

Conductivity Analyzer / Transmitter

Model WBM-160

FEATURES

Filed installed, 4-wire Conductivity transmitter : sturdy die-cast aluminium case, multi-voltage operating power, user-friendly operation and large digital display. Transmission outputs have 2 circuits: electric conductivity and liquid temperature. Each output range can be freely set separately. The 2 output circuits are common.

The temperature compensating is carried out by microcomputer, and highly accurate temperature compensating is possible for wider temperature ranges compared to analog methods.

It is possible to make measurement from -5°C to 120°C and therefore, the detector can be used near hydrothermal germicidal treatment process for extra-pure water. *1

As the transmitter supports a cell constant adjustment function, it can make accurate measurement by key inputting when replacement of a detector.

During the maintenance mode, the indication turns on ST-BY and transmission output can be held at the same value as that of before switching a mode. Furthermore, alarm output turns OFF and it does not interrupt the control system. In case that the operation forgot to release the maintenance mode, a setting for automatic return to the measurement mode is also available.

The device includes 2 circuits with adjustment contact point outputs. (c contact point each) It is possible to arbitrarily set a value as long as it is within a measuring range of electric conductivity.



[Options]

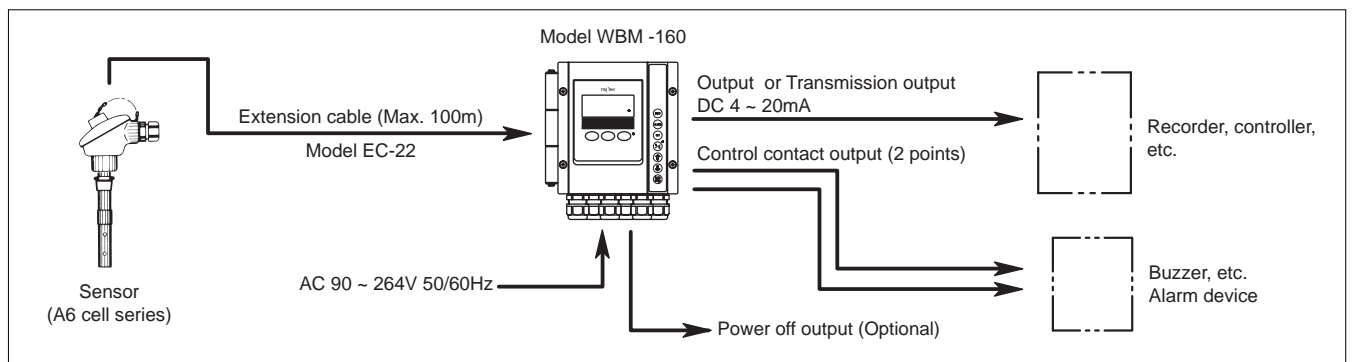
Optional detector that can be used with an extension cable with a connector is also available. It is easier to install and wire without twisted lead wires.

It is possible to transmit data to a PC with RS-232C communication feature. (A dedicated cable is required separately.)

It is possible to output power off signals (closing contact points) when power supply stops. (It is impossible to use the device in conjunction with the 4 circuits with an alarm)

*1 It varies depending on combination detectors.

