Chapter 9 Troubleshooting

If self-detection output is produced, check the detector according to the following procedure.

1. Check if the detector is wired properly?

→If there is any improper wiring, carry out wiring properly once again.

2. Check if the detector cable is disconnected or scratched or deteriorated?

→If the detector cable is scratched or deteriorated, disconnect the power supply from the power source and contact us.

3. Check if 12 VDC is supplied to the power supply?

4. Check whether or not the detecting windows are soiled?

→If the detecting windows are soiled, clean it.

5. Check whether or not the measured water is abnormally turbid?

→If the measured water is abnormally turbid, self-checking output will be produced.

The 3000NTU will not produce self-diagnostic output even in the case of abnormal turbid water.

If self-checking output is produced even when there is not any aforementioned abnormally, the detector may be considered to be out of order. Accordingly, contact us.

Content

Chapter 1 Technical Indexes

1. Measuring range: 0-100NTU, 0-500NTU, 0-3000NTU
2. Power supply: DC12V±10%
3. Current draw: At regular operation:30mA(Max),

   At cleaning operation:240mA(Max) (excluding analog signal output)
4. Output: Analog(4-20mA) signal output: resistance load of 300Ω(Max)

   4mA: 0 FTU

   20mA: 100 FTU(100NTU),500FTU(500NTU),3000FTU(3000NTU)

   Self-checking output: open collector(12VDC 20mA Max.)
5. Input: calibration signal input
6. Cleaning system: both sided swing wiper cleaning system
7. Time interval for cleaning: clean once immediately after power-on, and subsequently clean once every 30 minutes; clean once immediately after power-on, and subsequently clean once every 10 minutes
8. Operating Temperature: 0-40℃(unfrozen)
9. Major Material: SUS 316L, sapphire glass, fluorocarbon rubbed, EPDM, POM
10. Dimensions: Φ 32 x163mm(exchange hanging attachment)
11. Weight: approx 930g
12. Degree of Protection: IP68, maximam depth of meters(underwater type)
13. Detector cable length: 10m

Maintenance (rough standard:once a month)

- Clean and wash the detecting windows and the wiper blade with tap water.
- Check whether or not the detecting windows are scratched or deteriorated.
- Check whether or not the wiper blade is worn or deformed.
- Make sure that the wiper blade is fixed securely.
- Check whether or not the detector cable is scratched or deteriorated.
- Check the lifting lug for corrosion.
- Immerse the detector in the measured water(forumajin, etc.) of know concentration and make sure of analog(4-20mA) signal output.

Replacement of consumables

- Replace the wiper blade once a year as rough standard. Besides, replace it when adequate wiping effect cannot be produced.
- Replace the lifting lug once a year as rough standard. Besides, replace it when it is corroded significantly.
- In reference to the wipe blade and lifting lug, purchase a maintenance kit.

Storage for a long time

When the turbidity meter is not used over a prolonged period, keep it as follows:

① Disconnect the power supply from the power source;

② Pull up the detector form water and clean it;

③ Keep the detector at a place not being exposed to direct sunshine.

1. Pull up the detector from water and clean the detector body and the detecting windows cleanly.

2. Immerse the detector in distilled water or ion-exchange water.

3. After accustoming the detector to water temperature for five minutes or so, make sure that air bubbles are not produced on the detecting windows and connect the calibration signal input terminal to -12VDC for two seconds or more.

4. After two seconds for more is elapsed, disconnect the calibration signal input terminal from the -12VDC. Calibration signal input terminal should be pulled up to open or +12VDC during measurement.

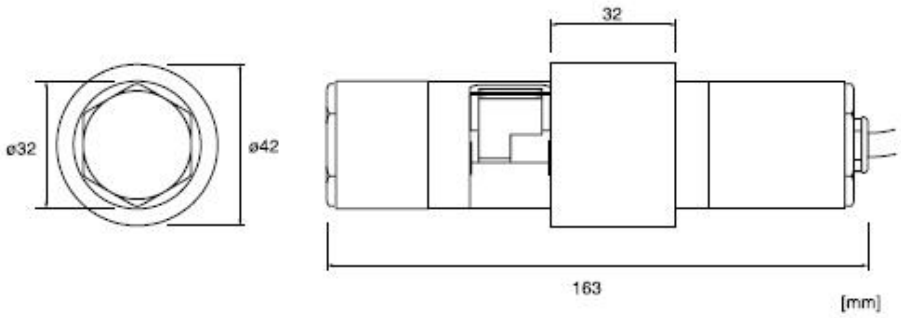
5. Immerse the detector in the measured water(forumajin, etc.) of know concentration and make sure analog(4-20mA) signal output.

