1. Specifications

⊙ Model

TBX [Capacity] [Connection type] / [Flow direction] [Connection diameter (Code)]

Capacity	Connection type	/	Flow direction	Connection diameter (Code)	Description
□30					30 (Screw type only)
□100					100 ((Screw type and flange type)
□150					150 (Flange type only)
	□ Not indicated				Screw type
	□ F				Flange type
		/			
			□ L		Left inlet (Left to right)
			□ R		Right inlet (Right to left)
			□ U		Bottom inlet (Bottom to top) } Only TBX100F
			□ D		Top inlet (Top to bottom) } Only TBX100F
				□3	32A (Rc1-1/4) } Only TBX30
				□4	40A (Rc1-1/2) } Only TBX30

Connection diameter

Model	TBX30		TBX100	TBX100F	TBX150F
Connection diameter (Code)	3	4			
Connection diameter	Rc1.1/4	Rc1.1/2	Rc2	50A flange (JIS 10K)	

Flow rate range

Model	TBX30	TBX100	TBX100F	TBX150F
Flow rate range	4 to 30 m^3/h	10 to 100 m^3/h		12.5 to 150 m^3/h

Accuracy: ±1% F.S.

Maximum working pressure: 100kPa

Pressure loss

Model	TBX30	TBX100	TBX100F	TBX150F
Pressure loss	0.3kPa			0.40kPa

(*)With air at a gauge pressure of 2kPa

Items with "⊙" are optional.

Installation position: Horizontal and vertical

Applicable fluid: Limited to only clean and dry gases (City gas, LP gas, air, nitrogen, etc.).

Durability: 7 years (When used at room temperature with the load of the maximum flow rate of 50% maximum folw-rate)

Use environment: -10 to +60 °C, max 90%RH (No dew condensation)
Storage environment: -10 to +60 °C, max 90%RH (No dew condensation)

Display: Accumulated flow volume, instantaneous flow-rate, trip accumulated flow volume, setting values, decimal point, and pilot are displayed on the LCD. Changeover them by using "FLOW RATE switch" and "START switch".

Display	TBX30	TBX100	TBX100F	TBX150F
Accumulated flow volume	8-digit display 999999.99 m^3	8-digit display 999999.99 m^3		8-digit display 9999999.9 m^3
Trip accumulated flow volume	6-digit display 9999.99 m^3	6-digit display 9999.99 m^3		6-digit display 99999.9 m^3
Instantaneous flow-rate	3-digit display U 99.9 m^3/h	4-digit display U 999.9 m^3/h		3-digit display U 999 m^3/h

Power source: Built-in lithium battery [battery life: 7 years (When used at room temperature)]
The battery is not replaceable.

Pulse output

Electrical specifications

Specifications	Unit pulse output	High-density pulse output (Synchronized with the rotation of the vane wheel)
Method	Open drain	
Maximum rating	24VDC	
ON current	20 mA or less	10 mA or less
ON resistance	50Ω or less	100Ω or less
OFF resistance	100Ω or more	

Output unit

Model	Unit pulse output Standard	High-density pulse output * (Vary according to individual difference of the flow measurement portion)
TBX30	10 L/P (Pulse output width: 40 ms)	Approx. 110cm^3/P
TBX100	10 L/P (Pulse output width: 40 ms)	Approx. 250cm^3/P
TBX100F		
TBX150F	100 L/P (Pulse output width: 40 ms)	Approx. 470cm^3/P

* Duty ratio is 0.45 to 0.55 (At a constant flow rate).

Pulse output setting conditions

Model	Pulse output unit	Pulse output width	Pulse configuration allowed / not allowed
TBX30	1L/P	40ms	○ (Allowed)
		120ms	x (Not allowed)
	10L/P	40ms	○ (Allowed)
		120ms	○ (Allowed)
	100L/P	40ms	○ (Allowed)
		120ms	○ (Allowed)
	1000L/P ($1m^3$/P)	40ms	○ (Allowed)
		120ms	○ (Allowed)
	10000L/P ($10m^3$/P)	40ms	○ (Allowed)
		120ms	○ (Allowed)

Model	Pulse output unit	Pulse output width	Pulse configuration allowed / not allowed
TBX100 TBX100F	1L/P	40ms	x (Not allowed)
		120ms	x (Not allowed)
	10L/P	40ms	○ (Allowed)
		120ms	○ (Allowed)
	100L/P	40ms	○ (Allowed)
		120ms	○ (Allowed)
	1000L/P ($1m^3$/P)	40ms	○ (Allowed)
		120ms	○ (Allowed)
	10000L/P ($10m^3$/P)	40ms	○ (Allowed)
		120ms	○ (Allowed)

Model	Pulse output unit	Pulse output width	Pulse configuration allowed / not allowed
TBX150F	1L/P	40ms	x (Not allowed)
		120ms	x (Not allowed)
	10L/P	40ms	○ (Allowed)
		120ms	x (Not allowed)
	100L/P	40ms	○ (Allowed)
		120ms	○ (Allowed)
	1000L/P ($1m^3$/P)	40ms	○ (Allowed)
		120ms	○ (Allowed)
	10000L/P ($10m^3$/P)	40ms	○ (Allowed)
		120ms	○ (Allowed)

Maximum extension distance: Varies according to input specifications of a remote counter.

Weight

Model	TBX30	TBX100	TBX100F	TBX150F
Weight	0.9 kg	1.6 kg	7.0 kg	2.5 kg

Components

Part name	Material or component parts			
	TBX30	TBX100	TBX100F	TBX150F
Meter casing	Aluminum die casting		Gray cast iron	Aluminum die casting
vane wheel	Ethylenevinyl alcohol	Polyacetal resin		Ethylenevinyl alcohol
Magnet	Rare earth magnet			Ferrite
Bearing	Stainless steel, PTFE resin			

Accessories: Instruction manual

⊙ Output cable (Option) □ Attached □ Not attached

4-core cable

Cable length: 2 m

Wire connection: High-density pulse (-) --- Black
High-density pulse (+) ----- White
Unit pulse (-) ---------- Blue
Unit pulse (+) ---------- Red
Relay terminal box (4 terminals)

2. Precautions in handling

Installation environment: Avoid areas with much electromagnetic noise, corrosive atmosphere, or high humidity liable to cause dew condensation.
Since this turbine meter is designed for indoor installation, install it at a place not exposed to splash of rainwater.
It is not compliant with the ATEX Directive (2014/34/EU). Do not use in flammable gas or other atmospheres.

Piping conditions: Straight pipes having a length of 10D (i.e. 10 times the pipe diameter) or greater must be provided prior and subsequent to this turbine meter.
The specified accuracy may not be satisfied in environments where a sudden reduction in flow-rate or pulsations of flow, etc., occurs. Therefore, it is recommended to be installed at a place where a sudden reduction in flow-rate, pulsations of flow, etc., are little..

Items with "⊙" represent selection items.