

# Impeller flow meter FS Series FS-AR

## Feature

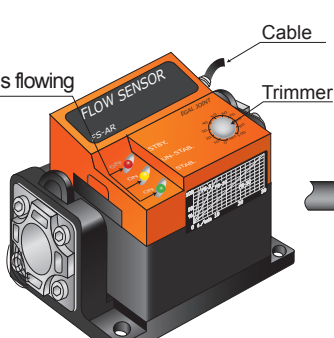
Impeller type of flow meter.

- Over 100,000 units supplied for use as device coolant-water monitors to leading manufacturers of semiconductor/liquid crystal product devices worldwide.
- Analog output
- Relay output  
If the actual flow rate is more than the set value, or falls below, the relay circuit is activated. It can use as a guide, such as stop and alarm operation of the device.
- Pulse output (Open collector)
- 3-color LED for confirming flow conditions.  
Red---Power  
Yellow---Relay  
Green---Whether it is flowing

## Wiring (Interface)

3-color LED

- Red---Power
- Yellow---Relay
- Green---Whether it is flowing



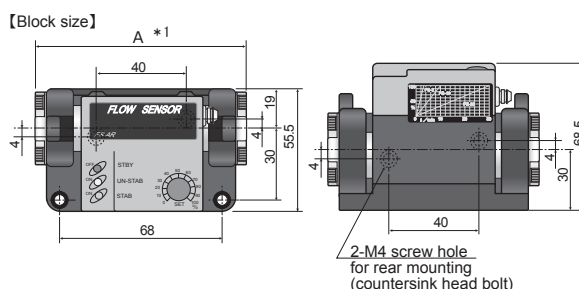
○ AWM20276 (9cores 0.2mm<sup>2</sup> 500mm)

- Red ..... Power Supply(+) DC12V±5% or DC24V±10%
- Black ..... Power Supply(-)
- White ..... Relay output commonly used
- Green ..... Relay output (a)
- Yellow ..... Relay output (b)
- Brown ..... Analog voltage output DC0~10V or DC1~5V
- Orange ..... Analog current output DC4~20mA
- Blue ..... Pulse output open collector output
- Gray ..... Spare

## Specifications

Model	FS-3AR	FS-10AR	FS-30AR	
Rated flow range	0.5~3.0L/min	1.5~10.0L/min	5.0~30.0L/min	
Applicable fluid	Industrial water, Water			
Detection type	Impeller type			
Fluid temperature	0~60°C (No freezing, no dewing)			
Operating temperature	0~40°C (No freezing, no dewing)			
Accuracy *2	±2.5% F.S.			
Max. working pressure	1.0MPa			
Power supply voltage *3	DC12V±5% or DC24V±10%			
Current consumption	Max. 50mA (DC1~5V, 4~20mA : MAX70mA)			
Cable	AWM20276 (9cores 0.2mm <sup>2</sup> 500mm)			
*4 Relay output	Max. load current	Less than DC2A		
	Max. applied voltage	Less than DC30V		
	Output mode	a or b contact output		
*5 Analog output	Voltage output	DC0~10V		
	Current output	DC4~20mA		
*6 Pulse output	Max. load current	Less than DC100mA		
	Max. applied voltage	Less than DC40V		
	Output mode	A or B open collector output		
	Frequency outputs	0~43Hz	0~93Hz	0~121Hz
Standard	RoHS compliance (Only SUS adapter)			
Wetted material	Polyacetal, Polyamide			
Connection material	SUS or BsBM (Ni plating)			
O-ring for sealing	Chloroprene or Fluoro rubber			
Orifice diameter	φ5	φ7	φ10	
Adapter connection size	Rc3/8 or Rc1/2			
Weight	Approx. 380g			
Mounting position	Free			
Flow direction	Both direction			
Construction	Water drip-proof against electronic circuit			

## Dimensions



[A Dimension Table]

Adapter connection size	A Dimension	
	BsBM	SUS
Rc3/8	92	98
Rc1/2	115	115

- \*1 Dimension A differ depending upon the adapter type. Adapter connection size is determined by the selection at the time of the order.
- \*2 Since F.S.(Full scale) is  $\begin{cases} 30\text{L/min} \\ 10\text{L/min, the deflection could be of } \\ 3\text{L/min} \end{cases}$   $\begin{cases} \pm 0.75\text{L/min.} \\ \pm 0.25\text{L/min.} \\ \pm 0.075\text{L/min.} \end{cases}$
- \*3 Power supply is transmitted of either DC 12V or DC 24V on the time of the order.
- \*4 Relay output is set on the time of the order, 3AR = 2.0L/min, 10AR = 6.0L/min, and 30AR = 20.0L/min.
- \*5 Analog output is selected of either voltage or current output on the time of the order. Please select and use one or the other. When the analog voltage output is selected, the analog current output cannot be selected.
- \*6 When the pulse output is selected, the analog output cannot be selected.

