



# Xseries

## Benchtop Water Quality Meter

# Xseries

pH Meter Conductivity Meter  
Multi-Function Water Quality Meter  
pH / ORP / Ion / Conductivity / Dissolved Oxygen

To be released  
in early 2016



- pH
- ORP
- ION
- Conductivity
- DO



pH Meter Conductivity Meter  
 Multi-Function Water Quality Meter  
 pH / ORP / Ion / Conductivity / Dissolved Oxygen

# Large Touch Screen



Large, Easy-to-read display

Flat panel, easy maintenance



Vertical display



Horizontal display



Wall-mounted

## New Line-up

pH Meter **HM-40X** Overseas Model

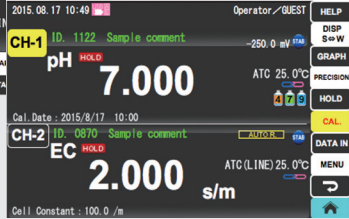
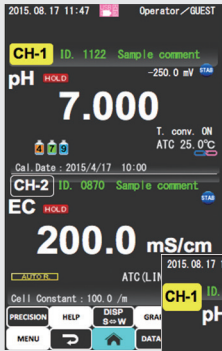
LCD Display



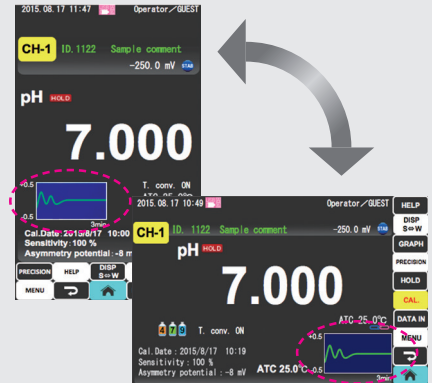
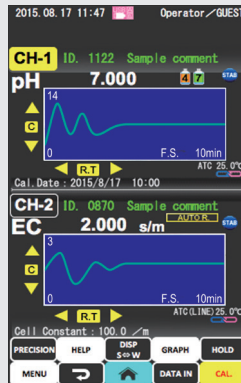
Operated by Dry battery (Up to 2500 hours)

# Various Display Functions

Vertical/Horizontal screen switch

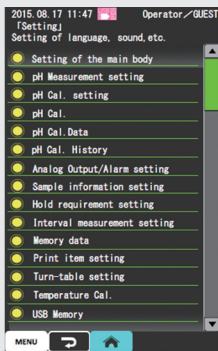


2ch Display

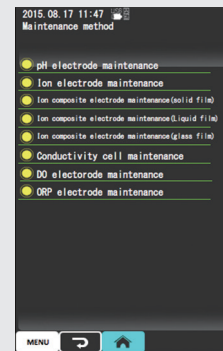


Graphic Display

Touch panel input

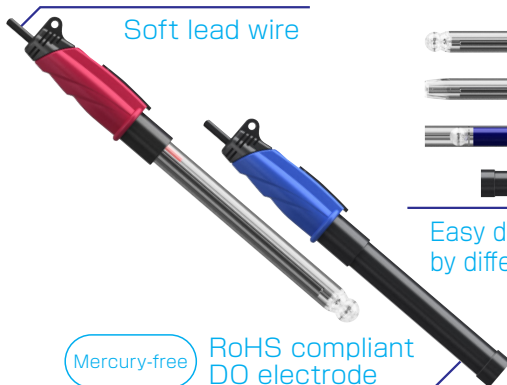


Easy-to-read menu

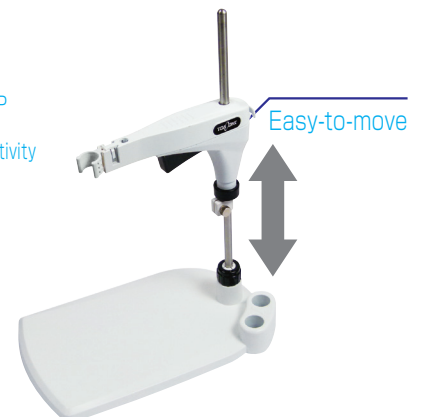


Maintenance information

## New sensors and electrodes



Easy distinction of electrodes by different coloring





# Xseries Line-up

## Touch Screen

### Multi-function Water Quality Meter MM-43X

sensors are sold separately

2ch



pH  
ORP  
ION  
Conductivity  
Resistivity  
Salinity  
Concentration  
TDS  
DO

USB  
USB memory/  
PC connectable  
External printer  
Turntable  
USP645

### pH/Ion Meter HM-42X

Including pH combined electrode  
GST-5841C



pH  
ORP  
ION

USB  
USB memory/  
PC connectable  
External printer  
Turntable

### Conductivity Meter CM-42X

Including conductivity cell  
CT-58101B



Conductivity  
Resistivity  
Salinity  
Concentration  
TDS

USB  
USB memory/  
PC connectable  
External printer  
Turntable  
USP645

## Customized LCD Basic Type

### pH Meter HM-41X

Including pH combined electrode  
GST-5821C



pH  
ORP

USB  
PC connectable  
External printer  
Dry battery

### pH Meter HM-40X

Including pH combined electrode  
GST-5821C



pH  
ORP

Dry battery

### Conductivity Meter CM-41X

Including conductivity cell  
CT-58101B



Conductivity  
Resistivity  
Salinity  
TDS

USB  
PC connectable  
External printer  
Dry battery

## Accessories

MM-43X		HM-42X		CM-42X		HM-41X		CM-41X	
Electrode Attachment (J)	0IB00005	pH combined electrode*	GST-5841C	Conductivity cell*	CT-58101B	pH combined electrode*	GST-5821C	Conductivity cell*	CT-58101B
Electrode Attachment (DP)	0IB00007	pH6.86 standard solution 500mL	143F192	Polybeaker 150mL ×1	0DE00001	pH6.86 standard solution 500mL	143F192	Polybeaker 150mL ×1	0DE00001
Electrode Attachment (ION)	0IB00006	pH4.01 standard solution 500mL	143F191	AC adapter	7430880K	pH4.01 standard solution 500mL	143F191	AA alkaline battery (for testing) ×4	
Polybeaker 150mL ×3	0DE00001	Reference electrode internal solution 50mL		Power cord	118C229	Reference electrode internal solution 50mL			
AC adapter	7430880K	Polybeaker 150mL ×3	0DE00001			Polybeaker 150mL ×3	0DE00001		
Power cord	118C229	AC adapter	7430880K			AA alkaline battery (for testing) ×4			
		Power cord	118C229						

(Common accessories for all the above model)

Electrode holder 7430850K  
Tilt stand 7430870K

Electrode stand (w/column and stopper) 7430860K  
Ground wire X0979500  
Manual

Electrode attachment G (2 sets for MM-43X) 0IB00004

\* Accessories are included only when purchased in 1 set.