6. Adjust the analog(4-20mA) signal output receiving side as occasion demands.

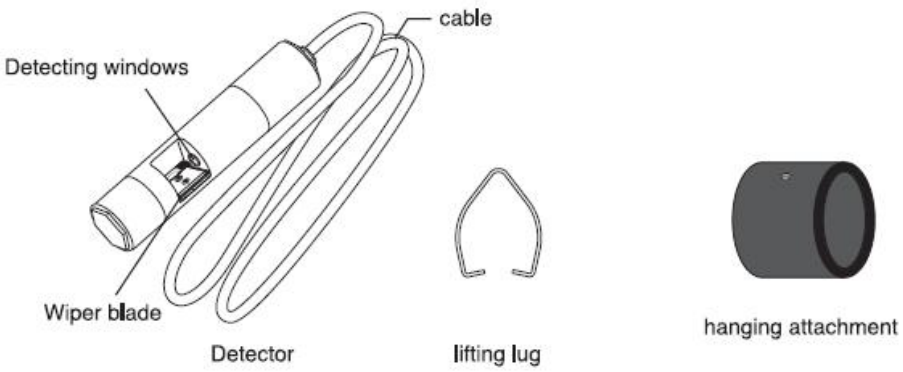
Chapter 8 Maintenance

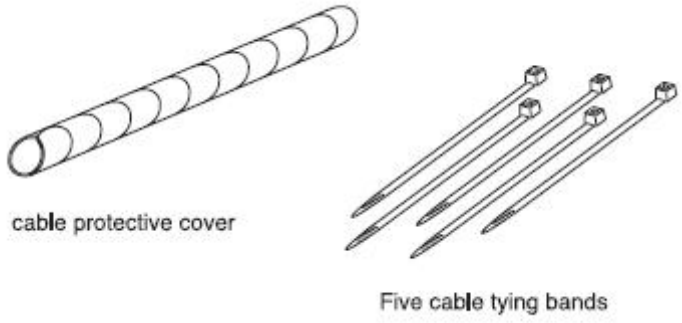
CAUTION:
➢ To clean the detector, first wipe away lightly with a clean soft cloth, and so forth immersed by diluted mild detergent solution and then wipe off moisture with a dry clean soft cloth, and so forth.
➢ Do not wipe the detector with organic solvent such as benzine.
➢ Do not put oil such as grease on a wiper blade.

Chapter 2 Dimensions



Chapter 3 The Contents Of Packing





concentration and analog(4 to 20mA) signal output.

In this case, make adjustment on the analog(4 to 20mA) signal output receiving side.

Output method of 4 or 20mA

4mA: Immerse in distilled water or ion-exchange water;

20mA: Cut off the detecting windows for 30 seconds or more.

* When the detecting window are continuously cut off ten minutes or more, self-checking output will be produced.(3000NTU has not this function)

Chapter 7 Calibration

CAUTION:

The turbidity meter is designed to be able to measure stably for a prolonged period of time. In order to maintain the reliability of measurement, however, calibration should be carried out at least once a year.
When calibration is carried out, exercise care for the following points. Failure to observe these precautions may not carry out calibration properly. • Clean the turbidity meter before carrying out calibration. • Use distilled water or ion-exchange water for calibration. When distilled water or ion-exchange water is not available, use tap water while taking care for red water, and so forth. • When air bubbles are produced on the detecting window, get rid of air bubbles before carrying out calibration.

(When external equipment is not connected, self-checking output terminal should be made open.)

- Connect a resistor of 600Ω or more;
- Connect a relay and so forth(Omron G6B series rated voltage 12VDC is recommended).

- Calibration signal input terminal should be pulled up to open or +12VDC during measurement.
- Adjust the analog(4-20mA) signal output receiving side as occasion demands.

Caution:

- The analog(4-20mA) signal output becomes order of 20mA for 100NTU, 8mA for 500NTU,
  and 4.5mA approx for 3000NTU depending on the properties of equipment in the air, but this
  does not signify abnormalities.
- When two or more turbidity meter are installed, use a power supply separately. Since +12VDC and +analog (4 to 20mA) signal output are not insulated, the analog(4 to 20mA) signal output will not be produced properly when two or more turbidity meter are connected with one power supply.

