TOA DKK

X series

Benchtop Water Quality Meter

pH | ORP | ION | Conductivity | DO

Desktop water quality meter

X series

The screen image on the cover is shown in Japanese.

DKK-TOA CORPORATION

Large Touch Screen

X series

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

Large,
Easy-to-read display

Flat panel,
easy maintenance

Vertical display

Horizontal display

Wall-mounted

Excellent system extensibility

Turntable | PC | External printer

Electronic recording can be established by connecting to a PC or network
(Please inquire about the PC software for Part 11)

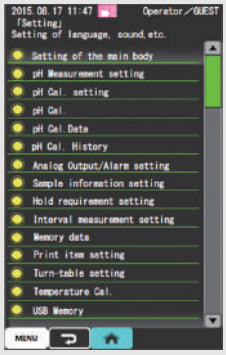
Various Display Functions

Vertical/Horizontal screen switch

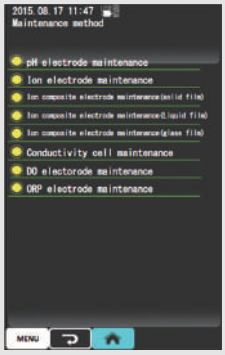
2ch Display

Graphic Display

Touch panel input



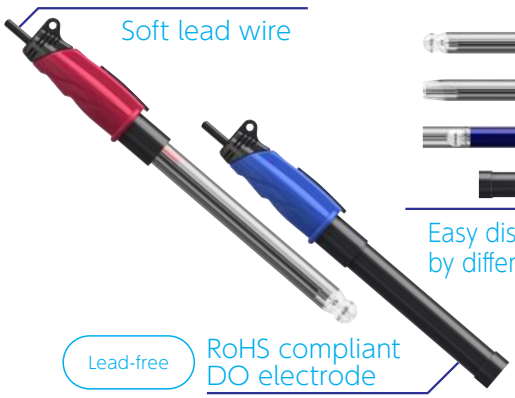
Easy-to-read menu



Maintenance information

Easy-to-use sensors and electrodes

Soft lead wire



Lead-free

RoHS compliant DO electrode

RED:pH
YELLOW:ORP
WHITE:Conductivity
BLUE:DO

Easy distinction of electrodes by different coloring

Easy-to-move

Xseries Line-up

Touch Screen Type

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

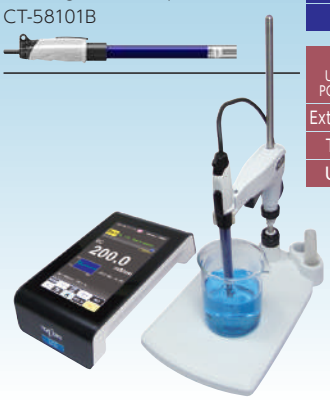
USB
USB memory/ PC connectable
External printer
Turntable

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
Battery life
Max. 2500 hrs.

pH Meter HM-40X

Including pH combined electrode GST-5821C

pH
Dry battery
Battery life
Max. 2500 hrs.

For international sales only

Conductivity Meter CM-41X

Including conductivity cell CT-58101B

Conductivity
Resistivity
Salinity
TDS

USB
PC connectable
External printer
Dry battery
Battery life
Max. 1000 hrs.

Accessories*1

MM-43X	
Electrode attachment (J)	0IB00005
Electrode attachment (DP)	0IB00007
Electrode attachment (ION)	0IB00006
Poly beaker 150mL (3 pieces)	0DE00001
AC adapter	7430880K
Power cord	118C229
Ground wire	7439370K

HM-42X	
Strong pH composite electrode*2	GST-5841C
Standard solution pH 6.86 500mL	143F192
Standard solution pH 4.01 500mL	143F191
Internal Solution for Reference Electrode 50mL	
Poly beaker 150mL (3 pieces)	0DE00001
AC adapter	7430880K
Power cord	118C229
Ground wire	X0979500

CM-42X	
Electrical conductivity cell*2	CT-58101B
Poly beaker (150mL)	0DE00001
AC adapter	7430880K
Power cord	118C229
Ground wire	7439370K

(Common accessories for all the above models)
Electrode holder 7430850K Electrode stand (with column and stopper) 7430860K Electrode attachment G (2 pieces for MM-43X) 0IB00004
Tilt stand 7430870K Instruction manual

HM-41X	
Strong pH composite electrode*2	GST-5821C
Standard solution pH 6.86 500mL	143F192
Standard solution pH 4.01 500mL	143F191
Internal Solution for Reference Electrode 50mL	
Poly beaker 150mL (3 pieces)	0DE00001
AA batteries (For testing)	
Ground wire	X0979500

HM-40X	
Strong pH composite electrode*2	GST-5821C
Standard solution pH 6.86 500mL	143F192
Standard solution pH 4.01 500mL	143F191
Internal Solution for Reference Electrode 50mL	
Poly beaker 150mL (3 pieces)	0DE00001
AA batteries (For testing)	
Ground wire	X0979500

CM-41X	
Electrical conductivity cell*2	CT-58101B
Poly beaker 150ml (1 piece)	0DE00001
AA batteries (For testing)	
Ground wire	X0979500

(Common accessories for all the above models)
Electrode holder 7430850K Electrode holder (for HM-40X) 0IB00001 Electrode stand (Stand, strut, stopper) (without HM-40X) 7430860K Electrode stand (Stand, strut, stopper) (for HM-40X) 6948810K
Electrode attachment (G) 0IB00004 Tilt stand 7430870K (without HM-40X) Instruction manual

*1 Acccessories are included only when purchased in 1 set.
*2 If you purchase only the main unit, the electrodes and cells will not be included.

Supports continuous automatic measurement of multiple samples

TTT-710 • Turn table

●Continuous automatic measurement of up to 100 samples is possible. Four types of tables (12, 18, 36, 60 samples) are prepared according to the application.
Furthermore, it is possible to measure with a 100 sample table as a manufacturer option.
●A variety of electrode cleaning modes are available.
Equipped with shower cleaning with pure water as standard.
It can also be used for bubbling cleaning, chemical cleaning, and air blow as an option.
●An analyzer installation stand is available to save space (optional).

