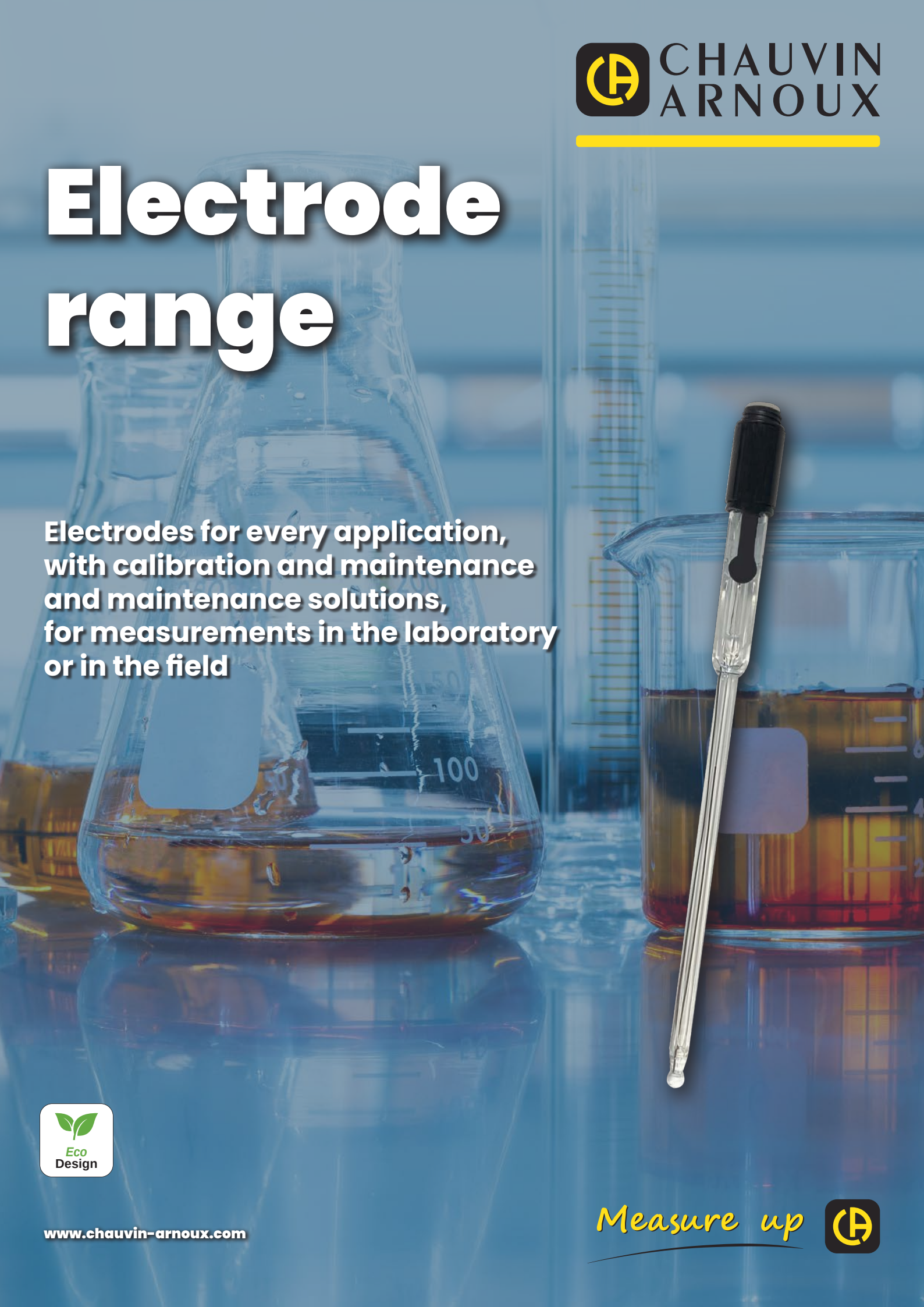
CHAUVIN ARNOUX

Electrode range

Electrodes for every application, with calibration and maintenance and maintenance solutions, for measurements in the laboratory or in the field



Eco Design

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Measure up

Standard pH electrodes

Two electrodes are used to measure pH: the indicator (or measuring) electrode, made of a glass membrane and sensitive to hydronium ions, which delivers a voltage proportional to the activity of the H+ ions, and the reference electrode, which delivers a constant potential. The instrument measures the potential difference (mV) between the measuring electrode and the indicator electrode, which it then converts into pH units.

