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Operation Manual eyc-tech FTM06D

Thermal Mass Flow Transmitter





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1. Safety Precautions

Please read this Specification carefully, prior to use of this, and keep the manual properly, for timely reference.

Solemn Statement :

This product can not be used for any explosion-proof area.

Do not use this product in a situation where human life may be affected.

eyc-tech will not bear any responsibility for the results produced by the operators !

Warning!

- Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.
- This product must be operated under the operating conditions specified in manual to prevent equipment damages.
- Please using the product under the ordinary pressure, or it will influence safe problem.
- This product must be operated under the operating condition specified in this manual to prevent equipment damages.
- This product must be operated under the normally atmospheric condition to prevent equipment damages.
- To prevent products damage, always disconnect the power supply from the product before performing any wiring and installation.
- All wiring must comply with local codes of indoor wiring and electrical installation rules.
- Please use crimp type terminal.
- To prevent personal injury, do not touch the moving part of product in operation.
- It may cause high humidity atmosphere during the product was breakdown. Please take safety strategy.



Thermal Mass Flow Transmitter

2. Operation Form





Thermal Mass Flow Transmitter

3. Connection Diagram



4. Installation

Ducy type







5. RS-485 and Modbus

FTM06 integrate a RS-485 interface for digital communication as an option feature. Based on Modbus protocol makes the general convenience on PLC, HMI and PC connection. For Modbus protocol information please download the file from website. Besides the PLC, HMI application, the user software provide the device setting and data logging function, it also can free download from website.

Technical Data:

- (1) Max. network size: 32 transmitters
- (2) Communication : with COM-Port (serial interface) of PC
- (3) Max. network expansion: 1200m (3937ft) total length at 9600 baud
- (4) Transmission rate: 9600, 19200, 38400, 57600, 115200 Baud
- (5) Parity: None, Even, Odd
- (6) Data length: 8 bit
- (7) Stop bit : 1 or 2 bit
- (8) Factory default Station address = 1, Data format = 9600, N81





6. Software and calibration operation step

User may download the configuration software on eyc-tech web site. Please

decompress the application prior to execute it. Operating System requirements:

above Windows XP. Other application program requirements : above Microsoft

Office 2003

1. Hardware connection : Connect the FTM06D to PC through USB to RS-485 or RS-232

to RS-485 converter

2. Check the COM port number from Device Manager in Computer Management. e.g.

COM1 in illustration







3. Open the FTM06D UI, go to function "Interface", click item "Config" and then setting COM port, BAUD rate, data format and Station ID, pressed "Apply" for connection

<mark>€e</mark> eYc-ET <u>E</u> le Ir Displa Quan	TM06D/T///C-UI-202 nterface <u>About</u> <u>O</u> pen Alt+O <u>C</u> onfig Alt+C	11008-1.0.7 Folation In	formation	Quantity2	r	N/A		PORT BAUD DATA	RATE FRAME No	COM1 • 9600 • ne-8Bit-1Stop •
	100	Clear	1 Minutes	Auto Zoom	0.0	Export (Log OFF)		DUT 250 m Y 2 time	s
Out1	90 90 70 60 50 40 30 20 00 000000					90 90 80 70 60 50 40 30 20 10 0	Out2	STAT.	ation ID B	1 aud Rate Data Type
Ready, F	Port Not Open	Out1	Tin — Out2	ne				Sca	in A	pply Cancel

4. Scan RS-485 connection

Open the FTM06D UI, go to function "Interface", click item "Config" and then setting COM port, pressed "Scan" bottom for scan devices and pressed "Close and Export" when the interested devices found.

🖳 Inter	rface		×	•	Scan						• ×
PC B/	ORT AUD RATE	COM1 9600	•	в	Baud						9600
D/	ATA FRAME No	one-8Bit-1	lStop 🔸	D	Data Type						N81
п	MEOUT 250 m	s U		S	Station ID						120
RE	ETRY 2 time	S	Q <u>, , ,</u>	Р	Progress						2%
ST	ATION ID	1		Ļ	Station If	0	aud Pato	Data Type	Model Name	EW Vorsi	ion
	Station ID P	aud Pate	Data Tura		• 1	9	500	N81	FTM06C	1.0.7	
•	1 96	500	N81		2	9	500	N81	FTE120	1.0.7	
	2 96	500	N81								
					۲ [m			4
	Scan A	pply	Cancel		STOP		CLO	DSE AND EXPOR	Т	CANCEL	

Pick up the device that you want to connect to and then press "Apply" to go.