■Specification

Display		LCD
Numbers of samples/ Corresponding beakers	12 samples	200mL beaker, 300mL tall beaker (Recommended product : AGC Techno Glass or HARIO glass beaker)
	18 samples	100mL tall beaker (Recommended product : AGC Techno Glass or HARIO glass beaker)
	36 samples	30mL beaker, 50mL tall beaker (Recommended product : AGC Techno Glass or HARIO glass beaker)
	60 samples	20mL dedicated beaker (Nichiden Rika Glass H-20)
	100 samples	20mL dedicated beaker (Nichiden Rika Glass H-20)
Stirring method		Standard : Magnetic stirrer method Option : Propeller stirring method
External control input / output		RS-232C (For controlling X/R series, AUT-701/801, TA-70, TS-70, TP-70) OPTION2(R series) Control input / output Automatic burettes (ABT-511) Control input / output External control box Control input / output Air pump box Control input / output Liquid level sensor signal input (washing water 1, waste liquid) Power output for propeller stirring unit
Cleaning mode		① Pure water shower → Air blow ② Pure water bubbling → Pure water shower → Air blow ③ Chemical solution shower → Pure water shower → Air blow ④ Chemical solution bubbling → Pure water shower → Air blow ⑤ Chemical solution bubbling → Pure water bubbling → Pure water shower → Air blow ⑥ Chemical solution bubbling → Chemical solution shower → Air blow ⑦ Chemical solution shower → Air blow ⑧ Chemical solution bubbling → Pure water bubbling → Chemical solution shower → Air blow ⑨ User cleaning (Cleaning sequence can be set) User cleaning is effective only when the X series is connected. *Air blow cleaning is effective when using the optional air pump box. *Bubbling cleaning is effective when using the optional air pump box and waste liquid valve. *Please contact us for details on chemical cleaning.
Cleaning time		0 to 9999 seconds
Frequency of air blow		1 to 9 times
Number of repeated measurements		1 to 9 times
Measurement end detection		Detection by end detection pin or end table number setting
Stirring time before measurement		0 to 9999 seconds
Waiting time before measurement		0 to 9999 seconds
Tank fluid level alarm		Cleaning water 1(Pure water) : Empty Cleaning water 2(Chemical solution) : Empty (When connecting the optional level sensor for chemicals) Waste liquid : Full
Guaranteed performance temperature		5 to 40℃
Power		AC100 to 240V 50/60Hz
Power consumption	Standard	AC100V when used : Max approx. 60VA AC240V when used : Max approx. 90VA
	Option when connected	AC100V when used : Max approx. 100VA AC240V when used : Max approx. 130VA
External dimension		Approx. 440(W) ×409(H) ×391(D) mm (When the table board is not attached) Approx. 566(W) ×409(H) ×507(D) mm (When the table board is attached) Approx. 566(W) ×534(H) ×507(D) mm (Maximum operating dimensions)
Main unit weight		Approx. 16kg (When the table board is not attached) Approx. 18kg (When the table board is attached)

■Standard Accessories

Product name	Code No.
Table board (Specify one type from 12, 18, 36, 60 samples	
For 12 samples	7401540U
For 18 samples	7401550U
For 36 samples	7401560U
For 60 samples	7401570U
Electrode cartridge (Numbers of samples/specify one type depending on the application) *1	
1CH cartridge1(X)	7505010K
1CH cartridge2(X)	7505020K
1CH cartridge3(X)	7506840K
2CH cartridge1	6597970K
2CH cartridge2(X)	7505030K
2CH cartridge3	6597940K
Multi-cartridge	6597980K
Sample suction cartridge	6597990K
Washing water tank (with 10L liquid level sensor)	—
Waste liquid tank (with 10L liquid level sensor)	—
Washing water tube (3m)	—
Waste liquid hose (1.5m)	—
End detection pin	7401630U
O Ring	115A006
Hoffman pinch cock (small)	126C049
Power code	118C025
2P-3P conversion adapter	102J040
Disposable beaker 200mL	136C179
Instruction manual	—

*1 Refer to the previous page for details on the electrode cartridge.

■Option

Product name	Code No.
For connecting turn table RS-232C cable (2m) (For connecting HM-42X, CM-42X, MM-43X)	7433040K
ABT-511 connecting cable	7401750K
Air pump box (For air blow)	7400560U
Air pump box (For air blow + bubbling)	7401640U
Waste liquid valve for TTT-710 (Pinch cock)	7401650U
Waste liquid valve for TTT-710 (Solenoid valve)	7401660U
Propeller stirring unit (For 12, 18 samples table)	7401670U
Propeller stirring unit (For 36 samples table)	7401680U
Propeller stirring unit (For 60, 100 samples table)	7401690U
Installation stand for analyzer (For X series)	7451570U

Xseries product introduction / useful videos

On our website and YouTube, we introduce the specifications and measurement of the Xseries.

