

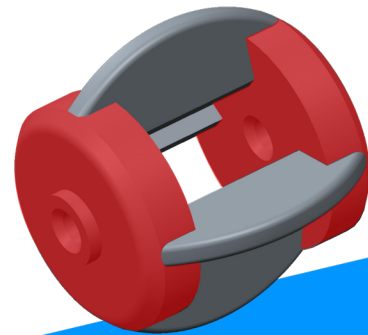
FP-AS510 Paddle Wheel Flowmeter

FP-AS510



Product Features

AxleSense



Double the measuring range of similar products on the market

Two-directional flow detection function

Immediate detection of paddle disappearance to mitigate zero-flow problems

● LORRIC exclusive patent - The AxleSense Technology

- A wider flowrate detection range (0.15 m/s~10m/s)-- LORRIC's patented AxleSense technology shifts the direction of flowrate detection, which means that even under low flow speeds, any paddle movement will be accurately sensed, as well as maintaining a low margin of error for flowrate monitoring.
- Actively detects any paddle abnormalities and offers clear information for the on-site manager to see, and will not simply display a passive "zero-flow" notice.
- Bidirectional flow detection - AxleSense uses the paddle's direction to detect the flow's fundamentals, while at the same time supplies direct information about the flow direction inside the pipelines. This in conjunction with integration with the factory's management system, makes on-site management more convenient.

* DISCLAIMER: Please be aware that magnetic fields or residual magnetism may cause interference to the flowmeter which may result in damage if they are used near the installation site. The purchaser must determine the applicability of the product for its desired use and assumes all risks in connection therewith. LORRIC assumes no responsibility or liability for any omissions or errors in connection with the use of its products. The alarm used to detect paddle damage or loss is intended to assist on-site operators to find out what is causing equipment abnormalities. Because there are a myriad of variables involved with on-site operation and magnetic fields that come from other equipment, the alarm function is liable to fail. Please do not take the alarm function as a single source for monitoring your flow system. Please contact LORRIC for advanced help.

**Exclusive LCD/
LED double screen
design, double
screen monitoring
which makes work
equivalent to
1+1>2**



- Exclusive LCD/LED double screen design, double screen monitoring which makes work equivalent to 1+1>2

- Double screen display: LED-5 digits LED/LCD 16x3 LCD backlight display
- Large bright LED digits display screen for flow observation: LED's brightness is best suited for long-distance monitoring.
- LCD screen best suited for the display of more complex text-based details



- Green, orange and red indicator lights: Red – Major abnormality; Green – Normal operation; Orange – Non-urgent data display.

- Daily Accumulation of positive/negative/net flow volume in the past 14 days.

- The screen can change direction according to the pipes' alignment.

■ Comparison with flowmeters with other various principles

	Variable area flowmeter	Paddle wheel flowmeters	LORRIC's Paddle wheel flowmeter	Electromagnetic flowmeter	Ultrasonic flowmeters
Pipeline loss	Low	Low	Low	No	No
Non-invasive install	No	No	No	No	Yes
Precision	Middle	Middle	Middle	High	High
Bidirectional flow detectable	No	No	Yes	Yes	Yes
Blockages	Possible	Possible	Possible	Not possible	Not possible
Applicable fluid	Air / Liquid	Liquid	Liquid	Conductive liquid	Liquid
Cost	Lowest-costs in small diameter pipe, cost increases with pipe diameter	Low-costs, cost increases with pipe diameter	Low-costs, cost increases with pipe diameter	High-costs, cost increases with pipe diameter	Middle-costs Cost does not increase with pipe diameter

