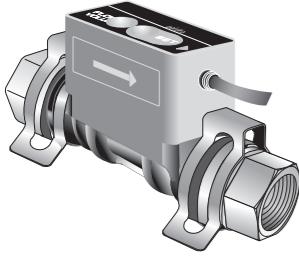


Karman vortex flow meter

PALDRA Instructions manual

PSL-5L/10L/30L



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Features

Karman vortex flow meter
PSL-5L/10L/30L is the new series of flow meters to measure flow rate, with simple functions and reasonable price.

Due to compact construction it can be installed in narrow space and simple structure resulting easy maintenance, easy installation and de-installation.

Before using our product.

- Please read carefully the instructions before you use our product.
- Please follow the procedures, conditions and cautions as per the instructions.

Safety information

Warning Mishandling could cause injury or even death at drastic conditions.

Never do it.

Caution Mishandling could cause disability, fire or other damages to the building or properties.

Do it only with following instructions.

Warning

Unusual or faulty conditions

If you continue using our product under the unusual or faulty connections or conditions like as smoking, foul smell, unstable and malfunction, it could cause fire or accident. Cut the power supply immediately and contact to us. Do not try to repair the product yourself.

Working environments

- In the humid or dewing environment, it could cause accident or damage because of moisture.
- In the vibration, impulsion or pulsation environment, it could cause malfunction, some accident or damage.
- Our products are NOT explosion-proof. Do not use in the dangerous environment with flammable, explosive, or corrosive gas.
- Do not use outside. This product is only for inside.

Installation in high temperature environment as near to heat instruments could cause some accident or damage as the heat instrument will led the temp rise inside the flow meter. Please use our product as instructed in the manual.

Caution

Cables

Do not put heavy objects on the cables or pull the cables from flow meter body, it could cause accident or damage.

Please follow the Instructions for "wiring", "Output signal" other wise, it could cause accident or damages.

Working environments

- Magnetic power, electromagnetic wave, radioactive ray or ultraviolet rays could cause accident or damage.
- Electric corrosion or static electricity could cause accident or damages.
- In electrically noisy environments as like around high-frequency power source could cause accident or damages.
- Install the filter upper flow/Inlet to clear some piece of metal or small objects if needed.
- Remove the bubbles in the fluid for accurate measurement of flow rate.

Packaging and carrying.

Do not drop, Handle with care otherwise The flow meter could damage or cause malfunctioning.

Installations

Mind your fingers while plumbing a sensor or you could get injured.

Maintenance

Contact us for overhauling, adjusting or repairing. Please make sure not to touch an electronic substrate inside of flow meter.

Only a person who has technical knowledge and experiences could do plumbing, wiring, maintenance or overhauling.

while installation or maintenance please shut off the power and water supply for your safety.

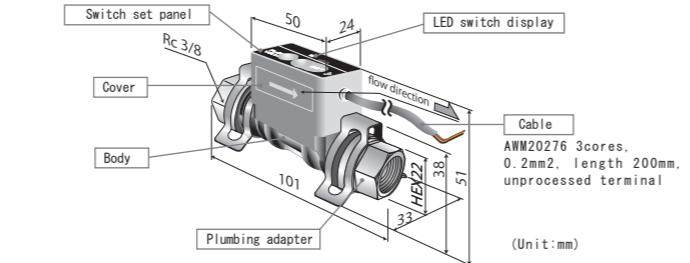
Others

Please contact us if you received damaged or deformed product.

Configuration and Dimensions

The electric circuit, substrate, is attached on a wetted part of the body which is covered with a cover. You find an alarm setting button and volume inside of the cover, and a cables for interface on the side.

*Green LED will be on with analog output by power input.



Specifications

This is the basic specification for PSL. Please read them carefully for safe use.

Models	PSL-5L	PSL-10L	PSL-30L
Rated flow range	0.5~5.0 L/min	1.5~10.0 L/min	5.0~30.0 L/min
Fluid	Industrial water, water		
Detecting method	Karman vortex		
Fluid temperature	0~90°C (No freezing, no dewing)		
Ambient temperature	0~50°C (No freezing, no dewing)		
Accuracy	Flow rate output: ±2% full scale		
Maximum working pressure	1.0MPa		
Withstanding pressure	1.5MPa (at 20°C)		
Pressure loss (at the maximum flow rate)	46kPa	60kPa	85kPa
Responsivity	Sampling 1s		
* ¹ Power supply	DC24V±10%		
Current consumption	Max. 30mA (Current output Max. 50mA)		
* ² Alarm output	Maximum load current Max. DC 100mA		
	Maximum applied voltage Max. DC 40V		
	Output mode A or B output (select one)		
* ³ Analog output (while ordering select only one output)	Voltage output 0~10V		
	Current output 4~20mA		
Display	Alarm: 2colors LED		
Certification, regulation	RoHS		
Wetted material	Body PPS, FKM Adapter SUS304		
Adapter size	Rc3/8" Quick fitting		
Weight	155g		

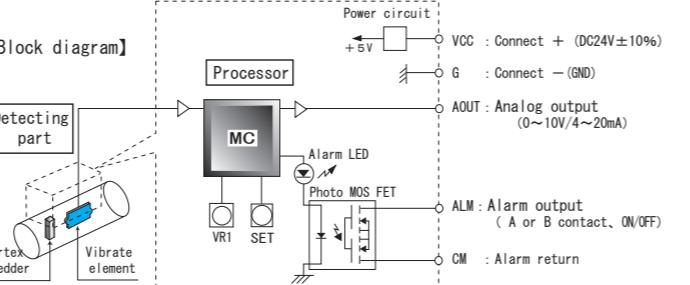
*1 Voltage more than specified on the table will damage the product.

