

**必ずお読みください**  
READ ALL INSTRUCTIONS THOROUGHLY

**取扱説明書** INSTRUCTIONS

**渦流量センサ**  
KARMAN VORTEX FLOW SENSOR  
**TYPE JLK - \*\*62R\***

**SAGInoMIYA**

## 1 .PREFACE

Failure to read and follow all instructions carefully before installing or operating this KARMAN VORTEX FLOWSENSOR(Type JLK- 62R ) could cause personal injury and/or property damage. Save these instructions for future use.

## 2 .NOTE FOR SAFETY

### WARNING

- Do not disassemble the device since it is strictly calibrated in factory.
- Be sure to connect the wires in correct polarity, or it may cause damage, over heat or ignition.
- Do not apply other Voltage than 12 to 24VDC, or it may cause damage, over heat or ignition.

## 3 .HANDLING PRECAUTIONS

### CAUTION

- Circuit case is not drip proof construction. Do not splash water directly to the case, or it may cause short circuit of electronic parts.
- Do not pull the cable nor carrying by the cable, or it may cause breaking of the cable.

## 4 .FEATURES

- High reliability and durability with simple mechanism and no moving parts.
- Small pressure loss construction which exists only vortex generator and vortex detector in the fluid path.

## 5 .SPECIFICATIONS

CATALOG NUMBER	JLK-1062R*	JLK-1562R*	JLK-2062R*	JLK-2562R*	JLK-3262R*	
MAX.WORKING PRESSURE	1 MPa at 25					
CONNECTION	R 3/8	R 1/2	R 3/4	R 1	R 1 <sup>1</sup> / <sub>4</sub>	
FLUID	Hot or chilled water. and other fluids					
Cv VALUE	2.7	5	8	15	26	
ALLOWABLE FLUID TEMP.	0~90 (No frozen)					
AMBIENT TEMP.	0~50 (No frozen, No dew condensation)					
AMBIENT HUMIDITY	95 %RH or less					
STORAGE TEMP.	-10~60 (No frozen, No dew condensation)					
OUTPUT	Current output 4~20 mA DC 2 lead wire method					
KINEMATIC VISCOSITY	2 mm <sup>2</sup> /s or less	3 mm <sup>2</sup> /s or less	4 mm <sup>2</sup> /s or less	5.5 mm <sup>2</sup> /s or less	6.5 mm <sup>2</sup> /s or less	
MEASURABLE FLOW RANGE	1mm <sup>2</sup> /s	3~25 L/min	7~50 L/min	9~80 L/min	16~130 L/min	30~220 L/min
	4mm <sup>2</sup> /s or less	4~25 L/min	8~50 L/min	12~80 L/min	20~130 L/min	35~220 L/min
POWER SUPPLY VOLTAGE RANGE	12~24V DC					
ACCURACY	±3% (FS)					
INSTALLATION	Free installing direction exopt electronic components should be located above the axis of piping.					
MAIN BODY MATERIAL	SUS316					
VORTEX DETECTOR MATERIAL	PEEK					
VORTEX GENERATOR MATERIAL	PEEK		SUS316			

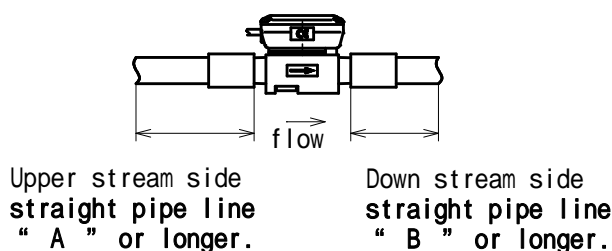
## 6. PIPING INSTALLATION PRECAUTION

### ⚠ CAUTION

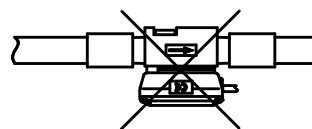
- Installing place: **Do not install at following places.**
  - Outdoor, Place where having water splash.
  - Place where large mechanical vibration/impact exist.
  - Dusty place
- Do not connect where vibration is expected.
- Take care of piping arrangement or valve operation in order not to apply excessive pressure such as water hammer to the flow meter, or it may cause damage of the vortex detector.
- Flash the pipe inside before installation to prevent foreign particles from entering.
- Install a strainer (60 mesh or finer) at upper stream of the flow sensor in case foreign particles are expected.
- If it is installed with a throttle valve, distribute valve or temp. sensor etc., it should be placed on down stream of the flow sensor, or it may affect its accuracy.
- Install where no noise affects. Noise may cause its malfunction.
- To avoid affection to measuring accuracy by drift stream, swirling stream etc., be sure to have straight piping at inlet and outlet side as below.

