

## DISSOLVED OXYGEN ANALYZER/TRANSMITTER

Model: ODM-136A

### FEATURES

- Microprocessor based 4-wire transmitter suitable for field installation. The unit features isolated inputs and outputs, digital display and rainproof construction.
- Simple span calibration: The instrument can be calibrated in one action by virtue of memory resistant saturated DO (Dissolved Oxygen) data stored in the memory.
- The built-in stabilization determination function enables the unit to be accurately calibrated preventing operator error.
- Automatic determination of electrode quality: During calibration, the electrode quality is automatically evaluated. An error message is generated when the electrode quality deteriorates to an unacceptable level.
- Output range adjustment. The output range can be easily reconfigured.
- Output signal can be frozen during maintenance work: By switching to ST-BY (Stand By) mode the output value can be held to avoid disruption to the process control system.
- Facility to receive external contact switching signal to hold output (for example, during electrode cleaning etc).

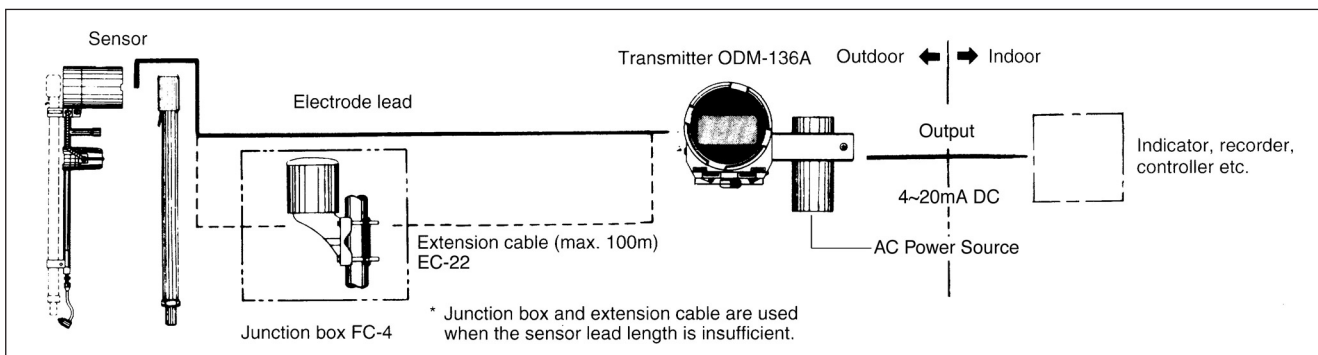
### STANDARD SPECIFICATIONS

<b>Product Name</b>	: DO Analyzer/Transmitter (for industrial use).
<b>Model</b>	: ODM-136A.
<b>Measurement Ranges</b>	
DO	: 0.00~1.00/2.00/5.00/10.00/15.00/20.00/25.00/30.00/50.00mg/L (output ranges)
SAT	: 0.0~150.0%
O <sub>2</sub>	: 0.0~30.0%
TEMP.	: 0.0~100.0°C
<b>Indication</b>	: Digital indication on LCD.
<b>Resolution</b>	
DO	: 0.01mg/L
SAT	: 0.1%
O <sub>2</sub>	: 0.1%
TEMP.	: 0.1°C