Specifications

Mechanism Specs		Measurement Specs	
Installation method	in-line (Pipe segment)	Applicable fluid maximum dynamic viscosity	300cSt***
Fluid in pipes temperature	UPVC: 0~50 °C (32~122°F), For higher temperature, please use PPH or PVDF or 316L Stainless Steel*	Applicable fluid	Clear, oil or chemicals with less impurities (<1%)
Device working environment temperature	-10~60°C (14~140°F)	Linearity	± 0.5 % FS (>0.3m/s)
T-connector adapter	UPVC Gluing adapter(ASTM, JIS, DIN) UPVC internal and external thread adapter (BSPT and NPT), PPH insertion welding fitting, UPVC / PPH Spigot (See order example for details)	Reproducibility	± 0.4 %
		OR tolerance	± 2.5 % OR
T-connector diameter (mm)	DN15-65 (½" to 2-1/2")	Measuring principle	Paddle wheel
Paddle material	PVDF / ECTFE with embedded magnet + ceramic bearing and shaft		
T-connector material	UPVC / PPH / PVDF (Made to order)/ 316L Stainless Steel*	Flow rate range	±0.3 ~10 m/s Can extend to ±0.15 ~10 m/s****
Power supply	DC 12V to 36V 100mA	Transient data	Instantaneous flow and flow rate
Response time	< 0.5 or 1 second		
Waterproof level	IP65**	Cumulative data	Positive and negative net flow volume accumulation, past 14 days and long time accumulative net flow volume
User Interface			
Language	English, Traditional Chinese, Simplified Chinese (Others customizable)	Operation buttons	4 Key touch buttons
Unit	Metric : Litre, cubic meters, meters Time : second, minute, hour, day Imperial : foot, cubic foot, Uk gallon, US gallon	Wired communication	Self-powered Analog output 4-20mA (Device after HW1.3) Modbus RTU RS485 Two-line OCT switch signal (ship with 2 meter cable)
Display	Double screen display: Large 5-Digit LED, 16x3 3-Color Backlight LCD display	Calendar function battery	CR2032
Display digits	LCD 5 Digits (4 digits when negative value) LCD 10 Digits (Not including sign and decimal point)		

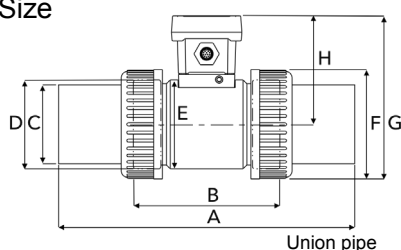
* 316L Stainless Steel: ETA end of 2020.

** IP65: The IP Code, International Protection Marking, IEC standard 60529, sometimes interpreted as Ingress Protection Marking, classifies and rates the degree of protection provided by mechanical casings and electrical enclosures against intrusion, dust, accidental contact, and water. The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects. The second digit indicates the level of protection that the enclosure provides against harmful ingress of water. 6 stands for dust tight: No ingress of dust; complete protection against contact (dust tight). A vacuum must be applied. Test duration of up to 8 hours based on air flow. 5 stands for water jets: Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.

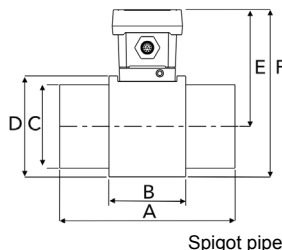
*** The device is calibrated with normal temperature water. Fluids with different viscosities may have different results, and may also change the minimum and maximum flow velocity.

**** The flow velocity range may be slightly different due to factors such as piping diameter and fluid coefficient.

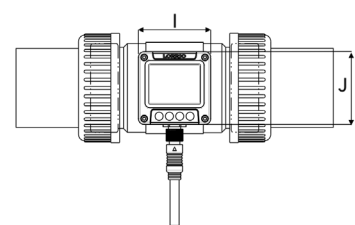
Size



Union pipe



Spigot pipe



Device

UPVC pipe - union diameter size(mm)								
	A	B	C	D	E	F	G	H
¾"	168	100	32.6	41.9	60	50.5	115.7	85.7
1"	168	100	40.6	50	60	60	115.7	85.7
1¼"	210	114	50.2	59.6	65	75.6	127	89.2
1½"	218	120	56	65.7	70	83	134	92.5
2"	269.5	133.3	72	81	81	99.7	148.8	99

UPVC pipe - spigot pipe diameter size(mm)											
	A	B	C	D	E	F					
2½"	160	70	76	92	106.5	152.5					
Device size(mm)											
							I			J	
							63			63	

Order example

- Paddle wheel flowmeter contains: Device, Paddle set, T-connector. Users need to check the material and size of the T-connector and paddle set.
- Please refer to following order example for placing order to LORRIC.
- T-connector + paddle set (T-connector is generally shipped with a paddle set.)