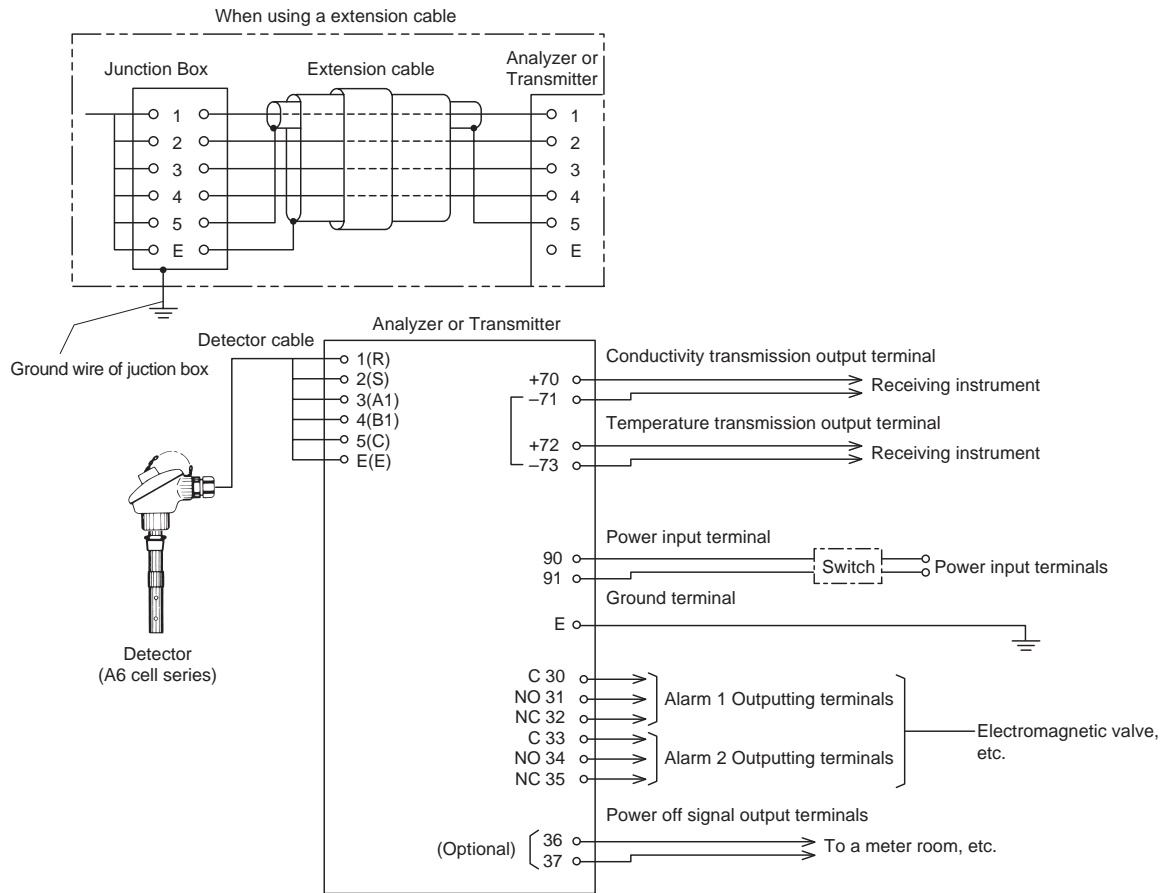
Configuration Diagram



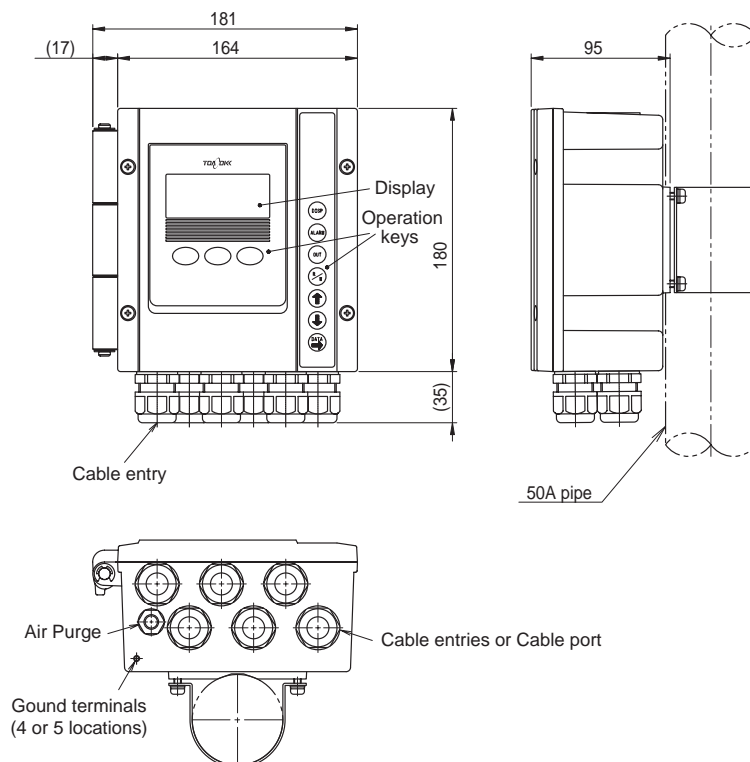
Standard Specifications

Product Name	: Conductivity Analyzer/ Transmitter	Power off output	: Outputs closing contact point signal when power is off. Contact rating ... AC 250V 3A or less (resistance load)
Model No.	: Model WBM -160	Indicator	: Liquid crystal display
Measurement Ranges	: It is possible to select one of the following 1~4 types by selecting 4 types of cell constants.	Transmission output	: Insulation type ... DC 4~20mA, load resistance 650Ω or less Electric conductivity and liquid temperature (2 circuits common)
Indication	--(1) 0 ~ 20μS/cm (3 range) [Cell constant] (0 ~ 0.2/0 ~ 2/0 ~ 20μS/cm) [0.01cm ⁻¹] (2) 0 ~ 200μS/cm (0 ~ 2/0 ~ 20/0 ~ 200μS/cm) [0.1cm ⁻¹] (3) 0 ~ 200μS/cm (0 ~ 20/0 ~ 200/0 ~ 2000μS/cm)[1.0cm ⁻¹] (4) 0 ~ 20mS/cm (0 ~ 0.2/0 ~ 2/0 ~ 20mS/cm) [10.0cm ⁻¹]	Processor	: Per micro computer
Temperature	-- -5~120°C *1, resolution 0.1°C	Ambient Temperature, Humidity	: -20~55°C, 95%RH or less
Temperature Compensation	: -5~120°C *1	Power Requirement	: AC 90 ~ 264V 50/60Hz
Temperature compensating accuracy	: Cable length less than 20m Within ±1.5%FS±1digit (with an equivalent resistance) Cable length from 20m to 50m Within ±2.0%FS (with an equivalent resistance)	Power Consumption	: Approximately 10 VA
