345	Comb, 0.75 mm thick, 30 sample	25 µl
E4346	Comb, 0.75 mm thick, 36 sample MC	20 µl
E4347	Comb, 0.75 mm thick, 48 sample	15 µl
E4348	Comb, 1 mm thick, prep 1, marker 1	1500 µl
E4349	Comb, 1 mm thick, 5 sample	200 µl
E4350	Comb, 1 mm thick, 10 sample	100 µl
E4351	Comb, 1 mm thick, 18 sample MC	50 µl
E4352	Comb, 1 mm thick, 24 sample	40 µl
E4353	Comb, 1 mm thick, 30 sample	35 µl
E4354	Comb, 1 mm thick, 36 sample MC	25 µl

MC = compatible with multi-channel pipettes

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E4356	Comb, 1.5 mm thick, prep 1, marker 1	2200 µl
E4357	Comb, 1.5 mm thick, 5 sample	320 µl
E4358	Comb, 1.5 mm thick, 10 sample	160 µl
E4359	Comb, 1.5 mm thick, 18 sample MC	80 µl
E4360	Comb, 1.5 mm thick, 24 sample	60 µl
E4361	Comb, 1.5 mm thick, 30 sample	50 µl
E4362	Comb, 1.5 mm thick, 36 sample MC	40 µl
E4363	Comb, 1.5 mm thick, 48 sample	30 µl
E4364	Comb, 2 mm thick, prep 1, marker 1	3000 µl
E4365	Comb, 2 mm thick, 5 sample	400 µl
E4366	Comb, 2 mm thick, 10 sample	200 µl
E4367	Comb, 2 mm thick, 18 sample MC	100 µl
E4368	Comb, 2 mm thick, 24 sample	80 µl
E4369	Comb, 2 mm thick, 30 sample	70 µl
E4370	Comb, 2 mm thick, 36 sample MC	50 µl
E4371	Comb, 2 mm thick, 48 sample	40 µl

MC = compatible with multi-channel pipettes

Replacement parts & Accessories

CODE	DESCRIPTION
E4320	Gel casting base, 20 cm
E4321	Replacement silicone mat for gel casting base, 20 cm
E4322	Inner running module
E4323	Maxi cooling pack
E4324	Notched glass plates, 20x20 cm, 4 mm thick, pk/2
E4325	Plain glass plates, 20x20 cm, 4 mm thick, pk/2
E4326	Plain glass plates, 20x20 cm, + 0.75 mm bonded spacers, pk/2
E4327	Plain glass plates, 20x20 cm, + 1 mm bonded spacers, pk/2

Replacement parts & Accessories

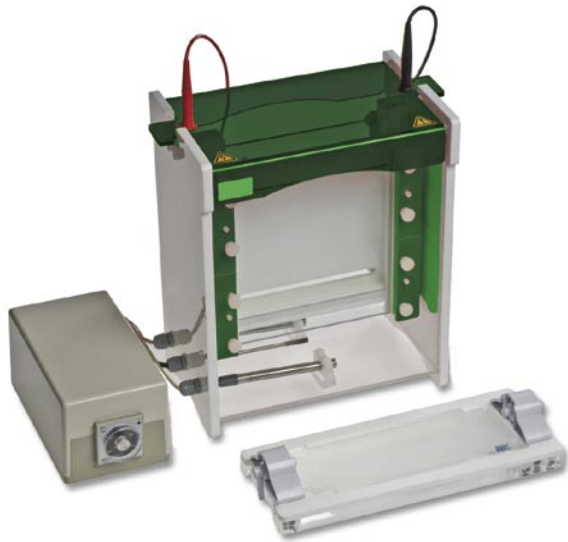
CODE	DESCRIPTION
E4328	Plain glass plates, 20x20 cm, + 1.5 mm bonded spacers, pk/2
E4329	Plain glass plates, 20x20 cm, + 2 mm bonded spacers, pk/2
E4330	Dummy plate, 20x20 cm
E4331	Spacers, 0.75 mm thick, 20 cm, pk/2
E4332	Spacers, 1 mm thick, 20 cm, pk/2
E4333	Spacers, 1.5 mm thick, 20 cm, pk/2
E4334	Spacers, 2 mm thick, 20 cm, pk/2
E1091	Replacement platinum wire, 0.2 mm thick, 50 cm

E4400

Gradient system

E4500

Sequencing unit



- The E4400 denaturing gradient gel electrophoresis unit can run two 20x20 cm polyacrylamide gels for the detection of single base changes and polymorphisms in cloned or amplified DNA fragments.
- Use with 100 ml gradient mixer to make two 1 mm parallel denaturing gradient gels.
- Compatible with microplates and thermal cycler blocks.
- It is ideal for the study of mutations and DNA polymorphisms critical in disease.
- This system is primarily for parallel denaturing gradient electrophoresis. The full range of "DGGE" analysis can be performed in this unit.
- During Denaturing Gradient Gel Electrophoresis (DGGE) the buffer in the unit is heated using a 400-watt heater and the temperature controlled by an external temperature control connected to an internal sensor. This allows the gel temperature to be set to the melting temperature of the amplified DNA polymorphism mutation of interest. The temperature can be adjusted in 1°C increments up to 70°C, so the full range of DGGE analysis can be performed in this unit.
- The unit contains all the features of the successful E4300 maxi vertical unit and uses the same combs and accessories.
- Plate dimensions (WxL): 20x20 cm
- Gel dimensions (WxL): 16x17.5 cm
- Buffer volume: 1200...5600 ml
- Maximum sample capacity: 192 (48 per gel)
- Unit dimensions (WxDxH): 26x16x28 cm

Detection of single base changes and polymorphisms in genomic cloned and amplified DNA fragments

CODE	DESCRIPTION
E4400	Denaturing gradient unit + 2 sets of glass plates with bonded 1 mm thick spacers + 2 combs, 1 mm thick, 24 samples + temperature controller + 100 ml gradient mixer

- Ideal for a variety of large format vertical gel applications, this unit offers advanced features for enhancing gel resolution and ease of use, essential when handling gels of this size.
- Resolution is enhanced by using an aluminium heat sink plate, essential for even sample migration.
- Added convenience is provided by a removable lower buffer tank and upper buffer drainage tap.
- Special buffer chambers allow either low buffer volumes to be used for economy or high buffer volumes to be used for extended runs.
- A wide range of interchangeable comb and spacer options allows a large number of techniques to be easily accomplished.
- Plate dimensions (WxL): 33x45 cm
- Buffer volume: 800...2000 ml
- Maximum sample capacity: 96
- Recommended power supply: EV233