T-connector + paddle set : FP-P065CSAV

Paddle wheel flowmeter	T-connector	T-connector size	Material	T-connector fitting	Fitting spec	O-ring material
FP	P	065	C	S	6	V
		016: 1/2" pipe 020: 3/4" pipe 025: 1" pipe 032: 1-1/4" pipe 040: 1-1/2" pipe 050: 2" pipe 065: 2-1/2" pipe	C: U-PVC P: PPH F: PVDF S: 316L Stainless Steel*	S: Spigot fitting U: Union + fitting F: Flange fitting	T: Taiwan CNS A: ANSI/ASTM N: GB J: JIS E: DIN F: BSPT Female Thread M: BSPT Male Thread R: NPT Female Thread Q: NPT Male Thread 6: ISO S5 insertion welding fitting(Default) 3: ISO S3.125 butt welding fitting(Made to order) 5: ISO S5 butt welding fitting(Made to order) 8: ISO S8.3 butt welding fitting(Made to order)	E: EPDM V: VITON A: FEPM

*316L Stainless Steel (ETA end of 2020)

*The common specifications are listed above, please contact our sales for delivery and inventory.

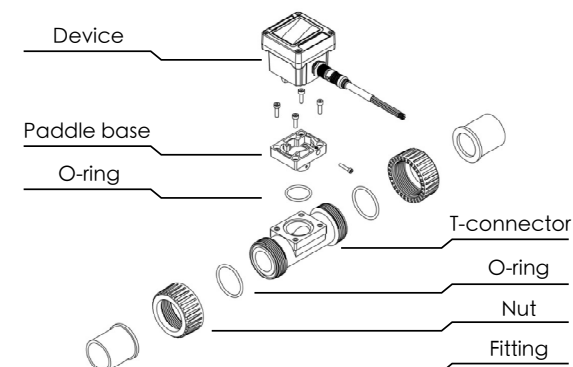
- Paddle set (Please refer to following order example when you order paddle set separately.)

Paddle set : FP-W010CFV

Paddle wheel flowmeter	Paddle base	Paddle base material	Paddle material	O-ring material
FP	W010	C	F	V
		C: U-PVC P: PP F: PVDF S: 316L Stainless Steel*	F: PVDF E: ECTFE(Halar)	E: EPDM V: VITON A: FEPM

*316L Stainless Steel (ETA end of 2020)

- Paddle wheel flowmeter exploded views



*Safety instructions:

1. After the warranty, the electronic components of the product will age due to time and operating environment. Under long-term use, please replace the new product according to the condition of the product.
2. Do not operate the product under an Orange or Red LCD Backlight for a long time. Product damage and related losses may occur.

*Conditions:

Equipment sold by LORRIC is not intended to be used, nor shall it be used:

- (1) As a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) In medical applications or used on humans. Should any product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, LORRIC assumes no responsibility as set forth in our basic WARRANTY/ DISCLAIMER language, and, additionally, purchaser will indemnify LORRIC and hold LORRIC harmless from any liability or damage whatsoever arising out of the use of the product(s) in such a manner.

Pipe model

Phase 1 (specs in black) : Already available for purchase.

Phase 2 (specs in red) : Arranging production specifications.

Phase 3 (specs in blue) : Production will be arranged only after the red specifications are completed.