Output or Transmission Output	: Electric conductivity ... 25% or more of width of the measuring range (Can be set freely) Temperature ... 10°C or more in a unit of 1°C(Can be set freely in a range of -5 ~ 120°C)	Construction	: Outdoor installation, dust resistant, jet proof type (equivalent to IP65)
Performance (Excluding detector)	: Linearity ... Within ±0.5%FS±1digit However, if the cable length is 20 ~ 50m, it is within ±1.0%FS. Repeatability ... within ±0.2%FS±1digit	Transmitter Dimensions	: 181(W) X 180(H) X 95(D)mm (weatherproof connection not included)
Alarm feature	: Target ... electric conductivity Alarm contact point ... 2 points with contact point c Contact rating ... AC 250V 3A or less (resistance load) DC 30V 3A or less (resistance load) Setting range ... Free setting is allowed (2 points), 0~FS	Mounting	: 50A pipe mounting (Option : wall, rack installation)
		Tranmitter Case Material	: Console ... Aluminum die cast Window ... Polyester
		Paint Finish	: Metallic silver
		Cable Entries	: 6 points of cable grounds (external diameter Ø6 ~ Ø12 for a cable) Possible to remove the cable grounds and connect an electric wire tube (G 1/2X6)
		Weight	: Approximately 2kg
		Applicable Electrode etc.	: Combination electrode ... A6 cell series (50m cable length between converter ~ detector at maximum) Connector box ... Type FC-4 Dedicated cable ... Type EC-10 (50m at maximum)
			*1 It varies depending on combination detectors.