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5. Setting on Analog Output

In the group of OUT1, Output tab. The output1 related setting could be found.

- (1) Quantity: Flow Velocity, Flow Volume and Sensor Temperature
- (2) Response rate : 0 ... 100 , 100 : filter off , 90 : filter = 60 second , 80 : filter =

120 second, etc.

(3) Analog type : 0 ... 20 mA / 4 ... 20 mA (if output current) / 0 ... 10 V (if output

voltage)

- (4) Range for Upper and Lower
- (5) Alarm Mode: Check the box if analog output pretend a alarm switch output
- (6) Alarm Trigger Point: Upper and Lower
- (7) Alarm Output Level: Upper and Lower

de eYc-FTM06D/T/I/C-UI-20211008-1.0.7 Station 1*					
<u>F</u> ile <u>I</u> nterface <u>A</u> bout					
Display Output Setting Interpolation Information Totalis	ser				
00001	OUT2				
(1) Quantity Sensor Temperature 👻	Quantity Flow Volume 👻				
(2) Response Rate (0~100) 98	Response Rate (0~100) 98				
(3) Analog Range 4-20mA	Alarm Level High				
(4) Upper Range 80.0	Upper Range 30.0 🛓				
Lower Range 0.0	Lower Range 0.0				
(5) 🔲 Alarm Mode					
(6) Upper Point 50.0	Upper Point 20.0				
Lower Point 40.0	Lower Point 15.0				
(7) Upper Level 20.0 / ↓ Lower level 4.0 / ↓	Delay On O A Delay Off O A				
Apply Apply Read OUT1 Config, Read successful					



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- Setting on PNP/PNP Output (Optional, Only Available if Function Equipped) In the group of OUT2, Output tab. The PNP/PNP switch output related setting could be found.
 - (1) Quantity: Flow Velocity, Flow Volume and Sensor Temperature
 - (2) Response rate : 0 ... 100 , 100 : filter off , 90 : filter = 60 second , 80 : filter =

120 second, etc.

- (3) Alarm Mode: High Activate or Low Activate
- (4) Range for Upper and Lower
- (5) Alarm Point: Upper and Lower
- (6) Delay Time: On Delay Time and Off Delay Time (seconds)

eYc-FTM06D/T/I/C-UI-20211008-1.0.7	Station 1*			x
<u>F</u> ile <u>I</u> nterface <u>A</u> bout				
Display Output Setting Interpolation	Information To	otaliser		
OUT1 Quantity Sensor Temperate	ure 🔻	OUT2 <mark>(1)</mark> _{Quantity} Flow	∕ Volume →	
Response Rate (0~100)	98 🌲	(2) Response Rate	(0~100) 98	
Analog Range 4-20mA	•	<mark>(3)</mark> Alarm Level	High •	
Upper Range	80.0 ≑	(4)Upper Range	30.0 🌩	
Lower Range	0.0	Lower Range	0.0	
Alarm Mode				
Upper Point	50.0	(5)Upper Point	20.0 🚔	
Lower Point	40.0	Lower Point	15.0	
Upper Level	20.0 ×	<mark>(6)</mark> Delay On Delay Off		
Apply			Apply	
Read OUT1 Config, Read successful				:



Thermal Mass Flow Transmitter

- Setting on Frequency Output (Optional, Only Available if Function Equipped) In the group of OUT2, Output tab. The Frequency output related setting could be found.
 - (1) Quantity: Flow Velocity, Flow Volume and Sensor Temperature
 - (2) Response rate : 0 ... 100 , 100 : filter off , 90 : filter = 60 second , 80 : filter =

120 second, etc.

- (3) Frequency: Upper and Lower
- (4) Measures: Upper and Lower
- (5) Alarm Mode: The output would be switch between upper and lower correspond

to measures

- (6) Alarm Point : Upper and Lower
- (7) Alarm Output: Upper and Lower

eYc-FTM06D/T/I/C-UI-20211008-1.0.7 Station 1*		
<u>F</u> ile <u>I</u> nterface <u>A</u> bout		
Display Output Setting Interpolation Information T	otaliser	
OUT1	оит2	
Quantity Sensor Temperature •	(1) Quantity Flow Volume	•
Response Rate (0~100) 98	(2) Response Rate (0~100)	98 ਦ
	(3) Freq Upper	100 💌
Analog Range 4-20mA 👻	Freq Lower	0
Upper Range 80.0	(4) Upper Range	60.0
Lower Range 0.0 x	Lower Range	0.0 🚔
🔲 Alarm Mode	(5) 🔲 Alarm Mode	
Upper Point 50.0	(6) Upper Point	50.0
Lower Point 40.0	Lower Point	40.0
Upper Level 20.0	(7) Upper Level	100.0
Lower level 4.0	Lower level	0.0
Арріу	Apply	
Ready, Read successful		.::