Electrodes

pH/ORP

Cal-Memo sensor
The sensor memorizes model, serial number, calibration data

Electrode		Application	Sample requirement*1	Range		Strong*2	Float*3	Silver ion trap*4
				pH, ORP	Temp.			
pH combined electrode	GST-5841C	For general use	1mL	pH0 to 14	0 to 100℃	○	○	○
	GST-5821C	For general use	1mL	pH0 to 14	0 to 100℃	—	○	○
	GST-5841S	For organic solvent	3mL	pH0 to 14	0 to 100℃	○	○	—
	GST-5842S	For precise measurement	2mL	pH0 to 14	0 to 60℃	○	○	—
	GST-5823S	For precise trace amount	1mL	pH0 to 11	0 to 60℃	—	○	—
	GST-5824C	For insertion	0.5mL	pH0 to 12	0 to 60℃	—	○	—
	GST-5845C	For trace amount	0.5mL	pH0 to 13	0 to 100℃	○	—	—
	GST-5846C	For extreme trace amount	0.3mL	pH0 to 13	0 to 60℃	○	—	—
	GST-5847C	For test tube	0.5mL	pH0 to 13	0 to 100℃	○	—	—
	GST-5848C	For narrow test tube	0.3mL	pH0 to 13	0 to 60℃	○	—	—
	GST-5820C	For flow-through type	—	pH0 to 12	0 to 60℃	—	○	—
	GST-5851C	For high alkaline sample	1mL	pH0 to 14	0 to 100℃	—	○	○
	ELP-040	For hydrofluoric acid bath	30mL	pH2 to 12	0 to 50℃	—	○	—
	5082L	Glass electrode chip (For ELP-040)	—					
ORP combined electrode	PST-5821C	For general use	1mL	Range of indication	0 to 100℃	—	○	○
ORP combined electrode Cal-Memo incompatible	PS-5011C	For HM-41X	1mL	Range of indication	— (No temperature sensor)	—	○	○

*1 This is the capacity when using the smallest container into which the electrode can be inserted.

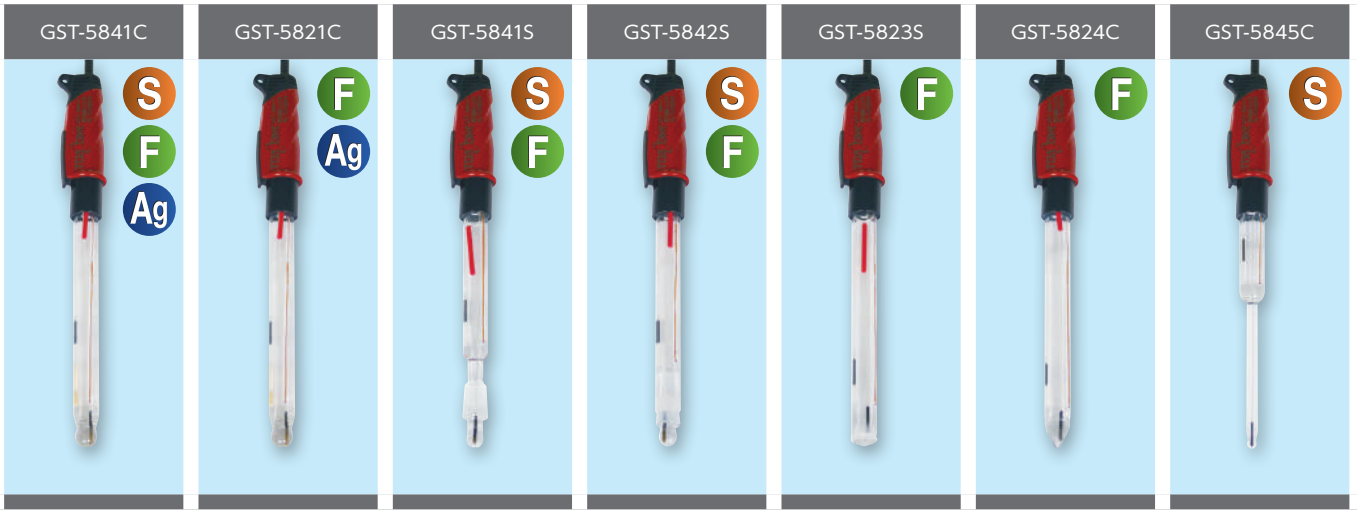
Oxalate pH Standard Solution pH 1.68	500mL	143F194
Phthalate Standard Solution pH 4.01	500mL	143F191
Phosphate pH6.86 Standard Solution	500mL	143F192
Borate Standard Solution pH 9.18	500mL	143F193
Carbonate pH Standard Solution pH 10.02	500mL	143F195
Internal Solution for Reference Electrode RE-4 50mL (3 bottles)		0BG00011

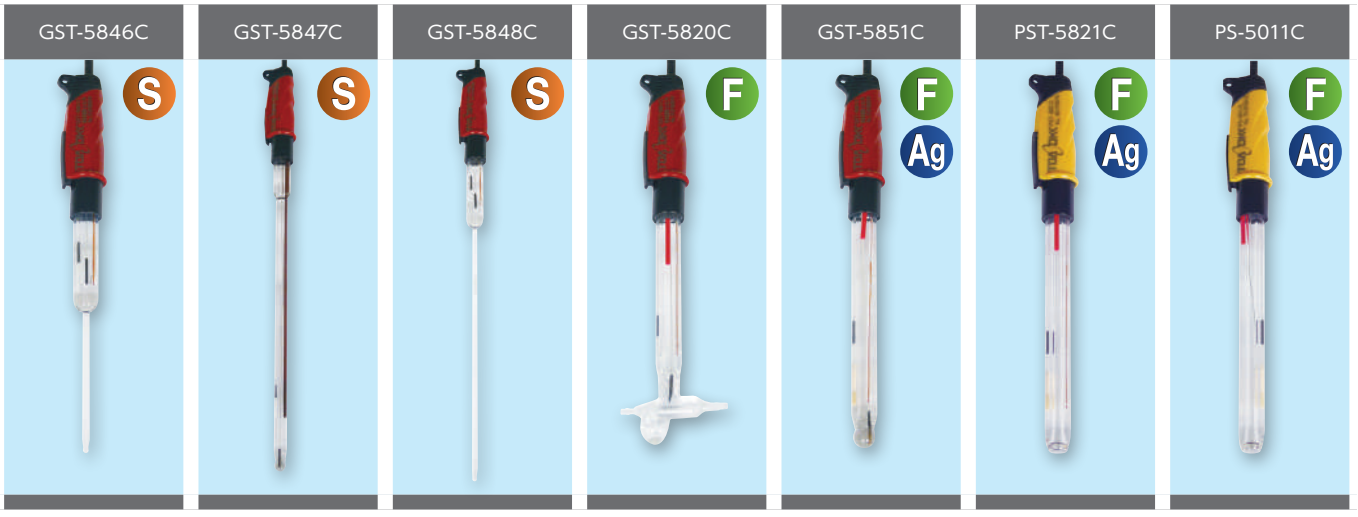
ORP Standard Solution (Phthalate Standard Solution pH 4.01 500mL+Quinhydrone powder)	143F196
Abrasive Solution for ORP Electrode 10mL	AO-001

S *2 Strong — Glass electrode. The strength of its tip is improved. Hard to break.