Adjustment of analog(4 to 20mA) signal output

There may be difference between measured water(forumajin, etc.) of known

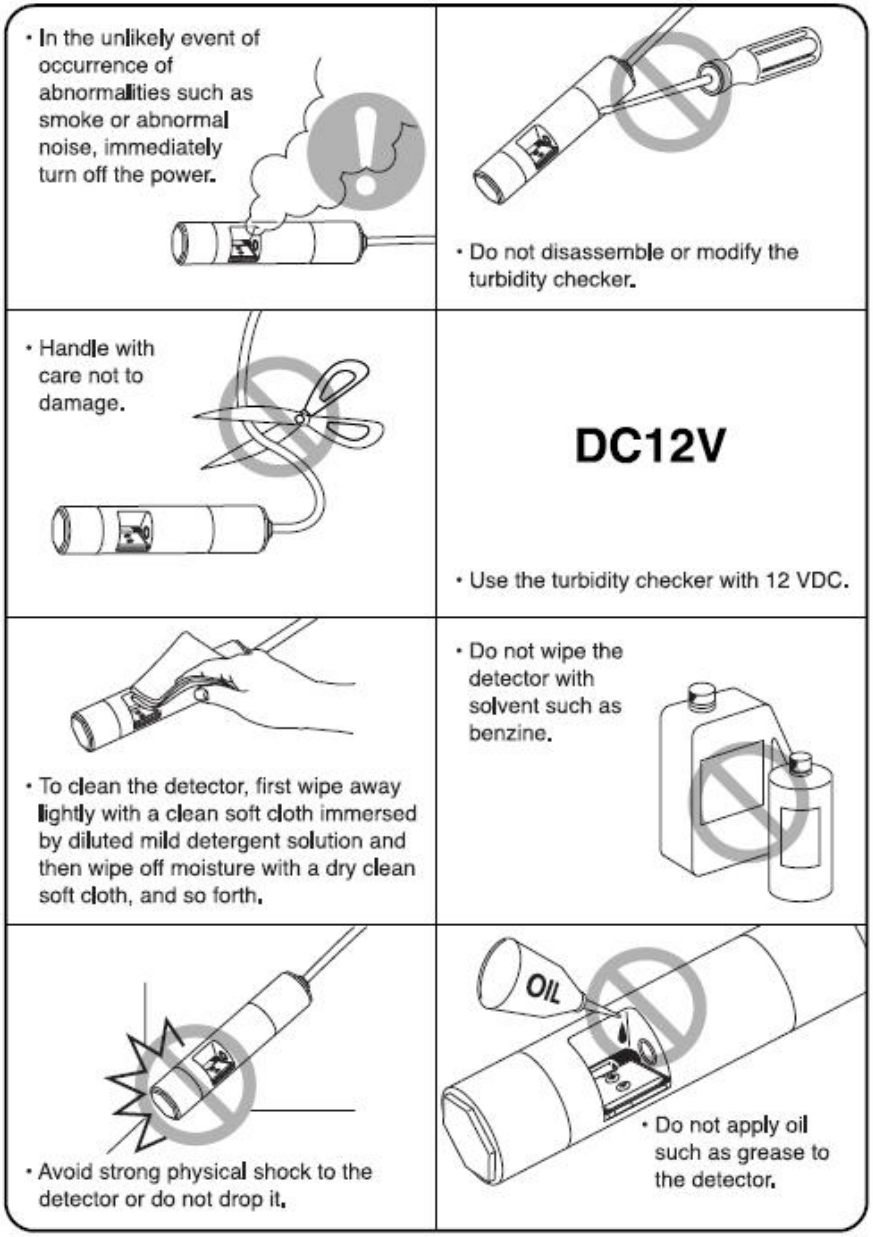
Chapter 4 For Safe Use

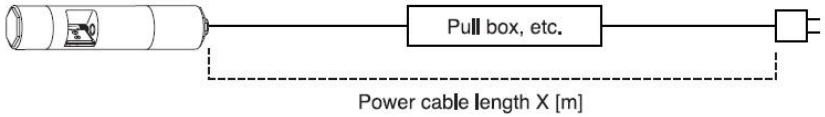
Be sure to read this instruction manual in order to use the turbidity meter properly.

- Please read the “For Safe Use” thoroughly before using the turbidity meter properly.
- Because these precautions are related to failure or malfunction, observe the precautions for use without fail.