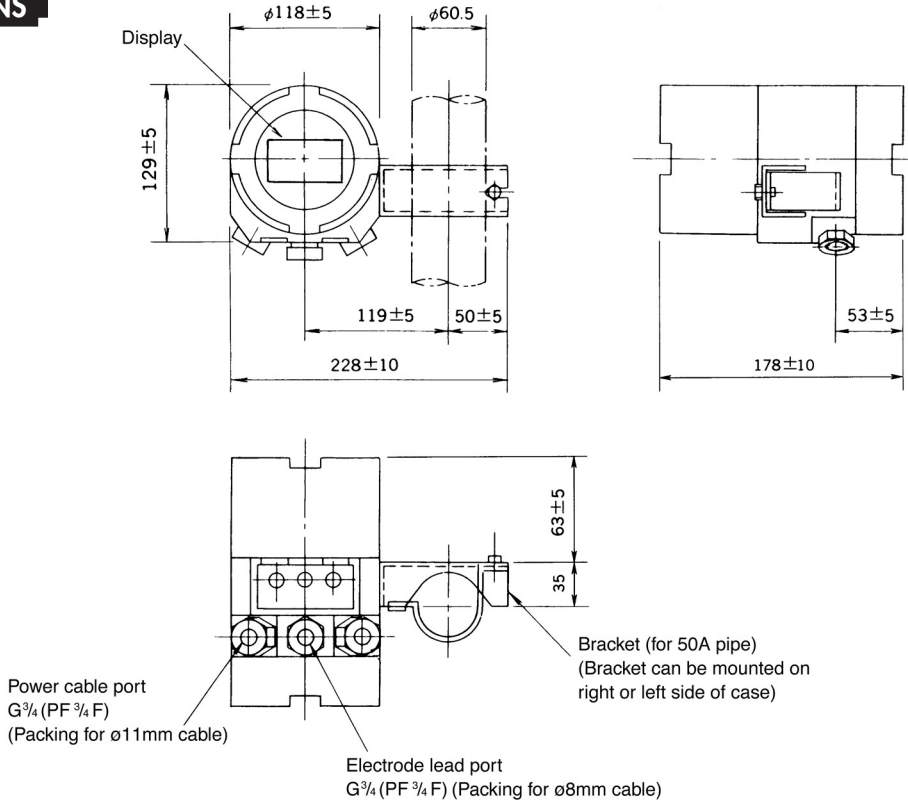
<b>Linearity</b>	: Within $\pm 1\%$ FS, with equivalent input (0~1 and 0~2mg/L range is within $\pm 0.05$ mg/L)
<b>Temp. Compensation Range</b>	: 0~45°C.
<b>Temperature Compensation Accuracy</b>	: Within $\pm 3\%$ FS to 0~45°C. (Dependant on equivalent input of electrode).
<b>Output</b>	: 4~20mA DC Isolated (load resistance 650 $\Omega$ or less).
<b>Ambient Conditions</b>	: -20~55°C, 99%RH or less.
<b>Power Supply</b>	: AC 90~132V 50/60Hz or AC 180~264V 50/60Hz.
<b>Power Consumption</b>	: Approx. 3VA.
<b>Weight</b>	: Approx. 3kg.
<b>Installation</b>	: Outdoor Installation, IP55.
<b>Mounting</b>	: Mounted on a 50A pipe.
<b>Cable Port</b>	: G $\frac{3}{4}$ (PF $\frac{3}{4}$ /F) 3 ports.
<b>Materials of Construction</b>	
Main Body	: Cast aluminium Alloy.
Window	: Resin.
<b>Paint Colour</b>	: Metallic silver and blue.
<b>External hold command input (Option)</b>	: Receiving hold signal from water jet cleaner to hold 4~20mA output during cleaning cycle.

