



# Flowmeter with Photo Sensor Model RK1812/RK1814 Series Instruction Manual

Thank you for your selection of “**KOFLOC Area Flow Meter.**”

Prior to use, read this manual thoroughly to ensure your new meter will work to its fullest capacity.



## CAUTION

This product is designed for controlling the flow rate and its maximum working pressure is limited to:

(Gas) 1.0MPa(G) below 100mL/min

0.7MPa(G) below 5L/min

0.5MPa(G) above 10L/min

(Liquid) 1.0MPa(G) below 20mL/min

0.7MPa(G) below 150mL/min

0.5MPa(G) above 200mL/min

The use of fluids, such as toxic gas, other than those marked on the flow meter or the use of the product at a temperature or pressure above the maximum limits could result in personal injury. Such a way of use is strictly prohibited.

Note that if solenoid valves are installed before and after the flow meter and they are opened and closed under pressure, the float will jump up to break the glass. Be sure the flow meter will not be subjected to direct pressure fluctuations.

### Foreword

Thank you for your selection of Model RK1812/Model RK1814 Series.

- The contents of the manual are subject to change without notice.
- The manual has been created meticulously. Should, however, you notice any deficiencies, errors or omissions, you are kindly requested to notify us.
- The warranty period of this product is one (1) year after shipment.
- Failures attributable to KOFLOC which may occur during the warranty period will be remedied free of charge.
- KOFLOC shall not be held responsible whatsoever for breakdown or trouble of equipment which results from negligence of the precautions described in this manual or using the product by methods other than the described procedures.

## 1. Purpose

This manual describes how to read the flow rate indicated by the Flow Meter with Photo Sensor Model RK1812 and how to utilize the photo sensor effectively.

It contains a procedure of correct installation and piping, procedure of correct use of the meter and procedure of fine adjustment of the photo sensor reaction.

If you have any questions or doubt about the contents of this document, please contact us.

## 2. Installation and Piping

Select either installation method; embedding in the panel (secured together with the front cover) or mounting on the panel (secured with included nuts).

## 3. How to Use

### 3-1 Basic Handling Procedure of the Flow Meter

For the basic handling procedure, see KOFLOC standard “Flow Meter Instruction Manual.”

For the electric specifications and handling of the photo sensor, see the included “UM Series Instruction Manual.”

### 3-2 Procedure of adjusting the sensor part and checking the sensor reaction

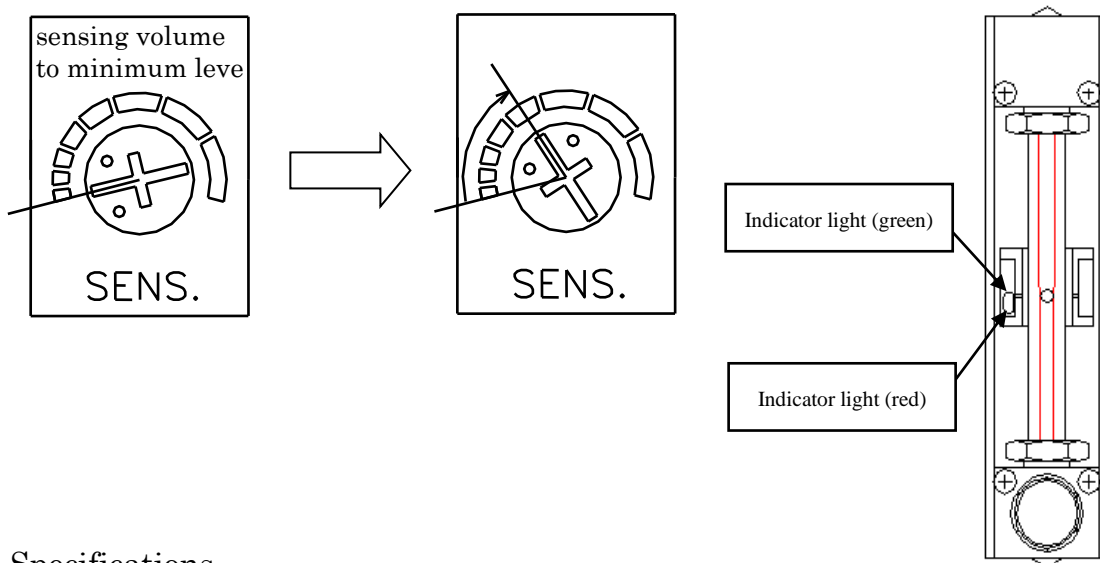
As a rule, the contact has been adjusted to the optimum reaction at shipment.

