FTM84/85
Industrial grade high accuracy Thermo Air Velocity Transmitter

Application

〈 Feature 〉

- IP65 protection degree, rugged aluminum case, fit in variety harsh environment
- Capable of temperature compensation
- Llinear adjustment air velocity by computer, analogue output or option RS-485
- High-speed, high-precision measurement, fast response
- Thermistor measurement sensor
- LCD display air velocity and temperature value
- Switch multifunction physical quantities：[m/s]、[ft/s]、[km/h]、[mph]、[kont]
- DIP SWITCH function and RS-485 function
- Calibration physical quantities, measuring range, analogue output, station, and zero-point OFF SET function
- Keyboard or RS-485adjustment zewo-point OFF SET function
- Free calibration software : data logger / record 65535 datas / charts

〈 Application 〉

- Monitor air velocity in supplying gas, consumption, and dry process in industry process
- Compressed air consumption measurement
- Building, factory, clean room, hospitals
- Semiconductor, electronics, paper, printing, textiles, steel and iron Industry, food, chemical, pharmaceutical, biotechnology industry

Specification

Input

sensor type	thermal mass flow sensor
air velocity measuring range	1 m/s ; 2 m/s ; 5 m/s ; 10 m/s ; 20 m/s ; 40 m/s ; 60 m/s
	90m/s ; 120m/s
air velocity min. measuring range	0.15 m/s
temp. sensor / measuring range	PT 1000, 0 ... 80℃

Output

output	0 ... 20 mA / 4 ... 20 mA /
	0 ... 1 VDC / 0 ... 5 VDC / 0 ... 10 VDC
default output	out1 : air velocity ; out2 : temp. (default value : 0 ... 80℃)
signal connection	3-wire
load resistance	current output : ≦ 500Ω ; voltage output : ≧ 10KΩ
response time	reach 90% of ultimate value within 3 sec.
angular dependence	< 3% measuring value (when the angle < 10°)
display type	LCD Module with green black light
display range	upon request, one deimal place
	double line character (up : air velocity ; down : temp.)
height of character	5.55mm

Accuracy (+ 25 °C)

air velocity	± 1.5 % F.S. (nonlinear error, hysteresis error,
	repeatability error)
temperature (> 2 m / s)	± 0.3 ˚C
thermal sensitivity temp. error	0.05 % / ˚C

Environment

media measured	air
working temp. for housing	-20 ... +80 ℃
working temp. for housing with display	-20 ... +60 ℃
working temp. for probe	-20 ... +100 ℃
working humidity ; storage temp.	95 % RH (non-cond.) ; -20 ... +60 ℃
proof pressure	10 bar

Electrical

power supply	8 ... 35VDC & 12 ... 30VAC
current consumption	DC 8V : 300mA , 24V : 100mA
	AC 12V : 350mA , 24V : 180mA
overvoltage protection	DC : < 45V
	AC : < 40V
electrical connection	M12 metal connector / terminal

Installation

installation	duct / remote
fix	1/2 PT outside thread

Protection

rating	IP 65
electric protection	◎ polarity protection ◎ over-voltage ◎ short circuit