### SYSTEM CONFIGURATION



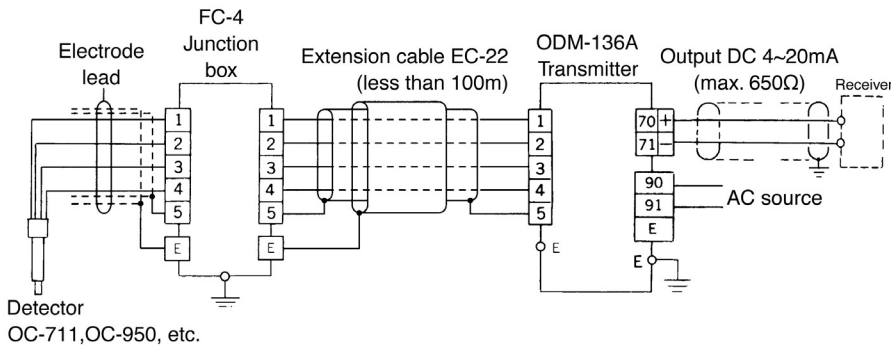
## DIMENSIONS

Units: mm



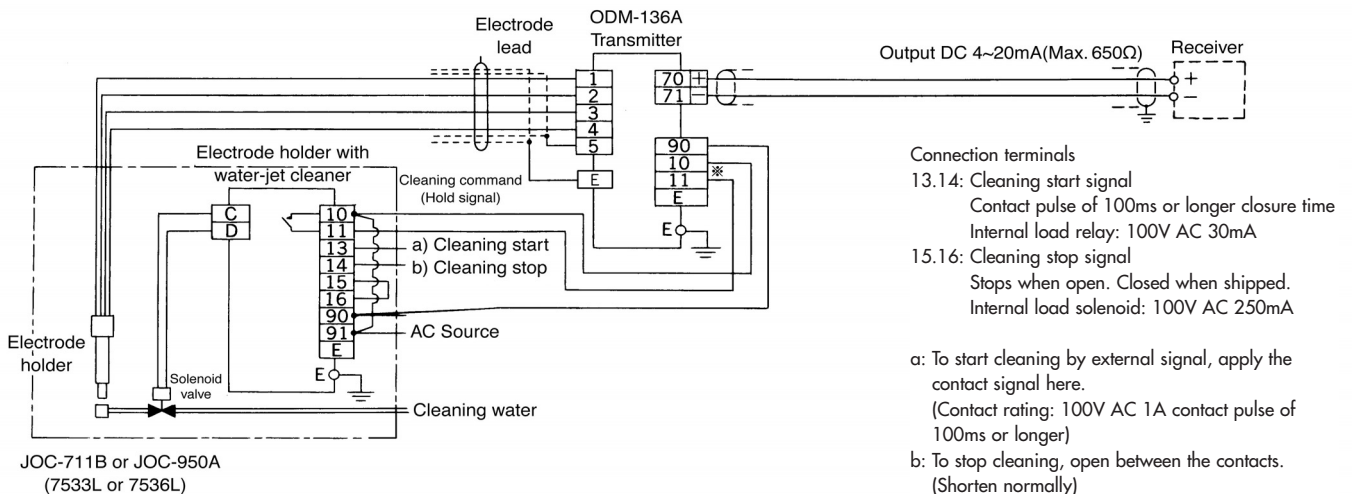
## WIRING CONNECTIONS

<Use of junction box and extension cable>

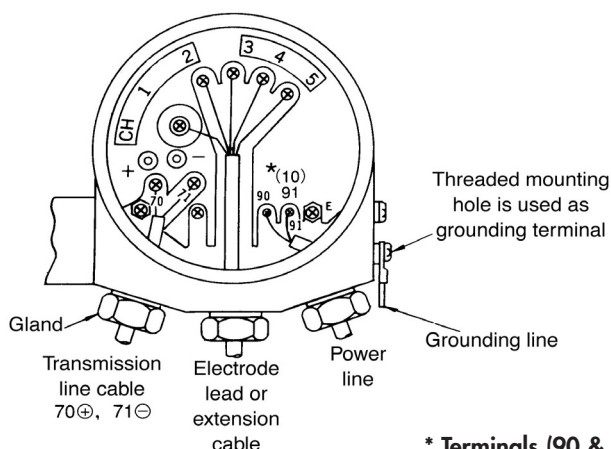


<Use of electrode holder with water-jet cleaner>

\* When external input function for output holding (terminals #10~#11) is equipped