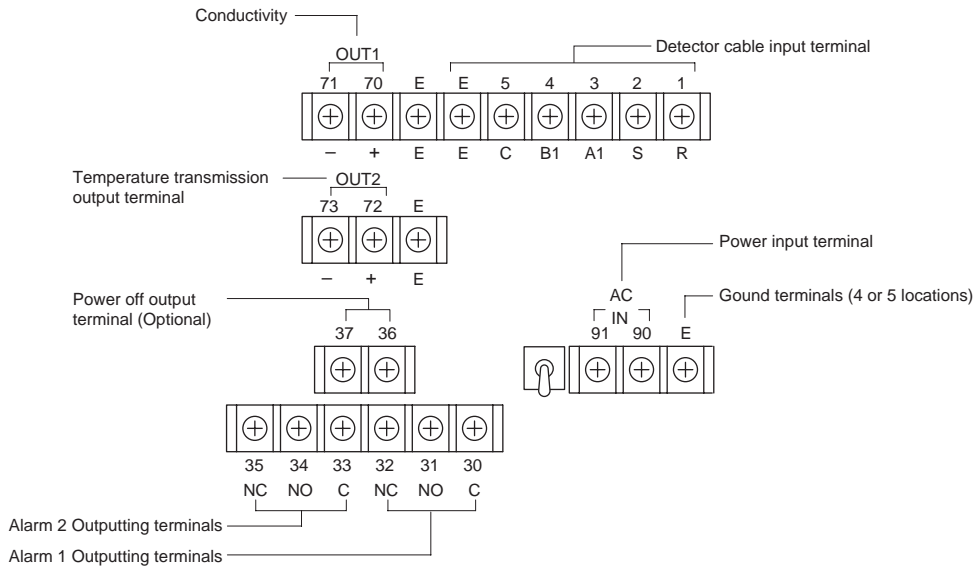
Terminal Connection



Transmitter Dimensions or Dimensions in : mm



Terminal Connections



Product code

WBM160A-0-□□□□□□□□□□	Measuring / indication range (unit S/cm)
B-0-□□□□□□□□□□	(unit S/m)
A	Power
1	AC 90 ~ 264V 50/60Hz
2	Output
	DC 4 ~ 20mA
	DC 4 ~ 20mA and with RS-232C interface
	Measuring / indication range
A	Appendix
N	Other specification *1
Y	Electric conductivity transmission output range
1	Standard measuring range value
8	Other specification *2
	Temperature transmission output range (-5 ~ 120°C)
A	0 ~ 50°C
Y	Other specification(Can be set freely at 10°C width or more in units of 1°C)
0	Alarm output
1	2 points alarms(2 circuits with contact point c)
	2 points alarms(2 circuits with contact point c)+Power off signal(1 circuit with contact point a)
0	Combination cable length *3
8	20m or less
	Special (21m ~ 50m)
1	Mounting metal fittings
2	mounting 50A pipes
	Wall mounitngl
0	Assembling with cable port adaptor *4
1	Standard (Cable ground for Ø6 ~ Ø12)
2	G1/2 (PF1/2)
	NPT1/2
0	Air purge
1	Nil
	Equipped
0	With/without a hood
1	Nil
	Equipped
0	Indication type
1	Standard
	English specified
0	Combination detector
1	Nil *5
	Simultaneous manufacturing

Codes of special specifications
 Digits of numbers : 9
 Digits of characters : Z

- *1. Extra expense will be caused by adjustment at the factory for specified range by a customer.
- *2. Transmission output range can be set freely. However, it requires 25% or more width of a measuring indication range.
Example) In case of 0 ~ 20 μ S/cm, it should be 0 ~ 5, 5 ~ 10 and 15 ~ 20 μ S/cm.
When selecting "Other specification", let us know the specified range. (both EC and temperature)
- *3. Please prepare Type EC-10 separately for an extension.(50m at most including a detector cable)
Readjustment is necessary between cable length 21 ~ 50m.
- *4. We make shipment with a standard cable grand if an electric conduit is a thread type. (Details are shown below.)
Standard : Cable grand (for \varnothing 6 ~ \varnothing 12) 6 points
G1/2 : Remove a cable grand for a connector of conduit piping, and use G1/2 female screws at the console side.
NPT1/2 : Remove a cable grand for a connector of conduit piping, and apply attached NPT1/2 adapters (5 units) to the console.
Leave the cable grand without conduit piping to use it as a plug (sealing a hole).
- *5. In case a transmitter or detector is individually produced at the factory, data for existing detector such as serial nos. is required.

Note. Available Temperature compensation range is -5 ~ 120°C.