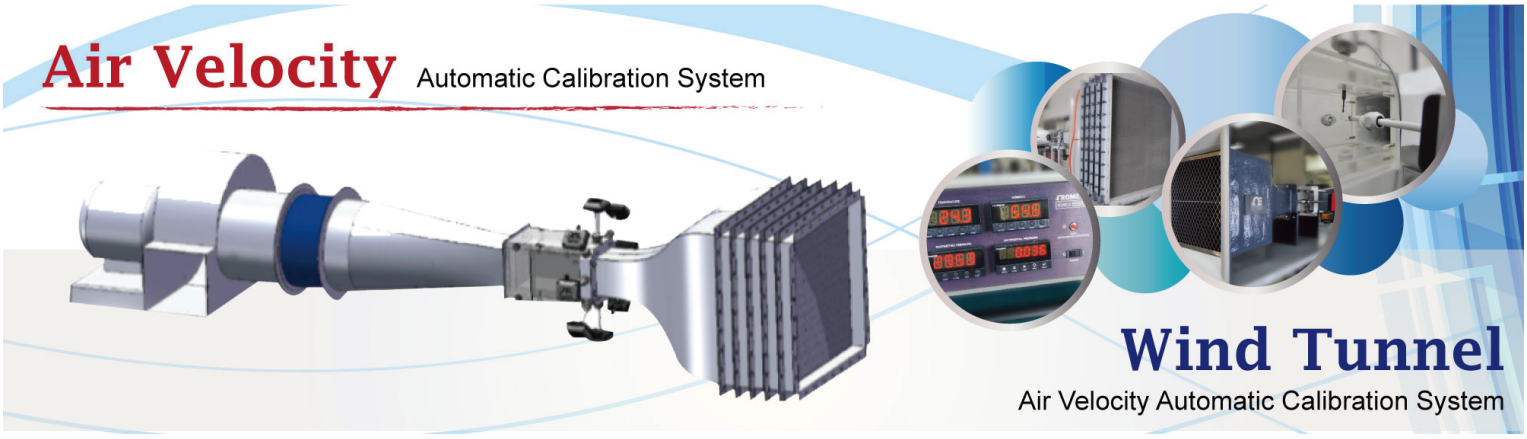
Certification

CE Certification	**Emission**	EN 61326-1 : 2006 Class B
		EN 55011 : 2009 / A1 : 2010 Group 1 Class B
	Immunity	EN 61326-1 : 2006
		EN 61000-4-2:2009
		EN61000-4-3:2006/A2:2010
		EN 61000-4-8:2010

Material

case	aluminum alloy
probe	SUS
filter	POM
cable	PTFE (remote FTM85)
option	metal mounting flange
weight	FTM84 : 670 g / FTM85 : 782 g

Wind Tunnel Automatic QC System

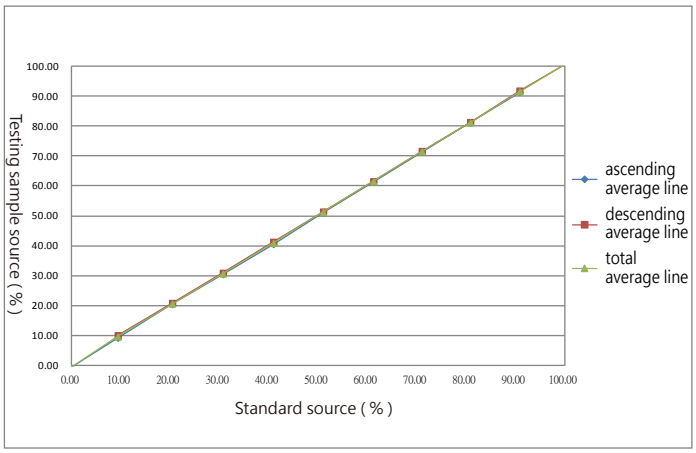


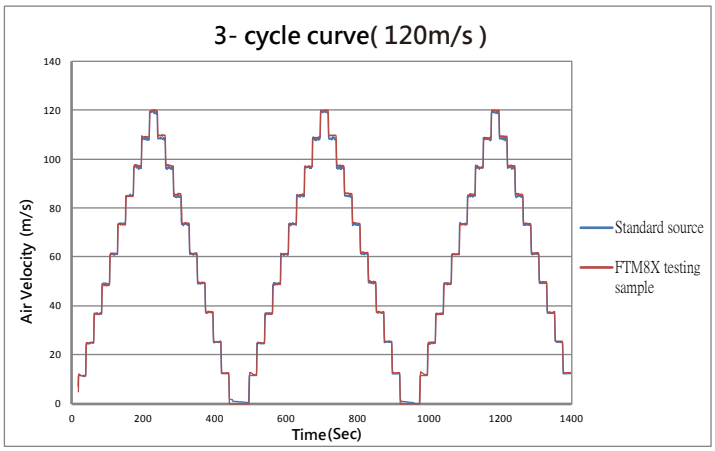
System facility :

- Wind tunnel system to control air velocity
- Automatic inspection report printing
- PC-based automatic controlling air velocity and QC inspection and HMI
- Use precise wind tunnel to produce products, and automatic QC inspection sheet printing and factory report.

