



# Pitot tube Flow Transmitter

FT025 皮托管式氣體流量傳訊器

Bluetooth LoRa™ NB-IoT  
Quiksaf®



LCD Touch Panel



## Introduction

FT025 is dedicated for measuring gas flow rate/flow volume/pressure/temperature. Developed by TBT for the FAD measurement of air compressors. FT025 is composed of two measuring holes. The impact pressure hole is placed at the front of the SUS316 flow sensing rod, and the static pressure hole is placed on the opposite. After the transmitter extract the differential pressure, and then calculate the measured velocity. Multiply the average flow velocity coefficient of the built-in pipe data, and then multiply the cross-sectional area of the inner pipe set by the user to calculate the instantaneous flow rate.

## Feature

- Standard set, 2.8" LCD full-color touch panel.
- Quiksaf patented design for installing and removal both under pressure without system shutdown.
- Built-in patented anti-humidity heating coil and smart exhaust to avoid moisture condensation and dirt blockage.
- Measurable parameters: Temperature/pressure/density/flow rate/instantaneous flow/cumulative flow.
- 60:1 turndown ratio, effective measurement range 5~300 M/sec.
- Accuracy  $\pm 1.2\%$  R.D., optional  $\pm 0.8\%$  R.D..
- Built-in 10 million data record function, and support screen snapshot.
- Built-in 30-point linear calibration function.
- Optional ISO 17025 (TAF) laboratory calibration report before leaving the factory
- Optional external plug-in LoRa/NB-IoT wireless IoT transmission function

## Application

- Compressed gas/mixed gas/nitrogen and hydrocarbon measurement and cost accounting
- Portable measurement between different machine
- Separate flow calculation of compressed gas between plants
- Air compressor performance test (FAD)
- Petrochemical industry
- Semiconductor, LCD panel industry
- Food and automobile manufacturing industry
- Paper and steel industry



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## Specification

Product Performance				
Scale of Measure	Velocity	Pressure	Temp.	Flow volume
Accuracy	$\pm(1.2\% \text{ R.D.} + 0.3\% \text{ F.S.})$ $\pm(0.8\% \text{ R.D.} + 0.3\% \text{ F.S.})(\text{Opt.})$	$\pm 0.5\%$ F.S.	$\pm 0.5^\circ\text{C}$	$\pm(1.2\% \text{ R.D.} + 0.3\% \text{ F.S.})$ $\pm(0.8\% \text{ R.D.} + 0.3\% \text{ F.S.})(\text{Opt.})$
Measuring Range	5~300m/sec	0~19bar (abs.)	-40~ 200°C	Refer to the Flow Rate Chart
Turndown Ratio	60 : 1			
Reaction Time	5 times /sec			
Measuring Medium	Dry (wet) air / compressed gas / mixed gas			
Electrical Specification				
Power Supply	DC 18-30V/20W			
Monitor	2.8" LCD touch panel, display parameters: flow rate, velocity, accumulation flow, temperature, pressure, density			
IoT	LoRa(Opt.) ; NB-IoT(Opt.)			
Analogue Output	DC 4~20mA			
Digital Output	Pulse			
Protocol	RS485 Modbus(RTU) · Bluetooth			
Electrical Connection	2 × 5 pin M12 Connector			
Record Function	10,000,000 record			
Ingress Protection	IP65(Required additional purchased of protective case)			
Certification	—			
Mechanical Specification				
Head Shell	PC+ABS			
Sensing Rod	SUS316L			
Connection Screw	SUS316L			
Rod Length	250mm ; 400mm			
Applicable Diameter	1/2"~24"			
Connecting Type/Size	1/2"PF(G) Male ; 1/2"NPT Male ; 1/2"PT Male ; 1/2"Quiksaf Male			
Environmental Condition				
Working Temperature	Sensing rod : -40~200°C ; Head shell : -20~60°C			
Working Humidity	<98%RH(no condensate)			
Working Pressure	<19bar(abs.)			