F *3 Float — Float is built-in whose exchange span of internal solution can be checked at a glance

Ag *4 Silver Ion Trap — Prevents the outflow of silver ions dissolved in the reference electrode. Reduces clogging of the liquid junction and ensures measurement stability.





Conductivity

Cell		Application	Sample requirement*1	Range		Cell Constant
				Conductivity	Temp.	
Immersion type Conductivity cell	CT-58101B	For general use	4mL The volume is to fill Φ14mm×26mm	100μS/m to 10S/m {1μS/cm to 100mS/cm}	0 to 100℃	100m^{-1}
	CT-58101C	For low electrical conductivity use	6mL The volume is to fill Φ14mm×42mm	5μS/m to 1S/m {0.05μS/cm to 10mS/cm}	0 to 100℃	10m^{-1}
	CT-58101A	For high electrical conductivity use	39mL The volume is to fill Φ36mm×38mm	1mS/m to 100S/m {10μS/cm to 1S/cm}	0 to 100℃	1000m^{-1}
Flow-through type Conductivity Cell	CT-88101B	For general use	Required cell capacity is 4mL	100μS/m to 10S/m {1μS/cm to 100mS/cm}	0 to 100℃	100m^{-1}
	CT-88101C	For low electrical conductivity use	Required cell capacity is 15mL	5μS/m to 1S/m {0.05μS/cm to 10mS/cm}	0 to 100℃	10m^{-1}
	CT-88102A	For high electrical conductivity use	Required cell capacity is 1mL	10mS/m to 100S/m {100μS/cm to 1S/cm}	0 to 100℃	2000m^{-1}
	CT-27111D	For pure water	Required cell capacity is 8mL (Flow cell is required separately.)	5μS/m to 20mS/m {0.05μS/cm to 200μS/cm}	0 to 80℃	1m^{-1}

*1 This is the capacity when using the smallest container into which one cell can be inserted.

Conductivity Cell Check Solution 0.01 mol/kg 100 mL (4 bottles) 140.8 mS/m at 25 ℃	143A144
Conductivity Cell Check Solution 0.1mol/kg 250 mL (2 bottles) 1282 mS/m at 25 ℃	143A143
Flow cell, made of PP (For CT-27111D) Connection Diameter:Outer Diameter 8mm×Inner Diameter 4mm	CEF-22A
Flow cell, made of SUS (For CT-27111D) Connection Diameter: Outer Diameter 8mm×Inner Diameter 6mm	CEF-23A

CT-58101B/ ELC-009

CT-58101C/ ELC-010

CT-58101A

CT-88101B

CT-88101C

CT-88102A

CT-27111D (with Flow cell)

Dissolved Oxygen

Electrode		Application	Range	Note	Measurement method
Dissolved oxygen electrode	OE-273AA	Immersion/drop-in type	Standard Membrane: 0 to 20mg/L 0 to 50℃ High Range Membrane: 0 to 50mg/L (High Range Membrane Set sold separately)		Membrane Polarographic Method
	OE-473AA	For incubator bottle	0 to 20mg/L 0 to 50℃	With stirring function	
	OE-473BA	For laboratory/incubator bottles*2		For no-flow measurement	

*2 Stirring is required for high-precision measurements such as BOD measurements.

OE-273AA

OE-473AA

OE-473BA

Membrane set OE-273AA (3 pieces)	0CC00001
Membrane Set OE-273AA High Range DO (3 pieces)	0CC00002
Membrane Set OE-473AA (3 pieces)	0CC00003
Membrane Cartridge OE-473AA (5 pieces)	0CT-2502
Membrane Set OE-473BA (3 pieces)	0CC00022
Electrolyte R-12 50mL (3 pieces)	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 an incubator bottle and an incubator is necessary.