3-cycle curve

※ According to IEC 61298 and ISO 17025 standard to measuring 3-cycle curve.
As the charts result, accuracy of test sample match with accuracy chart of standard source





Ordering Guide

Ordering code ----------> FTM 85 - 60 1 1 - 1 5 M

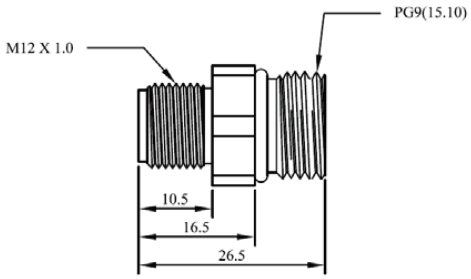
- Installation
- Range
- Output
- Modbus
- Cable (for remote type)
- Option

【Ordering Item】

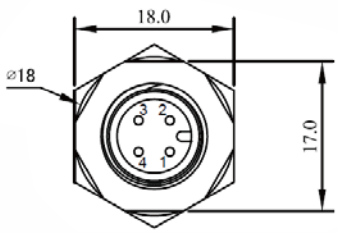
Installation	code	Range	code	Output	code	Modbus	code	Cable	code	Option	code
duct	84	1 m/s	01	4~20mA	1	analogue	0	2 m cable	2	M12 metal connector	M
remote	85	2 m/s	02	0~20mA	2	RS-485	1	5 m cable	5	(with 2 m electrical cable)	
		5 m/s	05	0~10V	6	RS-485 & analogue	2	customize	W	metal cable gland	N
		10 m/s	10	0~5V	7	※ M type - M12 (8P) metal connector or N type - M16 cable gland				display	D
		20 m/s	20	0~1V	8					other request	W
		40 m/s	40	RS-485	9						
		60 m/s	60								
		90 m/s	H90								
		120m/s	H120								

Electric Connector

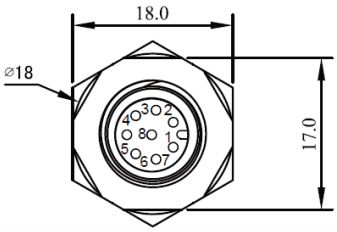
unit : mm



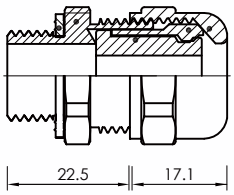
【M type (M12-4PIN metal connector】RS-485 or analogue

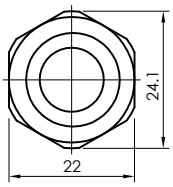


【M type (M12-8PIN metal connector)】RS-485+analogue

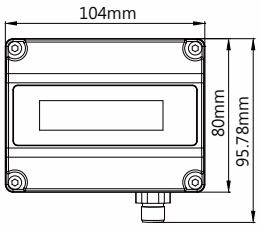


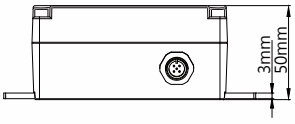
【N type (M16 cable gland)】RS-485+analogue