*2 Default setting of alarm output is 5L=2.5L/min, 10L=5L/min, 30L=15.0L/min.

*3 Analog output---After input the power, green LED will be on. Do not adjust(touch) the volume after shipping.

Wiring (interface)

Block diagram



Cable functions

Sign	Color	Name	Direction	Characteristic	Output selection	Operation and usage
VCC	Red	Connect +	PSL→Equipment	DC24V±10%		Connect +side of power supply. Supply +24V to PSL.
G	Black	Connect -	PSL→Equipment			Connect -side of power supply. It is GND(OV) of PSL. It is -line of analog output.
AOUT	White *	Analog output	PSL→Equipment	0~10V	*	Choose one of two outputs. Flow rate is changed to the electric signal and transmitted to the device. +line is for analog output.
				4~20mA	*	Choose one of two outputs. Alarming signal to equipment. (A) flow rate ≥ alarm value : ON (B) flow rate < alarm value : ON
ALM	Yellow *	Alarm output	PSL→Equipment	Photo MOS FFT (A)	*	Alarming signal to equipment. (A) flow rate ≥ alarm value : ON (B) flow rate < alarm value : ON
CM	Blue *	Alarm return	PSL→Equipment	No need of earth (COM)		Alarm output return circuit. Independent from GND.

*Default setting is one of outputs at the time of shipment.

*White wire is spare wire when alarm output, yellow and blue are spare wires when analog output.

⚠ Contact between the spare wires or between wires and external equipment could cause accident or damage. Please insulate each wire when used.

Output signal

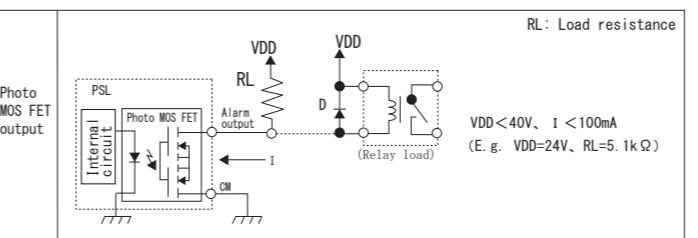
1. Analog output

Voltage output 0~10V	How to put a load Analog output RL ≥ 3kΩ	Output description	
		V	I (l/min)
0	0~10V	10	0
5		5	5 l/min
10		0	10 l/min
15		5	15 l/min
20		0	30 l/min

Current output 4~20mA	How to put a load Analog output RL ≤ 250Ω	Output description	
		V	I (l/min)
0	4~20mA	20	0
5		12	5 l/min
10		8	10 l/min
15		5	15 l/min
20		0	30 l/min

2. Alarm output

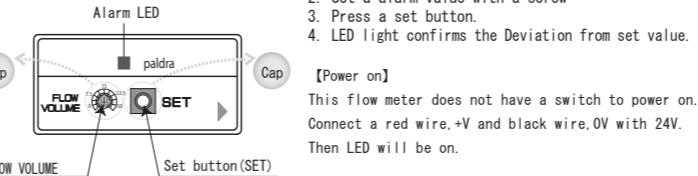
The diagram below shows how to put a load. There is no polar character within the range in rating voltage or current.



Caution Use relay with internal diode or external diode(D) to prevent damaging Photo MOS-FET from back electromotive force as above when you use relay load.
E.g. V03C(HITACHI)

Procedures

The diagram below shows a control panel on the top of the body



Alarm settings

*table 1) explains definition of alarm output and LED. While ordering select only one output

Remove the caps and you will see the volume and set button.

*you can set a alarm only when you chose a alarm output..

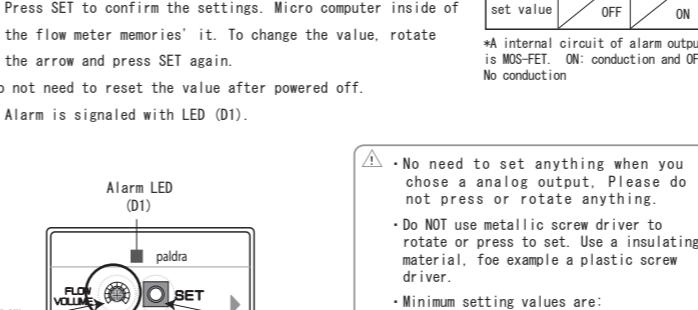
1. Power on (DC 24V) then LED (red or green) will be on.

2. Rotate the arrow with a plastic screw, for example, and set a alarm value.

3. Press SET to confirm the settings. Micro computer inside of the flow meter memories' it. To change the value, rotate the arrow and press SET again.

*Do not need to reset the value after powered off.

4. Alarm is signaled with LED (D1).



Indication of divisions

