

SPECIFICATION SHEET



AUTOMATIC COD ANALYZER

COD-203A

This instrument is suitable for analysis of Chemical Oxygen Demand (COD) in river water or plant effluent designed in compliance with JIS K 0806, "Automatic Chemical Oxygen Demand (COD) Analyzer", and has been widely used in various fields.

The measuring principle is based on the oxygen consumption (CODMn) by potassium permanganate at 100°C described in 17 section JIS K 0102 of "Test Methods for Industrial Wastewater". or samples that contain a large amount of chloride, such as seawater, a method based on the "Oxygen Demand (CODalk) with Potassium Permanganate at Alkaline 100°C" was adopted.

Features

- High reliability: proven oxidation-reduction potentiometric method is adopted
- Reducing routine maintenance work:
Adoption of pinch valves and larger tubes (4mm or larger), and cleaning system of the sample line for every measurement, reduces clogging.
- Titration curves indication and print-out is available.
- User-friendly interactive operation using touch-screen
- Sufficient data storage capability: internal memory for 14-day measurement data, and data retrieval function
- Oxalic acid cleaning system cleans up the reactor vessel and electrode contaminated with over-provided permanganate
- Ammonia cleaning is available as an option to remove contamination with precipitated silver chloride.
In the case of acidity measurement by adding silver nitrate, application of ammonia cleaning function greatly reduces contamination of the reactor vessel and electrode caused by silver chloride.

Standard Specifications

- Product name : Automatic COD Analyzer
Model : COD-203A
Measurement object : Oxygen consumption by potassium permanganate
Measurement : (KMnO₄) at 100°C (acidic and alkaline methods)
End point detection : Oxidation-reduction potentiometric titration
Measurement range : (Unit: mg/L)
&flow path
(1) Single flow path/range : From 0 to 20 to 0 to 2000
(2) Single flow path/dual range ; (Auto range switching)
Range 1; From 0 to 20 to 0 to 1000
Range 2; From 0 to 40 to 0 to 2000
Range 1 < Range 2; range ratio: 2
(3) Single range, 2 flow paths; From 0 to 20 to 0 to 2000



(4) Dual range, 2 flow paths

Range 1; From 0 to 20 to 0 to 1000 (flow path 1)

Range 2; From 0 to 30 to 0 to 2000 (flow path 2)

Range 1 < Range 2

The measurement range selection is recommended to make the maximum concentration of the sample to be approximately 60% of the full-scale value.

Measurement cycle : One measurement/hour (Measurement schedule is settable at 1-hour unit) or measurement start by external signal.

Display & recording : Digital, touch-screen
(Japanese, English, or Chinese)
Printing; English only

Items for record : Year, month, day, time; measurement values, measurement parameters; daily report (max., min., averages, number of measurements), etc.

Repeatability : (With calibration solution)

0 to 20mg/L range ; Within ±1% FS

Over 20, up to 200mg/L range ; Within ±2% FS

Other ranges ; Within ±5% FS

Stability : (With calibration solution)

Zero drift ; Within ±3% FS/day

Span drift

20mg/L range ; Within ±3% FS/day

Over 20, up to 200mg/L range ; Within ±4% FS/day

Other ranges ; Within ±5% FS/day

Installation : Indoors or inside cubicle.

- conditions
- where protected from exposition to the direct sunlight and weather, and from vibration and shock, allowing sufficient maintenance space and away from noise sources.
 - provision of adequate ventilation where corrosive vapors are present.
 - provision of air-conditioning where the ambient temperature is 5°C or lower, or 40°C or higher.

Ambient conditions : 5 to 40°C, 85% (RH) or less (No condensation)
Sample conditions : 2 to 40°C
Temperature : 0.02 to 0.05MPa
Pressure : 0.5 to 3L/min.
Flow rate : Masking by AgNO₃ is required when the sample contains chloride ion like sea water. Too much chloride ion contained in the sample may precipitate AgCl and affect the measurement. Masking limit by AgNO₃ is 100 times of the full scale. (ex.) The limit is 2g Cl⁻/L at 0 to 20mg/L range.
Coexisting components : (when one measurement/hour)
Reagent consumption : 5mmol/L KMnO₄ solution; approx. 6L for 2 weeks
12.5mmol/L Na₂C₂O₄ solution; without Na₂C₂O₄ cleaning; approx. 3.7L for 2 weeks
with hourly Na₂C₂O₄ cleaning; approx. 6L for 2 weeks
H₂SO₄ (1+2); approx. 3.7L for 2 weeks
AgNO₃ (200g/L); (acidic method) approx. 1.85L for 2 weeks
NaOH (40g/L); (alkali method) approx. 1.85L for 2 weeks
Ammonia water (3.5%); (with ammonium cleaning) approx. 0.2L/cleaning
Please dispose of waste liquids properly by asking a specialist disposal processor.
Input signal : Non-voltage contact input (contact capacitance DC30V, 0.3A) observation station stop signal, external start signal, external calibration signal, flow channel switching signal, waste tank full signal (for optional waste tank float switch)