## Flow Rate Chart

Pipe Inner Diameter

Volume Flow

DN	Pipe diameter	Inner Diameter	Minimum flow	Maximum Flow
	(inch)	(mm)		
			Nm <sup>3</sup> /h	
25	1"	25	11	684
32	1-1/4"	32	19	116
40	1-1/2"	40	26	1568
50	2"	50	42	2556
65	2-1/2"	65	69	4192
80	3"	80	97	5857
100	4"	100	165	9948
125	5"	125	250	15004
150	6"	150	354	21282
200	8"	200	613	36808
250	10"	250	951	57076
300	12"	300	1354	81252

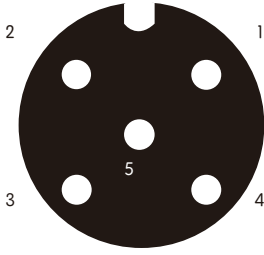
Flow reference conditions : 0°C @ 1013mbar - DIN1343(Configurable)

20°C @ 1013mbar - DIN1343(Configurable)

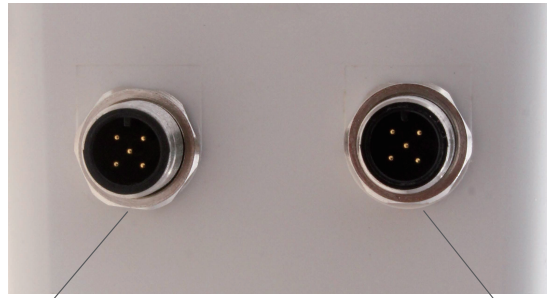


# Pitot tube Flow Transmitter

## Electrical Connection



Connector pins (top view on the sensor)

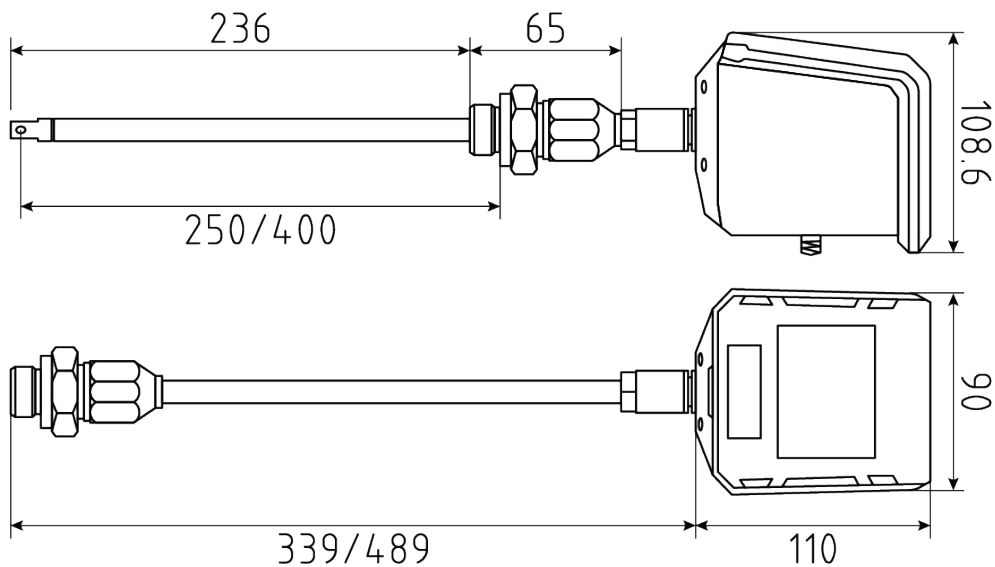


Connector plug A

Connector plug B

Output	M12 plug	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
		Line color	Yellow	Green	N/A	Red
Modbus	A	D+	D-	N/A	V+	V-
	Line color	Blue	White	Brown	Gray	N/A
mA、Pulse	B	DC 4~20mA+	DC 4~20mA-	Pulse	Pulse	N/A