# Accessories and Options

Product	P/N	Remarks
Electrode Holder	7430850K	
Electrode Stand	7430860K	With support, stopper.
Electrode Attachment (G)	OIB00004	For Xseries electrodes.
Electrode Attachment (J)	OIB00005	For Jseries electrodes.
Electrode Attachment (ION)	OIB00006	For single function ion electrodes.
Electrode Attachment (DP)	OIB00007	For P30series electrodes.
Electrode Attachment (N)	OIB00008	For nozzle.
Stirrer	ST-7	For sample stirring. Max. 200mL beaker.
Turntable	TTT-710	12 or 18 samples.
		36 samples.
		60 samples.
		100 samples, Maker Option
		Shower cleaning by purified water is standard equipped. Chemical cleaning, bubble cleaning, air blow are possible (optional). Turntable with thermostatic tank is also available (optional). For HM-42X, CM-42X, MM-43X.
Connection Cable for Turntable	7433040K	Cable length: 2m. For HM-42X, CM-42X, MM-43X.
Data Collection Software	X-LOG	Save the measurement data in PC by USB or RS-232C in text format. Data import to commercially available USB memory is possible. Commercially available USB cable is necessary. For HM-42X, CM-42X, MM-43X.
Data Collection Software	GP-LOG	Save the measurement data in PC by USB in text format. Commercially available USB cable is necessary. For HM-41X, CM-41X.
RS-232C Connecting Cable	118N062	For PC connection, 2m For connecting to USB port, USB serial converter cable is necessary. HM-42X, CM-42X, MM-43X
External Printer	EPS-P30	Print to plain paper, Chart Width Approx.60mm Connecting cable, Print paper, Ink ribbon
Printer Paper (20 sheets)	P000119	
Ink Ribbon	ORD00001	
Externl Printer Cable	118N061	If you already have external printer (EPS-G/EPS-R), it is possible to use the printer by purchasing this cable.
Cell Selector	ES-1GC	Max. 5 electrodes of Conductivity connectable. CM-42X, MM-43X (For ch-1 only)
Electrode Selector	ES-1GDP	Max. 5 electrodes of DO connectable. MM-43X (For ch-1 only)
Control Box	AC-1V	If connected to Upper/Lower Output Terminal, AC100V is automatically switched ON/OFF when measurement value exceeds upper or lower limit. If pump is connected, pH control is also possible. HM-42X, CM-42X, MM-43X
Analog Output Cable	7433020K	Cable 1.5m, external unit connecting side terminal (3mmY Terminal) HM-42X, CM-42X, MM-43X
pH Checker	PC-1G	HM-42X/41X, MM-43X
Conductivity Check Plug	EC-1G	CM-42X/41X, MM-43X
Temo. Check Plug	TC-1G	HM-42X/41X, CM-42X/41X, MM-43X
Electrode Adapter (pH/ORP/ion)	OJD00001	Single function electrode connectable.



Electrode Holder/Stand



Stirrer



Turntable



External printer

## pH/ORP

### Cal-Memo sensor

The sensor memorizes Model, serial number, calibration data

		Application	Range		Strong	Float	Silver ion
			pH, ORP	Temp.			
pH combined electrode	GST-5841C	For general use	pHO~14	0~100°C	○	○	○
	GST-5821C	For general use	pHO~14	0~100°C	—	○	○
	GST-5841S	For organic solvent	pHO~14	0~100°C	○	○	—
	GST-5842S	For precise measurement	pHO~14	0~60°C	○	○	—
	GST-5823S	For precise&trace measurement	pHO~11	0~60°C	—	○	—
	GST-5824C	Spear type	pHO~12	0~60°C	—	○	—
	GST-5845C	For trace sample	pHO~13	0~100°C	○	—	—
	GST-5846C	For ultra trace sample	pHO~13	0~60°C	○	—	—
	GST-5847C	For test tube	pHO~13	0~100°C	○	—	—
	GST-5848C	For fine test tube	pHO~13	0~60°C	○	—	—
	GST-5820C	Flow-through type	pHO~12	0~60°C	—	○	—
	GST-5851C	For strong alkaline sample	pHO~14	0~100°C	—	○	○
ELP-040	For hydrofluoric acid bath	pH2~12	0~50°C	—	○	—	
5082L	Glass electrode chip						
ORP combined electrode	PST-5821C	For general use	Range of indication	0~100°C	—	○	○
ORP combined electrode Cal-Memo incompatible	PS-5011C	For general use	Range of indication	—	—	○	○

pH1.68 Standard Solution	500mL	143F194
pH4.01 Standard Solution	500mL	143F191
pH6.86 Standard Solution	500mL	143F192
pH9.18 Standard Solution	500mL	143F193
pH10.02 Standard Solution	500mL	143F195
Reference electrode internal solution RE-4 50mL×3		OBG00011

ORP check solution (pH standard solution 4.01 500mL+Quinhydrone powder)	143F196
ORP electrode abrasive 10mL	AO-001

- Strong Glass electrode. The strength of its tip is improved. Hard to break.
- Float Float is built-in whose exchange span of internal solution can be checked in a glimpse
- Silver Ion Trap Measurement performance of solution with shock absorbing characteristics such as tap water and alkaline solution is improved.