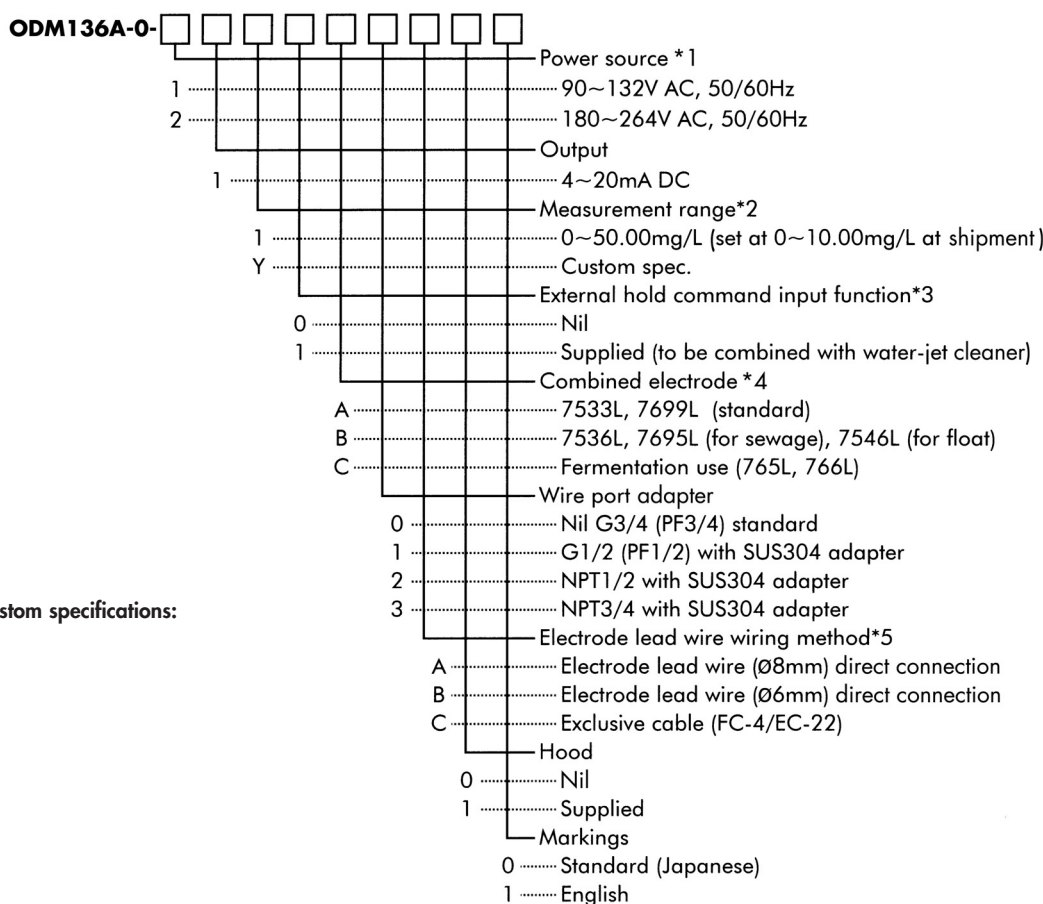


**TERMINAL CONNECTIONS**



\* Terminals (90 & 91) for holding output signal as option.

**PRODUCT CODE**



**Codes for custom specifications:**

Number: 9  
Letter: Z

**Notes:**

- \*1. Multi-voltage power supply either AC100V-based or AC200V-based.
- \*2. Measurement (output) range: It is possible to set nine ranges freely including: [0~1.00/2.00/5.00/10.00/15.00/20.00/25.00/30.00/50.00mg/L]. If the setting is not specified the unit will be shipped configured for range of [0~10mg/L]. If a specific range is required then select Product Code Y:SPECIFY and then input the required range.
- \*3. Combined electrode 7546L is for float system detector (FOC-71).
- \*4. Combined electrodes 7533L/7536L/7546L have 8mm OD leads. Electrodes 7695L/7699L/ (for fermentation) have 6mm OD leads
- \*5. The instrument should be installed in ambient temperatures not exceeding 45°C and protected from strong sunlight.

**Caution:**

1. Input terminals or external output hold command are provided as standard (no need to combine with cleaning function detector Model OC-711 etc). Please refer to appropriate sections (Wiring Connections) for detailed wiring information. For wiring details please refer to the wiring diagram and the instruction manual.
2. Temperature compensation resistance of combined electrode is 10 KΩ [TC=10 KΩ].

**RELATED EQUIPMENT**
**• Dissolved Oxygen Electrodes**

Diaphragm Polalograph type.

The system has the following features: Durable, very safe and diaphragm replacement is easy. These electrodes give very reliable measurement and have minimum maintenance requirements. It is also possible to use these electrodes for general applications as well as for oxygen applications.