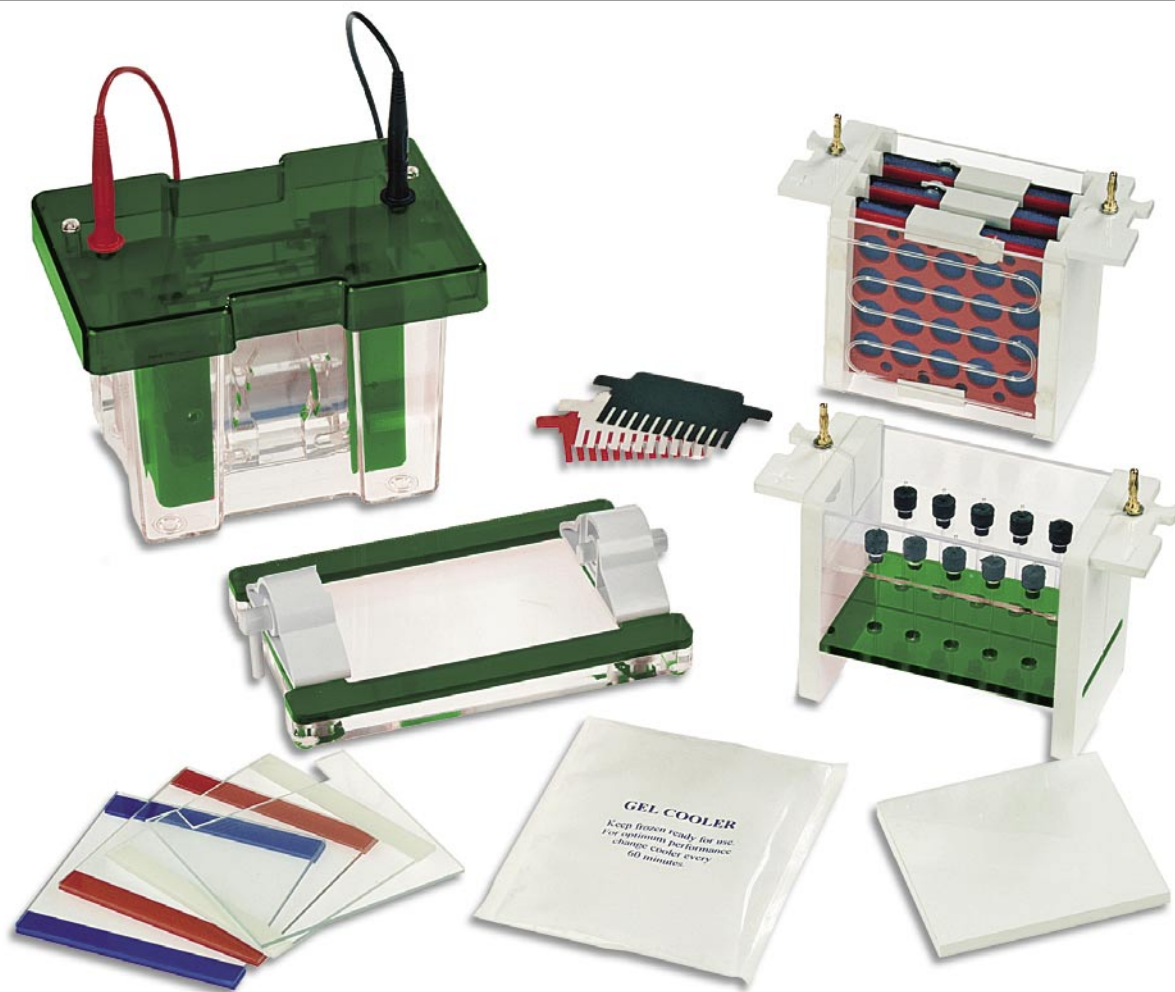
CODE	DESCRIPTION
E4500	Sequencing unit + glass plates + 0.35 mm thick spacers + 2 combs, 0.35 mm thick, 48 samples

Combs

CODE	DESCRIPTION	SAMPLE VOLUME
E4540	Comb, 0.25 mm thick, 48 sample	7 µl
E4541	Comb, 0.25 mm thick, 96 sample	3 µl
E4542	Comb, 0.35 mm thick, 48 sample	9 µl
E4543	Comb, 0.35 mm thick, 96 sample	5 µl
E4544	Comb, 1 mm thick, 48 sample	35 µl
E4545	Comb, 1 mm thick, 80 sample	20 µl
E4546	Comb, 1.5 mm thick, 48 sample	50 µl
E4547	Comb, 1.5 mm thick, 80 sample	30 µl

Replacement parts & Accessories

CODE	DESCRIPTION
E4520	Notched glass plates, 33x45 cm, pk/2
E4521	Plain glass plates, 33x45 cm, pk/2
E4522	Spacers, 0.25 mm thick, 45 cm, pk/2
E4523	Spacers, 0.35 mm thick, 45 cm, pk/2
E4524	Spacers, 1 mm thick, 45 cm, pk/2
E4525	Spacers, 1.5 mm thick, 45 cm, pk/2
E4526	Fan heater sensor kit



- These systems include all modules and accessories required for slab gel electrophoresis, 2-D electrophoresis and electroblotting.
- The central component is the mini vertical unit, mini-wide vertical unit or maxi vertical unit. These include a rapid and intuitive casting system, enhanced and easy to set up cooling system and have increased capacity (can run up to four gels per run).
- In addition, the tube gel module is capable of resolving up to 10 first dimension gels and the electroblotting module has a four blot (mini) or three blot (mini-wide and maxi) capacity.
- Each of these techniques benefits from rapid set up cooling packs which provide enhanced resolution even during high intensity 2-D electrophoresis and electroblotting.
- All replacement parts and accessories of the corresponding vertical units can also be used for these systems.
- Recommended power supply: EV202

CODE	DESCRIPTION
E4101	Modular system: E4100 + capillary module + electroblotting module + 2 sets of glass plates with bonded 1 mm thick spacers + 2 combs, 1 mm thick, 12 samples + cooling pack + dummy plate + casting base + 100 capillary tubes (1 mm int. diameter) + blanking plugs + 4 compression cassettes 10x10 cm + 8 fibre pads
E4201	Modular system: E4200 + capillary module + electroblotting module + 2 sets of glass plates with bonded 1 mm thick spacers + 2 combs, 1 mm thick, 24 samples + cooling pack + dummy plate + casting base + 100 capillary tubes (1 mm int. diameter) + blanking plugs + 3 compression cassettes 20x10 cm + 6 fibre pads
E4301	Modular system: E4300 + capillary module + electroblotting module + 2 sets of glass plates with bonded 1 mm thick spacers + 2 combs, 1 mm thick, 24 samples + cooling coil + dummy plate + casting base + 100 capillary tubes (1 mm int. diameter) + blanking plugs + 3 compression cassettes 20x20 cm + 6 fibre pads

Replacement parts & Accessories

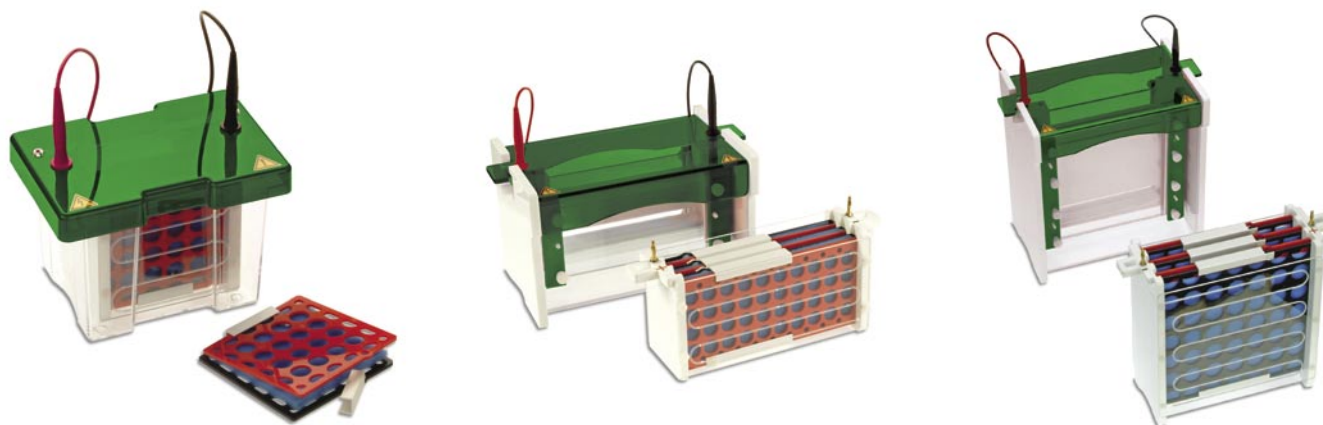
CODE	DESCRIPTION
E1010	Mini capillary tubes, 1 mm internal diameter, 8 mm, pk/100
E1011	Mini capillary tubes, 1.5 mm internal diameter, 8 mm, pk/100
E1012	Capillary blanking ports pk/10
E1013	Maxi capillary tubes, 1 mm internal diameter, 17 mm, pk/100
E5120	Mini blot insert + 4 cassettes 10x10 cm + 8 fibre pads
E5121	Mini blot cassette, 10x10 cm
E5122	Mini fibre pads, 10x10 cm, pk/6
E5123	Mini tube gel insert + 100 capillary tubes (1 mm int. diameter)

Replacement parts & Accessories

CODE	DESCRIPTION
E5220	Mini-wide blot insert + 3 cassettes 20x10 cm + 6 fibre pads
E5221	Mini-wide blot cassette, 20x10 cm
E5222	Mini-wide fibre pads, 20x10 cm, pk/6
E5223	Mini-wide tube gel insert + 100 capillary tubes
E5320	Maxi blot insert + 3 cassettes 20x20 cm + 6 fibre pads
E5321	Maxi blot cassette, 20x20 cm
E5322	Maxi fibre pads, 20x20 cm, pk/6
E5323	Maxi tube gel insert + 100 capillary tubes (1 mm int. diameter)