The electrodes can be housed in the same body, known as a 'combination' electrode, or they can be used separately. Combination electrodes have the advantage of being easier to handle than a system with separate electrodes.

pH combination electrodes

Help with choosing electrode connection technology

BNC type
Ref-BNC

S7 screw type
Ref-S7

DIN type
Ref-DIN

TV type
Ref-TV

2 mm banana type
Ref-BA2

4 mm banana type
Ref-BA4

Jack type
Ref-JACK

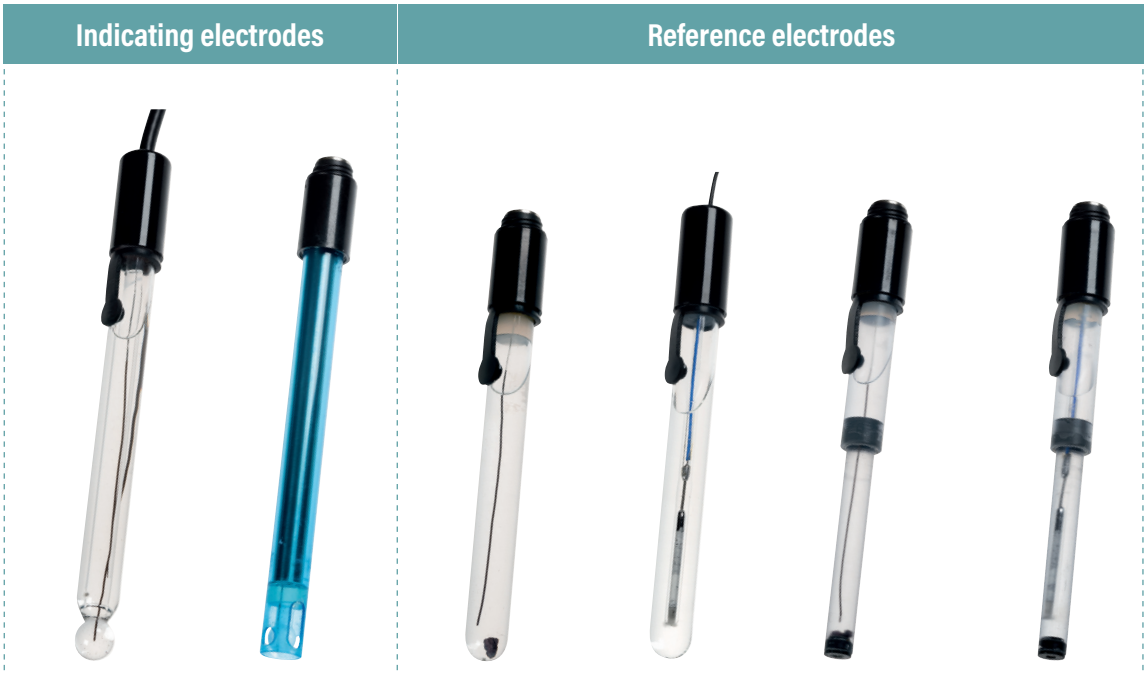
5-pole DIN type

Reference	BRV1H	XRV1H	LRV7	BRV4H	BRV4H-S7-130
pH range	0-12	0-12	0 - 14	0-12	
End-fitting	Spherical		Pointed	Micro	
Electrode body material	Glass	PVC	PVC	Glass	
Reference system	Ag/AgCl				
Reference electrolyte	Filled with KCl 1 mol/L		Polymer	Filled with KCl 1 mol/L	
Junction	Ceramic		Ceramic and open	Ceramic	
Temperature sensor	Non				
Operating temperature	0 to 80°C	0 to 60°C		0 to 80°C	
Ø and length under cover (mm)	12 x 120		6 (extremity) x 123	6.5 (extremity) x 120	6.5 (extremity) x 185
Longueur du câble	1 m				
References **BNC connections**	BRV1H-BNC	XRV1H-BNC	P01715019	BRV4H-BNC	-
S7 (screw) connections	BRV1H-S7	XRV1H-S7	-	BRV4H-S7	BRV4H-S7-130
DIN connections	-	XRV1H-DIN	-	-	-
Waterproof 8-pin DIN connectors	-	-	P01715020	-	-
TV connectors	BRV1H-TV	XRV1H-TV	-	-	-
Recommended applications	General use Protected electrode	General use Protected electrode	For semi-solid products Ideal for agri-food	Small volumes 0.5 mL	Rod length 130 mm Small volumes 0.5 mL