## Conductivity

Cell		Application	Range		Cell Constant
			Conductivity	Temp.	
Immersion/drop-in type Conductivity Cell	CT-58101B	For general use	100μS/m~10S/m {1μS/cm~100mS/cm}	0~100°C	100m <sup>-1</sup>
	CT-58101C	For Low Conductivity use	5μS/m~1S/m {0.05μS/cm~10mS/cm}	0~100°C	10m <sup>-1</sup>
	CT-58101A	For High Conductivity use	1mS/m~100S/m {10μS/cm~1S/cm}	0~100°C	1000m <sup>-1</sup>
Flow-through type Conductivity Cell	CT-88101B	For General	100μS/m~10S/m {1μS/cm~100mS/cm}	0~100°C	100m <sup>-1</sup>
	CT-88101C	For Low Conductivity	5μS/m~1S/m {0.05μS/cm~10mS/cm}	0~100°C	10m <sup>-1</sup>
	CT-88102A	For High Conductivity	10mS/m~100S/m {100μS/cm~1S/cm}	0~100°C	2000m <sup>-1</sup>
	CT-27111D	For Pure Water	5μS/m~20mS/m {0.05μS/cm~200μS/cm}	0~80°C	1m <sup>-1</sup>

Conductivity Cell Check C Solution 100mL (4 bottles)	140.9mS/m at 25°C	OBI00001
Conductivity Cell Check B Solution 250mL (2 bottles)	1286mS/m at 25°C	OBI00002
Flow-throu cell (PP) Connection Diameter: Outer Diameter 8mm×Inner Diameter 4mm		CEF-22A
Flow cell (SUS) Connection Diameter: Outer Diameter 8mm×Inner Diameter 6mm		CEF-23A

## Dissolved Oxygen

Electrode	Application	Range	Note	Measurement method
DO electrode	OE-273AA	Standard Membrane: 0~20mg/L High Range Membrane: 0~50mg/L (High Range Membrane Set sold separately)	For no-flow measurement	Membrane Polarographic Method
	OE-573BA			
	OE-473AA	Bottle w/stopper-use	With stirring function	
	OE-473BA	Lab-use	For no-flow measurement	

Membrane set OE-273AA (3 sets)	OCC00001
Membrane Set OE-273AA High Range DO (3 sets)	OCC00002
Membrane Set OE-573BA (3 sets)	OCC00023
Membrane Set OE-573BA High Range DO (3 sets)	OCC00024
Membrane Set OE-473AA (3 sets)	OCC00003
Membrane Cartridge OE-473AA (5 sets)	OCT-2502
Membrane Set OE-473BA (3 sets)	OCC00022
Electrolyte R-12 50mL (3 sets)	143H008
Sodium Sulfite 50g	143A030

Note(1) DO electrode cannot be used for the below membrane type galvanic cell method.

OE-270AA/570BA, 470AA/470BA

Note(2) For BOD measurement, auxiliary equipment such as bottle w/stopper and incubator is necessary.

Recommended bottle w/stopper  
JIS standard Medium Size TS19/22 (Large-diameter 18.8mm, Reduced-diameter 16.6mm, Length 22mm)

# Ion

Electrode	Ion replacement chip	Measurement range(Optimal pH range)	Interference of coexisting ion*/ Note
Fluoride ion combined electrode F-2021	F-200 (Solid Membrane)	0.019~19,000mg/L F <sup>-</sup> (pH5~6)	OH <sup>-</sup> =10 <sup>1</sup> HPO <sub>4</sub> <sup>2-</sup> , HCO <sub>3</sub> <sup>-</sup> =10 <sup>3</sup> (pH 7~8) Cl <sup>-</sup> , Br <sup>-</sup> , I <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> =10 <sup>5</sup>
Chloride ion combined electrode CL-2021	CL-200B (Solid Membrane)	1~35,000mg/L Cl <sup>-</sup> (pH5~6)	S <sup>2-</sup> =Must be absent CN <sup>-</sup> , I <sup>-</sup> =10 <sup>-5</sup> Br <sup>-</sup> , S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> =10 <sup>-2</sup> NO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , CO <sub>3</sub> <sup>2-</sup> , PO <sub>4</sub> <sup>3-</sup> , F <sup>-</sup> =10 <sup>3</sup>
Cyanide ion combined electrode CN-2021	CN-200B (Solid Membrane)	0.003~26mg/L CN <sup>-</sup> (pH12~13)	S <sup>2-</sup> =Must be absent I <sup>-</sup> =10 <sup>-1</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> =10 <sup>1</sup> Br <sup>-</sup> =10 <sup>3</sup> NO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , PO <sub>4</sub> <sup>3-</sup> =10 <sup>4</sup> CO <sub>3</sub> <sup>2-</sup> , Cl <sup>-</sup> , F <sup>-</sup> =10 <sup>5</sup>
Sodium ion combined electrode NA-2011	NA-100B (Glass Membrane)	2.3~23,000mg/L Na <sup>+</sup> (pH10~11)	Mg <sup>2+</sup> , Ca <sup>2+</sup> , Zn <sup>2+</sup> , NH <sub>4</sub> <sup>+</sup> , K <sup>+</sup> , Li <sup>+</sup> =10 <sup>3</sup>
Sodium ion combined electrode K-2031	K-300B (Liquid Membrane)	0.39~3,900mg/L K <sup>+</sup> (pH5~6)	H <sup>+</sup> =10 <sup>2</sup> NH <sub>4</sub> <sup>+</sup> =3×10 <sup>2</sup> Na <sup>+</sup> =2×10 <sup>3</sup> Li <sup>+</sup> =10 <sup>4</sup>
Calcium ion combined electrode CA-2031	CA-300 (Liquid Membrane)	0.4~40,000mg/L Ca <sup>2+</sup> (pH5~6)	Pb <sup>2+</sup> , Zn <sup>2+</sup> =10 <sup>1</sup> Mn <sup>2+</sup> =10 <sup>2</sup> Cu <sup>2+</sup> , Mg <sup>2+</sup> , Cd <sup>2+</sup> , Ba <sup>2+</sup> , Fe <sup>2+</sup> =10 <sup>3</sup> Ni <sup>2+</sup> =10 <sup>4</sup>
Nitrate ion combined electrode N-2031	N-300 (Liquid Membrane)	0.62~62,000mg/L NO <sub>3</sub> <sup>-</sup> (pH5~6)	I <sup>-</sup> =10 <sup>-3</sup> Br <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> =10 <sup>0</sup> Cl <sup>-</sup> =10 <sup>1</sup> CH <sub>3</sub> COO <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , CO <sub>3</sub> <sup>2-</sup> , F <sup>-</sup> =10 <sup>2</sup>
Ammonium electrode(Membrane electrode) AE-2041	—	0.09~1,800mg/L NH <sub>4</sub> <sup>+</sup> (pH12 or more)	Volatile amines
Carbon Dioxide electrode(Membrane electrode) CE-2041	—	Dissolved Gas 1.49~1,490mg/L	Dissolved gas:Volatile weak acid Atmosphere:Acidic gas Calibration cell(CGC-202L) and Calibration adapter (6791140K) is necessary.
Bromine ion combined electrode BR-2021	BR-200 (Solid Membrane)	0.8~80,000mg/L Br <sup>-</sup> (pH5~6)	S <sup>2-</sup> =Must be absent CN <sup>-</sup> , I <sup>-</sup> =10 <sup>-4</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> , SCN <sup>-</sup> =10 <sup>0</sup> Cl <sup>-</sup> =10 <sup>2</sup> NO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , CO <sub>3</sub> <sup>2-</sup> , F <sup>-</sup> =10 <sup>4</sup>
Iodide ion combined electrode I-2021	I-200 (Solid Membrane)	0.01~127,000mg/L I <sup>-</sup> (pH5~6)	S <sup>2-</sup> , Reducing substance = Must be absent CN <sup>-</sup> =10 <sup>0</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> =10 <sup>1</sup> SCN <sup>-</sup> =10 <sup>3</sup> Br <sup>-</sup> =10 <sup>4</sup> NO <sub>3</sub> <sup>-</sup> , CO <sub>3</sub> <sup>2-</sup> , PO <sub>4</sub> <sup>3-</sup> , Cl <sup>-</sup> , F <sup>-</sup> =10 <sup>5</sup>
Cadmium ion combined electrode CD-2021	CD-200 (Solid Membrane)	0.01~1,120mg/L Cd <sup>2+</sup> (pH5~6)	Hg <sup>2+</sup> , Ag <sup>+</sup> , Cu <sup>2+</sup> =Must be absent Pb <sup>2+</sup> , Fe <sup>3+</sup> =10 <sup>0</sup> Cr <sup>3+</sup> =10 <sup>2</sup> Na <sup>+</sup> , K <sup>+</sup> , Mg <sup>2+</sup> , Ca <sup>2+</sup> , Zn <sup>2+</sup> , Al <sup>3+</sup> =10 <sup>5</sup>
Copper ion combined electrode CU-2021	CU-200 (Solid Membrane)	0.06~630mg/L Cu <sup>2+</sup> (pH5~6)	Ag <sup>+</sup> , Hg <sup>2+</sup> =Must be absent Fe <sup>3+</sup> =10 <sup>-1</sup> Al <sup>3+</sup> =10 <sup>1</sup> Cr <sup>3+</sup> =10 <sup>2</sup> Ni <sup>2+</sup> =10 <sup>3</sup> Na <sup>+</sup> , Mg <sup>2+</sup> , Ca <sup>2+</sup> =10 <sup>4</sup>
Silver ion combined electrode AG-2021	AG-200 (Solid Membrane)	0.1~108,000mg/L Ag <sup>+</sup> (pH5~6)	Hg <sup>2+</sup> =Must be absent Mg <sup>2+</sup> =10 <sup>3</sup> Ca <sup>2+</sup> , Cu <sup>2+</sup> , Pb <sup>2+</sup> , Cd <sup>2+</sup> , Zn <sup>2+</sup> =10 <sup>4</sup> Na <sup>+</sup> , K <sup>+</sup> =10 <sup>6</sup>
Sulfide ion combined electrode S-2021	S-200 (Solid Membrane)	0.3~32,000mg/L S <sup>2-</sup> (pH13 or more)	—