Pipe Size	Pipe Spec	Serial Number	Description
3/4"	JIS	FP-P020CUJV	3/4" UPVC T-connector, 3/4" JIS Welding fitting, Viton oring + FP-W010CFV
		FP-P020CUJE	3/4" UPVC T-connector, 3/4" JIS Welding fitting, EPDM oring + FP-W010CFE
	ANSI/ASTM	FP-P020CUAV	3/4" UPVC T-connector, 3/4" ANSI/ASTM Welding fitting, Viton oring + FP-W010CFV
		FP-P020CUAE	3/4" UPVC T-connector, 3/4" ANSI/ASTM Welding fitting, EPDM oring + FP-W010CFE
	DIN	FP-P020CUEV	3/4" UPVC T-connector, 3/4" DIN Welding fitting, Viton oring + FP-W010CFV
		FP-P020CUEE	3/4" UPVC T-connector, 3/4" DIN Welding fitting, EPDM oring + FP-W010CFE
	CNS	FP-P020CUTV	3/4" UPVC T-connector, 3/4" CNS Welding fitting, Viton oring + FP-W010CFV
		FP-P020CUTE	3/4" UPVC T-connector, 3/4" CNS Welding fitting, EPDM oring + FP-W010CFE
	GB	FP-P020CUNV	3/4" UPVC T-connector, 3/4" GB Welding fitting, Viton oring + FP-W010CFV
		FP-P020CUNE	3/4" UPVC T-connector, 3/4" GB Welding fitting, EPDM oring + FP-W010CFE
	BSPT Female Thread	FP-P020CUFV	3/4" UPVC T-connector, 3/4" female thread fitting, Viton oring + FP-W010CFV
		FP-P020CUFE	3/4" UPVC T-connector, 3/4" female thread fitting, EPDM oring + FP-W010CFE
	BSPT Male Thread	FP-P020CUMV	3/4" UPVC T-connector, 3/4" male thread fitting, Viton oring + FP-W010CFV
		FP-P020CUME	3/4" UPVC T-connector, 3/4" male thread fitting, EPDM oring + FP-W010CFE
	NPT Female Thread	FP-P020CURV	3/4" UPVC T-connector, 3/4" NPT female thread fitting, Viton oring + FP-W010CFV
		FP-P020CURE	3/4" UPVC T-connector, 3/4" NPT female thread fitting, EPDM oring + FP-W010CFE
	NPT Male Thread	FP-P020CUQV	3/4" UPVC T-connector, 3/4" NPT male thread fitting, Viton oring + FP-W010CFV
		FP-P020CUQE	3/4" UPVC T-connector, 3/4" NPT male thread fitting, EPDM oring + FP-W010CFE
1"	JIS	FP-P025CUJV	1" UPVC T-connector, 1" JIS Welding fitting, Viton oring + FP-W010CFV
		FP-P025CUJE	1" UPVC T-connector, 1" JIS Welding fitting, EPDM oring + FP-W010CFE
	ANSI/ASTM	FP-P025CUAV	1" UPVC T-connector, 1" ANSI/ASTM Welding fitting, Viton oring + FP-W010CFV
		FP-P025CUAE	1" UPVC T-connector, 1" ANSI/ASTM Welding fitting, EPDM oring + FP-W010CFE
	DIN	FP-P025CUEV	1" UPVC T-connector, 1" DIN Welding fitting, Viton oring + FP-W010CFV
		FP-P025CUEE	1" UPVC T-connector, 1" DIN Welding fitting, EPDM oring + FP-W010CFE
	BSPT Female Thread	FP-P025CUFV	1" UPVC T-connector, 1" female thread fitting, Viton oring + FP-W010CFV
		FP-P025CUFE	1" UPVC T-connector, 1" female thread fitting, EPDM oring + FP-W010CFE
	BSPT Male Thread	FP-P025CUMV	1" UPVC T-connector, 1" male thread fitting, Viton oring + FP-W010CFV
		FP-P025CUME	1" UPVC T-connector, 1" male thread fitting, EPDM oring + FP-W010CFE
	NPT Female Thread	FP-P025CURV	1" UPVC T-connector, 1" NPT female thread fitting, Viton oring + FP-W010CFV
		FP-P025CURE	1" UPVC T-connector, 1" NPT female thread fitting, EPDM oring + FP-W010CFE
1-1/4"	JIS	FP-P032CUJV	1-1/4" UPVC T-connector, 1-1/4" JIS Welding fitting, Viton oring + FP-W010CFV
		FP-P032CUJE	1-1/4" UPVC T-connector, 1-1/4" JIS Welding fitting, EPDM oring + FP-W010CFE
	ANSI/ASTM	FP-P032CUAV	1-1/4" UPVC T-connector, 1-1/4" ANSI/ASTM Welding fitting, Viton oring + FP-W010CFV
		FP-P032CUAE	1-1/4" UPVC T-connector, 1-1/4" ANSI/ASTM Welding fitting, EPDM oring + FP-W010CFE
	DIN	FP-P032CUEV	1-1/4" UPVC T-connector, 1-1/4" DIN Welding fitting, Viton oring + FP-W010CFV
		FP-P032CUEE	1-1/4" UPVC T-connector, 1-1/4" DIN Welding fitting, EPDM oring + FP-W010CFE
	BSPT Female Thread	FP-P032CUFV	1-1/4" UPVC T-connector, 1-1/4" female thread fitting, Viton oring + FP-W010CFV
		FP-P032CUFE	1-1/4" UPVC T-connector, 1-1/4" female thread fitting, EPDM oring + FP-W010CFE
	BSPT Male Thread	FP-P032CUMV	1-1/4" UPVC T-connector, 1-1/4" male thread fitting, Viton oring + FP-W010CFV
		FP-P032CUME	1-1/4" UPVC T-connector, 1-1/4" male thread fitting, EPDM oring + FP-W010CFE
	NPT Female Thread	FP-P032CURV	1-1/4" UPVC T-connector, 1-1/4" NPT female thread fitting, Viton oring + FP-W010CFV
		FP-P032CURE	1-1/4" UPVC T-connector, 1-1/4" NPT female thread fitting, EPDM oring + FP-W010CFE
	NPT Male Thread	FP-P032CUQV	1-1/4" UPVC T-connector, 1-1/4" NPT male thread fitting, Viton oring + FP-W010CFV
		FP-P032CUQE	1-1/4" UPVC T-connector, 1-1/4" NPT male thread fitting, EPDM oring + FP-W010CFE