Standard pH electrodes

A separate electrode (or half-cell) system consists of a measuring electrode and a reference electrode. This system is popular with teachers as it provides an educational approach to pH measurement. This set-up is also used when the life span of the two electrodes is not similar.

Separate pH electrodes



	Indicating electrodes		Reference electrodes			
Reference	**BV41H**	**XV41**	**BR41**	**BR42**	**XR41**	**XR42**
pH range	0-12	0-12	0-14			
End-fitting	Spherical		-			
Electrode body material	Glass	PVC	Glass		PVC	
Reference system	-		Ag/AgCl	Calomel	Ag/AgCl	Calomel
Reference electrolyte	-		Filling with KCl 1 mol/L	Filling with KCl 3 mol/L	Filling with KCl 1 mol/L	Filling with KCl 3 mol/L
Junction	-		Ceramic			
Temperature sensor	No					
Operating temperature	0 to 80°C	0 to 60°C	0 to 80°C		0 to 60°C	
Ø and length under cover (mm)	12 x 110	12 x 120	12 x 115		8 (extremity) x 110	
Cable length	1 m					
References						
BNC connections	BV41H-BNC	XV41-BNC	-	-	-	-
S7 (screw) connections	BV41H-S7	XV41-S7	BR41-S7	BR42-S7	XR41-S7	XR42-S7
2 mm banana connectors	-	-	BR41-BA2	BR42-BA2	XR41-BA2	XR42-BA2
4 mm banana connectors	-	-	BR41-BA4	BR42-BA4	XR41-BA4	XR42-BA4
Recommended applications	General use For use with a BR41, BR42, XR41 or XR42 refrence electrode		General use For use with a BV41H or XV41H measuring electrode			

Standard redox electrodes

The oxidation-reduction potential (or redox potential) is used to assess the capacity of a solution to gain or lose electrons (known as electron activity). This measurement is based on a potential difference (in mV) measured between an indicator (or measuring) electrode and a reference electrode. The redox indicator electrode is made of an inert metal capable of gaining or losing electrons. Like pH electrodes, redox electrodes can be housed in the same body or used separately.

Combination and separate redox electrodes

	Combination electrodes		Indicator electrodes			Reference electrodes			
Reference	**BRPT1**	**XRPT1**	**BPT1**	**XPT1**	**XPT2**	**BR41**	**BR42**	**XR41**	**XR42**
Redox range	+/- 2.000 mV								
Electrode body material	Glass	PVC	Glass	PVC	PVC	Glass	Glass	PVC	PVC
Metal	Platinum wire				Platinum rod	–			
Reference system	Ag/AgCl		–			Ag/AgCl	Calomel	Ag/AgCl	Calomel
Reference electrolyte	Filling with KCl 1 mol/L		–			Filling with KCl 1 mol/L	Filling with KCl 3 mol/L	Filling with KCl 1 mol/L	Filling with KCl 3 mol/L
Junction	Ceramic		–			Ceramic			
Temperature sensor	No								
Operating temperature	0 to 80°C	0 to 60°C	0 to 80°C	0 to 60°C		0 to 80°C		0 to 60°C	
Ø and length under cover (mm)	12 x 115	12 x 120	8 x 115	12 x 120	12 x 120	12 x 115	12 x 115	8 (extremity) x 110	
Cable length	1 m								
References **BNC connections**	BRPT1-BNC	XRPT1-BNC	BPT1-BNC	XPT1-BNC	XPT2-BNC	-	-	-	-
S7 (screw) connections	BRPT1-S7	XRPT1-S7	BPT1-S7	XPT1-S7	XPT2-S7	BR41-S7	BR42-S7	XR41-S7	XR42-S7
2 mm banana connectors	-	-	-	-	-	BR41-BA2	BR42-BA2	XR41-BA2	XR42-BA2
4 mm banana connectors	-	-	-	XPT1-BA4	XPT2-BA4	BR41-BA4	BR42-BA4	XR41-BA4	XR42-BA4
Recommended applications	General use	General use Protected electrode	General use For use with a BR41, BR42, XR41 or XR42 reference electrode			General use For use with a BPT1, XPT1 or XPT2 measuring electrode			