Ion sensor replacement liquid junction (10)			OLF00001
F Standard Solution F-1000	500mL		143F391
F Standard Buffer Solution F-10+TISAB-11	500mL		143F393
F Standard Buffer Solution F-100+TISAB-11	500mL		143F392
Cl Standard Solution CL-1000	500mL		143A281
CN Standard Solution	500mL	Toxic	CN-100
Na Standard Solution NA-1000	500mL		143E031
K Standard Solution K-1000	500mL		143B482
Ca Standard Solution CA-1000	500mL		143B481
NO3 Standard Solution NO3-1000	500mL		143C486
NO3-N Standard Solution NO3-N	500mL		143C487
NH4 Standard Solution NH4-1000	500mL		143A041
NH4-N Standard Solution NH4-N	500mL		143A042
Carbon Dioxide Electrode Calibration Powder for CGS-111 1L (10 pillows)			143D044
Br Standard Solution BR-1000	500mL		143C483
I Standard Solution I-1000	500mL		143H091
Cd Standard Solution CD-100	500mL		143B500
Cu Standard Solution CU-100	500mL		143D043
Ionic Strength Adjuster TISAB-01	500mL		143A279
Ionic Strength Adjuster TISAB-11	500mL		143A280
Ionic Strength Adjuster ISA-CL	500mL For Cl, Br, I, Ag		143A334
Ionic Strength Adjuster ISA-CN	500mL For CN		143A335
Ionic Strength Adjuster ISA-NA	500mL For Na		143A338
Ionic Strength Adjuster ISA-K	500mL For K		143A337
Ionic Strength Adjuster ISA-CA	500mL For Ca		143A333
Ionic Strength Adjuster ISA-NO	500mL For NO <sub>3</sub>		143A340
Ionic Strength Adjuster ISA-NH	500mL For NH <sub>4</sub>		143A339
Ionic Strength Adjuster ISA-CO	500mL For CO <sub>2</sub>		143D045
Ionic Strength Adjuster ISA-CU	500mL For Cu, Cd		143A336
Ionic Strength Adjuster Powder for ISA-S 100mL (10 pillows) S			143A332
Reference Electrode Internal Solution RE-1	100mL		143F230
Reference Electrode Outer Chamber Solution RE-2	100mL		143F238
Reference Electrode Outer Chamber Solution RE-3	100mL		143F239
Ammonia Electrode Internal Solution RE-NH4	50mL (3 bottles)		OBG00005
Carbon Dioxide Electrode Internal Solution RE-11			143D042
Ammonia Electrode Replacement Membrane (10 membranes)			AE-FILM
Carbon Dioxide Electrode Membrane Cartridge (4 cartridges)			CTC-211
Carbon Dioxide Electrode Calibration Cell			CGC-202L
Calibration Adapter			67911490K

Toxic: Cautions are needed when handling.

- \*1 Interference of coexisting ion (Selectivity coefficient for 10<sup>-1</sup>mol/L ion concentration 10<sup>-2</sup>mol/L for Cadmium ion and Silver ion, 10<sup>-3</sup>mol/L for Cyanide ion, and Copper ion )  
If an ion coexists in the solution, it can cause data errors when measuring the targeted ion. A selectivity coefficient of 10<sup>x</sup> means that if the solution contains a coexistent ion that is 10<sup>x</sup> times greater than the value of the targeted ion that is measured, an error occurs in which the value of the targeted ion equals the coexistent ion value.  
If the concentration level of the coexistent ion is high enough to affect the measured values, we recommend conducting pretreatment in order to prevent interference.
- \*2 143A279(TISAB-01): For general sample 143A280(TISAB-11):For sample containing metal ion(iron, aluminum etc.)

