

CONVERTER FOR TH THERMAL FLOWMETER TRX/THC Series

GENERAL

The TRX/THC series converter is used in combination with the TH series.

The converter is equipped with functions necessary for process monitoring and control, such as instantaneous flow rate, integrated flow rate, and alarm transmission.

In addition, data processing with a host computer has been made available through serial communication with RS-485 interface. The lineup includes models that support panel mount, and models that support waterproof housing.

FEATURES

- High-precision measuring with an accuracy of F.S. $\pm 1.0\%$ is possible. (F.S. $\pm 2.0\%$ for waterproof housing type)
- LCD with backlight ensures easy viewing. (LED display is used for the waterproof housing type)
- Self-diagnosis function is provided to ensure easy maintenance.



FUNCTIONAL COMPARISON

Function	Converter model		
	TRX-600	THC100	THC200
Installation	Wall or 2B pipe	Panel	Wall or 2B pipe
Construction	IP65 equivalent Jet-proof type	IP20 equivalent Indoor use	IP54 equivalent Field use
Flow rate indication	○	○	○
Total indication	○	○	○
Analog output 4 to 20 mA DC	○	○	○
Pulse output	○	○	○
Digital output RS-485	○	○	○
Flow alarm	△	○	○
Temperature correction function	○	○	○
Accuracy (F.S.)	$\pm 2.0\%$	$\pm 1.0\%$	$\pm 1.0\%$

○: Standard △: Optionally available ×: Not available

CONNECTABLE SENSOR

Sensor model	Converter model		
	TRX-600	THC100	THC200
TH-1100	○	○	○
TH-1200	○	○	○
TH-1400	○	○	○
TH-1700	○	○	○
TH-1800	○	○	○
TH-3200	○	×	×
TH-1100-SP	○	×	×
TH-3200-SP	○	×	×

ELECTRIC CONNECTION AND DEDICATED SIGNAL CABLE

The thermal flowmeter is connected with a special signal cable between the converter and the sensor.

Refer to the following table for details.

Converter			Special cable	Sensor	
Model	Conduit	Maximum cable length		Model	Conduit
TRX-600	Cylindrical plug terminal	50 m	↔	TH-1100, 1200, 1400, 1700 1800, 1100-SP, 3200-SP	Exclusive connector or M3.5 screw terminal
THC100	Cylindrical plug terminal	100 m			
THC200	M3 screw terminal	100 m		TH-3200	M3.5 screw terminal

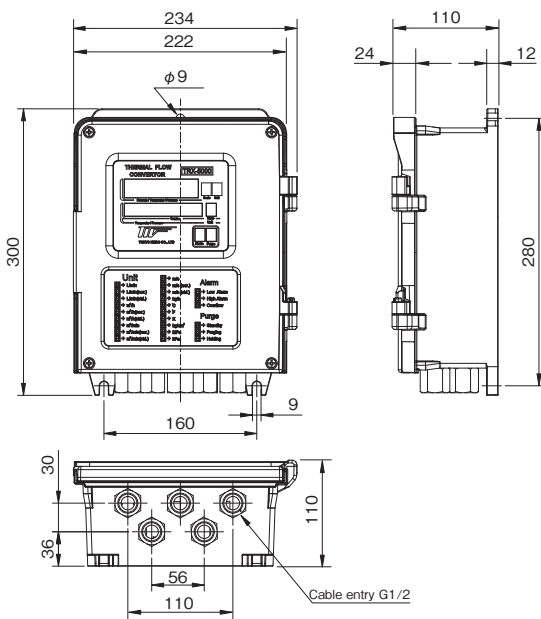
TRX-600

The TRX-600 is a waterproof converter. The TRX-600 can be installed indoors or outdoors. Wall mount or optional 2B pipe mount is available. Functions can be expanded using optional boards to suit your requirements.

MODEL CODE

MODEL CODE				CONTENTS
TRX-6				
Temperature correction (Input signal)	0			No correction
	1			Resistance temp.sensor (Pt100Q)
	2			4 to 20 mA DC temp. signal
	3			1 to 5 V DC temp.signal
Power supply	1			100 V AC ± 10%
	2			110 V AC ± 10%
	3			115 V AC ± 10%
	4			200 V AC ± 10%
	5			220 V AC ± 10%
	6			240 V AC ± 10%
Cable length	1			5m
	2			10m
	3			15m
	4			20m
	5			25m
	6			30m
	7			40m
	8			50m
Cable entry	1			G1/2
	2			Other
2" pipe mount fitting	0			Not provided
	1			Provided
Optional PCB (Note)	Purge control output	0		No purge control
		1		Open collector input (Standard)
		2		Contact input
	Purge output	0		No purge control
1			Contact output	
Contact output	1		AC power supply	
	2		Flow switch (H-L)	
	3		Flow switch (H)	
	4		Flow switch (L)	
For high-current type				-H
				When using in combination with TH-3200, 3200-SP.