Do not use the turbidity checker except for measurement of water quality.

In order to use the turbidity meter properly, observe the following precautions:





Nominal sectional area	Max. cable length X [m]
0.2[mm^2]	10[m]
0.3[mm^2]	20[m]
0.5[mm^2]	40[m]
0.75[mm^2]	50[m]

- For connection to the analog(4-20mA) signal output terminal, load resistance should be 300Ω or less(including wiring resistance).
- After operating the washing device, the analog(4-20mA) output is held for a certain period. Since this period differs depending on the type of turbidity meter, confirm it in the Table below.
- In reference to washing immediately after power-on, however, the analog(4-20mA) output is not held.

Measuring range	Hold time (sec.)
0-100 NTU	1
0-500 NTU	60
0-3000 NTU	60

- Output of self-detection output terminal is transistor output(open collector)

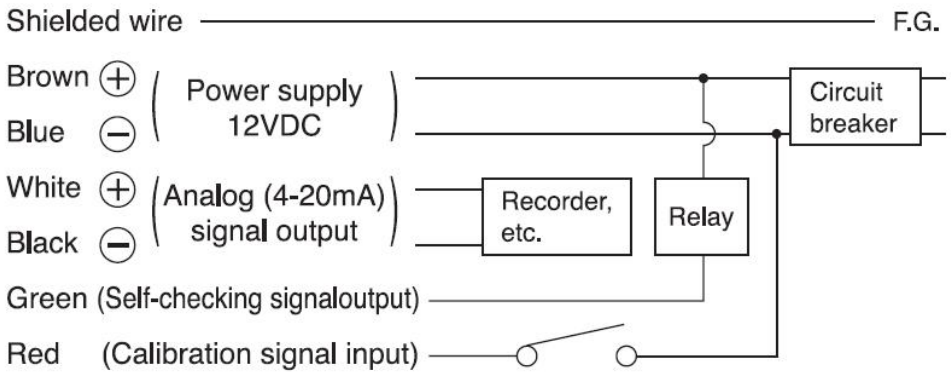
When connecting to external equipment and so forth, connect between +12VDC and self-checking output by referring to the following items as occasion demand.

CAUTION:

- An opening having the detecting window faces immediately lateral when hanging the detector.
- If the detector inclines at the time of hanging, make horizontal adjustments by changing a point where the cable is fastened on the chain wire and so forth.

Chapter 6 Wiring

⚠ During wiring operations, disconnect the power cable from the power supply and wire the power cable at the last.

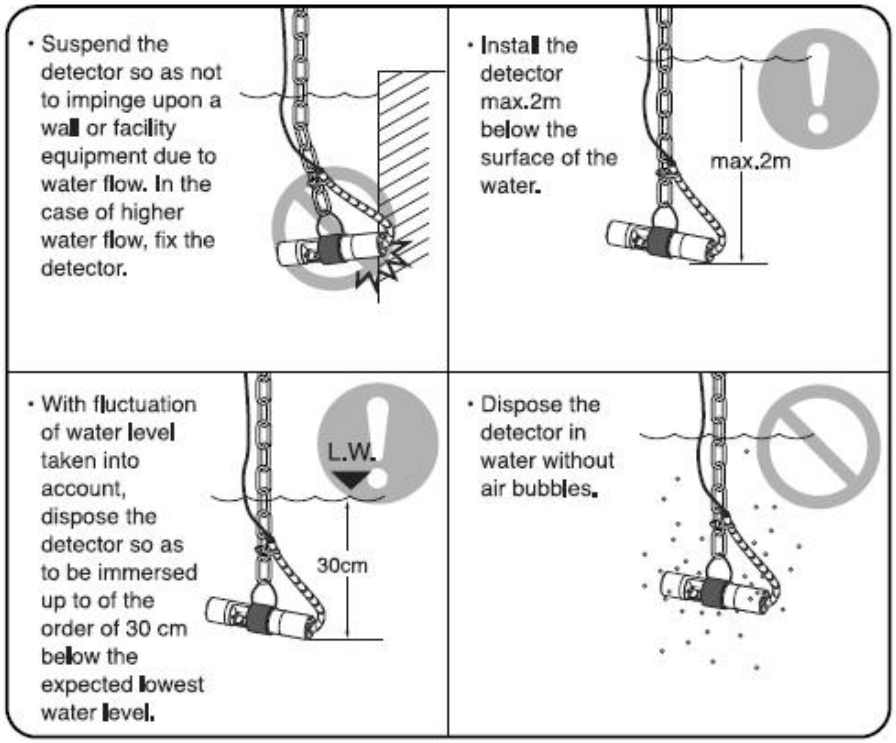


- Use a circuit breaker with rated current of 1A or more for power supply.
- When extending a detector cable, use a shielded cable(CVV-S) with a pull box, etc.
- For power cable length, refer to the table below.

