LIQUID DETECTOR SENSOR

OPERATION MANUAL

for
TK-010N2
TK-010N2-S1

CE Mark Compliance
EN55011
EN61000-6-2
EN61326

TOYOKO KAGAKU CO., LTD.
Components Business Division
370 Ichinotsubo, Nakahara-Ku, Kawasaki-City, Kanagawa-Pref., JAPAN
Phone: (044)435-5860 Fax: (044)433-5332

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Introduction

・We appreciate that you have purchased our liquid detection sensor .
・Before you install or operate it, please read this operating manual thoroughly, and follow the Instruction in order to avoid any accident, malfunction, defects, and hazards.
・Please keep this manual with good care as long as the sensor is operating.

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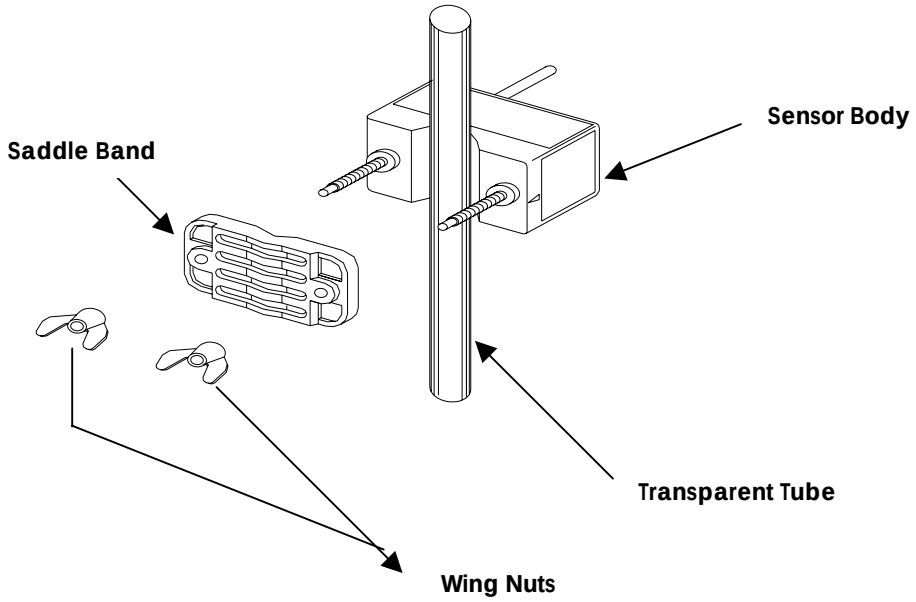
1. Designation of Sensors

TK-010N2/TK-010N2-S1



2.Installation

You can simply install every sensor into a transparent tube, grasping the tube between Sensor Body and Saddle Band tightened by Wing Nuts.

CAUTION

(1) Be sure that the sensing surface (Light emission/reception window) and the tube surface must contact completely each other.

(2) Be aware that Saddle Band is so fragile that over-tightening with Wing Nuts may cause the crack of it.

(3) Recommend the torque for tightening will be approx. 2.5～3.0kgf･cm, and avoid distortion of the Band during tightening simultaneously.

3.Wiring Instruction

(1) Generally 4-core cable is supplied with Sensor Body by 2-meter long, 3.8mm diameter.

Red : +24V power
White : Output 1(Liquid Existing – ON)
Yellow : Output 2(Liquid Existing – OFF)
Black : 0V power

(2) Connect the correct power source to Red and Black lines (DC24V or DC12V, depends on the model)

Make sure to add a Zenner* diode into a power input, avoiding a surge hazard for compliance with EN61000-6-2 for compliance with CE Mark.

* Recommend Zenner diode: Z6033 (Ishizuka Denshi), 2.0 W(nom), 6000 W (transit)

CAUTION

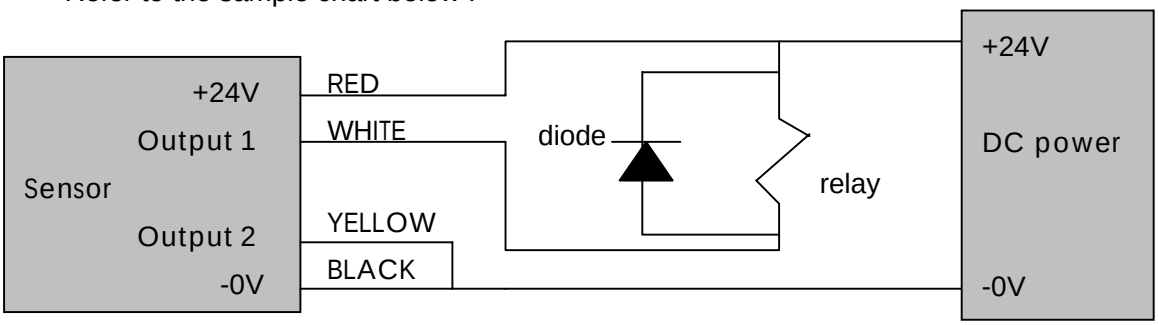
Avoid wrong wiring for DC power. (Red line for PLUS polarity, and Black line for Minus.)

When the power cable needs to be extended, not exceeding maximum length of 30m.

(3) Keep the load current not exceeding 50 mA. Otherwise, the output circuit of the sensor may be destroyed.

NOTE : When you apply a relay as a load, add a diode into output connection in parallel configuration in order to limit the back electromotive voltage.

Refer to the sample chart below :



When one of output lines is not used, recommend that it will be connected with 0V for avoiding unexpected shortage with others.

(4) Don't make any lines contact each other when the power is applied. Damages may occur on Sensor.

4. Adjustments

Before starting this adjustment procedure, the tube must be empty, and follow the steps below :

①Install the sensor on the tube and apply the power into it, as followed by the foregoing procedure. Remove Protection Cap, and turn a Sensitivity Adjusting Pot.(SAP) counter-clockwise(C-CW) using an adequate small driver. Indicating LED will become green.

②Next, turn a SAP clockwise(CW) slowly until Indicating LED have changed into red, then stop turning.

③From the above position of SAP, again turn it, in the opposite direction, C-CW by approx 90 degree angle (one-quarter turn).
Indicating LED shows now green.
Now the adjustment has been completed.

5. Specifications

TK-010N2, TK-010N2-S1

Power Source	DC24V±10%
Current Consumption	45mA below
Tube O.D.	6～25.4mm (TK-010N2), 10～25.4mm(TK-010N2-S1)
Detecting Method	Infrared Photoelectric Device
Output	NPN Transistor Open Collector, max 50mA, 2 opposite signals
Ambient Temperature	-10℃～60℃
Sensitivity Adjust	Available (See above Section **4.** for details)
Water Protection	Available (Silicon stuffed-in) IP67(IEC) equivalent
Body Material	Poly-Carbonate
Cable	3.8mm OD, 4-wire, 2 m (TK-010N2), 3m (TK-010N2-S1)
Weight	Approx 100g
LED Indicator	Red: Liquid exist, Green: Empty