



# FFM05 Liquid Turbine Flow Transmitter



## | Introduction |

Liquid flows through the turbine housing causing an internal rotor to spin. As the rotor spins, an electrical signal is generated in the pickup coil. This signal is converted into engineering units (Liters, cubic meters, gallons etc.) on the local display where is applicable. Optional accessory modules can be used to export the signal to other equipment.

## | Applications |

Petroleum / Chemical engineering / Electric power and machinery fields

## | Specification |

### Input

Measured value	Flow rate, Volume flow
Measuring ratio	Standard-10 : 1
	Optional-20 : 1

### Output

Output	Pulse, 4 ... 20 mA
	(Option : Local display+4 ... 20 mA)

### Accuracy

Accuracy	0.5% of rate(Optional : 0.2%)
Reference conditions	Flow conditions similar to EN 29104
Electrical conductivity	≥ 300 μS/cm
Temperature	+10...+30°C / +50...+86°F
Inlet section	≥ 10 DN
Operating pressure	1 bar / 14.5 psig

### Installation

Thread	DN4 ... DN50(External)
	DN15 ... DN50(Internal)
Flange(Optional)	ANSI / JIS
Diameter	DN4 ... DN200
Inlet run conditions	≥10 DN
Outlet run conditions	≥5 DN
	Take care that flow sensor is always fully filled
Flow direction	Forward
	(Arrow on flow sensor indicates flow direction)

### Environmental

Measuring medium	Liquid : Water ; Diesel, etc. (without impurity, low viscosity, flow conditions similar to EN 29104)
Operating Temp.	-20 ... +80°C / -20 ... +150°C
Operating pressure	Thread : 63 bar(DN4 ... DN15)
	25 bar(DN20 ... DN50)
	Flange : 16 bar
	ANSI : 150 lb RF
	JIS : 10K
Ambient temperature	20 ... +55°C (Standard, with aluminum converter housing)
Storage Temp.	-20 ... +70°C

### Material

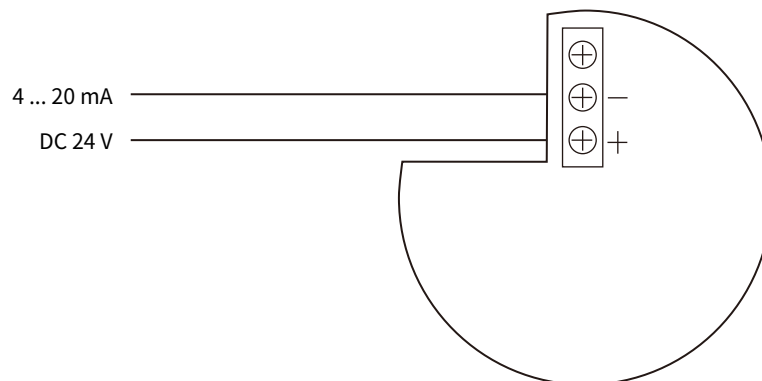
Housing	SS304(Optional:SS316)
Flanges	SS304
Rotor	2Cr13(Optional: Duplex impeller)
Bearings and shafts	Tungsten carbide
Display meter	Polyurethane coated die-cast aluminum

## | Measurable Flow Rate Range |

Note: The flow range as below is for reference only. Consult the factory if you have special requirement.

Nominal diameter		Standard flow range	Extended flow range	External thread
(mm)	(in.)	(m <sup>3</sup> /h)	(m <sup>3</sup> /h)	
4	0.15	0.04... 0.25	0.04... 0.4	G 1/2
6	0.25	0.1... 0.6	0.06... 0.6	G 1/2
10	0.4	0.2... 1.2	0.15... 1.5	G 1/2
15	0.5	0.6... 6	0.4... 8	G 1
20	0.75	0.8... 8	0.45... 9	G 1
25	1	1 ... 10	0.5... 10	G 1 1/4
32	1.25	1.5... 15	0.8... 15	G 1 1/2
40	1.5	2 ... 20	1 ... 30	G 2
50	2	4 ... 40	2 ... 40	G 2 1/2
65	2.5	7 ... 70	4 ... 70	—
80	3	10 ... 100	5 ... 100	
100	4	20 ... 200	10 ... 200	
125	5	25 ... 250	13 ... 250	
150	6	30 ... 300	15 ... 300	
200	8	80 ... 800	40 ... 800	

## | Diagram |



# | Ordering Guide |

**FFM05 -** 50 N 05 S S GM - H

- Diameter**
- Output**
- Accuracy**
- Range**
- Materials**
- Connection**
- Optional**

H: -20 ... +150°C(High Temp.)  
 K: Impeller(Duplex)  
 W: Customized  
 GM: External thread: DN4 ... DN50(G1/2" ... G2 1/2")  
 FJ: Flange JIS 10K(S.S.304)  
 FA: Flange ANSI 150#(S.S.304)

S: S.S.304  
 L: S.S.316  
 S: Standard flow range  
 W: Extended flow range

05: 0.5% of reading  
 02: 0.2% of reading

N: Pulse  
 A: 4 ... 20 mA  
 B: Display+4 ... 20 mA

04 : DN4  
 06 : DN6  
 10 : DN10  
 15 : DN15  
 20 : DN20  
 25 : DN25  
 32 : DN32  
 40 : DN40  
 50 : DN50  
 65 : DN65(Flange only)  
 80 : DN80(Flange only)  
 100 : DN100(Flange only)  
 125 : DN125(Flange only)  
 150 : DN150(Flange only)  
 200 : DN200(Flange only)

## | Additional Option Test Report | For more detailed information please contact us.

### ■ ILAC / TAF

YUDEN-TECH CO.,LTD. Calibration Laboratory - ( ILAC / TAF ) Test report.  
 (TAF accreditation: 3032, complying with ISO / IEC 17025 ) TAF has mutual recognition arrangement with ILAC MRA

Project	Measurand level or range
Flow transmitter	Water flow rate : 2.54 m <sup>3</sup> /h ...30 m <sup>3</sup> /h (42.3 L/min ... 500.0 L/min)
	Water flow velocity : 0.2 m/s ... 3 m/s

### ■ ISO 9001

Project	Measurand level or range
Air velocity / Air volume	Air velocity : ≤ 120 m/s
	Air volume : 0.5 m <sup>3</sup> /h ... 1000 m <sup>3</sup> /h

\* Calibration Condition : Measuring tube DN40 (1.5")