Recommended incubator bottle
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 ions*1/ Note
Fluoride ion combined electrode F-2021	F-200 (Solid Membrane)	0.019 to 19,000mg/L F^- (pH5 to 6)	$OH^-=10^1$ HPO_4^{2-}, $HCO_3^-=10^3$ (pH 7 to 8) Cl^-, Br^-, I^-, NO_3^-, SO_4^{2-}, $S_2O_3^{2-}=10^5$
Chloride ion combined electrode CL-2021	CL-200B (Solid Membrane)	1 to 35,000mg/L Cl^- (pH5 to 6)	S^{2-}=Can not coexist CN^-, $I^-=10^{-5}$ Br^-, $S_2O_3^{2-}=10^{-2}$ NO_3^-, SO_4^{2-}, CO_3^{2-}, PO_4^{3-}, $F^-=10^3$
Cyanide ion combined electrode CN-2021	CN-200B (Solid Membrane)	0.003 to 26mg/L CN^- (pH12 to 13)	S^{2-}=Can not coexist $I^-=10^{-1}$ $S_2O_3^{2-}=10^1$ $Br^-=10^3$ NO_3^-, SO_4^{2-}, $PO_4^{3-}=10^4$ CO_3^{2-}, Cl^-, $F^-=10^5$
Sodium ion combined electrode NA-2011	NA-100B (Glass Membrane)	2.3 to 23,000mg/L Na^+ (pH10 to 11)	Mg^{2+}, Ca^{2+}, Zn^{2+}, NH_4^+, K^+, $Li^+=10^3$
Potassium ion combined electrode K-2031	K-300B (Liquid Membrane)	0.39 to 3,900mg/L K^+ (pH5 to 6)	$H^+=10^2$ $NH_4^+=3\times10^2$ $Na^+=2\times10^3$ $Li^+=10^4$
Calcium ion combined electrode CA-2031	CA-300 (Liquid Membrane)	0.4 to 40,000mg/L Ca^{2+} (pH5 to 6)	Pb^{2+}, $Zn^{2+}=10^1$ $Mn^{2+}=10^2$ Cu^{2+}, Mg^{2+}, Cd^{2+}, Ba^{2+}, $Fe^{2+}=10^3$ $Ni^{2+}=10^4$
Nitrate ion combined electrode N-2031	N-300 (Liquid Membrane)	0.62 to 62,000mg/L NO_3^- (pH5 to 6)	$I^-=10^{-3}$ Br^-, $NO_2^-=10^0$ $Cl^-=10^1$ CH_3COO^-, SO_4^{2-}, CO_3^{2-}, $F^-=10^2$
Ammonia electrode(Membrane electrode) AE-2041	—	0.09 to 1,800mg/L NH_4^+ (pH12 or more)	Volatile amines
Carbon Dioxide electrode(Membrane electrode) CE-2041	—	Dissolved Gas 1.49 to 1,490mg/L	Dissolved gas:Volatile weak acid Atmosphere:Acidic gas Calibration cell(CGC-202L) and Calibration adapter (6791140K) is necessary.
Bromide ion combined electrode BR-2021	BR-200 (Solid Membrane)	0.8 to 80,000mg/L Br^- (pH5 to 6)	S^{2-}=Can not coexist CN^-, $I^-=10^{-4}$ $S_2O_3^{2-}$, $SCN^-=10^0$ $Cl^-=10^2$ NO_3^-, SO_4^{2-}, CO_3^{2-}, $F^-=10^4$
Iodide ion combined elecrrode I-2021	I-200 (Solid Membrane)	0.01 to 127,000mg/L I^- (pH5 to 6)	S^{2-}, Reducing substance＝Can not coexist $CN^-=10^0$ $S_2O_3^{2-}=10^1$ $SCN^-=10^3$ $Br^-=10^4$ NO_3^-, CO_3^{2-}, PO_4^{3-}, Cl^-, $F^-=10^5$
Cadmium ion combined electrode CD-2021	CD-200 (Solid Membrane)	0.01 to 1,120mg/L Cd^{2+} (pH5 to 6)	Hg^{2+}, Ag^+, Cu^{2+}=Can not coexist Pb^{2+}, $Fe^{3+}=10^0$ $Cr^{3+}=10^2$ Na^+, K^+, Mg^{2+}, Ca^{2+}, Zn^{2+}, $Al^{3+}=10^5$
Copper ion combined electrode CU-2021	CU-200 (Solid Membrane)	0.06 to 630mg/L Cu^{2+} (pH5 to 6)	Ag^+, Hg^{2+}=Can not coexist $Fe^{3+}=10^{-1}$ $Al^{3+}=10^1$ $Cr^{3+}=10^2$ $Ni^{2+}=10^3$ Na^+, Mg^{2+}, $Ca^{2+}=10^4$
Silver ion combined electrode AG-2021	AG-200 (Solid Membrane)	0.1 to 108,000mg/L Ag^+ (pH5 to 6)	Hg^{2+}=Can not coexist $Mg^{2+}=10^3$ Ca^{2+}, Cu^{2+}, Pb^{2+}, Cd^{2+}, $Zn^{2+}=10^4$ Na^+, $K^+=10^6$
Sulfide ion combined electrode S-2021	S-200 (Solid Membrane)	0.3 to 32,000mg/L S^{2-} (pH13 or more)	—

Ion sensor replacement liquid junction (10 pieces)	0LF00001
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
Na Standard Solution NA-1000 500mL	143E031
K Standard Solution K-1000 500mL	143B482
Ca Standard Solution CA-1000 500mL	143B481
NO_3 Standard Solution NO3-1000 500mL	143C486
NO_3-N Standard Solution NO3-N 500mL	143C487
NH_4 Standard Solution NH4-1000 500mL	143A041
NH_4-N Standard Solution NH4-N 500mL	143A042
Carbon Dioxide Electrode Calibration Powder for CGS-111 1L (10 packets)	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 For F*2	143A279
Ionic Strength Adjuster TISAB-11 500mL For F*2	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_3	143A340
Ionic Strength Adjuster ISA-NH 500mL For NH_4	143A339
Ionic Strength Adjuster ISA-CO 500mL For CO_2	143D045
Ionic Strength Adjuster ISA-CU 500mL For Cu, Cd	143A336
Ionic Strength Adjuster Powder ISA-S 100mL For S (10 packets)	143A332
Reference Electrode Internal Solution RE-1 100mL	143F230
Reference Electrode External Solution RE-2 100mL	143F238
Reference Electrode External Solution RE-3 100mL	143F239
Ammonia Electrode Internal Solution RE-NH4 50mL (3 bottles)	0BG00005
Carbon Dioxide Electrode Internal Solution RE-11 500mL	143D042
Ammonia Electrode Replacement Membrane (10 pieces)	AE-FILM
Carbon Dioxide Electrode Membrane Cartridge (4 pieces)	CTC-211
Carbon Dioxide Electrode Calibration Cell	CGC-202L
Calibration Adapter	6791140K

*1 Interference of coexisting ions
If an ion coexists in the solution, it can cause data errors when measuring the targeted ion. A selectivity coefficient of 10^x means that if the solution contains a coexisting ion that is 10^x times greater than the value of the targeted ion that is measured, an error occurs when the value of the targeted ion equals that of the coexisting ion.
If the concentration of the coexisting ion is sufficiently high to affect the measured values, the pretreatment is recommended 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 a temperature measurement function. The measurable solution temperature range is 0 to 50℃ .

Note(2) For ion measurement, in addition to the electrode, a standard solution, an ion strength adjuster, and a reference electrode external solution are required.

Note(3) Please contact us before performing ion measurements, as when there are coexisting samples, ion measurement may be difficult.