# Order form

■ ISO screw(Rc) is used.

Flow range      Output      Wetted Materials      Adapter Materials      Adapter size (ISO)      O ring      Power supply

FS-  -  -  -  -  -  -

How to order : FS-10S-0-J-B-3/8-F-24

	Flow range	Output	Wetted Materials	Adapter Materials	Adapter size	O ring	Power supply
FS-S type	<b>3S</b> 0.5~3 ℓ/min	<b>0</b> 0~10V	<b>J</b> Standard (Polyacetal)	<b>B</b> Standard (BsBM+Ni plating)	<b>3/8</b> Standard	<b>F</b> Chloroprene rubber	<b>24</b> DC24V±10%
	<b>10S</b> 1.5~10 ℓ/min	<b>4</b> 4~20mA	<b>B</b> 150°C-compatible (SUS304·316)	<b>S</b> SUS	<b>1/2</b> *	<b>V</b> Fluoro rubber	<b>12</b> DC12V±5%
	<b>30S</b> 5~30 ℓ/min		<b>T</b> fluorine resin		<b>1/4</b> Only on 150°C-compatible bodies		

	Flow range	Output	Wetted Materials	Adapter Materials	Adapter size	O ring	Power supply
FS-AR type	<b>3AR</b> 0.5~3 ℓ/min	<b>0</b> 0~10V	<b>J</b> Standard (Polyacetal)	<b>B</b> Standard (BsBM+Ni plating)	<b>3/8</b> Standard	<b>F</b> Chloroprene rubber	<b>24</b> DC24V±10%
	<b>10AR</b> 1.5~10 ℓ/min	<b>1</b> 1~5V	<b>B</b> 150°C-compatible (SUS304·316)	<b>S</b> SUS	<b>1/2</b> *	<b>V</b> Fluoro rubber	<b>12</b> DC12V±5%
	<b>30AR</b> 5~30 ℓ/min	<b>4</b> 4~20mA <b>P</b> Puls Output	<b>T</b> fluorine resin		<b>1/4</b> Only on 150°C-compatible bodies		

	Flow range	Output	Wetted Materials	Adapter Materials	Adapter size	O ring	Power supply
FS-C type	<b>3C</b> 0.5~3 ℓ/min	<b>0</b> 0~10V	<b>J</b> Standard (Polyacetal)	<b>B</b> Standard (BsBM+Ni plating)	<b>3/8</b> Standard	<b>F</b> Chloroprene rubber	<b>24</b> DC24V±10%
	<b>10C</b> 1.5~10 ℓ/min						
	<b>30C</b> 5~30 ℓ/min						

	Flow range	Output	Wetted Materials	Adapter Materials	Adapter size	O ring	Power supply
FS-N type	<b>3N</b> 0.5~3 ℓ/min	<b>P</b> Pulse Output	<b>J</b> Standard (Polyacetal)	<b>B</b> Standard (BsBM+Ni plating)	<b>3/8</b> Standard	<b>F</b> Chloroprene rubber	<b>24</b> DC24V±10%
	<b>10N</b> 1.5~10 ℓ/min						
	<b>30N</b> 5~30 ℓ/min						

## Regarding <Adapter size>

The diameter type of the connection section differs depending on the type of body material. Please refer to the table below when filling out your order form.

Wetted Materials	Connection diameter		
	3/8	1/2	1/4
Standard type(J)	●	●	—
150°C/Compliant(B)	●	●	●
fluorine resin type(T)	●	—	—

## Regarding <Adapter size> Regarding <Adapter material/O-ring>

- When selecting "B: 150°C-compatible" as the body material, do not fill in the adapter material and O-ring fields.
- When selecting "T: Fluororesin" as the body material, do not fill in the O-ring field. We also offer products in which the adapter material is fluoro-resin. Please contact our sales department for details.

\* 1/4 diameter cannot be selected for 30L specification.

### Other

- ① Please contact our sales department for other specifications.
- ② Please contact our sales department for inquires regarding date of delivery, etc.
- ③ Shape and specification may change without notice due to performance improvements.