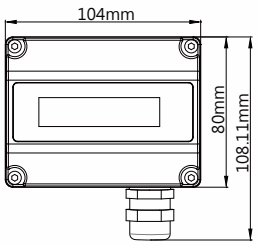


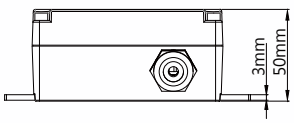
Dimension





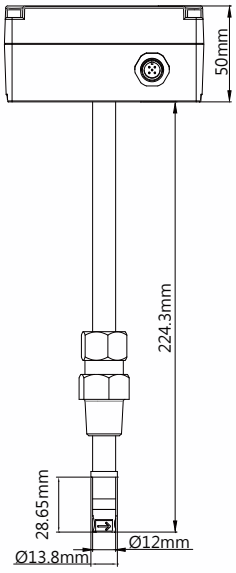
M type



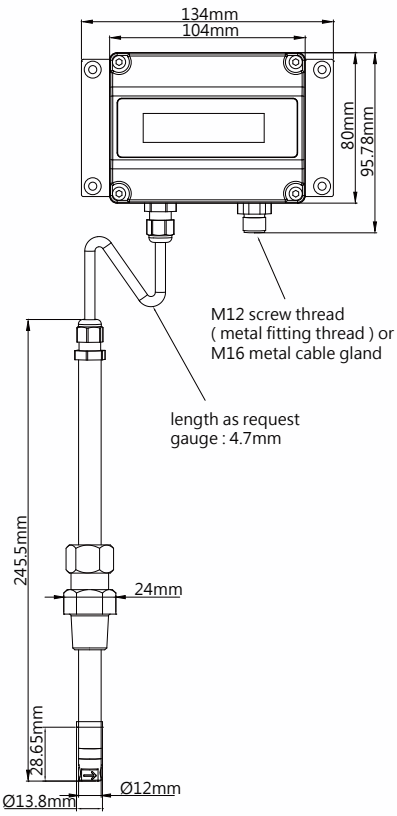


N type

FTM84 (duct)

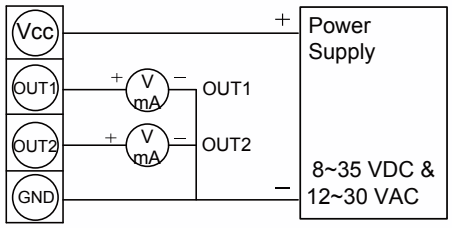


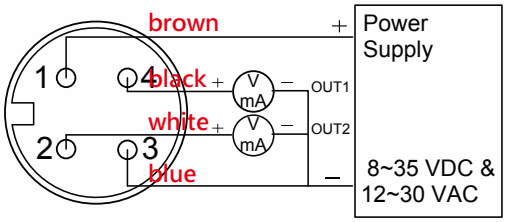
FTM85 (remote)