E5xxx series

Mini, Mini-wide and Maxi complete modular systems



- These stand-alone, complete units for electroblotting, mini, mini-wide and maxi formats, include vertical tank and lid, electroblotting insert, cassettes and fibre pads.
- Units are interchangeable with the vertical slab and tube gel inserts.
- Hinged rigid cassettes allow rapid set up and convenience and ensure even contact between the gel and membrane is maintained.
- Recommended power supply: EV202

CODE	DESCRIPTION
E5100	Mini blotter: tank & lid + 4 cassettes 10x10 cm + 8 fibre pads + cooling pack
E5200	Mini-wide Blotter: tank & lid + 3 cassettes 20x10 cm + 6 fibre pads + cooling pack
E5300	Maxi blotter: tank & lid + 3 cassettes 20x20 cm + 6 fibre pads + cooling pack

Replacement parts & Accessories

CODE	DESCRIPTION
E5120	Mini blot insert + 4 cassettes 10x10 cm + 8 fibre pads
E5121	Mini blot cassette, 10x10 cm
E5122	Mini fibre pads, 10x10 cm, pk/6
E5220	Mini-wide blot insert + 3 cassettes 20x10 cm + 6 fibre pads
E5221	Mini-wide blot cassette, 20x10 cm
E5222	Mini-wide fibre pads, 20x10 cm, pk/6
E5320	Maxi blot insert + 3 cassettes 20x20 cm + 6 fibre pads
E5321	Maxi blot cassette, 20x20 cm
E5322	Maxi fibre pads, 20x20 cm, pk/6

E5x00 series

Semi-dry blotters



- These semi-dry blotters offer rapid transfer times for DNA, RNA and protein blotting (typically 15 to 30 minutes). All units can be used for all types of blotting and are compatible with gel thicknesses from 0.25 up to 10 mm without the need for additional equipment. Each unit is compatible with their respective vertical gel system.
- Semi-dry blotting has the added benefit of economic transfers due to very low buffer volumes.
- These semi-dry blotters utilise a screw down lid, which secures the blot sandwich and allows complete control of pressure ensuring even transfer.
- The electrodes, comprising platinum coated anode and stainless steel cathode, will exhibit practically no corrosion and so provide many years of trouble free use.
- Uniform heat dispersion across the blot sandwich ensures stable transfer times and no heat induced sample loss or transfer distortions.
- Electrode plates are fully separated to prevent arcing or damage.
- Recommended power supply: EV202

CODE	DESCRIPTION	BUFFER VOLUME	MAX. SAMPLE CAPACITY	EXTERNAL DIMENSIONS
E5400	Semi-dry blotter, mini, 10x10 cm	5 ml	1 blot, 10x10 cm	16x16x7 cm
E5500	Semi-dry blotter, midi, 20x20 cm	20 ml	1 blot, 20x20 cm or 4 blots, 10x10 cm	26x26x7 cm

E6xxx series

Gel dryers

- With a drying area of 21x31 cm, the Midi gel dryer can dry six 10x10cm gels or a single larger gel.
- The maxi gel dryer with a 35x45 cm drying area can dry twelve 10x10 cm mini gels simultaneously.
- The unit's microprocessor controls temperature and time, each parameter being displayed on its own LED display.
- The gels are heated from the base plate while the vacuum removes the moisture from below to dry the gel homogeneously.
- Features optimal sealing using a silicone rubber cover and supporting mask.
- When applying the vacuum, a groove that frames the drying surface provides an optimal tight seal during the drying.
- Unit dimensions: 30x26x8 cm (Midi) or 44x50x8 cm (Maxi)
- Drying area: 21x31 cm (Midi) or 35x45 cm (Maxi)
- Temperature increment: 0.1 °C
- Temperature uniformity: 0.2 °C
- Timer: 1...999 minutes

CODE	DESCRIPTION
E6200	Midi gel dryer, 21x31 cm
E6300	Maxi gel dryer, 35x45 cm



E27xx series

UV tables



- These new transilluminators are based on an electronic ballast. Its 25 kHz high frequency provides a supreme stability and avoids the usual flickering effect. Accordingly, the gel visualisation and gel documentation is strongly improved.
- The transilluminator heat is considerably reduced, avoiding the use of an extra cooling fan and thus reducing the noise.
- Thanks to their very high output, these transilluminators provide more signal compared to standard 8 W transilluminators.
- A fully adjustable safety screen, which can be positioned to suit the operator's viewing angle, provides protection against exposure to harmful UV-rays.
- An intensity switch (except on the UV/white-light tables) allows you to select for both analysis (100%) and preparation (70%). The lowest position enables you to visualise and cut fragments while minimising the risk of damaging the DNA.
- Unlimited filter life expectancy.
- The same model can be used from 100 to 240 VAC and from 50 to 60 Hz.
- Stainless steel frame equipped with an Ondulex® reflector.

Compact transilluminators

CODE	DESCRIPTION				
E2711	UV table	312 nm	15x15 cm	6 x 8 W tubes	10000 µW/cm ²
E2712	UV table	254nm	15x15 cm	6 x 8 W tubes	7800 µW/cm ²

Standard transilluminators

CODE	DESCRIPTION				
E2721	UV table	312 nm	20x20 cm	6 x 15 W tubes	10000 µW/cm ²
E2722	UV table	254 nm	20x20 cm	6 x 15 W tubes	7800 µW/cm ²
E2723	UV table	365 nm	20x20 cm	6 x 15 W tubes	7000 µW/cm ²
E2731	UV table	312 nm	25x35 cm	6 x 15 W tubes	10000 µW/cm ²
E2732	UV table	254 nm	25x35 cm	6 x 15 W tubes	7800 µW/cm ²
E2733	UV table	365 nm	25x35 cm	6 x 15 W tubes	7000 µW/cm ²

Replacement UV tubes

CODE	DESCRIPTION	LENGTH
E2803	UV tube, 15 W, 312 nm	451 mm
E2804	UV tube, 15 W, 254 nm	451 mm
E2805	UV tube, 15 W, 365 nm	451 mm
E2806	UV tube, 8 W, 254 nm	302 mm
E2807	UV tube, 8 W, 312 nm	302 mm
E2808	UV tube, 8 W, 365 nm	302 mm
E2809	UV tube, 6 W, 254 nm	226 mm
E2810	UV tube, 6 W, 312 nm	226 mm
E2811	UV tube, 6 W, 365 nm	226 mm
E2812	UV tube, 4 W, 254 nm	136 mm
E2813	UV tube, 4 W, 365 nm	136 mm
E2814	White-light tube, 8 W	302 mm
E2815	White-light tube, 6 W	226 mm
E2816	White-light tube, 15 W	451 mm

Multiband transilluminators

CODE	DESCRIPTION				
E2724	UV table	365/254 nm	20x20 cm	2x(6 x 15 W) tubes	5900/6400 µW/cm ²
E2725	UV table	365/312 nm	20x20 cm	2x(6 x 15 W) tubes	3800/8500 µW/cm ²
E2726	UV table	312/254 nm	20x20 cm	2x(6 x 15 W) tubes	8500/5900 µW/cm ²

Ultraviolet/White light transilluminators

CODE	DESCRIPTION				
E2727	UV/WL table	312 nm/ white light	2x(20x20) cm	2x(6 x 8 W) tubes	10000 µW/cm ²
E2728	UV/WL table	254 nm/ white light	2x(20x20) cm	2x(6 x 8 W) tubes	7000 µW/cm ²
E2729	UV/WL table	365 nm/ white light	2x(20x20) cm	2x(6 x 8 W) tubes	7000 µW/cm ²