DIMENSION



STANDARD SPECIFICATION

Connectable detector	TH-1100/1200/1400/1700 1800/3000/1100-SP/3200-SP
Installation	Installation on wall or 2" pipe (Option)
Protective construction	Jet-proof type (IP65 equivalent)
Accuracy	Display ±2.0%F.S.±1digit
	Output ±2.0%F.S.
Display	Upper side Selected and displayed by Instantaneous flow and temperature Flow rate: 6-digit LED (0.000 to 99999.9) Temperature: 4-digit LED (-25.0 to 550.0)(※1)
	Lower side Selected and displayed by integrated flow and temperature. Integration: 8-digit LED (0.000 to 99999999) Temperature: 4-digit LED (-25.0 to 550.0)(※1)
	Lower right Displayed on the panel [ALARM] [H] Upper, [L] Lower & [E] Abnormal
Analog output	4 to 20 mA DC, and allowable load resistance: Less than 500Ω
Pulse output	Open collector output PhotoMOS relay, 30 V DC / 100 mA (max.) Pulse width: Standard 50 ms (selectable from 10, 20, 50, and 100 ms) Multiplier: Select a value from 0.001 to 1000 (powers of 10)
Digital output RS-485	2400/4800/9600bps (Selectable) ID Address: 0 to 99 Protocol: 8N1 Output: Instantaneous flow, integrated flow, temperature, and error code
Temperature correction function	Pt100 Ω resistance temp. sensor (3-wire type) Thermometer with analog output (required separately) 4 to 20 mA DC or 1 to 5 V DC temperature signal
Alarm output (Option)	1 point out of [H], [L], & [E] SPDT Relay contact output 250 V AC / 5A, 30 V DC / 5A
Purge control function (Option)	250 V AC / 5A, 30 V DC / 5A Valve control output function for purge operation Purge cycle and time can be set. Output: AC (input power supply) or contact
Response speed	3 to 5 sec. (63% Step response)
Electric connection	Pin terminal connector
Power supply	100, 110, 115, 200, 220, 240 V AC ±10% 50/60Hz
Power consumption	Approx.30VA
Housing	Aluminum die-cast / Cobalt blue or Silver
Dimension	234W × 300H × 110D (mm)
Mass	5.4 kg (Wall mount) 7.4kg (2" pipe)
Ambient temperature	-10 to 60°C
Ambient humidity	10 to 90%RH (No dew condensation)

※1: The thermometer is separately required for the temperature display.

THC100 / THC200

THC100 is a panel mount type converter designed for indoor installation.

In contrast, THC200 features a waterproof housing and is designed for field installation.

Both models are successors to the conventional TRX-700 series and achieve high precision and advanced functionality through signal processing circuits equipped with high-speed CPUs.

MODEL CODE

THC100

THC	1	0	-							Description
Type	1									DIN 96 × 96 Panel mount type
Installation	0									Standard (Panel mount type)
Power supply	0									Standard 90 to 264V AC, 50/60 Hz
	1									24 V DC ± 10%
Availability of temperature correction			N							No (Calc. at customer-specified op. temp.)
			P							Resistance temp. sensor (Pt100)
			C							Correction via RS-485 (temp. signal)
Availability of pressure correction			N							No (Calc. at customer-specified op. press.)
			S							Pressure gauge with 4 to 20 mA DC output
			C							Correction via RS-485 (press. signal)
Availability of high-temperature model			N							Standard (TH-1000 series)
			H							5A model (TH-3200 Series)
Cable length*								05		Cable length: 5 to 100 m (in 5 m increments). Max 50 m for high-temp model.
								10		
								...		
								50		
								...		
								95		
								00		100 m
Sensor and cable connection type*									T	Standard (terminal box)
									C	Connector connection

THC200

THC	2		-							Description
Type	2									Water proof housing, Field mount type
Installation	0									Standard (Wall mount type)
	1									2B pipe mount type
Power supply	0									Standard 90 to 264V AC, 50/60 Hz
	1									24 V DC ± 10%
Availability of temperature correction			N							No (Calc. at customer-specified op. temp.)
			P							Resistance temp. sensor (Pt100)
			C							Correction via RS-485 (temp. signal)
Availability of pressure correction			N							No (Calc. at customer-specified op. press.)
			S							Pressure gauge with 4 to 20 mA DC output
			C							Correction via RS-485 (press. signal)
Availability of high-temperature model			N							Standard (TH-1000 series)
			H							5A model (TH-3200 Series)
Cable length*								05		Cable length: 5 to 100 m (in 5 m increments). Max 50 m for high-temp model.
								10		
								...		
								50		
								...		
								95		
								00		100 m
Sensor and cable connection type*									T	Standard (terminal box)
									C	Connector connection

(Note) Select *Temp. and Press. correction* in any of the following cases.

- When measuring the actual flow rate (Volume flow rate display in use)

* Omit the final suffix if cable not required.