Pipe model

Pipe Size	Pipe Spec	Serial Number	Description
1-1/2"	JIS	FP-P040CUJV	1-1/2" UPVC T-connector, 1-1/2" JIS Welding fitting, Viton oring + FP-W010CFV
		FP-P040CUJE	1-1/2" UPVC T-connector, 1-1/2" JIS Welding fitting, EPDM oring + FP-W010CFE
	ANSI/ASTM	FP-P040CUAV	1-1/2" UPVC T-connector, 1-1/2" ANSI/ASTM Welding fitting, Viton oring + FP-W010CFV
		FP-P040CUAE	1-1/2" UPVC T-connector, 1-1/2" ANSI/ASTM Welding fitting, EPDM oring + FP-W010CFE
	DIN	FP-P040CUEV	1-1/2" UPVC T-connector, 1-1/2" DIN Welding fitting, Viton oring + FP-W010CFV
		FP-P040CUEE	1-1/2" UPVC T-connector, 1-1/2" DIN Welding fitting, EPDM oring + FP-W010CFE
	CNS	FP-P040CUTV	1-1/2" UPVC T-connector, 1-1/2" CNS Welding fitting, Viton oring + FP-W010CFV
		FP-P040CUTE	1-1/2" UPVC T-connector, 1-1/2" CNS Welding fitting, EPDM oring + FP-W010CFE
	BSPT Female Thread	FP-P040CUFV	1-1/2" UPVC T-connector, 1-1/2" female thread fitting, Viton oring + FP-W010CFV
		FP-P040CUFE	1-1/2" UPVC T-connector, 1-1/2" female thread fitting, EPDM oring + FP-W010CFE
	BSPT Male Thread	FP-P040CUMV	1-1/2" UPVC T-connector, 1-1/2" male thread fitting, Viton oring + FP-W010CFV
		FP-P040CUME	1-1/2" UPVC T-connector, 1-1/2" male thread fitting, EPDM oring + FP-W010CFE
	NPT Female Thread	FP-P040CURV	1-1/2" UPVC T-connector, 1-1/2" NPT female thread fitting, Viton oring + FP-W010CFV
		FP-P040CURE	1-1/2" UPVC T-connector, 1-1/2" NPT female thread fitting, EPDM oring + FP-W010CFE
	NPT Male Thread	FP-P040CUQV	1-1/2" UPVC T-connector, 1-1/2" NPT male thread fitting, Viton oring + FP-W010CFV
		FP-P040CUQE	1-1/2" UPVC T-connector, 1-1/2" NPT male thread fitting, EPDM oring + FP-W010CFE
	NPT Male Thread	FP-P020CUQV	3/4" UPVC T-connector, 3/4" NPT male thread fitting, Viton oring + FP-W010CFV
		FP-P020CUQE	3/4" UPVC T-connector, 3/4" NPT male thread fitting, EPDM oring + FP-W010CFE
2"	JIS	FP-P050CUJV	2" UPVC T-connector, 2" JIS Welding fitting, Viton oring + FP-W010CFV
		FP-P050CUJE	2" UPVC T-connector, 2" JIS Welding fitting, EPDM oring + FP-W010CFE
	ANSI/ASTM	FP-P050CUAV	2" UPVC T-connector, 2" ANSI/ASTM Welding fitting, Viton oring + FP-W010CFV