White light transilluminator

CODE	DESCRIPTION				
E2730	WL table	white light	20x35 cm	2x(6 W) 2x(15 W) tubes	

E29xx series

Crosslinkers

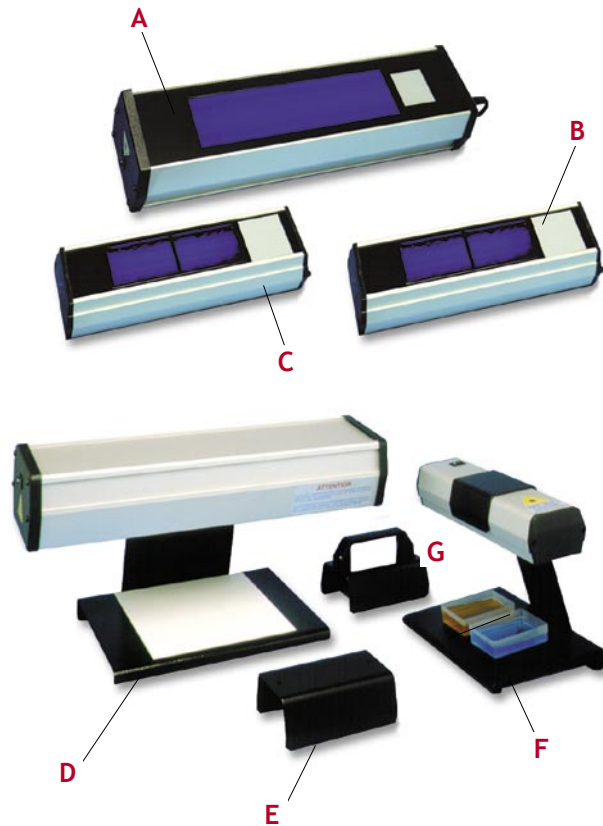
- Three models: 254, 312 and 365 nm, each with 5 UV tubes of 8 W.
- Nine presets for time and energy exposures as well as manual control by the user .
- Timer up to 999.9 minutes.
- Exposure ranges: 0...99.99 and 0...9.999 J/cm².
- Storage of the last UV settings in a non-volatile memory.
- A photo-feedback system automatically compensates for output variation and tube aging.
- UV-blocking viewing window.
- Internal dimensions (HxDxW): 15x33x26 cm.
- External dimensions (HxDxW): 31x36x35 cm.



CODE	DESCRIPTION
E2921	Crosslinker, 254 nm
E2922	Crosslinker, 312 nm
E2923	Crosslinker, 365 nm

E21xx series

UV lamps with filter



These elegant and highly efficient lamps are provided in three different wavelengths: 254, 312, 365 nm or combined.

A unique filter minimises white light interference allowing the user to easily detect weak fluorescence.

Power ranges from a single 4 W tube up to two 15 W tubes.

Lamps include a long-life filter, unlimited life for 312 and 365 nm, and 3000 hours for 254 nm.

Operates on 230 VAC.

Key features

- Easy to handle
- Single or dual wavelength
- Long live filter and high UV output
- Ondulex[®] reflector for optimum UV irradiance
- Anodised aluminium housing for increased durability
- Lamp stand or holder to add versatility
- The simple touch of a switch to change the wavelength

CODE	DESCRIPTION
E2119	Hand-held stand for 4 and 6 W lamps (G)
E2120	Bracket for 4 and 6 W lamps (E)
E2121	Stand for 4 and 6 W lamps (F)
E2122	Stand for 15 W lamps (D)

CODE	DESCRIPTION			
E2101	UV lamp, 1x4 W	B	365 nm	400 µW/cm ²
E2102	UV lamp, 1x4 W	B	254 nm	340 µW/cm ²
E2103	UV lamp, 2x4 W	B	254/365 nm	265/350 µW/cm ²
E2104	UV lamp, 1x6 W	C	365 nm	700 µW/cm ²
E2105	UV lamp, 1x6 W	C	254 nm	710 µW/cm ²
E2106	UV lamp, 1x6 W	C	312 nm	680 µW/cm ²
E2107	UV lamp, 2x6 W	C	254/365 nm	400/610 µW/cm ²
E2110	UV lamp, 1x15 W	A	365 nm	1100 µW/cm ²
E2111	UV lamp, 1x15 W	A	254 nm	730 µW/cm ²
E2112	UV lamp, 1x15 W	A	312 nm	1000 µW/cm ²
E2113	UV lamp, 2x15 W	A	365 nm	2300 µW/cm ²
E2114	UV lamp, 2x15 W	A	254 nm	1780 µW/cm ²
E2115	UV lamp, 2x15 W	A	312 nm	3000 µW/cm ²
E2116	UV lamp, 2x15 W	A	254/365 nm	930/1350 µW/cm ²
E2117	UV lamp, 2x15 W	A	312/365 nm	1800/1350 µW/cm ²
E2118	UV lamp, 2x15 W	A	254/312 nm	930/1800 µW/cm ²



- Complete photo documentation system
- Allows to save images on a USB key without the need of a computer
- Can be used with any type of UV table
- Gel visualisation on a large high resolution LCD screen
- Highly sensitive CCD camera
- 12 bit imaging
- Pixel saturation warning
- Compact and robust darkroom
- All necessary information to ensure optimum quality of your image
- Supplied with free software

The E2052 is an easy to use and affordable photo documentation system for any laboratory even those without darkroom facilities.

It replaces the traditional cameras, which are less performing and more expensive compared to the print cost.

→ *UV table is not included in the E2052!*

● **Electronic control box**

Extra large B/W TFT screen (8 inch) allows to view the images before printing.

Integration time control (10 presets).

The images can be saved on a USB key for export to a computer or to print on a digital thermal printer (USB) for instant hard-copy images.

Displays the integration time on the TFT screen.

Electronic circuit with microprocessor controls the integration time and the power supply of the camera.

● **Hood with camera**

Hood in thermoformed ABS equipped with high sensitivity CCD monochrome camera, zoom and UV/IR interference filter.

Resolution: 1360x1024 pixels.

Pixel depth: 12 bit, 4096 grey levels.

High sensitivity of DNA/protein fluorescence detection.

UV/IR interference filter: type F590.

Gel size: max. 180x240 mm / min. 30x40 mm.

● **Software**

The E2052 is supplied with a complementary software to perform analysis such as molecular weight, band quantification, colony counting and distance calculation.

It also includes image enhancement features to enable editing of comments, inversion, contrast/brightness adjustment as well as colorimetry.

Designed by molecular biologists, our software is intuitive and very easy to use: just a few clicks are necessary to obtain sophisticated results.

Captures and stores the images in different formats (TIFF, BMP, JPEG, PICT, PCX, GIF, Targa,...).

Enables to add text or symbols in the images.

Rotates, mirrors or inverts images.

Allows to adjust brightness and contrast.

Automatically identifies bands and lanes.

Defines and saves markers.

Calculates the molecular weight for all the detected bands.

Calculates the volume, area and intensity of all the detected bands.

Counts colonies.

Allows to print results on a laser printer or ink jet printer.

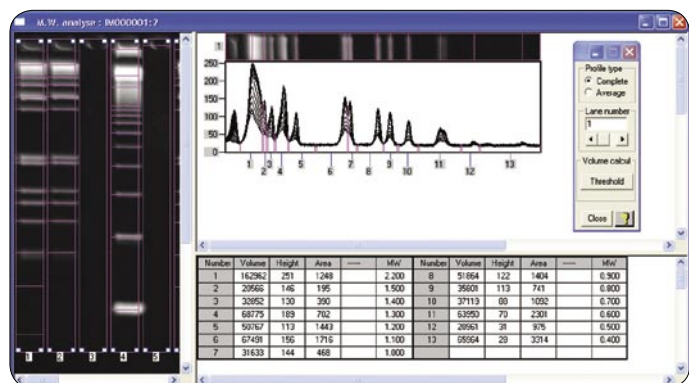
HELP function.