STANDARD SPECIFICATION

Connectable detector	TH-1100/1200/1400/1700/1800	
Installation	THC100: panel mount (DIN96×96) THC200: Installation on wall or 2B pipe	
Protective construction	THC100: IP20 equivalent (indoor use)	
Accuracy	Instantaneous flow rate	±1%F.S.±1digit
Analog output	4 to 20 mA DC / Allowable load resistance 500 Ω or less	
Pulse output	Open collector output Photocoupler, 30 V DC / 100 mA Pulse width: Standard 20ms (selectable from 10, 20, 50, 100, and 200 ms) Pulse Multiplier: Select a value from 0.001 to 1000 (powers of 10) * Please inquire about pulse multipliers other than those listed above.	
Contact output of alarm	Upper and lower alarm limits Photocoupler normally open (NO) contact output: 30 V, 100 mA	
Serial communication (RS-485)	9600/19200/38400/57600/76800/115200bps (Selectable) ID Address: 00 to 99 Protocol: 8N1 & Modbus RTU Output: Instantaneous flow rate, integrated flow rate, temperature, pressure, heating current, firmware version, serial number, error message, etc.	
Display	Dot matrix LCD, 16 characters × 2 lines With backlight	
Indication	Upper section	Select one from the instantaneous flow rate, temperature, or pressure Or an error message
	Lower section	Select one from the integrated flow rate, temperature, or pressure Or an error message
Number of digits	Instantaneous flow rate	Seven digits (0.000 to 1000000)
	Integrated flow rate	Eight digits (0.000 to 99999999)
Temp. correction function	Pt100 Ω resistance temp. sensor (3-wire type) * Separately required (customer is responsible) Temperature input selection via RS-485 communication	
Pressure correction function	Pressure gauge with analog output (4 to 20 mA DC) * Separately required (primarily for actual flow rate indication) (customer is responsible) Pressure input selection via RS-485 communication	
Response time	3 seconds (63% step response)	
Dimensions	96H×96W×243D [mm]	
Mass	About 1.95 kg	
Cable length	100 m (max.)	
Power supply	90 to 264 V AC, 50/60 Hz / 24 V DC ± 10%	
Power consumption	80 W (max.)	
Elect. connection	THC100: Pin terminal THC200: Ring terminal	
Ambient temp.	0 to 50°C	
Ambient humidity	10 to 90% RH (No dew condensation)	

THC100 / THC200



THC100

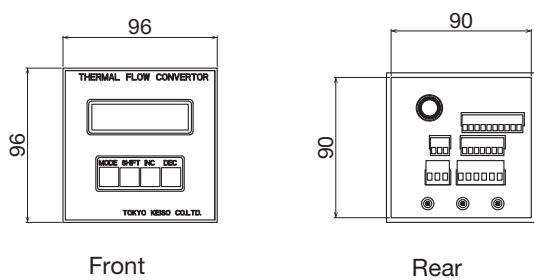


THC200

DIMENSION

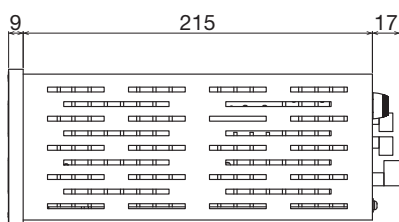
- THC100 (Panel mount type)

- THC200 (Wall mount type)

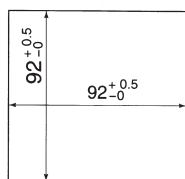


Front

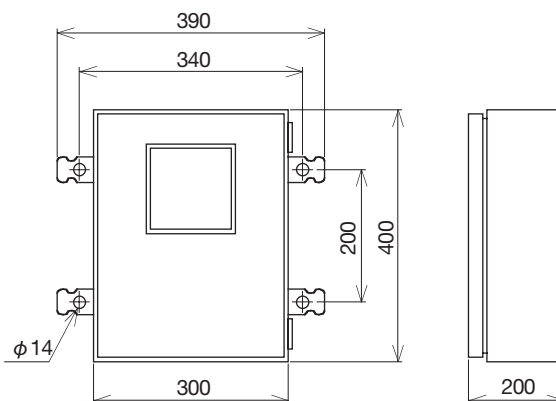
Rear



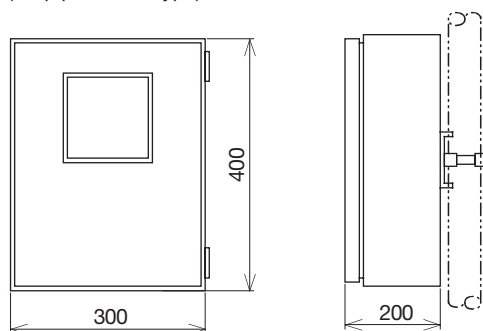
Side



Panel cut



- THC210 (2B pipe mount type)



* Specification is subject to change without notice.

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