**DISSOLVED OXYGEN (OXYGEN) ELECTRODE TABLE**

Applications		General Use			
		General tank		General tank/ Sewage application	
Model		7533L		7536L	7546L
Classification		Recycling system			
Material	Main body	PVC, PE, SUS316			
	Diaphragm	PTFE, FEP			
Sample Conditions	Temp.	0~45°C			
	Pressure	0.3MPa or less			
	Flow speed	10cm/s or more, at sensor tip			
Heat Resistance		50°C			
90% response time		Approx. 60s (25°C)		Approx. 180s (25°C)	
Linearity		Within ±3% of air saturation value (temp. fixed)			
Repeatability		Within ±2% of air saturation value (temp. fixed)			
Combination lead		ELW-32			
Combination holder		OC-711, JOC-711B etc.			FOC-7□□

The above table shows the list of electrodes to be used with the microprocessor type detector. The combination lead is 5m (standard).

**• Combined Detector**

Refer to electrode and electrode holder for DO amplifier B507-018-[ ] [ ] for details.

Product name		Immersion Type DO electrode holder	Immersion Type DO electrode holder	Flow through type DO electrode holder	Flow through type DO electrode holder	Throw in type DO electrode holder	Throw in type DO electrode holder
Model		OC-711	FOC-711/712	NOC-814	NOC-815	OC-991	OC-950C
Installation		Immersion type	Float system vertical type (FOC-711) Float system arm type (FOC-712)	Flow through type		Throw in type	
Service Temperature range	Sample	0~45°C (No freezing)					
	Ambient	-5~50°C					
Service pressure range		0.03MPa or less	Atmosphere	0.15MPa or less	0.3MPa or less	0.1MPa or less	
Weight		Approx. 1kg (total length 1m)	Approx. 30kg (FOC-711), Approx. 20kg (FOC-712)	Approx. 2kg	Approx. 5kg	Approx. 3kg (protector tube 2m)	Approx. 17kg (protector tube 5m)
Combined electrode		7533L (General) 7536L (Sewage application)	7546L General sewage	7533L (General) or 7536L (Sewage application)			
Materials in contact with sample		Holder: PVC, PP	Float main body: PVC, etc..	Holder: PVC, PP Case: PVC	Holder: PVC, PP Case: SUS316	Detector: SUS 316, PVC, PP	
						Protector tube: PVC	Protector tube: SUS304
Process Connection				25A JIS 10K FF	25A JIS 10K RF		

• **Electrode holder with jet-cleaner (JOC series)**

This holder provides a water or air jet spray to the electrode tip to remove electrode fouling. The cleaning interval can be altered by setting the built-in timer. Cleaning start and finish can also be controlled by external contact switching signals. Both immersion and flow-through types of electrode holder are available. Both types feature rainproof construction.

Product Name		DO electrode holder with jet-cleaner	DO electrode holder with jet-cleaner	Throw-in type DO electrode holder with jet-cleaner
Model		JOC-711B	JOC-811B	JOC-950A
Cleaning method		Intermittent air or water jet cleaning		
Mounting method		Immersion type	Flow-through type	Throw-in type
Temp. range	Sample	0~45°C (no freezing)		
	Ambient	0~50°C		
Pressure range		Below 0.03MPa	Below 0.3MPa	Below 0.1MPa
Cleaning cycle		1~3h (up to 12h available as option)		
Cleaning time		0.6~4min/cleaning (jet cleaning time adjustable between 30~60s)		
Cleaning water/air	Pressure		0.05~0.5MPa (sample pressure + 0.05~0.1MPa)	
	Consumption	Water	1.4~3.5L/min	
		Air	6~10L/min	
Power source		100V AC ±10%, 50/60Hz		
Power consumption		Approx. 25VA		
Weight		Approx. 7kg (total length; 1m)	Approx. 9kg	Approx. 20kg (protection tube; 5m)
Electrode		7533L or 7536L		
Wetted part material		Holder; PVC, PP, Case; SUS316	Holder; PVC, PP, Case; SUS16	Sensor; SUS316, PVC, PP Protection tube; SUS304
Paint colour		Metallic silver		
Construction		Rain proof construction		
Connection		-	25A JIS 10K RF	-