Standard redox electrodes for argentometry

Silver redox electrodes are commonly used for argentometric titrations. The potential difference is measured by an electrode generally consisting of a silver wire or rod. These electrodes are used for solutions containing silver ions.

Combination and separate silver electrodes

	Combination electrodes	Indicator electrodes		Reference electrodes		
						
Reference	**BRAG1**	**BAG1**	**XAG1**	**BR43**	**XR43**	**BR44**
Redox range	+/- 2,000 mV					
Electrode body material	Glass		PVC	Glass	PVC	Glass
Metal	Silver rod			–		
Reference system	Mercurous sulphate	–		Mercurous sulphate	Mercurous sulphate	Ag/AgCl
Reference electrolyte	Saturated K_2SO_4	–		Saturated K_2SO_4	Saturated K_2SO_4	KCl 1 mol/L KNO3 1 mol/L
Junction	Ceramic	–		Ceramic		
Temperature sensor	No					
Operating temperature	0 to 80°C		0 to 60°C	0 to 80°C	0 to 60°C	0 to 80°C
Ø and length under cover (mm)	12 x 125		12 x 120	12 x 115	8 (extremity) x 110	12 x 120
Cable length	1 m					
References						
BNC connections	BRAG1-BNC	BAG1-BNC	XAG1-BNC	-	-	-
S7 (screw) connections	BRAG1-S7	BAG1-S7	XAG1-S7	BR43-S7	XR43-S7	BR44-S7
2 mm banana connectors	-	-	-	BR43-BA2	XR43-BA2	BR44-BA2
4 mm banana connectors	-	-	XAG1-BA4	BR43-BA4	XR43-BA4	BR44-BA4
Recommended applications	For argentometric measurements	For argentometric measurements, combined with reference electrode		Reference electrodes for argentometry		Double junction for clogging product

Standard conductivity cells and temperature sensors

There are three types of cells for measuring conductivity: **the two-pole cell**, for conventional measurements over a range of low conductivities, **the four-pole cell**, for measurements over wider conductivity ranges while reducing the polarization effect, and **the induction cell**, which is used for extreme conductivity values and is more suitable for professionals. Each probe is characterized by its cell constant, which allows the measured conductance to be converted into conductivity.

Conductivity cells and temperature sensors

	Conductivity cells			Temperature sensors	
Reference	**XCPST4**	**BCP4**	**XCP4**	**BT5**	**BT6**
Conductivity range	0.1 µs to 200 mS			0°C to +90°C	-10°C to +110°C
Electrode body material	PVC	Glass	PVC	Polypropylene	Stainless steel
Type of cell	2 platinum poles			–	
Cell constant (cm-1)	1			–	
Temperature sensor	Yes Pt100	No		Yes Pt100	Yes Pt1000
Operating temperature	0 to 60°C	0 to 80°C	0 to 60°C	0 to 90°C	-10°C to +110°C
Ø and length under cover (mm)	12 x 115	11 (extremity) x 100	12 x 115	6 (extremity) x 116	5 x 97
Cable length	1 m				
References **5-pole connectors**	XCPST4	-	-	-	-
BNC connectors	-	BCP4-BNC	XCP4-BNC	-	-
S7 (screw) connectors	-	BCP4-S7	XCP4-S7	-	-
4 mm banana connectors	-	-	XCP4-BA4	-	-
RAD connectors	-	-	XCP4-RAD	-	-
DIN connectors	-	-	-	BT5-DIN	-
Jack connectors	-	-	-	BT5-JACK	P01710070
Recommended applications	General use				