Output signal : 4 to 20mA DC (Isolated max. load 600) and 0 to 1V DC (Isolated min. load 100k)
Under maintenance, under calibration, power cut off, abnormal measurement value, pretreatment control, analyzer fault 1, analyzer fault 2, etc.
Power source : 100 to 240V AC ±10%, 50/60Hz
Power consumption : Max; approx. 550VA
Average; approx. 200VA
Structure : Indoor, floor mounting type; Equivalent to IP30
Wetted part material : Hard PVC, PFA, PP, silicone, hard glass
Dimensions : 600 (W) × 600 (D) × 1600 (H) mm
Finishing paint color : Munsell 5PB8/1
Weight : Approx. 160kg (excluding reagents)

Utilities

Tap water : For cleaning and diluting
Temperature : 2 to 35°C
Pressure : 0.1 to 0.5MPa
Flow rate : Approx. 2L/min(max.)
Consumption : Approx. 5L/measurement

Options

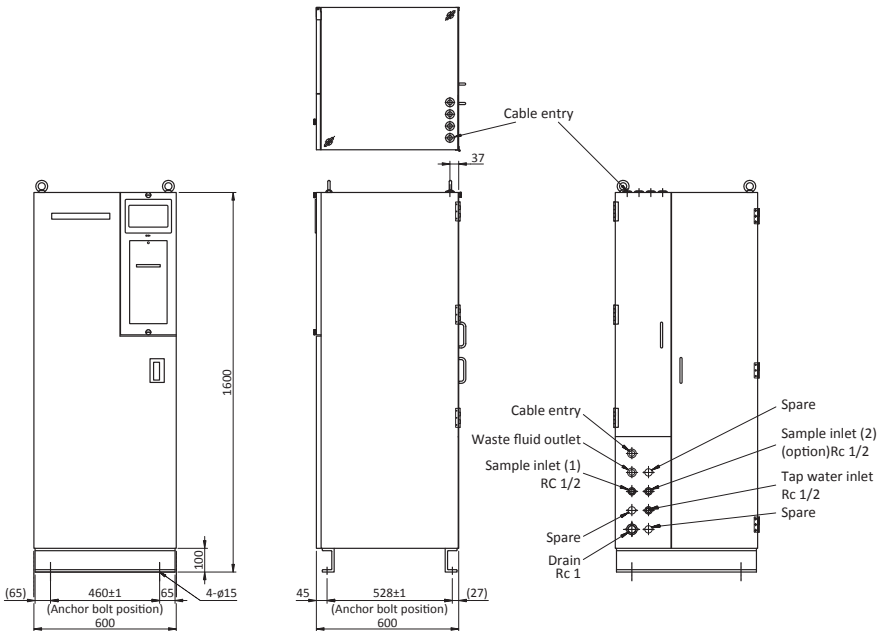
No AgNO₃ addition : For sample with no coexisting chloride ion
Communication : RS-485 or RS-232C
Ammonia cleaning : For reducing contamination by AgCl, combined with AgNO₃ addition in acidic method