Note(1) The ion electrode does not have temperature measurement function. Measurable solution temperature range is 0-50°C .

Note(2) In addition to the electrode, standard solution, ion strength adjuster, and reference electrode external solution are necessary for ion measurement.

Note(3) Make sure to contact us before you conduct ion measurements, because when there are coexisting samples, it can be difficult to conduct ion measurements.

Note(4) We do not sell silver and sulfide ion standard solutions. Customers are suggested to prepare following the steps listed in the instruction manual.

# Specifications/Function

## pH meter

Model Name		HM-42X	HM-41X	HM-40X	
Measurement Method		pH :Glass electrode method ORP :Platinum electrode method Ion :Ion electrode method Temperature :Thermistor resistor	pH :Glass electrode method ORP :Platinum electrode method Temperature :Thermistor resistor	pH :Glass electrode metho Temperature :Thermistor resistor	
Display unit		Touch panel color graphic LCD	Customized LCD	Customized LCD	
Measurement Item/Range	pH	pH0.000~14.000	pH0.000~14.000	pH0.000~14.000	
	mV (ORP)	-2000.0~2000.0 mV	-2000~2000 mV	-500~500 mV ※ORP electrode not connectable	
	Ion	Depends on the sensor used	—	—	
	Temperature	0.0~100.0℃ Ion:Depends on the electrode	0.0~100.0℃	0.0~100.0℃	
Display Range	pH	pH-2.000~16.000	pH-2.000~16.000	pH-2.000~16.000	
	mV (ORP)	-2200.0~2200.0 mV	-2200~2200 mV	-550~550 mV	
	Ion (Manual/Auto Range Switching) (mol/L selectable)	Zoom OFF	0.0~19.9μg/L 20~199μg/L 0.20~1.99mg/L 2.0~19.9mg/L 20~199mg/L 0.20~1.99g/L 2.0~19.9g/L 20~199g/L 200~1990g/L	Zoom ON 0.00~19.99μg/L 20.0~199.9μg/L 0.200~1.999mg/L 2.00~19.99mg/L 20.0~199.9mg/L 0.200~1.999g/L 2.00~19.99g/L 20.0~199.9g/L 200~1999g/L	—
		—	—	—	—
		—	—	—	—
		—	—	—	—
Temperature	-5.0~110.0℃	-5.0~110.0℃	-5.0~110.0℃		
Display resolution switch	pH	0.01pH/0.001pH	0.01pH/0.001pH	0.01pH/0.001pH	
	mV (ORP)	1/0.1mV	1mV	1mV	
	Ion	0.0μg/L~1990g/L (Maximum to 3-digits) 0.00μg/L~1999g/L (Maximum to 4-digits)	—	—	
Repeatability (Main body)	pH	±0.002pH	±0.006pH	±0.006pH	
	mV (ORP)	±0.2mV	±2mV	±2mV	
	Ion	±0.5% FS	—	—	
	Temperature	within ±0.2℃	within ±0.2℃	within ±0.2℃	
pH Temperature Compensation Range		ATC(Auto Temperature Compensating) : 0~100.0℃ MTC(Manual Temperature Compensating) : 0~100.0℃	ATC(Auto Temperature Compensating) : 0~100.0℃ MTC(Manual Temperature Compensating) : 0~100.0℃	ATC(Auto Temperature Compensating) : 0~100.0℃ MTC(Manual Temperature Compensating) : 0~100.0℃	
pH Calibration		JIS pH standard solution, US standard solution, customized standard solution Max. 5 point calibration	JIS pH standard solution, US standard solution, customized standard solution Max. 5 point calibration	JIS pH standard solution, US standard solution, customized standard solution Max. 5 point calibration	
Ion Calibration		Max. 5 point calibration	—	—	
Temperature Calibration		1 point calibration	1 point calibration	1 point calibration	
Performance Guaranteed Temperature, Humidity		0~45℃ 20~85% or below (condensation-free)	0~45℃ 20~85% or below (condensation-free)	0~45℃ 20~85% or below (condensation-free)	
Data Memory		2000 data	1000 data	—	
Print Function		Optional External Printer EPS-P30 connectable	Optional External Printer EPS-P30 connectable	—	
Auto Hold Function		○	○	○	
Auto Hold Conditions Settings		○	—	—	
Statistical Calculation Function		Average Value	—	—	
Calibration History Creation Function		Max.20 run lots	Latest one run	Latest one run	
Interval Measurement		○	○	○	
Security Function		○	—	—	
Upper/Lower Limit Output Setting		○	—	—	
Customized Standard Solution Table Creation Function		○	—	—	
mV Shift Function		○	○	—	
External Input/Output	RS-232C Interface	○ (2ch)	○ (For external printer)	—	
	USB (Host)	○	—	—	
	USB (peripheral, Micro)	○	○	—	
	Analog Output	pH	±700mV (pH0~14)	—	—
		mV (ORP)	±1V (0~±2000mV)	—	—
		Ion	0~1VFS	—	—
Temperature		0~1V (0~100℃)	—	—	
Alarm	Upper Limit: Open collector Lower Limit: Open collector	—	—		
Option Connection	External printer	○	○	—	
	Turntable (TTT510/710)	○	—	—	
	Electrode Selector (ES-1G)	○	—	—	
	Control Box (AC-1V)	○	—	—	
Power Source		AC100~240V (Special AC Adapter)	AA Alkaline battery×4 or USB power feeding (No charging function)	AA Alkaline battery×4	
Power Consumption		Approx.11VA	Approx.2500 hours (estimated)	Approx. 2500 hours (estimated)	
Main Unit Dimensions (Excluding Protruding Parts)		Approx.130W×60H×230Dmm	Approx.130W×60H×230Dmm	Approx.130W×60H×230Dmm	
Main Unit Weight		Approx. 0.8kg	Approx. 0.7kg	Approx. 0.7kg	