CODE	DESCRIPTION
E2052	Photo documentation comprises camera + extra zoom lens 2D + F590 filter + hood + electronic control box + camera cable + software

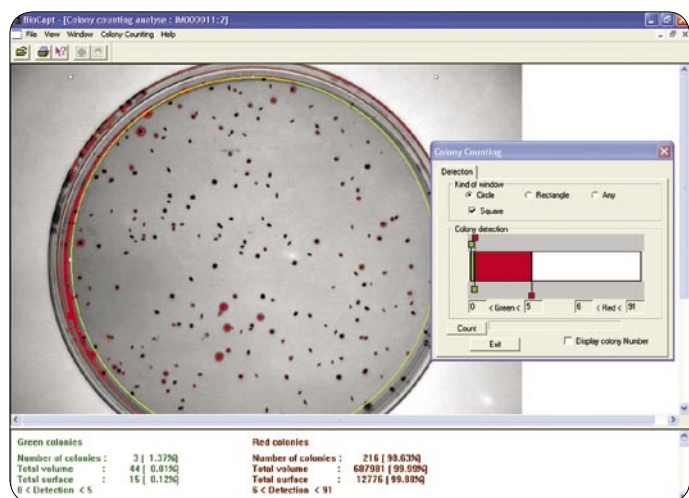
Accessories

CODE	DESCRIPTION
E2721	UV table, 312 nm, 20x20 cm (recommended)
E2991	UV/WL conversion screen, 250x295 mm

This free software is supplied with the E2052. It comprises four main components: image enhancement, molecular weight, band quantification, colony counting.



Volume, height, area and MW are given lane by lane for each band.



The colony counting module allows the calculation and the characterisation of colonies.



Text and symbols can be inserted on the image. Date, time or image name can also be stamped for printing or archiving purpose.

SPECIFICATIONS

Editing of comments and symbols
Date, time or image name stamping
Image inversion
Brightness and contrast adjustment
90 degree clockwise rotation
Horizontal or vertical mirroring of the displayed image
GLP compliance
Automatic band detection
Lane profile display
Molecular weight or pH (IEF) value calculation
Marker's migration curve display and adjustment
Volume, height and area calculation
Colony counting

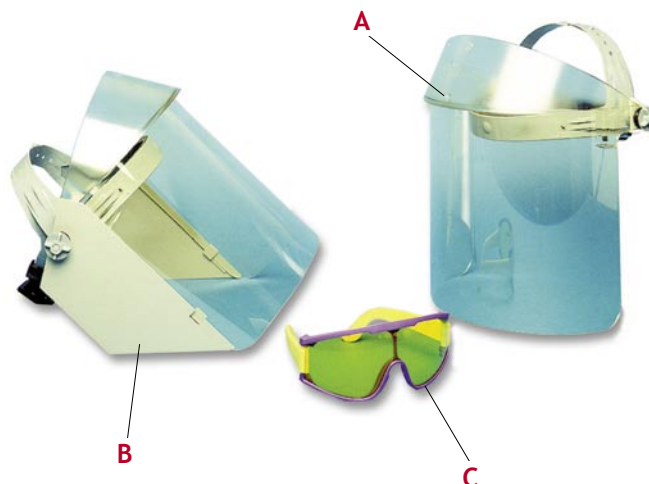
UV protected glasses and face shields

Lamps are a powerful source of UV radiation. Short (254 nm) and medium (312 nm) wavelengths are dangerous for unprotected eyes and skin. Long (365 nm) wavelengths could affect sensitive persons or people under medical treatment.

Therefore, it is strongly recommended that users protect themselves against UV radiation by wearing glasses or face shields.

- E2911 is recommended for protection of the eyes and the face.
- E2912 has two lateral protections to cover the operator's ears in addition to his eyes and face.
- E2913 are comfortable and efficient glasses for total protection of the eyes.

CODE	DESCRIPTION
E2911	UV face shield (A)
E2912	UV face shield with lateral protection (B)
E2913	UV glasses (C)



**T8710**

Type J -200...900 °C

Type K -200...1370 °C

Type T -200...600 °C

Type E 0...1000 °C

Sixteen channels

T8720

Pt100 -200...850 °C

Twelve channels

T8710

Sixteen channel thermometer for several types of thermocouples: J, K, T, E.

Ideal for long distance measurements requiring a short response time with a reasonable accuracy.

T8720

Twelve channel thermometer for 2- or 3-wire Pt100 probes.

Ideal for highly accurate measurements at short or medium distances.

Temperature

Shows temperature in °C, °F or K.

Common or individual 1- or 2-point calibration of each channel to any known temperature, eliminating variations from probe to probe.

Data-logging

Up to 18000 data sets can be stored manually or at a programmable interval.

Download **free data acquisition software** from www.consort.be to view, store and edit the measurements in your computer.

Stores minimum/maximum readings for each channel.

Display

Bright LCD screen with white backlight for better readability.

Hold function allows to freeze the display for convenient reading or recording.

The interactive LCD screen provides step by step instructions in the language of your choice (English, Dutch, French, German).

Real-time clock displays time and date.

Alternating mode enables an automatic sequential view of all channels and allows to send the measurements simultaneously to a printer or computer.

Shows a GLP report on the LCD screen.

Alarms

Individual high/low limits for each channel alerts the user and can close a relay when readings stray outside limits.

Inputs

T8710: three terminal blocks for sixteen thermocouple probes and four earthing connections.

T8720: three terminal blocks for twelve Pt100 probes.

Low voltage DC input for e.g. a mains adaptor.

Outputs

Galvanically isolated USB communication port for connection to a computer.

RS232 interface for connection to a printer or computer.

Cabinet

Benchtop cabinet.

Optional wall mounting kit.

GLP

All procedures for a Good Laboratory Practice are on board.

Special features

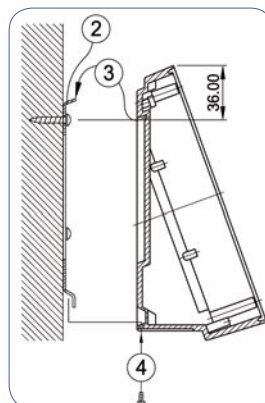
Two-way communication with a computer using USB or RS232.

Can be programmed to continue automatically with the measurements or data-logging after a power failure.

Password protection prevents any unauthorised modification of the instrument's settings.

Three year warranty.

CODE	DESCRIPTION
T8710	thermometer includes meter + USB cable
T8720	thermometer includes meter + USB cable
A4800	wall mounting kit (optional)
➔ Supplied with a mains adaptor (100...240 VAC, EU/US) (Add a UK-sign for UK plug versions, e.g.: CT8710-UK) (Add a CH-sign for Swiss plug versions, e.g.: CT8710-CH)	



SPECIFICATIONS		T8710
TEMPERATURE	Range, Type J	-200...900 °C (-328...1652 °F)
	Range, Type K	-200...1370 °C (-328...2498 °F)
	Range, Type T	-200...600 °C (-328...1112 °F)
	Range, Type E	0...1000 °C (32...1832 °F)
	Resolution	<1000°: 0.1 °C (0.1 °F) >999.9°: 1 °C (1 °F)
	Accuracy	0.5% ±0.5 °C (±1 °F)
	RJC Error	0.05 °C / °C
	Calibration	1...2 points
	Channels	16
INPUTS		terminal blocks for 16 thermocouples
CALIBRATION	GLP Protocol	✓
DISPLAY	LCD	128x64 pixels
	Alternating	✓
	Hold Function	✓
	Selectable Resolution	✓
	Real Time Clock	✓
	Languages	EN, NL, FR, DE
COMMUNICATION	Interface with computer	USB
	RS232, baud rate	300...19200 b/s
	Printer	✓
DATA-LOGGING	Values	18000 + date/time
	Manual	✓
	Timed	✓
	Interval	4...9999 s
ALARM	Relays	2, max. 50 V/200 mA
SECURITY	Identification Number	✓
	Password Protection	✓
AMBIENT CONDITIONS	Temperature	0...40 °C
	Humidity	0...95%, non condensing
POWER SUPPLY	Mains	90...250 VAC, 50/60 Hz
DIMENSIONS	WxDxH	26x18x9 cm
WEIGHT	Meter	1 kg

SPECIFICATIONS		T8720
TEMPERATURE	Range, Pt100	-200...850 °C (-328...1562 °F)
	Resolution	0.1 °C (0.1 °F)
	Accuracy	0.1% ±0.3 °C (±0.5 °F)
	Calibration	1...2 points
	Channels	12
INPUTS		terminal blocks for 12 Pt100 probes
CALIBRATION	GLP Protocol	✓
DISPLAY	LCD	128x64 pixels
	Alternating	✓
	Hold Function	✓
	Selectable Resolution	✓
	Real Time Clock	✓
	Languages	EN, NL, FR, DE
COMMUNICATION	Interface with computer	USB
	RS232, baud rate	300...19200 b/s
	Printer	✓
DATA-LOGGING	Values	18000 + date/time
	Manual	✓
	Timed	✓
	Interval	4...9999 s
ALARM	Relays	2, max. 50 V/200 mA
SECURITY	Identification Number	✓
	Password Protection	✓
AMBIENT CONDITIONS	Temperature	0...40 °C
	Humidity	0...95%, non condensing
POWER SUPPLY	Mains	90...250 VAC, 50/60 Hz
DIMENSIONS	WxDxH	26x18x9 cm
WEIGHT	Meter	1 kg



Thermocouple Wires

Use these thermocouple wires to fabricate your own probes. Strip both ends, twist wires at one end and connect the other end to the T8710.