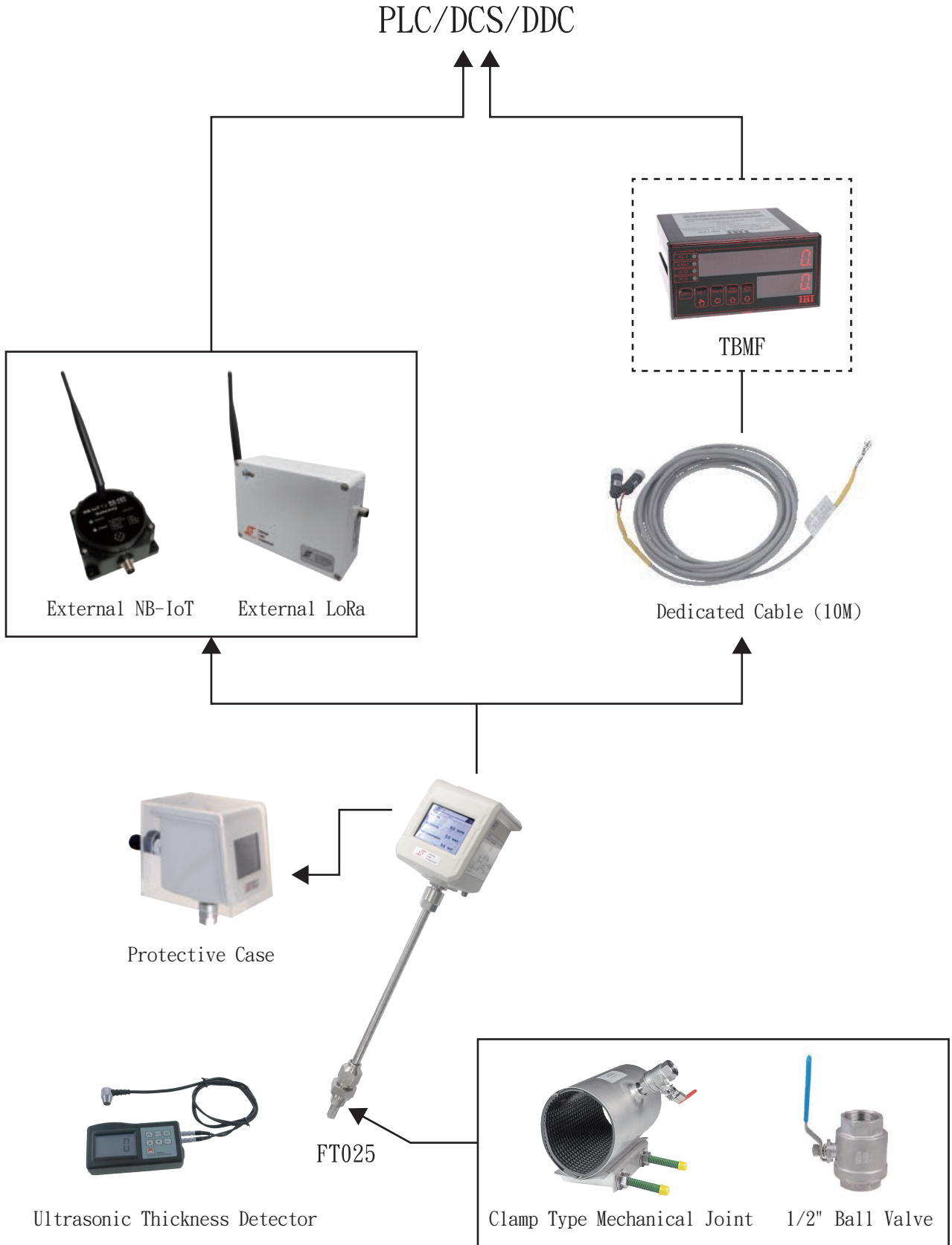
## Product Size (mm)





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## Optional Accessories





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## Order Form

FT025-							
<b>Pitot tube length</b>	(unit : mm)						
	250	A					
	400	B					
<b>Connecting Type/Size</b>							
	1/2" PF(G) male	S	A				
	1/2" PT male(Std.)	S	C				
	1/2" NPT male	S	E				
	1/2" Quiksaf male	S	G				
<b>Measuring Medium</b>	※Note 1						
	Air(Air)			A			
	Oxygen(O <sub>2</sub> )			B			
	Nitrogen(N <sub>2</sub> )			C			
	Hydrogen(H <sub>2</sub> )			D			
	Nitrous oxide(N <sub>2</sub> O)			E			
	Carbon oxide(CO <sub>2</sub> )			F			
	Natural gas(NG)			G			
	Argon(Ar)			H			
	Helium(He)			J			
	Petroleum Gas (PG)			K			
	Bog gas(BG)			L			
	Custom			Y			
<b>Accuracy</b>	※Note 2						
	±(1.2% Reading+0.3% F.S.)(Std.)				A		
	±(0.8% Reading+0.3% F.S.)				B		
<b>Monitor</b>							
	2.8" LCD touch panel					1	
<b>Optional Accessories</b>	※Note 3						
	1/2" Ball Valve						A
	TBMF						B
	Clamp Type Mechanical Joint						C
	Dedicated Cable (10M)						D
	Ultrasonic Thickness detector						E
	Protective Case						F
	Oil-Free Treatment						G
	Third-party TAF Calibration Certificate						R
	ISO9001 3-point Calibration Certificate						S
	External LoRa communication function						T
	External NB-IoT communication function						U
	Custom						Y
	None						N

※Note 1 : Please specify the gas name when placing an order for measuring medium selection Custom (Y). If it is a mixed gas, please provide the detailed ratio (%).  
when measuring non-Air gas, the heating and exhaust functions will be canceled..

※Note 2 : This accuracy only corresponds to velocity and flow

※Note 3 : If the measuring medium is Oxygen (O<sub>2</sub>), then the product must be treated with oil-free.