Note(4) We do not sell cyanide, silver, or sulfide ion standard solutions. Customers are advised to prepare them accordingly to the steps 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 method Temperature :Thermistor resistor
Display unit			Touch panel color graphic LCD	Customized LCD	Customized LCD
Measurement Item/Range	pH		pH0.000 to 14.000	pH0.000 to 14.000	pH0.000 to 14.000
	mV (ORP)		-2000.0 to 2000.0 mV	-2000 to 2000 mV	-500 to 500 mV *ORP electrode not connectable
	Ion		Depends on the sensor used	–	–
	Temperature		0.0 to 100.0℃ Ion : Depends on the electrode	0.0 to 100.0℃	0.0 to 100.0℃
Display Range	pH		pH-2.000 to 16.000	pH-2.000 to 16.000	pH-2.000 to 16.000
	mV (ORP)		-2200.0 to 2200.0 mV	-2200 to 2200 mV	-550 to 550 mV *1
	Ion (Manual/Auto Range Switching) (mol/L selectable)		Zoom OFF 0.0 to 19.9μg/L 20 to 199μg/L 0.20 to 1.99mg/L 2.0 to 19.9mg/L 20 to 199mg/L 0.20 to 1.99g/L 2.0 to 19.9g/L 20 to 199g/L 200 to 1990g/L	Zoom ON 0.00 to 19.99μg/L 20.0 to 199.9μg/L 0.200 to 1.999mg/L 2.00 to 19.99mg/L 20.0 to 199.9mg/L 0.200 to 1.999g/L 2.00 to 19.99g/L 20.0 to 199.9g/L 200 to 1999g/L	–	–
	Temperature		-5.0 to 110.0℃	-5.0 to 110.0℃	-5.0 to 110.0℃ *1
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 to 1990g/L (Maximum to 3-digits) 0.00μg/L to 1999g/L (Maximum to 4-digits)	–	–
Repeatability (Main body)	pH		±0.002pH	±0.006pH	±0.006pH
	mV (ORP)		±0.2mV	±2mV	±2mV *1
	Ion		±0.5% FS	–	–
	Temperature		within ±0.2℃	within ±0.2℃	within ±0.2℃
pH Temperature Compensation Range			ATC(Auto Temperature Compensating) : 0 to 100.0℃ MTC(Manual Temperature Compensating) : 0 to 100.0℃	ATC(Auto Temperature Compensating) : 0 to 100.0℃ MTC(Manual Temperature Compensating) : 0 to 100.0℃	ATC(Auto Temperature Compensating) : 0 to 100.0℃ MTC(Manual Temperature Compensating) : 0 to 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 to 45℃ 20 to 85% or below (condensation-free)	0 to 45℃ 20 to 85% or below (condensation-free)	0 to 45℃ 20 to 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 to 14)	–	
		mV (ORP)	±1V (0 to ±2000mV)	–	–
		Ion	0 to 1VFS	–	–
		Temperature	0 to 1V (0 to 100℃)	–	–
		Alarm	Upper Limit: Open collector Lower Limit: Open collector	–	–
Option Connection	External printer		○	○	–
	Turntable (TTT-710/510)		○	–	–
	Electrode Selector (ES-1G)		○	–	–
	Control Box (AC-1V)		○	–	–
Power Source			AC100 to 240V (Special AC Adapter)	AA Alkaline battery×4 or USB power feeding*2 (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.130(W) ×60(H) ×230(D) mm	Approx.130(W) ×60(H) ×230(D) mm	Approx.130(W) ×60(H) ×230(D) mm
Main Unit Weight			Approx. 0.8kg	Approx. 0.7kg (Including batteries)	Approx. 0.7kg

*1 ORP electrode cannot be connected.
*2 AC-USB adapter ASSY (7472510K) is required separately.