# Conductivity meter

Model Name		CM-42X	CM-41X
Measurement Method		Conductivity: AC 2-Electrode Method Temperature: Thermistor Resistor	Conductivity: AC 2-Electrode Method Temperature: Thermistor Resistor
Conductivity Measuring frequency		80Hz/3kHz Auto-selection	80Hz/3kHz Auto-selection
Display unit		Touch panel color graphic LCD	Customized LCD
Measurement Item/Range	Conductivity	Depends on the cell	Depends on the cell
	Resistivity	Depends on the cell	Depends on the cell
	Salinity	Conversion from conductivity	Conversion from conductivity
	Concentration	Conversion from conductivity	-
	TDS	Conversion from conductivity	Conversion from conductivity
	Temperature	0.0 ~ 100.0°C	0.0 ~ 100.0°C
Display Range	Conductivity (Manual/Auto Range Switching) (Depending on the cell)	0.0 ~ 200.0 $\mu$ S/m (0.000 ~ 2.000 $\mu$ S/cm) 0.000 ~ 2.000mS/m (0.00 ~ 20.00 $\mu$ S/cm) 0.00 ~ 20.00mS/m (0.00 ~ 200.0 $\mu$ S/cm) 0.0 ~ 200.0mS/m (0.000 ~ 2.000mS/cm) 0.000 ~ 2.000S/m (0.00 ~ 20.00mS/cm) 0.00 ~ 20.00S/m (0.0 ~ 200.0mS/cm) 0.0 ~ 200.0S/m (0.000 ~ 2.000S/cm) SI unit (S/m) or (S/cm) selectable	0.0 ~ 200.0 $\mu$ S/m (0.000 ~ 2.000 $\mu$ S/cm) 0.000 ~ 2.000mS/m (0.00 ~ 20.00 $\mu$ S/cm) 0.00 ~ 20.00mS/m (0.00 ~ 200.0 $\mu$ S/cm) 0.0 ~ 200.0mS/m (0.000 ~ 2.000mS/cm) 0.000 ~ 2.000S/m (0.00 ~ 20.00mS/cm) 0.00 ~ 20.00S/m (0.0 ~ 200.0mS/cm) 0.0 ~ 200.0S/m (0.000 ~ 2.000S/cm) SI unit (S/m) or (S/cm) selectable
	Resistivity (Manual/Auto Range Switching) (Depending on the cell)	0.005 ~ 2.000 $\Omega$ ·m (0.5 ~ 200.0 $\Omega$ ·cm) 0.00 ~ 20.00 $\Omega$ ·m (0.000 ~ 2.000k $\Omega$ ·cm) 00.0 ~ 200.0 $\Omega$ ·m (0.00 ~ 20.00k $\Omega$ ·cm) 0.000 ~ 2.000k $\Omega$ ·m (0.0 ~ 200.0k $\Omega$ ·cm) 0.00 ~ 20.00k $\Omega$ ·m (0.000 ~ 2.000M $\Omega$ ·cm) 00.0 ~ 200.0k $\Omega$ ·m (0.00 ~ 20.00M $\Omega$ ·cm) 0.000 ~ 2.000M $\Omega$ ·m (0.0 ~ 200.0M $\Omega$ ·cm) 0.00 ~ 20.00M $\Omega$ ·m (0 ~ 2000M $\Omega$ ·cm) SI unit (S/m) and conventional unit (S/cm) selectable	0.005 ~ 2.000 $\Omega$ ·m (0.5 ~ 200.0 $\Omega$ ·cm) 0.00 ~ 20.00 $\Omega$ ·m (0.000 ~ 2.000k $\Omega$ ·cm) 00.0 ~ 200.0 $\Omega$ ·m (0.00 ~ 20.00k $\Omega$ ·cm) 0.000 ~ 2.000k $\Omega$ ·m (0.0 ~ 200.0k $\Omega$ ·cm) 0.00 ~ 20.00k $\Omega$ ·m (0.000 ~ 2.000M $\Omega$ ·cm) 00.0 ~ 200.0k $\Omega$ ·m (0.00 ~ 20.00M $\Omega$ ·cm) 0.000 ~ 2.000M $\Omega$ ·m (0.0 ~ 200.0M $\Omega$ ·cm) 0.00 ~ 20.00M $\Omega$ ·m (0 ~ 2000M $\Omega$ ·cm) SI unit ( $\Omega$ ·m) and conventional unit ( $\Omega$ ·cm) selectable
	Salinity	0.00 ~ 4.04% (NaCl) 0.00 ~ 42.40psu (PSS:Sea water salinity)	0.00 ~ 4.04% (NaCl) 0.00 ~ 42.40 (PSS:Sea water salinity)
	Concentration (Automatic Range Switching)	0 ~ 2.000% 0 ~ 20.00% 0 ~ 200.0%	-
	TDS (Manual/Auto Range Switching)	0 ~ 99.99mg/L 0 ~ 999.9mg/L 0 ~ 9.999g/L 0 ~ 99.99g/L 0 ~ 999.9g/L	0 ~ 99.99mg/L 0 ~ 999.9mg/L 0 ~ 9.999g/L 0 ~ 99.99g/L 0 ~ 999.9g/L
	Temperature	-5.0 ~ 110.0°C	-5.0 ~ 110.0°C
	Repeatability (Meter main unit)	Conductivity	±0.5% FS
Resistivity		±0.5% FS	±0.5% FS
Salinity		±0.5% FS	±0.5% FS
Concentration		±0.5% FS	-
TDS		±0.5% FS	±0.5% FS
Temperature		within ±0.2°C	within ±0.2°C
Temperature Compensation	Temperature Compensation Range	ATC (Auto Temperature Compensation) : 0 ~ 100.0°C MTC (Manual Temperature Compensation) : 0 ~ 100.0°C	ATC (Auto Temperature Compensation) : 0 ~ 100.0°C MTC (Manual Temperature Compensation) : 0 ~ 100.0°C
	N/A	ATC OFF	ATC OFF
	Standard Temperature Setting	0 ~ 100.0°C	25°C fixed
	Temperature Coefficient (Linear)	0 ~ 10.00%/°C	0 ~ 10.00%/°C
	Temperature Coefficient (Curve)	2-10 points	-
Pure Water Dual Temperature Compe.	○	-	
Concentration Conversion Setting	2-10 points	-	
Temperature Calibration	1-point Calibration	1-point Calibration	
Performance Guaranteed Temperature, Humidity	0 ~ 45°C 85% or below (condensation-free)	0 ~ 45°C 85% or less (condensation-free)	
Data Memory	2000 data	1000 data	
Print Function	Connectable to optional external printer EPS-P30	Connectable to optional external printer EPS-P30	
Auto Hold Function	○	○	
Auto Hold Conditions Setting	○	-	
Statistical Calculation Function	Average value	-	
Calibration History Creation Function	Max.20 run lots each Channel, 10 electrode Types	Latest one run	
Interval Measurement	○	○	
Security Function	○	-	
Upper/Lower Limit Output Setting	○	-	
External Input/Output	RS-232C Interface	○ (2ch)	○ (External Printer)
	USB (Host)	○	-
	USB (peripheral, Micro)	○	○
	External Instrument Connection	○	-
	Analog Output	Meas. Value: 0 ~ 1VFS Range: 100mV/range Alarm: Upper Limit: Open Collector Lower Limit: Open Collector	- - -
Option Connection	External Printer	○	○
	Turntable (TTT510/710)	○	-
	Cell Switch (ES-1GC)	○	-
	Control Box (AC-1V)	○	-
Power Source	AC100 ~ 240V (Special AC Adapter)	AA Alkaline battery×4 or USB power feeding (No charging function).	
Power Consumption	Approx.12VA	Approx.1000 hours (estimated)	
Main Unit Dimensions (Excluding Protruding Parts)	Approx.130 W×60 H×230 Dmm	Approx.130 W×60 H×230 Dmm	
Main Unit Weight	Approx. 0.8kg	Approx. 0.7kg	