PVC

Economic, flexible, up to 105 °C.

Teflon

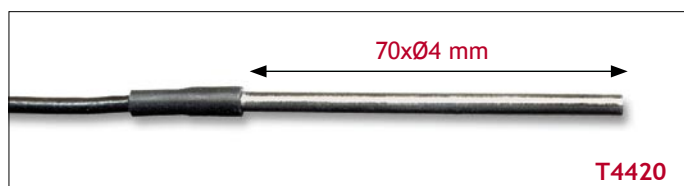
Chemical/moisture resistant, up to 204 °C.

Fibre

Chemical/flame resistant, up to 510 °C.

CODE	DESCRIPTION
T3002K	roll of type-K wire, 100 m, PVC
T3012K	roll of type-K wire, 100 m, teflon
T3022K	roll of type-K wire, 100 m, fibre

Pt100 Temperature Probe



CODE	DESCRIPTION
T4420	3-wire Pt100 temperature probe with 20 m cable

THERMOCOUPLE

Thermocouples basically consist of two dissimilar wires (each made of a different alloy). One end is twisted or soldered to form a measuring junction. The other end is connected to a thermometer and forms the reference junction.

The signal is a small voltage (μ Vs) proportional to the temperature gradient between the measuring and reference junctions.

Thermocouple probes are ideal to cover greater lengths. They also have a great temperature range and can easily pass through e.g. oven doors.

Response time is faster than with Pt100 probes.

Accuracy, stability and repeatability are less than with Pt100 probes.

Pt100

Platinum resistance thermometer (100 Ω at 0 °C). It requires a low resistance cable for highest accuracy. For longer distances a 3-wire type should be used to compensate for the cable resistance.

Pt100 probes provide excellent accuracy, stability and repeatability.

Technical Data

ABSOLUTE READINGS

The instrument shows the actual value without compensating to a reference temperature.

AC-ADAPTOR

An internationally approved mains-plug with built-in low voltage transformer for a safe supply of energy to instruments.

ACCURACY

Maximum electronic error of the measured unit. The accuracy of an electrochemical determination such as pH, conductivity, dissolved oxygen & ion-selective measurements is mainly limited by the electrodes and calibration solutions.

ALARM

An alert sounds or a relay is closed when readings stray outside pre-set limits.

ALTERNATING DISPLAY

The meter can automatically scan all selected inputs for display or transmission to a computer or printer.

AUTOMATIC CROSS-OVER

When the resistance of an electrophoresis apparatus changes during a run, the power supply is able to switch automatically between constant voltage, constant current and constant power.

BATTERY CAPACITY

Percentage of remaining battery capacity.

BAUD RATE

Communication speed, in bits/second (b/s), of the digital interface (RS232).

BUFFER

A solution of buffered species where the pH tends to remain constant if diluted or concentrated.

Pre-programmed pH buffers: 1.68/ 2.00/ 4.00/ 4.01/ 6.87/ 7.00/ 9.18/ 9.21/ 10.01/ 12.00/ 12.45.

User specified pH buffers: special tables can be stored for future calibrations.

CALIBRATION REMINDER

A timed calibration procedure facilitates considerably GLP management by prompting the user when his instrument needs to be recalibrated.

CAPACITIVE COMPENSATION

The capacity of the electrode and its cable falsifies the measurement at very low conductivities. A capacity compensation allows to compensate for these errors.

CELL

The 2-pole design is the most commonly used conductivity cell. The

electrodes are made of platinised platinum. The cell must be replaced or replatinised if the plates become fouled.

The 4-pole design reduces considerably the problems of polarisation and fouling. By utilising four electrodes, no current flows through the measuring circuit. The AC-current is only applied to the outer pair of rings allowing the inner pair of electrodes to measure the voltage without any polarisation effects.

CELL CONSTANT

The cell constant (cm^{-1}) of a conductivity electrode is determined by the length (cm) of the column of liquid between the plates divided by the area (cm^2) of the plates.

CONCENTRATION

Concentration measurement with an ion selective electrode requires a minimum of chemical know-how to make successful ion selective determinations.

CONDUCTIVITY

The conductivity is a measure of the solution's ability to conduct electric current. The basic unit is Siemens/cm (S/cm). It is measured by an electrode consisting of two platinum plates to which an alternating potential is applied. The corresponding current is proportional to the conductivity of the ionic solution in which the electrode is dipped.

DATA-ACQUISITION

Connect the instrument to a computer via an USB, RS232, RS485 interface for bi-directional communication capabilities. Most instruments require no special software and feature an advanced easy to use data acquisition fully compatible with spread-sheet.

DATA-LOGGING

Stores automatically or manually the measured values (+ °C & time/date) in a built-in non-volatile memory.

GLP

Good Laboratory Practices procedures help to increase accuracy through calibration reports.

GROUND LEAKAGE

Leaking or dirty electrophoresis apparatus are dangerous, since the applied high voltage may result in an electric current flowing through the operator to the ground.

IDENTIFICATION NUMBER

Several instruments connected to the same computer can easily be identified when specific numbers are allocated to them.

INPUT

Several types of connectors are used according to the application. Check the specifications of meter-input and electrode-plug on their compatibility.

ISO-pH

Zero-point of a pH electrode. A new pH electrode has an ISO-pH between 6.5 and 7.5 pH.

MINIMUM/MAXIMUM MEMORY

Recalls the lowest/highest values ever measured since the last calibration.

mV

Electrode potential is read in mV.

ON/OFF CONTROL

Simple control system in which the relays are continuously closed when a pre-set level is exceeded.

ORP

Oxido-Reduction-Potential (the reducing or oxidising capability of a solution).

PASSWORD PROTECTION

For tamper-proof storage of parameters and data, a secret personal code protects the instrument against any undesired access.

pH

The pH is a measurement for the acidity or alkalinity of a solution. In pure water the hydrogen ion (H^+) and hydroxyl ion (OH^-) concentrations are equal at 10^{-7} M (25°C). To provide a convenient and effective means of defining acidity and alkalinity, the negative logarithm of hydrogen ion activity is used. The pH is calculated from the potential between a glass and a reference electrode (Nernst equation).

PROPORTIONAL CONTROL

The control relay will pulse at a rate proportional to the regulation difference. When the difference is superior to a pre-set maximum value, the relay is continuously activated. However, when reaching a pre-set level the wait-time between the pulses will increase gradually in order to perform very accurate regulations.

Pt100

Platinum resistance thermometer (100 Ω at 0°C). It requires a low resistance cable for highest accuracy.

Pt1000

Platinum resistance thermometer (1000 Ω at 0°C). Less errors when using longer cables.

QUALITY MANAGEMENT

Measuring equipment should be calibrated on a regular basis (GLP). The accuracy of measurements is only limited by the electrodes and calibration solutions. At any moment, a complete

Technical Data

documentation about the electrodes and calibration solutions can be printed or sent to a computer. This includes meter settings, data about the last calibration and a comparison with the previous calibration. The use of certified calibration solutions is strongly recommended. For very accurate quality measurements fresh standard solutions should be used for each calibration.

QUANTIFICATION OF VINCENT

The quantification of Vincent is a measurement for the energy stored in an organism. It expresses the maximum dissipation of energy by a chemical or biochemical reaction. The basic unit is Watt (W) but it is more convenient to use μW (micro-watt). It is calculated from the ORP, referenced against a hydrogen electrode, and the resistance.

RANGE LOCK

Allows to lock the initial conductivity measuring range when titrating in order to avoid cross-over errors due to varying measuring frequencies and linearity errors of the conductivity cell.

REAL TIME CLOCK

Shows time and date on the display.