Related equipment

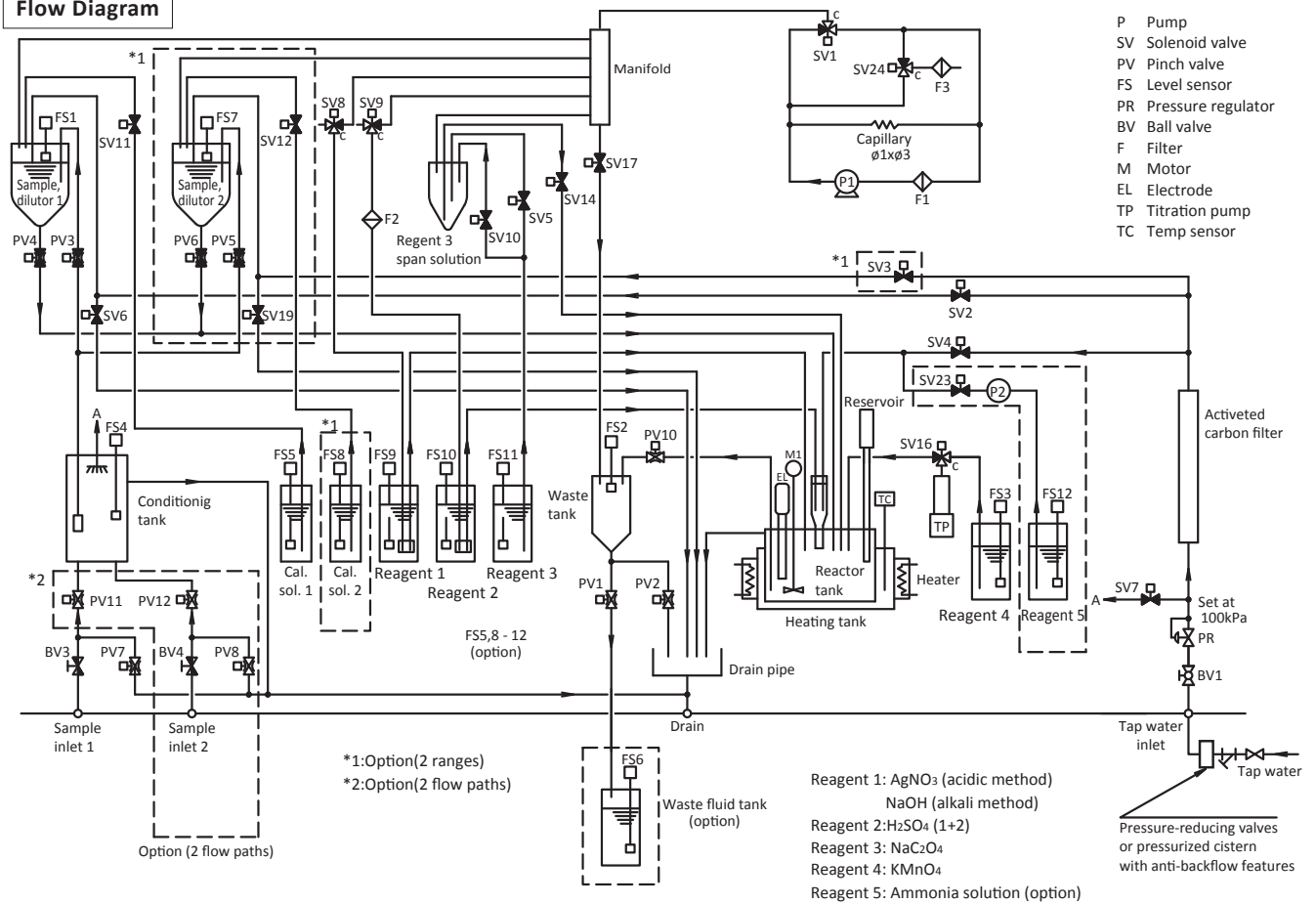
Pollutant integrator : Model CALD-2030 calculator

Dimensions

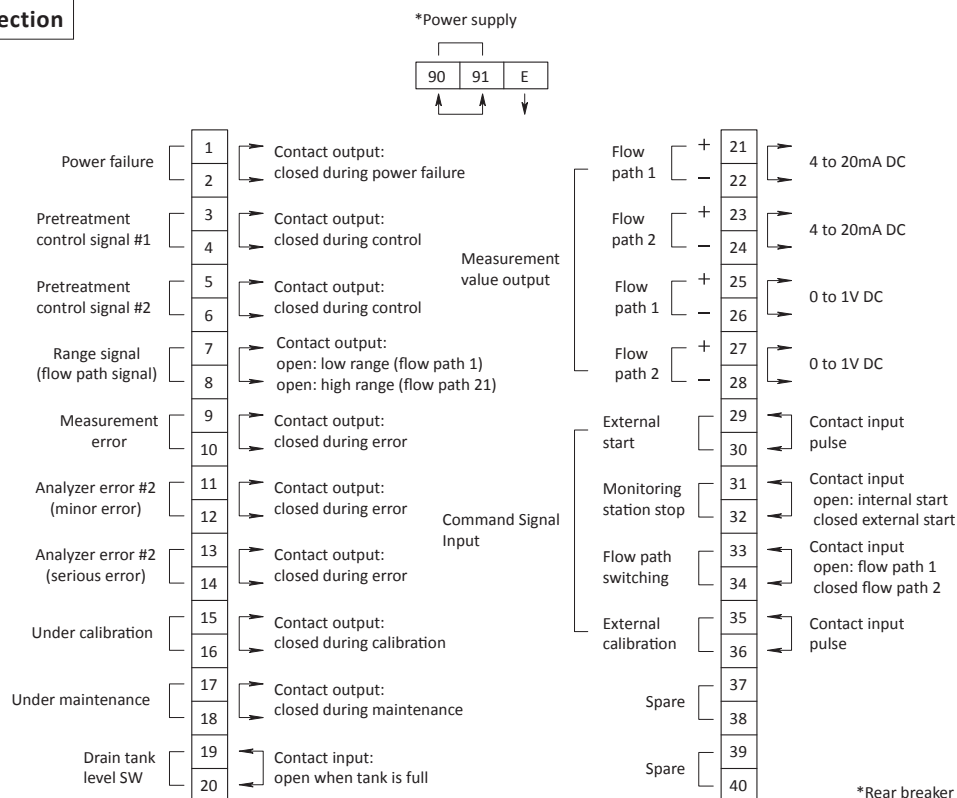
Unit : mm



Flow Diagram



Terminal Connection



COD203A-2-

Note 5.State separately if the arresters are attached to the power supply and transmission lines.