**JUNCTION BOX**

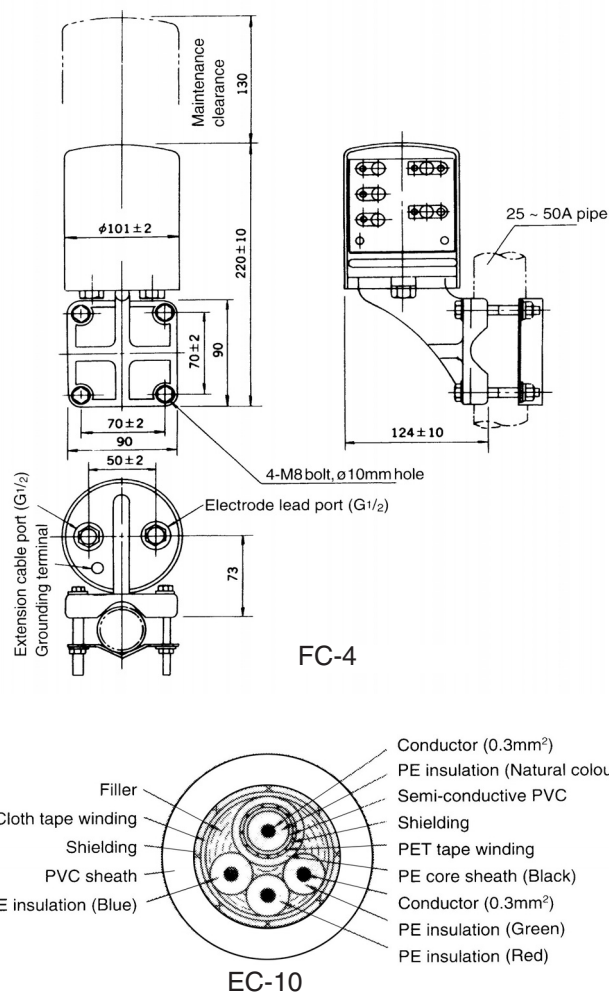
When the transmitter is installed remotely to the sensor (mainly for panel mounted transmitters) and the standard electrode lead length is too short, a junction box is required.

- Model** : FC-4
- Construction** : Field installation, spray proof (JIS CO920)
- Mounting** : 25~50A Pipe, wall or panelmount
- Material** : ABS resin
- Finish** : Matted chromium plating, metallic silver
- Weight** : Approx. 0.9kg

**EXTENSION CABLE**

The extension cable is a special cable specifically manufactured for use with DO analyzers. It is used for connection between transmitter and junction box. Maximum cable length is 100m. The cable must not be spliced.

Model	EC-10
Overall diameter	8mm
Insulation	Polyethylene and PVC
Sheath	PVC
Insulation resistance between core conductors	At least 10 <sup>5</sup> MΩ/100m
Standard length	5m, 10 ~ 100m
Weight	Approx. 0.5kg/5m

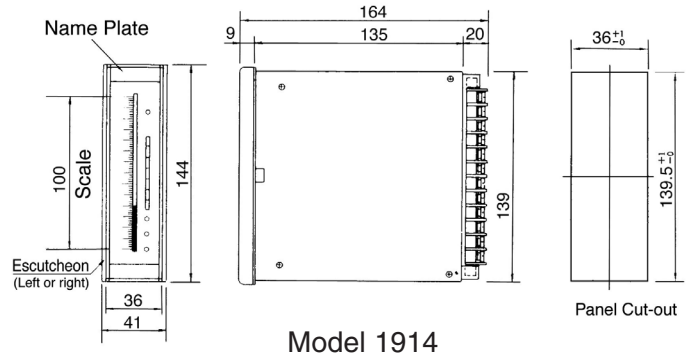


**BARGRAPH METER RELAY**

- Model** : 1914
- Output Signal** : 4~20mA DC
- Alarm Outputs** : High-high, high, low, low-low.  
(Contact rating: 125V, 0.5A)
- Scale** : Specify with purchase order.
- Scale Length** : 100mm
- Display** : Red LED, 101 dots.
- Power Requirements** : 85~264V AC, 50/60Hz
- Power Consumption** : Approx. 7VA
- Ambient Conditions** : 0~45°C, 40~80% RH
- Weight** : Approx 420g

**SUN-SHADE**

- (For protection from direct sun-light)
- Material** : 304 Stainless Steel
- Mounting** : 50A Pipe bracket



Model 1914

**DKK-TOA CORPORATION**



**CAUTION** Do not operate products before consulting instruction manual.

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