REDOX POTENTIAL

The potential developed by a metallic electrode when placed in a solution containing a species in two different oxidation states. It is usually measured by a combination platinum electrode.

REFERENCE TEMPERATURE

Conductivity measurements are temperature dependent. Therefore, the readings should be referenced to a standard temperature.

RESISTIVITY

Electrical resistivity is the reciprocal of Conductivity. The basic unit is Ohm.cm ($\Omega\cdot\text{cm}$). While the ion concentration of a solution decreases, the resistivity rises up to a maximum of 18.3 M $\Omega\cdot\text{cm}$ (absolute pure water at 25°C).

RESOLUTION

Smallest possible reading of the measured unit. More sophisticated meters allow to select the desired resolution. Unlike other meters, the CONSORT models round off the last digit rather than simply truncating digits outside the display range.

rH_2

The rH_2 is a measurement for the level of electronic exchanges between water and dissolved ions. It enables to study incomplete, indeterminate and very diluted aqueous redox solutions. It is defined as the negative logarithm

of molecular hydrogen ion activity, calculated from the pH and the ORP referenced against a hydrogen electrode.

RS232

Digital interface, transmits the displayed values and calibration data to a printer or computer.

RS485

Allows to connect several process controllers for bi-directional communication with a computer. It allows multiple devices (up to 32) to communicate at half-duplex on a single pair of wires, plus a ground wire, at distances up to 1200 meters.

SALINITY

Salinity gives an indication of the salt content of sea water. It is calculated from the conductivity referred to 15°C. The salinity is the ratio between the total salt content (g) and the total weight of the sea water (kg). Hence salinity can be expressed in ppt (parts per thousand).

SLOPE

Percentage which relates the actual behaviour of a pH electrode to the Nernst's law. A new electrode has a slope between 95 and 100 %.

S/S RELAY

A solid-state relay contains no mechanical contacts. Long life, compact design and spark-free switching are its main advantages. It should not be used for controlling very low power loads, as the small leakage current can cause unwanted switching-on.

STABILITY INDICATION

A decimal point flashes until the electrode output remains constant, then readings can be recorded.

TDS

Total Dissolved Salts of a solution gives an indication of the total ion concentration. Due to ionic interactions within a solution, the salt concentration cannot easily be related to conductivity. As the dissolved solids are generally unknown, a TDS measurement is always referred to a solution of pure Sodium Chloride.

TEMPERATURE COEFFICIENT

Each solution has its own temperature coefficient (%/K). As this coefficient also varies with temperature, a standard conductometer cannot achieve a precise temperature compensation over a wide span of temperatures. However, a research grade meter is able to plot special temperature curves for each individual type of solutions in its non-volatile memory.

Specific temperature coefficients can also be entered for special applications. For standard applications, the non-linear function for natural waters (EN27888) is used.

TEMPERATURE COMPENSATION

Corrects readings for variations in electrode response due to temperature effects.

THERMOCOUPLE

Thermocouples basically consist of two dissimilar wires (each made of a different alloy). One end is twisted or soldered to form a measuring junction. The other end is connected to a thermometer and forms the reference junction. The signal is a small voltage (μV) proportional to the temperature gradient between the measuring and reference junctions. Thermocouple probes are ideal to cover greater lengths. They also have a great temperature range and can easily pass through e.g. oven doors. Response time is faster than with Pt100 probes. Accuracy, stability and repeatability are less than with Pt100 probes.

USB

Universal Serial Bus is a standard designed to eliminate the guesswork in connecting peripherals to a computer.

VOLT-HOUR INTEGRATOR

The distance at which molecules migrate in an electrophoresis apparatus depends on the applied voltage and run-time (JV.dt). In order to achieve reproducible experiments, it is recommended to use a volt-hour integrator rather than a simple timer.

ZERO POINT (E_0)

Standard pH meters assume a pH electrode to supply a zero potential at 7 pH. Electrodes for special applications (e.g. stomach pH measurements) may have a different zero point. An adjustable zero point correction feature will allow users to measure with these electrodes.