### HORIZONTAL PIPING

(Straight pipe line of upper stream side and down stream side is common. )



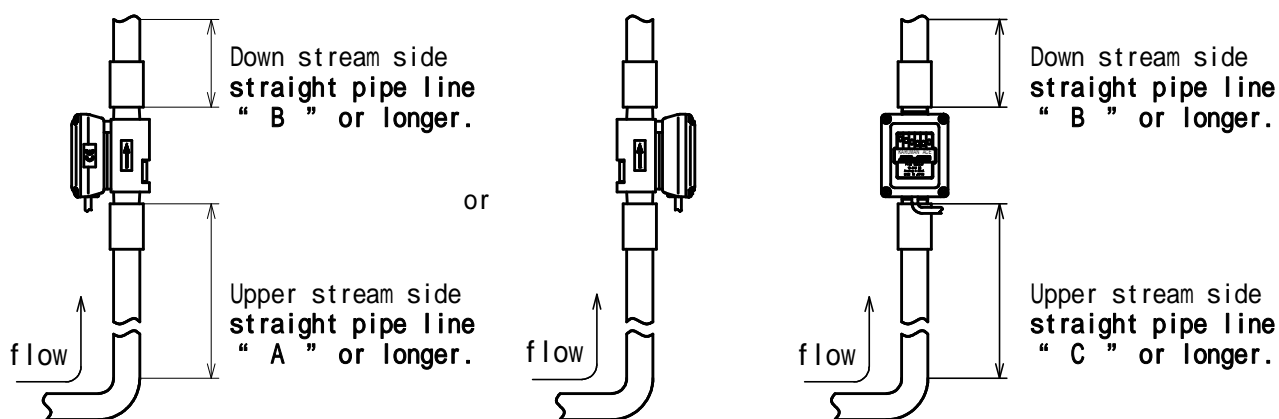
**Circuit case downward is not permitted.**  
(Dew condensation water inside of the case,  
which may causes overheating ignition.)



### VERTICAL PIPING

In case of vertical piping, it is recommendable to install in direction of the flow coming up from lower side for avoiding two phase flow.

( Straight pipe line of upper stream side and down stream side is common. )



J L K -	1062R*	1562R*	2062R*	2562R*	3262R*
dimension A(mm)	70	98	126	161	203
dimension B(mm)	50	70	90	115	145
dimension C(mm)	100	140	180	230	290

## 7. PIPING METHOD

- The flow direction must accord with the direction of the arrow mark on the flow sensor body label.
- When piping installation, not to carrying with circuit portion but fix the body.

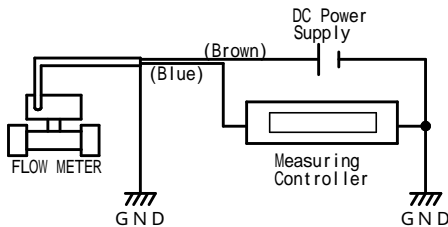
## 8. WIRING METHOD

### ⚠ CAUTION

- Use a shield cable in order to avoid malfunction. The shield cable should be grounded at one point only.
- Outlet wire of 4-20mA should not be tied up nor placed in parallel with the wire having large current. It may cause malfunction.
- Do not install the flowmeter near to the source of noise.
- In case of using type ONE controller, read the instruction for ONE carefully and use it properly.

- Ensure the following procedures if the FLOWMETER is connected with a measuring device other than type ONE controller.

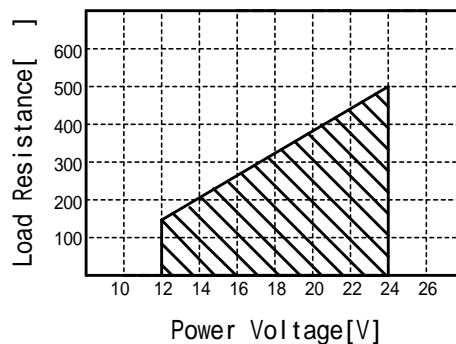
Connect brown lead wire to plus and blue lead wire to minus.  
 Connect the shield cable to the ground for preventing noise.  
 Connect in series to FLOWSENSOR, Measuring Equipment and Power Source.



### ⚠ CAUTION

- Select load resistance and power source in order that the total of Min. operating voltage of the flowsensor and Max. voltage drop caused by resistance load of measuring equipment may not exceed Power Source Voltage.  
 Use within allowable range for load resistance shown in right Fig.