Chapter 5 Installation

⚠ Make sure the cable is separated from the power supply before opening the unit.

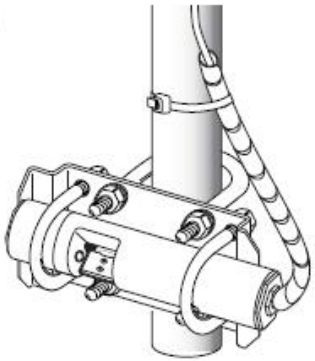
" ⃠ " denotes "Prohibited action", and " ❗ " denotes "Required action " .



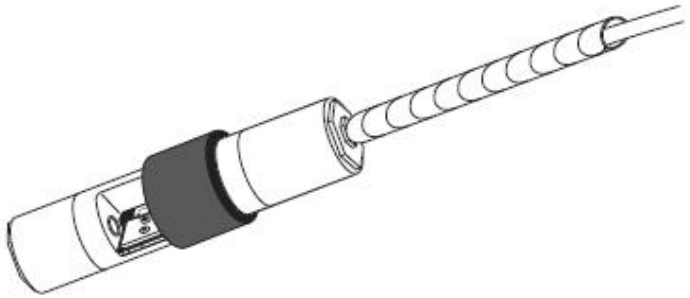
CAUTION:

- Read precautions described in an instruction manual thoroughly before using a turbidity checker.
- Attach a cable protective cover without fail. Otherwise, there is a possibility that a cable is scratched during maintenance operation and water intrudes.
- Do not hang a detector with a detector cable.
- Do not cover over measuring surface by a hanging attachment.

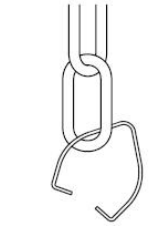
When using a turbidity checker at a place at high water flow (for reference):
An optional mounting attachment (TA-1) is prepared for users who use the turbidity checker at a place at high water flow. This attachment serves to prevent a detector from impinging upon a side wall or turning around.



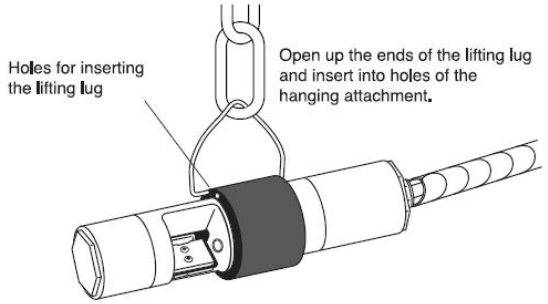
1. Wrap a cable protective cover on the detector side of the detector cable.



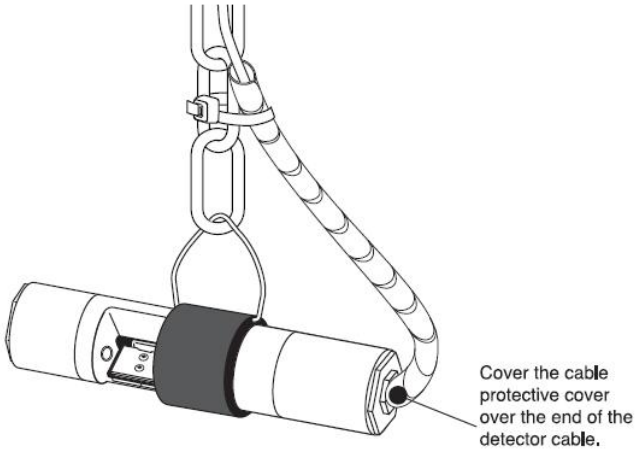
2. Hang the detector by a chain wire and so forth with an attached lifting lug(A chain wire and so forth should be supplied by a user).



Run the lifting lug through the end of the chain.



3. Fasten the end of the cable protective cover on the chain wire and forth with a cable tying band.



TC100/500/3000

Industry Turbidity Sensor

User Manual

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