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 to 100.0℃	0.0 to 100.0℃
Display Range	Conductivity (Manual/Auto Range Switching) (Depending on the cell)		0.0 to 200.0 μ S/m (0.000 to 2.000 μ S/cm) 0.000 to 2.000mS/m (0.00 to 20.00 μ S/cm) 0.00 to 20.00mS/m (0.0 to 200.0 μ S/cm) 0.0 to 200.0mS/m (0.000 to 2.000mS/cm) 0.000 to 2.000S/m (0.00 to 20.00mS/cm) 0.00 to 20.00S/m (0.0 to 200.0mS/cm) 0.0 to 200.0S/m (0.000 to 2.000S/cm) SI unit (S/m) or conventional unit (S/cm) selectable	0.0 to 200.0 μ S/m (0.000 to 2.000 μ S/cm) 0.000 to 2.000mS/m (0.00 to 20.00 μ S/cm) 0.00 to 20.00mS/m (0.0 to 200.0 μ S/cm) 0.0 to 200.0mS/m (0.000 to 2.000mS/cm) 0.000 to 2.000S/m (0.00 to 20.00mS/cm) 0.00 to 20.00S/m (0.0 to 200.0mS/cm) 0.0 to 200.0S/m (0.000 to 2.000S/cm) SI unit (S/m) or conventional unit (S/cm) selectable
	Resistivity (Manual/Auto Range Switching) (Depending on the cell)		0.005 to 2.000 Ω ·m (0.5 to 200.0 Ω ·cm) 0.00 to 20.00 Ω ·m (0.000 to 2.000k Ω ·cm) 00.0 to 200.0 Ω ·m (0.00 to 20.00k Ω ·cm) 0.000 to 2.000k Ω ·m (0.0 to 200.0k Ω ·cm) 0.00 to 20.00k Ω ·m (0.000 to 2.000M Ω ·cm) 00.0 to 200.0k Ω ·m (0.00 to 20.00M Ω ·cm) 0.000 to 2.000M Ω ·m (0.0 to 200.0M Ω ·cm) 0.00 to 20.00M Ω ·m (0 to 2000M Ω ·cm) SI unit (Ω ·m) or conventional unit (Ω ·cm) selectable	0.005 to 2.000 Ω ·m (0.5 to 200.0 Ω ·cm) 0.00 to 20.00 Ω ·m (0.000 to 2.000k Ω ·cm) 00.0 to 200.0 Ω ·m (0.00 to 20.00k Ω ·cm) 0.000 to 2.000k Ω ·m (0.0 to 200.0k Ω ·cm) 0.00 to 20.00k Ω ·m (0.000 to 2.000M Ω ·cm) 00.0 to 200.0k Ω ·m (0.00 to 20.00M Ω ·cm) 0.000 to 2.000M Ω ·m (0.0 to 200.0M Ω ·cm) 0.00 to 20.00M Ω ·m (0 to 2000M Ω ·cm) SI unit (Ω ·m) or conventional unit (Ω ·cm) selectable
	Salinity		0.00 to 4.04% (NaCl) 0.00 to 42.40psu (PSS:Sea water salinity)	0.00 to 4.04% (NaCl) 0.00 to 42.40psu (PSS:Sea water salinity)
	Concentration (Automatic Range Switching)		0 to 2.000% 0 to 20.00% 0 to 200.0%	–
	TDS (Manual/Auto Range Switching)		0 to 99.99mg/L 0 to 999.9mg/L 0 to 9.999g/L 0 to 99.99g/L 0 to 999.9g/L	0 to 99.99mg/L 0 to 999.9mg/L 0 to 9.999g/L 0 to 99.99g/L 0 to 999.9g/L
	Temperature		-5.0 to 110.0℃	-5.0 to 110.0℃
Repeatability (Meter main unit)	Conductivity		± 0.5% FS	± 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℃	within ± 0.2℃
Temperature Compensation	Temperature Compensation Range		ATC (Auto Temperature Compensation) : 0 to 100.0℃ MTC (Manual Temperature Compensation) : 0 to 100.0℃	ATC (Auto Temperature Compensation) : 0 to 100.0℃ MTC (Manual Temperature Compensation) : 0 to 100.0℃
	N/A		ATC OFF	ATC OFF
	Standard Temperature Setting		0 to 100.0℃	25℃ fixed
	Temperature Coefficient (Linear)		0 to 10.00%／℃	0 to 10.00%／℃
	Temperature Coefficient (Curve)		2 to 10 points	–
	Pure Water Dual Temperature Comp.		○	–
Concentration Conversion Setting			2 to 10 points	–
Temperature Calibration			1-point Calibration	1-point Calibration
Performance Guaranteed Temperature, Humidity			0 to 45℃ 20 to 85% or below (condensation-free)	0 to 45℃ 20 to 85% or below (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 to 1VFS	–
		Range	100mV/range	–
		Alarm	Upper Limit: Open Collector Lower Limit: Open Collector	–
Option Connection	External Printer		○	○
	Turntable (TTT-710/510)		○	–
	Cell Switch (ES-1GC)		○	–
	Control Box (AC-1V)		○	–
Power Source			AC100 to 240V (Special AC Adapter)	AA Alkaline battery × 4 or USB power feeding*1 (No charging function).
Power Consumption			Approx.12VA	Approx.1000 hours (estimated)
Main Unit Dimensions (Excluding Protruding Parts)			Approx.130 (W) × 60 (H) × 230 (D) mm	Approx.130 (W) × 60 (H) × 230 (D) mm
Main Unit Weight			Approx. 0.8kg	Approx. 0.7kg (Including batteries)

*1 AC-USB adapter ASSY (7472510K) is required separately.

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 : Membrane 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 to 14.000	
	mV (ORP)	-2000.0 to 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 %		
	Temperature	0.0 to 100.0℃ DO:0.0 to 50.0℃ Ion:Depends on the sensor (No temperature measurement function)	
Display Range	pH	pH-2.000 to 16.000	
	mV (ORP)	-2200.0 to 2200.0 mV	
	Ion (Manual/Auto range switching) (mol/L selectable)	ZOOM OFF 0.0 to 19.9 μg/L 20 to 199 μg/L 0.20 to 1.99mg/L 2.0 to 19.9mg/L 20 to 199mg/L 0.20 to 1.99g/L 2.0 to 19.9g/L 20 to 199g/L 200 to 1990g/L	ZOOM ON 0.00 to 19.99 μg/L 20.0 to 199.9 μg/L 0.200 to 1.999mg/L 2.00 to 19.99mg/L 20.0 to 199.9mg/L 0.200 to 1.999g/L 2.00 to 19.99g/L 20.0 to 199.9g/L 200 to 1999g/L
	Conductivity (Manual/Auto range switching) (Depends on the cell)	0.0 to 200.0 μS/m (0.000 to 2.000 μS/cm) 0.000 to 2.000mS/m (0.00 to 20.00 μS/cm) 0.00 to 20.00mS/m (0.0 to 200.0 μS/cm) 0.0 to 200.0mS/m (0.000 to 2.000mS/cm) 0.000 to 2.000S/m (0.00 to 20.00mS/cm) 0.00 to 20.00S/m (0.0 to 200.0mS/cm) 0.0 to 200.0S/m (0.000 to 2.000S/cm) SI unit (S/m) or conventional unit (S/cm) selectable	
	Resistivity (Manual/Auto range switch) (Depends on the cell)	0.005 to 2.000 Ω·m (0.5 to 200.0 Ω·cm) 0.00 to 20.00 Ω·m (0.000 to 2.000k Ω·cm) 00.0 to 200.0 Ω·m (0.00 to 20.00k Ω·cm) 0.000 to 2.000k Ω·m (0.0 to 200.0k Ω·cm) 0.00 to 20.00k Ω·m (0.000 to 2.000M Ω·cm) 00.0 to 200.0k Ω·m (0.00 to 20.00M Ω·cm) 0.000 to 2.000M Ω·m (0.0 to 200.0M Ω·cm) 0.00 to 20.00M Ω·m (0 to 2000M Ω·cm) SI unit (Ω·m) or conventional unit (Ω·cm) selectable	
	Salinity	0.00 to 4.04% (NaCl) 0.00 to 42.40psu (PSS:Sea water salinity)	
	Concentration (Auto range switch)	0 to 2.000% 0 to 20.00% 0 to 200.0%	
	TDS (Manual/Auto range switch)	0 to 99.99mg/L 0 to 999.9mg/L 0 to 9.999g/L 0 to 99.99g/L 0 to 999.9g/L	
	Dissolved Oxygen	0.00 to 22.00mg/L (High range membrane set (Option) 0.00 to 55.0mg/L)	
	Saturation %	0 to 220.0% (High range membrane set (Option) 0 to 550%)	
	Temperature	-5.0 to 110.0℃	
Display Resolution Switching	pH	0.01pH/0.001pH	
	mV (ORP)	1mV/0.1mV	
	Ion	0.0 μg/L to 1990g/L (Maximum to 3 digits) 0.00 μg/L to 1999g/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℃	