(1) Appendix for product code for measurement and indication range

Unit	S/cm type	Cell constant cm ⁻¹	S/m type	Cell constant m ⁻¹	
Appendix Conductivity measurement and indication range 03 digits	A	.0000 ~ .2000 μ S/cm	0.01	0.00 ~ 20.00 μ S/m	1
	B	0.000 ~ 2.000 μ S/cm	0.01	0.0 ~ 200.0 μ S/m	1
	C	0.00 ~ 20.00 μ S/cm	0.01	0 ~ 2000 μ S/m	1
	D	0.000 ~ 2.000 μ S/cm	0.1	.0000 ~ .2000mS/m	10
	E	0.00 ~ 20.00 μ S/cm	0.1	0.000 ~ 2.000mS/m	10
	F	0.0 ~ 200.0 μ S/cm	0.1	0.00 ~ 20.00mS/m	10
	G	0.00 ~ 20.00 μ S/cm	1.0	0.000 ~ 2.000mS/m	100
	H	0.0 ~ 200.0 μ S/cm	1.0	0.00 ~ 20.00mS/m	100
	J	0 ~ 2000 μ S/cm	1.0	0.0 ~ 200.0mS/m	100
	K	.0000 ~ .2000mS/cm	10.0	0.00 ~ 20.00mS/m	1000
	M	0.000 ~ 2.000mS/cm	10.0	0.0 ~ 200.0mS/m	1000
	N	0.00 ~ 20.00mS/cm	10.0	0 ~ 2000mS/m	1000
	Z	specified*1		specified*1	

(2) Measuring range for the standard specification

Measurement range : One of the following measurement range can be available by selecting 4 types of cell constants.

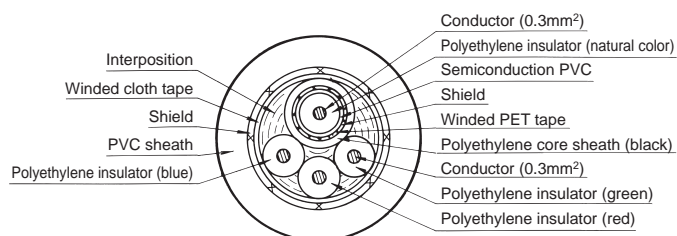
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|--|-------------------------|
| Indication ...1) 10 ~ 20 μ S/cm (3 ranges) | Cell constant |
| (0 ~ 0.2/0 ~ 2/0 ~ 20 μ S/cm) | [0.01cm ⁻¹] |
| 2) 0 ~ 200 μ S/cm(3 ranges) | |
| (0 ~ 2/0 ~ 20/0 ~ 200 μ S/cm) | [0.1cm ⁻¹] |
| 3) 0 ~ 2000 μ S/cm(3 ranges) | |
| (0 ~ 20/0 ~ 200/0 ~ 2000 μ S/cm) | [1cm ⁻¹] |
| 4) 0 ~ 20mS/cm(3 ranges) | |
| (0 ~ 0.2/0 ~ 2/0 ~ 20mS/cm) | [10cm ⁻¹] |
| 5) 0 ~ 2000 μ S/m(3 ranges) | |
| (0 ~ 20/0 ~ 200/0 ~ 2000 μ S/m) | [1m ⁻¹] |
| 6) 0 ~ 20mS/m(3 ranges) | |
| (0 ~ 0.2/0 ~ 2/0 ~ 20mS/m) | [10m ⁻¹] |
| 7) 0 ~ 200mS/m(3 ranges) | |
| (0 ~ 2/0 ~ 20/0 ~ 200mS/m) | [100m ⁻¹] |
| 8) 0 ~ 2000mS/m(3 ranges) | |
| (0 ~ 20/0 ~ 200/0 ~ 2000mS/m) | [1000m ⁻¹] |

Auxiliary Equipment

Extension cable

The extension cable is a special cable specifically manufactured for use with DO analyzer. It is used for connection between transmitter and junction box.

Model No.	: EC-10
External diameter	: Ø8
Insulator	: Polyethylene and vinyl
External coating	: Vinyl
Insulating resistance between wire lines	: $10^5 \text{M}\Omega$ or more/100m
Extended distance	: 50m at maximum, not allowed to connect lines in the middle
Standard length	: 5m ~ 50m in units of 5m
Weight	: Approximately 0.5kg/5m



Model EC-10 Cross section diagram

Options

Hood

It is recommended to use a hood when using the device in direct sunlight.

Material : SUS304

Mounting : 50A pipe or wall mounting



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⚠ CAUTION

Do not operate products before consulting instruction manual.

For continuous product improvement, DKK-TOA reserves the right to change specifications without notice.