		FP-P050CUAE	2" UPVC T-connector, 2" ANSI/ASTM Welding fitting, EPDM oring + FP-W010CFE
	DIN	FP-P050CUEV	2" UPVC T-connector, 2" DIN Welding fitting, Viton oring + FP-W010CFV
		FP-P050CUEE	2" UPVC T-connector, 2" DIN Welding fitting, EPDM oring + FP-W010CFE
	CNS	FP-P050CUTV	2" UPVC T-connector, 2" CNS Welding fitting, Viton oring + FP-W010CFV
		FP-P050CUTE	2" UPVC T-connector, 2" CNS Welding fitting, EPDM oring + FP-W010CFE
	JIS Flange	FP-P050CFJP	2" UPVC JIS T-connector, Flange fitting + FP-W010CFV
	BSPT Female Thread	FP-P050CUFV	2" UPVC T-connector, 2" female thread fitting, Viton oring + FP-W010CFV
		FP-P050CUFE	2" UPVC T-connector, 2" female thread fitting, EPDM oring + FP-W010CFE
	BSPT Male Thread	FP-P050CUMV	2" UPVC T-connector, 2" male thread fitting, Viton oring + FP-W010CFV
		FP-P050CUME	2" UPVC T-connector, 2" male thread fitting, EPDM oring + FP-W010CFE
	NPT Female Thread	FP-P050CURV	2" UPVC T-connector, 2" NPT female thread fitting, Viton oring + FP-W010CFV
		FP-P050CURE	2" UPVC T-connector, 2" NPT female thread fitting, EPDM oring + FP-W010CFE
	NPT Male Thread	FP-P050CUQV	2" UPVC T-connector, 2" NPT male thread fitting, Viton oring + FP-W010CFV
		FP-P050CUQE	2" UPVC T-connector, 2" NPT male thread fitting, EPDM oring + FP-W010CFE
2-1/2"	Spigot ANSI/ASTM	FP-P065CSAV	2-1/2" UPVC ANSI/ASTM T-connector, Spigot fitting + FP-W010CFV (Viton oring)
		FP-P065CSAE	2-1/2" UPVC ANSI/ASTM T-connector, Spigot fitting + FP-W010CFE (EPDM oring)
	Spigot GB	FP-P065CSNV	2-1/2" UPVC GB T-connector, Spigot fitting + FP-W010CFV (Viton oring)
		FP-P065CSNE	2-1/2" UPVC GB T-connector, Spigot fitting + FP-W010CFE (EPDM oring)
	Spigot JIS	FP-P065CSJV	2-1/2" UPVC JIS T-connector, Spigot fitting + FP-W010CFV (Viton oring)
		FP-P065CSJE	2-1/2" UPVC JIS T-connector, Spigot fitting + FP-W010CFE (EPDM oring)
	Spigot DIN	FP-P065CSEV	2-1/2" UPVC DIN T-connector, Spigot fitting + FP-W010CFV (Viton oring)
		FP-P065CSEE	2-1/2" UPVC DIN T-connector, Spigot fitting + FP-W010CFE (EPDM oring)
	Spigot CNS	FP-P065CSTV	2-1/2" UPVC CNS T-connector, Spigot fitting + FP-W010CFV (Viton oring)
		FP-P065CSTE	2-1/2" UPVC CNS T-connector, Spigot fitting + FP-W010CFE (EPDM oring)