# Multi-Function Water Quality Meter

Model		MM-43X		
Measurement Method		pH : Glass Electrode Method ORP : Platinum Electrode Ion : Ion Electrode Method Conductivity : AC 2-Electrode Method DO : Diaphragm Polarographic Method Temperature : Thermistor Resistor		
Conductivity Measuring Frequency		80Hz/3kHz automatic selection		
Electrode Inputs		2ch (pH/ORP/Ion/DO Electrode/Conductivity cell connectable)		
Display Unit		Touch Panel Color Graphic LCD		
Display		Selectable 2-ch Simultaneous Display or Single Only Display		
Measurement Item/Range	pH	pH 0.000 ~ 14.000		
	mV (ORP)	-2000.0 ~ 2000.0 mV		
	Ion	Depends on the sensor		
	Conductivity	Depends on the cell		
	Resistivity	Conversion from conductivity Depend on the cell		
	Salinity	Conversion from conductivity		
	Concentration	Conversion from conductivity		
	TDS	Conversion from conductivity		
	DO	Depends on the electrode		
	Saturation %	Depends on the electrode		
Temperature	0.0 ~ 100.0°C DO:0.0 ~ 50.0°C Ion:Depends on the sensor (No temperature compensation function)			
Display Range	pH	pH-2.000 ~ 16.000		
	mV (ORP)	-2200.0 ~ 2200.0 mV		
	Ion (Manual/Auto range switching) (mol/L selectable)	ZOOM OFF	0.0 ~ 19.9 μg/L 20 ~ 199 μg/L 0.20 ~ 1.99 mg/L 2.0 ~ 19.9 mg/L 20 ~ 199 mg/L 0.20 ~ 1.99 g/L 2.0 ~ 19.9 g/L 20 ~ 199 g/L 200 ~ 1990 g/L	
		ZOOM ON	0.00 ~ 19.99 μg/L 20.0 ~ 199.9 μg/L 0.200 ~ 1.999 mg/L 2.00 ~ 19.99 mg/L 20.0 ~ 199.9 mg/L 0.200 ~ 1.999 g/L 2.00 ~ 19.99 g/L 20.0 ~ 199.9 g/L 200 ~ 1999 g/L	
	Conductivity (Manual/Auto range switching) (Depends on the cell)	SI unit (S/m) and conventional unit (S/cm) selectable	0.0 ~ 200.0 μS/m (0.000 ~ 2.000 μS/cm) 0.000 ~ 2.000 mS/m (0.00 ~ 20.00 μS/cm) 0.00 ~ 20.00 mS/m (0.0 ~ 200.0 μS/cm) 0.0 ~ 200.0 mS/m (0.000 ~ 2.000 mS/cm) 0.000 ~ 2.000 S/m (0.00 ~ 20.00 mS/cm) 0.00 ~ 20.00 S/m (0.0 ~ 200.0 mS/cm) 0.0 ~ 200.0 S/m (0.000 ~ 2.000 S/cm)	
		SI unit (Ω·m) and conventional unit (Ω·cm) selectable	0.005 ~ 2.000 Ω·m (0.5 ~ 200.0 Ω·cm) 0.00 ~ 20.00 Ω·m (0.000 ~ 2.000 kΩ·cm) 00.0 ~ 200.0 Ω·m (0.00 ~ 20.00 kΩ·cm) 0.000 ~ 2.000 kΩ·m (0.0 ~ 200.0 kΩ·cm) 0.00 ~ 20.00 kΩ·m (0.000 ~ 2.000 MΩ·cm) 00.0 ~ 200.0 kΩ·m (0.00 ~ 20.00 MΩ·cm) 0.000 ~ 2.000 MΩ·m (0.0 ~ 200.0 MΩ·cm) 0.00 ~ 20.00 MΩ·m (0 ~ 2000 MΩ·cm)	
	Salinity	0.00 ~ 4.04% (NaCl) 0.00 ~ 42.40psu (PSS:Sea water salinity)		
	Concentration (Auto range switch)	0 ~ 2.000% 0 ~ 20.00% 0 ~ 200.0%		
	TDS (Manual/Auto range switch)	0 ~ 99.99 mg/L 0 ~ 999.9 mg/L 0 ~ 9.999 g/L 0 ~ 99.99 g/L		
	Dissolved Oxygen	0.00 ~ 22.00 mg/L (High range membrane set (Option) 0.00 ~ 55.0 mg/L)		
	Saturation %	0 ~ 220.0% (High range membrane set (Option) 0 ~ 550%)		
	Temperature	-5.0 ~ 110.0°C		
	Display Resolution Switching	pH	0.01pH/0.001pH	
		mV (ORP)	1mV/0.1mV	
		Ion	0.0 μg/L ~ 1990 g/L (Maximum to 3 digits) 0.00 μg/L ~ 1999 g/L (Maximum 4 digits)	
Repeatability (Main body unit)	pH	±0.002pH		
	mV (ORP)	±0.2mV		
	Ion	±0.5% FS		
	Conductivity	±0.5% FS		
	Resistivity	±0.5% FS		
	Salinity	±0.5% FS		
	Concentration	±0.5% FS		
	TDS	±0.5% FS		
	Dissolved Oxygen	±0.03mg/L (Standard membrane)/±0.1mg/L (High range membrane)		
	Saturation %	±1% (Standard membrane/High range membrane)		
Temperature	within ±0.2°C			