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- Setting on Impulse Output (Optional, Only Available if Function Equipped)
 In the group of OUT2, Output tab. The Impulse output related setting could be found.
 - (1) Quantity: Flow Velocity, Flow Volume and Sensor Temperature
 - (2) Response rate : 0 ... 100 , 100 : filter off , 90 : filter = 60 second , 80 : filter =

120 second, etc.

- (3) Impulse Duration: High and Low
- (4) Measures: Upper and Lower
- (5) Impulse Value: The valence of single impulse quantity
- (6) Impulse Unit : m³, Liter, mL, mm³, ft³, inch³, gal,us (Gallon, us), gal,uk (Gallon,
 - uk)

eYc-FTM06D/T/I/C-UI-20211008-1.0.7 Station 1*	
<u>F</u> ile <u>I</u> nterface <u>A</u> bout	
Display Output Setting Interpolation Information To	taliser
OUT1 Quantity Sensor Temperature •	OUT2 (1) Quantity Flow Volume -
Response Rate (0~100) 98	(2) Response Rate (0~100) 98 🚍
	(3) Pulse Hi (ms) 500 🖉
Analog Range 4-20mA •	Pulse Lo (ms) 500
Upper Range 80.0 🖉	(4) Upper Range 30.0 💭
Lower Range 0.0	Lower Range 0.0 v
🗖 Alarm Mode	(5) Pulse Value 0.001 •
Upper Point 50.0	
Lower Point 40.0	
Upper Level 20.0	
Lower level 4.0	
Apply	Apply
Ready, Read successful	.::



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9. Setting on RS-485, Process Parameters and offset adjustment

There are 4 groups in setting tab. The description of each item as below.

- ※ Process Parameters :
- (1) Temperature of normal condition
- (2) Pressure of working condition
- (3) Relative Humidity of working condition
- (4) Profile factor of gas speed
- % Offset Adjustment :
- (5) velocity offset
- (6) temperature offset
- (7) velocity cut off
- ※ Modbus Protocol :
- (8) station ID
- (9) Baud Rate
- (10) Date Frame
- (11) Flash memory write protect
- ※ Miscellaneous :
- (12) Password of keypad menu
- (13) LED brightness
- (14) Display Alternate Period: the first field for quantity unit duration, the seconds

field for quantity measure duration (seconds)







eYc-FTM06D/T/I/C-UI-20211008-1.0.7	'Station 1*		- • •
<u>F</u> ile <u>I</u> nterface <u>A</u> bout			
Display Output Setting Interpolation	Information Tota	liser	
Process Parameters		Offset Adjustment	
(1) Temperature (°C)	20		
(2) Pressure (mBar)	1013.25	Flow Offset (Nm³/h)	0.0 – (5)
(3) Relative Humidity (%)	50	Temperature Offset (°C)	0.0 <mark>-)</mark> (6)
(4) Profile Factor	1.0000	Low Cut Off (Nm³/h)	0.0000 (7)
Apply		Apply	
Modbus Protocol		Misc	
(8) Station ID	1	Password	0 (12)
(9) Baud Rate 9600	•	Brightness	1 (13)
(10) Data Frame None-8B	it-1Stop 🔹	Display Period 0 🔹	3 -(14)
(11) Flash Write Protection	Apply	Apply]
Write Process Parameters, Write success	ul		.::





