

1. How to check disconnection or short circuit

If the measured value of the sensor is abnormal, the main cause is noise problem, but sometimes disconnection and short circuit occur.

When a disconnection or short circuit occurs, the measured value fluctuates or is displayed as 0 or xxxx, etc.

Disconnection and short circuit can be checked simply by using a multimeter (tester).

1) Disconnection

Disconnection means the cable is broken.

In the case of vibrating wire sensor, when the frequency measurement line (red, black) is connected using a multimeter and 0L is displayed, it is a disconnection.

Find the broken cable and repair or replace it.



[Disconnection]

2) Short circuit

Short means that the cable is shorted.

The measurement method is the same as disconnection, and the resistance value (coil resistance + cable resistance) of a vibrating wire sensor varies depending on the sensor type, but when a short circuit occurs, the resistance value is displayed very small.



[Short circuit]

2. How to check insulation or resistance

Insulation defect means the condition in which the sensor and signal cable are affected by external current or noise, etc. It mainly occurs when the cable sheath is damaged or water or moisture enters the sensor or cable.

If an insulation defect occurs, the measured value of the sensor is highly likely to become unstable. In addition, there is a case where a momentary electric shock is entered to the location where the insulation defect occurs, and the automation equipment and all sensors connected to the automation equipment may be damaged. Be sure to check for insulation defects during automated measurement.

Insulation defect is checked using an insulation resistance meter and one end of the clip (pin) of the insulation resistance meter is connected to the sensor's signal cable and the other end is connected to the earth ground where the sensor is installed. If the insulation resistance value is more than $100\text{M}\Omega$, it is in normal condition, and if it is less than $100\text{M}\Omega$, it is an insulation defect.



[Normal : Over $100\text{M}\Omega$]



[Insulation defect : Below $100\text{M}\Omega$]