Model		MM-43X	
Temperature compensation	pH	Temp. compensation range	ATC (Auto Temperature Compensation) : 0 ~ 100.0°C MTC (Manual Temperature Compensation) : 0 ~ 100.0°C
		Temp. compensation range	ATC (Auto Temperature Compensation) : 0 ~ 100.0°C MTC (Manual Temperature Compensation) : 0 ~ 100.0°C
	Conductivity	N/A	ATC OFF
		Standard Temp. setting	0 ~ 100.0°C
		Temperature Coefficient (Linear)	0 ~ 10.00%/°C
		Temperature Coefficient (Multipoint)	2 ~ 10 points
		Pure Water Dual Temperature Compensation	○
Dissolved Oxygen	Temperature Compensation Range	ATC (Auto Temperature Compensation) : 0 ~ 50.0°C	
pH calibration		JIS pH Standard Solution, US Standard Solution, Custom Standard Solution, Max. 5-point Calibration	
Ion calibration		Max.5-point Calibration	
DO calibration		Auto Calibration (Zero Span Calibration)	
Temp. calibration		1-point Calibration	
Conductivity Concentration Conversion Setting		2-10 points	
DO Chloride Compensation Setting		○	
DO ATM Pressure Compensation Setting		○	
Performance Guaranteed Temperature, Humidity		0 ~ 45°C 85% or below (Condensation-free)	
Data Memory		2000 data each channel	
Print Function		Optional External Printer EPS-P30	
Auto Hold Function		○	
Auto Hold Conditions Setting		○	
Statistical Calculation Function		Average Value	
Calibration History Creation Function		Max. 20 run lots	
Interval Measurement		○	
Security Function		○	
Upper/Lower Limit Output Setting		○ (1ch only)	
External Input/Output	RS-232C Interface		○ (2ch)
	USB (Host)		○
	USB (Peripheral, Micro)		○
	Analog Output	pH	±700mV (pH0 ~ 14)
		mV (ORP)	±1V (0 ~ ±2000mV)
		Ion	0 ~ 1VFS
		Conductivity/Resistivity/Salinity/Concentration/TDS	0 ~ 1VFS
		DO/Saturation	0 ~ 1VFS
		Range (Ion/Conductivity/Resistivity/Salinity/Concentration/TDS)	100mV/Range
		Temperature	0 ~ 1V (0 ~ 100°C)
Alarm (1ch only)		Upper Limit : Open Collector Lower Limit : Open Collector	
Option Connection	External Printer		○
	Turntable (TTT510/710)		○
	Electrode Selector (ES-1G)		○ (Single option can be connected to ch-1)
	Cell Selector (ES-1GC)		
	Control Box (AC-1V)		○
Power Source		AC100 ~ 240V (AC Adapter)	
Power Consumption		Approx. 18VA	
Main Unit Dimensions (Excluding Protruding Parts)		Approx. 130 W×60 H×230 D mm	
Main Unit Weight		Approx. 0.9kg	

# J-Series

## pH Meter Practical manually operated analog and digital models



### HM-7J • pH Meter

- Easy-to-read display with analog meter
- pH 3.5~0.5 Expansion scale: 200%
- Capable of measuring oxidation-reduction potential (ORP) (electrode sold separately)
- With mV-shift function
- Low price, compact size



### HM-20J • pH Meter

- Easy-to-read of measurements digital display
- Capable of measuring oxidation-reduction potential (ORP) (electrode sold separately)
- With mV-shift function
- Low price, compact size

### Specifications

Model Name	HM-7J	HM-20J
Measurement Method	Glass Electrode Method	
Display	Analog meter, pH / mV switching	Digital meter, pH / mV switching
Measurement Range	pH	Range pH0~14 Resolution 0.1pH (scale)
	PH expansion	Range pH3.5~10.5 Resolution 0.05pH (scale)
		mV
	Repeatability (Meter Main Unit)	pH
PH expansion		±0.025pH
mV		±10mV
Analog Output	pH	±700mV (pH0~14)
	mV	±350mV (0~±700mV)
Temperature Compensation Range	ATC (Auto Temperature Compensating) : 0 ~ 100.0°C	
Calibration	Manual (Zero span)	
Operation Temp. Range	0~40°C	
Power Source	AC Line or Size AA battery ×2	
Power Consumption	Approx. 3 VA	
Main Unit Dimensions	Approx. W148 × H75 × D221 mm	
Main Unit Weight	Approx. 0.7 kg	

### Standard Accessories

pH Electrode	GST-5711C	1 Pc.
Standard Solutions	Each	1 bottle
KCL Solution		1 bottle
Electrode Holder		1 piece
Electrode Attachment		1 piece (J-type)
Electrode Stand		1 piece
Support		1 piece
Stopper		1 piece
Polyethylene Beaker	150 mL	3 pieces
Thermometer		1 piece
Power Cable		1 piece
Ground Wire		1 piece
Operation Manual		1 copy

## Conductivity Meter Practical manually operated digital model

### CM-20J • Conductivity Meter

- Easy-to-read LCD digital display
- SI Unit (S/m) and Conventional Unit (S/cm) selectable
- Operation of AC/ DC 2 power source
- Low price, compact size



### Specifications

Model Name	CM-20J	
Display Unit	LCD	
Measurement Range	Depending on Cell used 0~2.000mS/m, 0~20.00mS/m, 0~200.0mS/m 0~2.000S/m, 0~20.00S/m	
Display Range	Display unit switching : SI Unit (S/m, Ω · m) and Conventional Unit (S/cm, Ω · cm) selectable	
Repeatability (Meter Main Unit)	±0.5% FS	
Range setting	Manual	
Temperature Compensation	Temperature Compensation Range	Manual 0~60°C
	Standard Temperature	25°C fixed
Output	Temperature Coefficient (Linear)	2% / °C fixed
	Conductivity	0~1V FS
Frequency of measurement	Auto select with 80Hz and 3kHz	
Operation Temp. Range	0~40°C	
Power Source	AC Line or Size AA battery ×2	
Power Consumption	Approx. 3 VA	
Main Unit Dimensions	Approx. W148×H75×D221 mm	
Main Unit Weight	Approx. 0.7 kg	

### Standard Accessories

Cell		1 piece (C-50101B)
Electrode Holder		1 piece
Electrode Stand		1 piece
Support		1 piece
Stopper		1 piece
Electrode Attachment		1 piece (J-type)
Polyethylene Beaker (150 mL)		1 piece
Mercury thermometer		1 piece
AC Cable		1 piece
Ground Wire		1 piece
Former unit		1 set
Operation Manual		1 copy



DKK-TOA CORPORATION



**CAUTION**

Please read the operation manual carefully before using products.

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