Model			MM-43X
Temperature compensation	pH	Temp. compensation range	ATC (Auto Temperature Compensation) : 0 to 100.0℃ MTC (Manual Temperature Compensation) : 0 to 100.0℃
	Conductivity	Temp. compensation range	ATC (Auto Temperature Compensation) : 0 to 100.0℃ MTC (Manual Temperature Compensation) : 0 to 100.0℃
		N/A	ATC OFF
		Standard Temp. setting	0 to 100.0℃
		Temperature Coefficient (Linear)	0 to 10.00%／℃
		Temperature Coefficient (Multipoint)	2 to 10 points
		Pure Water Dual Temperature Compensation	○
	Dissolved Oxygen	Temperature Compensation Range	ATC (Auto Temperature Compensation) : 0 to 50.0℃
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 to 10 points
DO Salinity Compensation Setting			○
DO ATM Pressure Compensation Setting			○
Performance Guaranteed Temperature, Humidity			0 to 45℃ 20 to 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 to 14)
		mV (ORP)	± 1V (0 to ± 2000mV)
		Ion	0 to 1VFS
		Conductivity/ Resistivity/ Salinity/ Concentration/ TDS	0 to 1VFS
		DO/ Saturation	0 to 1VFS
		Range (Ion/ Conductivity/ Resistivity/ Salinity/ Concentration/ TDS)	100mV/Range
		Temperature	0 to 1V (0 to 100℃)
		Alarm (1ch only)	Upper Limit : Open Collector Lower Limit : Open Collector
Option Connection	External Printer		○
	Turntable (TTT-710/510)		○
	Electrode Selector (ES-1G)		○ (Single option can be connected to ch-1)
	Cell Selector (ES-1GC)		
	Control Box (AC-1V)		○ (For ch-1 only)
Power Source			AC100 to 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

Accessories and Options

Product	P/N	Remarks
Electrode Holder	7430850K	Use the electrode holder, electrode stand, and electrode attachment in combination.
Electrode Stand	7430860K	With support, stopper.
Electrode Attachment (G)	0IB00004	For Xseries electrodes.
Electrode Attachment (J)	0IB00005	For Jseries electrodes.
Electrode Attachment (ION)	0IB00006	For single function ion electrodes.
Electrode Attachment (DP)	0IB00007	For HM-40P, P30series electrodes.
Electrode Attachment (N)	0IB00008	For Temp. sensor etc.
Stirrer	ST-8	For sample stirring. Max. 200mL beaker.
Connection Cable for Turntable	7433040K	Cable length: 2m. For HM-42X, CM-42X, MM-43X.
Data Collection Software	X-LOG	Measurement data can be export to a PC. Connection to a PC via USB cable or RS-232C cable is possible. Data transfer via USB memory is also possible. The RS-232C cable should be the one specified by us. USB cable should be A type(male)-Micro B type(male). *commercial cable is available. OS:Windows 11/10/8/7 For HM-42X, CM-42X, MM-43X.
Data Collection Software	GP-LOG	Measurement data can be export to PC. Connect to PC by USB cable. USB cable should be A type(male)-Micro B type(male). *commercial cable is available. OS:Windows 11/10/8/7 For HM-41X, CM-41X.
RS-232C Connecting Cable	118N062	For PC connection, 2m For connection to a USB port, a USB serial converter cable is necessary. For HM-42X, CM-42X, MM-43X
External Printer	EPS-P30	Print on plain paper, Chart width approx.60mm Including connecting cable(118N061), external printer paper, ribon for external printer
External Printer Paper	P000119	20 rolls, non-thermal paper
Ribon for External Printer	0RD00001	1 piece
External Printer Cable	118N061	If you already have an external printer (EPS-G/EPS-R), it can be used by purchasing this cable.
Cell Selector	ES-1G	Max. 5 pH/ORP/Ion electrodes are connectable. For CM-42X, MM-43X (ch-1 only)
Control Box	AC-1V	When connected to the upper and lower limit output terminals, AC100V is turned ON / OFF when the measured value exceeds the set value of the upper limit and the lower limit. If you connect a pump etc. separately to this, pH control etc. can be done. For HM-42X, CM-42X, MM-43X (corresponding to ch1 only)
Analog Output Cable	7433020K	Cable length: 1.5m, external device connection side terminal(3 mm Y terminal) For HM-42X, CM-42X, MM-43X
pH Checker	PC-1G	For HM-42X/41X/40X, MM-43X
Conductivity Check Plug	EC-1G	For CM-42X/41X, MM-43X
Temp. Check Plug	TC-1G	For HM-42X/41X/40X, CM-42X/41X, MM-43X
Electrode selector	ES-1GDP	Max. 5 DO electrodes are connectable. For MM-43X (ch-1 only)
Electrode Adapter(pH/ORP/ion)	0JD00001	A single-function electrode connectable.
USB communication cable	7473100K	For PC connection, cable length 2m. For HM-42X/41X, CM-42X/41X, MM-43X
AC-USB Adapter ASSY	7472510K	Cable length 2m. For HM-41X, CM-41X

Electrode Holder/Stand


Electrode Stand


Stirrer


External Printer

DKK-TOA CORPORATION

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CAUTION Please read the operation manual carefully before using products.

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Specifications and prices are subject to change without notice.

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