- 10. Data display and logging
 - (1) Assign Temperature Unit : °C / °F
 - (2) Assign Flow Velocity Unit : m/s < ft/s , Flow Volume Unit : Nm³/h, Nm/s, L/min
 - (3) Display Decimals
 - (4) Clear Measure Plot Chart
 - (5) Time scale of plot
 - (6) Vertical scale of plot
 - (7) Export all logging data since device is connected
 - (8) Start/Stop data logging

eYc-FTM06D/	/T/I/C-UI-20211008-1.0.7 Station 1*	, • 💌			
<u>F</u> ile <u>I</u> nterface	e <u>A</u> bout				
Display Output	t Setting Interpolation Information Totaliser				
Sensor Temperature	28.8 °C (1) ▼ Flow 0.0 N xxx.x(3) xxx.x(3) xx (4) Clear Auto Zoom(6) 28.9 ↓ 1 Minute (5) Auto Zoom(6) 28.7 ↓ Export (7)	m³/(2) ▼ xx.x(3) Log (OFF)(8)			
28.87	5				
28.849	9 4	.49			
28.828	8 3	.98			
o 28.807	3	.47			
28.786	6 2	.96			
je 28.765	5 2	.45 🚽			
ୁ ଜୁ 28.744	4 1	.94			
ب 28.723	3 1	.43			
28.702	2 0	.92			
28.681	0	.41			
28.66 10:	5 	D. 1			
Time OUT1 Sensor Temperature OUT2 Flow					
Read OUT1 Config, Read successful .::					



- 11. Device Information
 - (1) Model Name of Device
 - (2) Firmware Version of Device
 - (3) Serial Number of Device
 - (4) Firmware Checksum
 - (5) Calibration Date
 - (6) Flow Offset
 - (7) Temperature Offset
 - (8) Flow Calibration Range
 - (9) Temperature Calibration Points

eYc-FTM06D/T/I/C-UI-20211008	-1.0.7 Station 1*		
<u>F</u> ile <u>I</u> nterface <u>A</u> bout			
Display Output Setting Interpol	ation Information To	taliser	
Product Identification	1	Offset Adjustment	
(1) Model Name	FTM06D	(6) Flow Offset (m/s)	0.0
(2) Firmware Version	1.0.7	(7) Temperature Offset (°C)	0.0
(3) Serial Number	20211008001		
(4) Firmware Checksum	2F9F		
(5) Calibration Date	2021-10-08		
<u>Calib Data</u>	Lower Point	<u>Upper Point</u>	
(8) Flow (m/s)	0.0	20.0	
(9) Temperature (℃)	0.0	100.0	
Write Process Parameters, Read su	ccessful		i





- 12. Totalizer
 - (1) Flow Velocity
 - (2) Flow Volume Rate
 - (3) Volume Accumulation Totalizer 1
 - (4) Volume Accumulation Totalizer 2
 - (5) unit of counter 1
 - (6) unit of counter 2
 - (7) Main switch of totalizer
 - (8) Function switch of totalizer 1
 - (9) Function switch of totalizer 2
 - (10) Ser/Reset Totalizer 1
 - (11) Set/Reset Totalizer 2

€ eYc-FTM06D/T/J/C-UI-20211008-1.0.7 Station 1*					
<u>F</u> ile <u>I</u> nterface <u>A</u> bout					
Display Output Setting Interpol	ation Information T	otaliser			
Totaliser					
(1) Velocity Rate	22	m/s	(7) Totaliser 1 and 2		
(2)Current Volume	251.9508	Liter			
(3) Accumulation Flow 1	36	m³	(8) Totaliser 1 Set (10)		
(4) Accumulation Flow 2	35872	Liter	(9) Totaliser 2 Set (11)		
(5) Unit of Flow 1	m³ ▼				
(6) Unit of Flow 2	Liter -				
Open Port Read successful					
				<u>61</u>	

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7. Inspection and maintenance

1. Maintenance

Since this product is inspected and calibrated for high accuracy at the factory before shipment, no calibration on the installation site is necessary when this product is installed

For inspection and maintenance follow the instructions below :

(a) Periodic inspection

Periodically inspect this product for its sensing accuracy, and clean the cover

Set the period between inspections based on atmospheric dust and other contaminants in the installation environment

(b) Sensor maintenance

Do not damage sensor surface during maintenance process

(c) Troubleshooting

If any problem occurs during operation, refer to the table below for appropriate solutions

2. Troubleshooting:

Problem	Cleck items	Soluations
●No output	 Disconnected wiring 	Re-perform wiring
●Unstable output	●Loose wiring	Crew on terminal tightly or
	 Power supply voltage 	replace wires
	●Sensor damages	Replace the sensor
● Slow response to	 Moisture / Condensation 	• Remove the sensor and filter dry
output	on the product	power-off state sensor in clean
● Error in output	Check installed location	air seasoning
	Check installed angle	Refer to the section
	Check dust and	Align measurement head with
	contamination on the	flow direction
	sensor	Cleaning the filter
		Changing the filter
		● Calibrate
		Replace the sensor

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