Only when the photo sensor needs to be adjusted finely depending on the user environment and conditions of use, use the following procedure to adjust the sensor.

If the optimum contact reaction cannot be obtained by the following procedure, it is requested that you return the product to us.

#### 3-2-1 Adjustment method

- ① Turn the sensitivity adjust variable resistor to the minimum.
- ② Connect wires and make sure that light (optical axis) from the sensor light projector side will not be blocked off.
- ③ Turn the sensitivity adjust variable resistor until both of the green and red indicator lamps light up simultaneously.
- ④ Block off the optical axis with the float and make sure that the contact signal will be interrupted and only the green indicator lamp will remain lit.



#### 4. Specifications

##### — RK1812·RK1814 —

	Gas	Liquid
Applicable fluid	Air, N <sub>2</sub> , O <sub>2</sub> , H <sub>2</sub> , He, Ar, CO <sub>2</sub> (Calculating calibration for other gases)	Standard liquid : H <sub>2</sub> O (Calculating calibration for other liquid.)
Flow rate ranges	Various standard ranges from 5 to 50mL/min and 5 to 50L/min (Air conversion-atm)	Various standard ranges from 2 to 20mL/min and 0.1 to 1L/min
Accuracy	Within ±2% F.S.	
Maximum pressure	1.0MPa(G) below 100mL/min 0.7MPa(G) below 5L/min 0.5MPa(G) above 10L/min	1.0MPa(G) below 20mL/min 0.7MPa(G) below 150mL/min 0.5MPa(G) above 200mL/min
Fluid contact materials	(B) BSBM, Hard glass, NBR (POM, SUS316, PTFE) (SS) SUS316, Hard glass, FKM (PCTFE, PTFE)	
Connection	Rc1/4 (Standard)	
Alarm setting range	10 - 90% F.S.	
Environmental temp	5 - 55°C	

**【Specifications of photosensors】**

Power supply	DC24V±10%, Ripple 10%(max)
Current consumption	Trns : 15mA, Rcvr : 22mA (max)
Output mode	NPN Open collector, Sink current 80mA (30VDC) Max.
Operating mode	Light-on
Response time	0.5msec (max)
Connection	Trns : 0.15mm <sup>2</sup> ×2core 2m (gray) Rcvr : 0.15mm <sup>2</sup> ×3core 2m (black)
Manufacturer	TAKENAKA ELECTRONIC INDUSTRIAL CO.,LTD.
Model	UM-T15TV(DC24V) Photosensor with built-in amplifier with sensitivity volume (Rcvr side)

## 5. Product Warranty Policy

Thank you for your continued support of KOFLOC products.

Unless specified otherwise in quotations, contracts or specifications when you place orders for KOFLOC products, the following warranty policy will apply.

Warranty Policy:

① Warranty period

The warranty period is one (1) year from shipment, provided that the product is used within the KOFLOC specification.

② Scope of warranty

If the KOFLOC product fails during the warranty period due to a cause attributable to KOFLOC, KOFLOC shall, at its option and expense, provide a replacement product or repair the failed product at the KOFLOC factory.

This warranty, however, shall not cover damages due to a cause not attributable to KOFLOC; opportunity loss, lost profit, secondary disaster, accident compensation suffered by the customer and damage to other equipment and any other damages due to a failure of the KOFLOC product.

③ Non-warranty

The warranty shall not apply to the following failures and damages even if they occur during the warranty period:

- a) Failure due to misuse or improper repair or modification. (Failures resulting from use under conditions different from the manufacturing specifications are included.)
- b) Damage and failure due to dropping of the product after purchase.

- c) Failure due to fire, earthquake, flood, lightning or other natural disaster; or riot, war or the like.
- d) Failure due to intrusion of foreign matter from piping.
- e) Failure caused by a specific problem due to combination with other incorporated equipment.
- f) Other failures and damages which are considered not attributable to KOFLOC.

Please be aware that the warranty shall not cover opportunity loss suffered by you or your customer or damage to other equipment or any other damages due to a failure of the KOFLOC product.