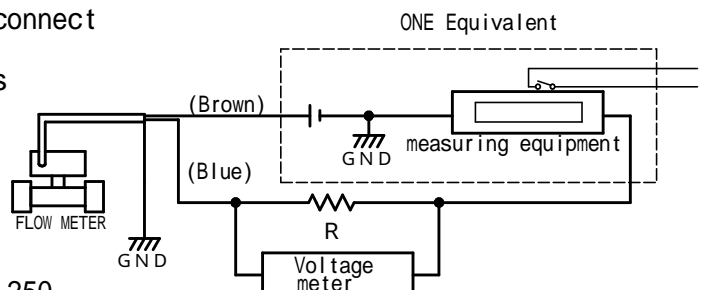
- Max. Load Resistance 150 at Power Source of 12V
- Max. Load Resistance 500 at Power Source of 24 V



- When Measuring Equipment is voltage input, connect a resistance (small temp. coefficient type) in serial as shown right figure and measures voltage drop across the resistance.

In case of using with ONE Controller, MAX. load resistance should be 400 (MAX. load resistance (500) - internal resistance of ONE (100)).

4 to 20 mA will correspond to 1-5V at R=250 .



## 9. TROUBLESHOOTING MEASURES

TROUBLE PHENOMENA	CHECK POINT
No output (4~20mA)	<ul style="list-style-type: none"> <li>• Check the wiring to be connected properly.</li> <li>• Check power source to be turned ON.</li> </ul>
Output indicate 4mA even fluid constant flow rate.	<ul style="list-style-type: none"> <li>• Check the flow direction in accordance with arrow mark shown on the body.</li> <li>• Check whether any foreign matter is attached on Vortex Generator.</li> <li>• Check whether it is used within the measuring flow range.</li> </ul>
Various output change even at constant flow rate.	<ul style="list-style-type: none"> <li>• Check whether any foreign matter is attached on Vortex Generator.</li> <li>• Check whether it is used within the measuring flow range.</li> </ul>
Output decrease or have 4mA output even at constant flow rate.	<ul style="list-style-type: none"> <li>• Check whether any foreign matter is attached on Vortex Generator.</li> </ul>
Have other output value than 4mA even at no flow rate.	<ul style="list-style-type: none"> <li>• Check whether any noise affects to the flow sensor .</li> <li>• Check whether any vibration affects to the flow sensor.</li> </ul>

## 10. Effect of Cavitation (D : Port size)

### ⚠ CAUTION

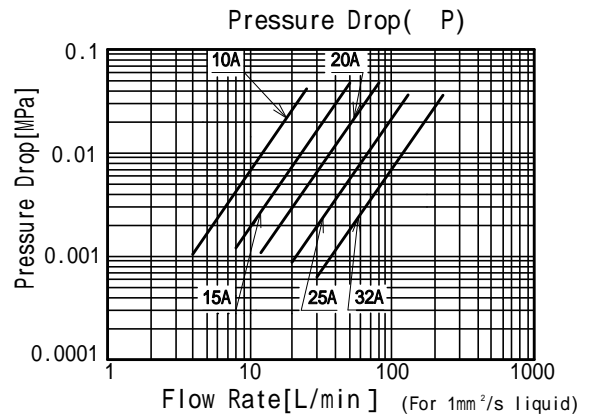
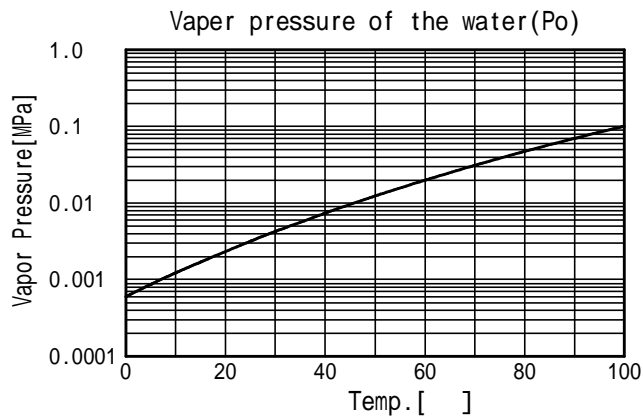
- Accuracy of the flow measurement would be degraded if cavitation occurs. Prior to use the product, confirm that pressure at downstream of the flow sensor is higher than minimum line pressure calculated from below formula.

$$P = 2.7 P + 1.3 P_0$$

P : Pressure(abs) of 3.5D ~ 7.5D at downstream.  
 P<sub>0</sub> : Vapor Pressure(abs) of the fluid.

For vapor pressure of the water, refer the below chart.

P: Pressure Drop.



**SAGINOMIYA**  
SEISAKUSHO,INC.

Shinjuku Garden Tower 22F  
8-2, Okubo 3-chome, Shinjuku-ku, Tokyo, 169-0072 Japan  
Tel : +81 3 6205 9123 Fax : +81 3 6205 9125  
**E-mail : [inter@saginomiya.co.jp](mailto:inter@saginomiya.co.jp)**  
URL : <http://www.saginomiya-global.com/en/>