Specific electrodes for CA 10101 & CA 10141

The CA 10101 pH meter and the CA 10141 conductivity meter are portable measuring devices specially designed by Chauvin Arnoux for mobile applications: in the field, in the laboratory or in production. To facilitate field work, these instruments are supplied with probes incorporating a Pt1000 temperature sensor. They are also made of rugged materials, making them particularly hard-wearing. The pH and redox electrodes are combination electrodes incorporating a gel electrolyte to enhance their durability.

	pH electrodes			Redox electrode	Conductivity cell
					
Reference	**XRGST1** P01710051	**XRGST1 - 3 m** P01710057	**LRV7** P01715020	**XRPTST1** P01710052	**XCP4ST1** P01710053
Measurement range	1 - 12		0 - 14	± 1999 mV	0.1 µS/cm – 500 mS/cm
End-fitting	Spherical		Pointed	-	
Electrode body material	Polycarbonate		PVC	Polycarbonate	Epoxy
Reference system	Ag/AgCl				-
Reference electrolyte	Gel				-
Junction	Ceramic and non-woven fabric		Ceramic and open	Ceramic	-
Cell constant	-				0.55 ± 0.05 cm^{-1}
Temperature sensor	Yes		No	Yes	
Temperature measurement range	0 to 60°C				0 to 100°C
Dimensions	150 x Ø 16 mm		132 x Ø 16 mm	190 x Ø 18 mm	
Cable length	1 m	3 m	1 m		
Connections	Waterproof 8-pin DIN				
Recommended applications	Field applications and general and laboratory use		Dairy products (milk, cheese, yoghurt), semi-solid foods	Field applications and general and laboratory use	

DIN adapter cables are available for use of electrodes equipped with BNC connectors or S7 screw connectors with a temperature sensor (Jack connector).

CA 10101 pH-meter

Male DIN connector
Female BNC/Jack
P01295501

Male DIN connector
Female S7/Jack
P01295502

CA 10141 conductivity meter

Male DIN connector
Female BNC/Jack
P01710054

Male DIN connector
Female S7/Jack
P01710055

BUFFER SOLUTIONS, FITTINGS AND ACCESSORIES

DIN/NIST pH buffer solutions

pH 1.68 DIN-NIST buffer	P01700105
pH 4.01 DIN-NIST buffer	P01700106
pH 7.00 DIN-NIST buffer	P01700107
pH 9.18 DIN-NIST buffer	P01700108
pH 10.01 DIN-NIST buffer	P01700109

Concentrated pH buffer solutions

Concentrated pH 4.00 buffer	P01700111
Concentrated pH 7.00 buffer	P01700112
Concentrated pH 9.00 buffer	P01700113

COFRAC-certified pH buffer solutions

COFRAC-certified pH 4.005 buffer (x10)	P01700101
COFRAC-certified pH 6.865 buffer (x10)	P01700102
COFRAC-certified pH 9.180 buffer (x10)	P01700103
Set of 3 x 5 COFRAC-certified pH 4, 7 and 9 buffers	P01700104

Redox buffer solutions

146 mV Michaelis solution	P01700110
220 mV redox buffer	P01700114
468 mV redox buffer	P01700115

Standard conductivity solutions

NIST 147 µS/cm conductivity standard	P01700117
NIST 1408 µS/cm conductivity standard	P01700118
OIML 12.85 mS/cm conductivity standard	P01700119
KCl 1 mol/L conductivity standard	P01700116

Fittings for S7 screw-on electrodes

S7RAC-R41 S7 to RCA connector	
S7RAC-R44 S7 to BNC connector	
S7RAC-R46 S7 connector to 1 x 2mm banana plug	
S7RAC-R47 S7 connector to 1 x 4mm banana plug	
S7RAC-R48 S7 connector to 2 x 2mm banana plugs	
S7RAC-R49 S7 connector to 2 x 4mm banana plugs	
S7RAC-R50 S7 connector to 5-pin DIN plug	

Other accessories

HEALLPVC PVC electrode extension lead	
PELECT Holder for 3 electrodes	
P01710058 Closing tab for filling electrode	
P01710056 Set of 3 transparent plastic beakers	

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