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B571	24	E2803	47	E3350	36	E3531	38	E3747	40	E4345	43	ISC29	24	SK41T	21
B572	24	E2804	47	E3351	36	E3532	38	E3748	40	E4346	43	ISC31	24	SK43T	21
C1010	13	E2805	47	E3352	36	E3533	38	E3749	40	E4347	43	ISC32	24	SP04X	20
C1020	13	E2806	47	E3353	36	E3534	38	E3750	40	E4348	43	ISC33	24	SP10B	19
C10xOK	13	E2807	47	E3354	36	E3535	38	E3800	36	E4349	34	ISC34	24	SP10T	19
C10xOP	13	E2808	47	E3355	36	E3540	38	E3830	34	E4350	43	ISC35	24	SP11X	19
C10xOT	13	E2809	47	E3356	36	E3541	38	E3831	34	E4351	43	ISC36	24	SP11Y	30
C10xOX	13	E2810	47	E3357	36	E3542	38	E3832	34	E4352	43	ISC37	24	SP21B	19
C10xOZ	13	E2811	47	E3358	36	E3543	38	E3833	34	E4353	43	ISC50	24	SP21T	19
C3010	1	E2812	47	E3359	36	E3544	38	E3834	34	E4354	43	ISC51	24	SP21X	19
C3011	1	E2813	47	E3360	36	E3545	38	E4100	41	E4356	43	ISE20B	23	SP22X	19
C3020	1	E2814	47	E3361	36	E3546	38	E4101	45	E4357	43	ISE21B	23	SP23Y	30
C3021	1	E2815	47	E3362	36	E3547	38	E4120	41	E4358	43	ISE22B	23	SP24X	19
C3030	1	E2816	47	E3363	36	E3548	38	E4121	41	E4359	42	ISE23B	23	SP26X	19
C3031	1	E2911	50	E3364	36	E3549	38	E4122	41	E4359	43	ISE24B	23	SP27X	19
C3040	6	E2912	50	E3365	36	E3550	38	E4123	41	E4360	43	ISE25B	23	SP28X	19
C3041	6	E2913	50	E3366	36	E3551	38	E4124	41	E4361	43	ISE26B	23	SP29X	19
C3050	7	E2921	48	E3367	36	E3552	38	E4125	41	E4362	43	ISE27B	23	SP35B	20
C3050T	7	E2922	48	E3368	36	E3553	38	E4126	41	E4363	43	ISE28B	23	SP50X	20
C3051	7	E2923	48	E3369	36	E3554	38	E4127	41	E4364	43	ISE29B	23	SP50Y	30
C3060	10	E2991	49	E3370	36	E3555	38	E4128	41	E4365	43	ISE30B	23	SP60X	20
C3061	10	E3100	34	E3371	36	E3556	38	E4129	41	E4366	43	ISE31B	23	SP61Y	30
C30xxK	1	E3120	34	E3372	36	E3557	38	E4130	41	E4367	43	ISE32B	23	SP65X	20
C30xxP	1	E3140	34	E3373	36	E3558	38	E4131	41	E4368	43	ISE33B	23	SP91Y	20
C30xxT	1	E3141	34	E3374	36	E3559	38	E4131	42	E4369	43	ISE34B	23	SP92Y	20
C30xxX	1	E3142	34	E3375	36	E3560	38	E4132	41	E4370	43	ISE35B	23	SP93Y	20
C30xxZ	1	E3143	34	E3400	37	E3561	38	E4132	42	E4371	43	ISE36B	23	SP94Y	20
C3410	3	E3144	34	E3401	37	E3562	38	E4133	41	E4400	44	ISE37B	23	SP95Y	20
C3411	3	E3145	34	E3402	37	E3563	38	E4133	42	E4500	44	ISE50B	23	SP96Y	20
C3420	3	E3146	34	E3403	37	E3564	38	E4134	41	E4520	44	ISE51B	23	SP97Y	20
C3421	3	E3147	34	E3420	37	E3565	38	E4134	42	E4521	44	ISE52B	23	SP98Y	20
C3430	3	E3148	34	E3421	37	E3566	38	E4140	41	E4522	44	ISE60B	23	SP99Y	20
C3431	3	E3149	34	E3422	37	E3567	38	E4141	41	E4523	44	ISE61B	23	ST10N	22
C34xxX	3	E3150	34	E3429	37	E3568	38	E4142	41	E4524	44	ISE62B	23	ST20N	22
C5010	16	E3151	34	E3430	37	E3569	38	E4143	41	E4525	44	ISE63B	23	ST21Y	30
C5020	16	E3200	35	E3431	37	E3570	38	E4144	41	E4526	44	ISE64B	23	SZ02K	22
C5030	16	E3201	35	E3432	37	E3571	38	E4145	41	E4540	44	ISE65B	23	SZ10T	22
C5030L	16	E3202	35	E3433	37	E3572	38	E4146	41	E4541	44	ISE66B	23	SZ12T	30
C5030T	16	E3220	35	E3434	37	E3573	38	E4147	41	E4542	44	ISE67B	23	T3002K	52
C50xOK	16	E3221	35	E3435	37	E3574	38	E4148	41	E4543	44	ISE68B	23	T3012K	52
C50xOP	16	E3229	35	E3440	37	E3575	38	E4149	41	E4544	44	ISE69B	23	T3022K	52
C50xOT	16	E3230	35	E3441	37	E3576	38	E4150	41	E4545	44	ISE70B	23	T4420	52
C50xOX	16	E3231	35	E3442	37	E3577	38	E4151	41	E4546	44	ISE71B	23	T8710	51
C50xOZ	16	E3232	35	E3443	37	E3578	38	E4152	41	E4547	44	ISE72B	23	T8720	51
C6010	11	E3233	35	E3444	37	E3579	38	E4153	41	E5100	46	ISE73B	23		
C6030	11	E3234	35	E3445	37	E3580	38	E4154	41	E5120	45	ISE74B	23		
C60xOK	11	E3235	35	E3446	37	E3581	38	E4155	41	E5121	45	ISE76B	23		
C60xOP	11	E3240	35	E3447	37	E3582	38	E4156	41	E5122	45	ISE77B	23		
C60xOT	11	E3241	35	E3448	37	E3583	38	E4157	41	E5123	45	ISE80B	23		
C60xOX	11	E3242	35	E3449	37	E3600	39	E4158	41	E5200	46	ISE81B	23		
C60xOZ	11	E3243	35	E3450	37	E3601	39	E4159	41	E5220	45	ISE82B	23		
D230	18	E3244	35	E3451	37	E3602	39	E4160	41	E5221	45	ISF50	24		
D291	18	E3245	35	E3452	37	E3603	39	E4161	41	E5222	45	ISF51	24		
D292	18	E3246	35	E3453	37	E3620	39	E4162	41	E5223	45	ISF52	24		
D298	18	E3247	35	E3454	37	E3621	39	E4163	41	E5300	46	ISM50	24		
D299	18	E3248	35	E3455	37	E3622	39	E4164	41	E5320	45	ISM51	24		
E1010	45	E3249	35	E3456	37	E3629	39	E4165	41	E5321	45	ISM52	24		
E1011	45	E3250	35	E3457	37	E3630	39	E4166	41	E5322	45	ISM60	24		
E1012	45	E3251	35	E3458	37	E3631	39	E4167	41	E5323	45	ISM61	24		
E1013	45	E3252	35	E3459	37	E3632	39	E4168	41	E5400	46	ISM62	24		
E1020	39	E3253	35	E3460	37	E3633	39	E4169	41	E5500	46	ISM63	24		
E1091	34	E3254	35	E3461	37	E3634	39	E4170	41	E5600	46	ISM64	24		
E201	32	E3255	35	E3462	37	E3635	39	E4171	41	E5700	46	ISM65	24		
E204	32	E3256	35	E3463	37	E3640	39	E4191	41	E6200	47	ISM66	24		
E2052	49	E3257	35	E3464	37	E3641	39	E4192	41	E6300	47	ISM67	24		
E2101	48	E3258	35	E3465	37	E3642	39	E4193	41	EV202	32	ISM68	24		
E2102	48	E3259	35	E3466	37	E3643	39	E4200	42	EV215	32	ISM69	24		
E2103	48	E3260	35	E3467	37	E3644	39	E4201	45	EV231	32	ISM70	24		
E2104	48	E3261	35	E3468	37	E3645	39	E4222	42	EV233	32	ISM71	24		
E2105	48	E3262	35	E3469	37	E3646	39	E4224	42	EV245	32	ISM72	24		
E2106	48	E3263	35	E3470	37	E3647	39	E4225	42	EV261	32	ISM73	24		
E2107	48	E3264	35	E3471	37	E3700	40	E4226	42	EV262	32	ISM74	24		
E2110	48	E3265	35	E3472	37	E3701	40	E4227	42	EV265	32	ISM76	24		
E2111	48	E3266	35	E3473	37	E3702	40	E4228	42	ISA20	24	ISM77	24		
E2112	48	E3267	35	E3474	37	E3720	40	E4229	42	ISA21	24	ISM80	24	</	

GENERAL TERMS

Art. 1

Unless otherwise agreed in writing, the legal relationship between the parties is governed by the present general terms, of which the customer declares to have taken cognisance, and which prevail over the customer's possible terms of purchase.

Art. 2

All quotations are without engagement. Prices do not include taxes. Any price stated is based at all times on the salaries, social charges and prices of materials obtaining on the date of the quotation. Official price modifications as arranged by legal dispositions automatically entail equivalent modifications of the prices stated in the contract. This proportional increase can also apply to part of the order or work.

Art. 3

Transport or dispatch of our goods by any means of transport is at the consignee's risk, even with carriage paid.

Art. 4

If our firm acts as an intermediary, the guarantee on the goods supplied by us is restricted to the guarantee given to us by the supplier or manufacturer. If the goods are subject to formal guarantee, defective, material will be repaired or replaced, but no claims for any other damage will be accepted.

Art. 5

All invoices are payable cash on the address of the invoice unless otherwise stipulated in the documents committing the parties or unless an expiry date is stated on the Invoice.

Art. 6

Contrary to art. 1583 of the Civil Code, any goods that are not paid in full remain our full property; in such case possible advance payments will serve as a compensation for costs and loss of profit.

Art. 7

Bills in arrear entitle us to suspend any further deliveries or services without prior notice, such to prevent debts from further increasing.

Art. 8

The supply of goods or services on a later date than the date stipulated for supply or service, if such is not caused by bad faith or a serious shortcoming of the supplier, shall never form a motive for suspending the order or the agreement, nor entitle the customer to claim any damages.

Art. 9

If default is made in cash payment or if payment is not carried out on the expiry date stated, the amount of the invoice shall bear a conventional interest of 1.5% per month as from the day on which the invoice is remitted or as from the expiry date stated, such by right and without any formal notice. Each month started shall be charged as a full month.

Art. 10

Moreover, by way of a fixed and irrevocable condition, the amount of the invoice shall be increased by 15% with a minimum of 200 EUR, by right and without formal notice, as a compensation for recovery costs of the claim (both staff and administration costs, management and follow-up of the file, influences on financial management, etc.), in application of art. 1147 C.C. and 1152 C.C.

This compensation is due apart from the moratory interests, the recoverable procedure costs and the possible compensation for material damages and loss of profit.

The parties thus agree that this compensation is fixed and that, contrary to art. 1231 C.C. It cannot be modified, even when the shortcoming is only partial.

Art. 11

Cheques and bills of exchange are only accepted as payment after their repayment. Possible costs are at the expense of the purchaser or commissioner.

Art. 12

The drawing and/or accepting bills of exchange or other transferable documents does not imply a novation or deviation from the general terms. The acceptance costs of bills of exchange are at the expense of the purchaser or commissioner.

Art. 13

If one invoice remains unpaid on its expiry date, the balance due of any other invoices, even when not expired, are immediately recoverable by right.

Art. 14

In the event of a dispute, only the courts of Turnhout, Belgium, shall have competence.

Art. 15

Any complaints regarding the supply of the goods and services shall be made on termination and be confirmed by a motivated registered letter within 8 days of the date of supply. These complaints do not suspend the obligation of payment.

Art. 16

Remarks and restrictions concerning the invoice and/or the general terms therein stated shall be transmitted to us by motivated registered letter within 8 days of date of invoice; for the settlement of disputes this period amounts to 30 days. If an order form is signed by a purchaser or commissioner, the regulations of the general terms stated on the order form shall apply.

LABOMODERNE

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