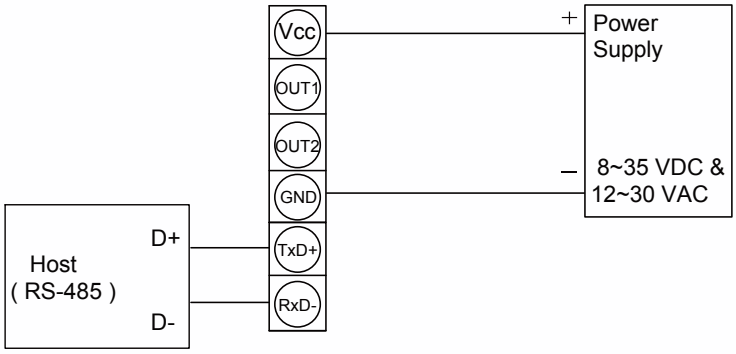
Analogue Diagram

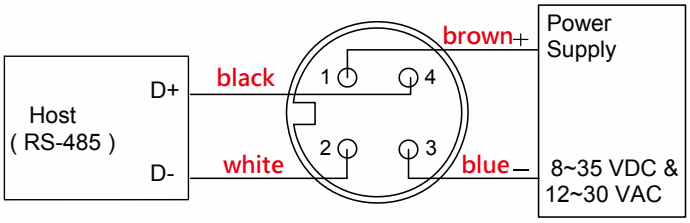
4P terminal



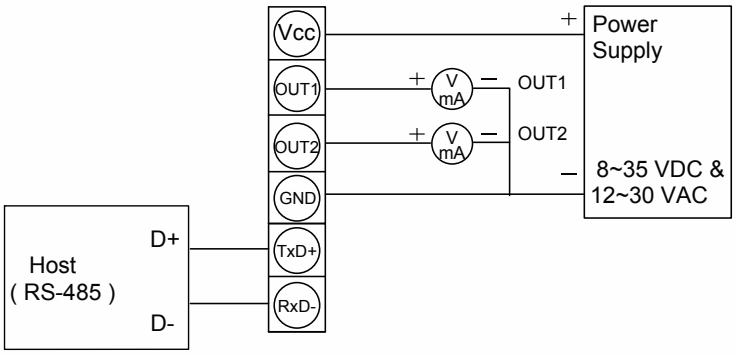


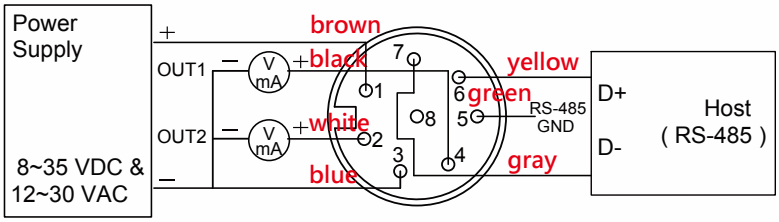
RS-485 Diagram



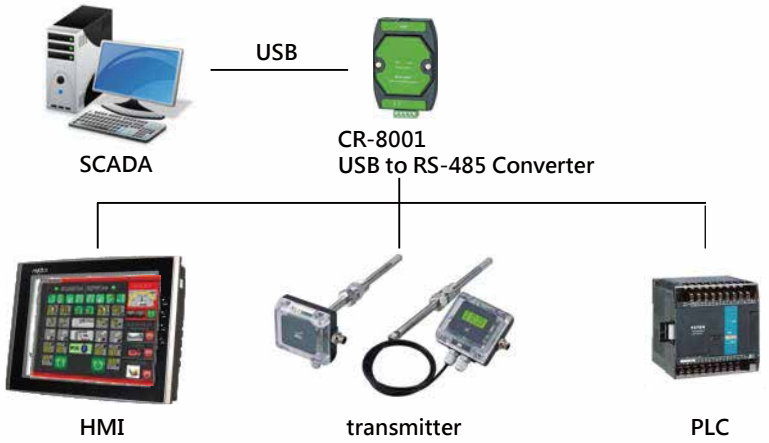


Analogue + RS-485 Diagram





USB to Isolated RS-485 Application

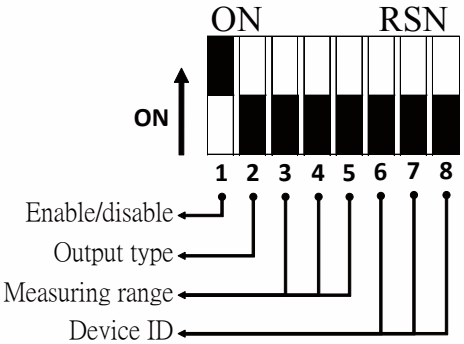


※ Device
1. PC
2. RS-485 to USB Converter
3. power supply
4. UI software

※ option converter: CR-8001

※ EYC free programmable software
http://www.eyc-tech.com/download/download149.html

DIP Switch



For FTM84 /85 products, the setting status of DIP switch will be read by software while power on, and this reading action will not happen later on. Thus in order to read the DIP switch status again by software, the user must to reboot again if re-setting the DIP switch.
The function of DIP Switch_2 ~ 8 only be effective while setting the DIP switch_1 as "On".

◎ 1. DIP Switch Active / Deactivate :
Set the DIP switch as On/ Off

STATUS	ON	OFF
DIP switch 1	■	□

◎ 2. The Type for Analog Output: Analog output type for Out1 & Out2

STATUS	0-10V	4-20mA
DIP Switch 2	■	□

◎ 3. Setting the Output Measuring Range :
Set the maximum value for analog output
(The output physical type must be "Air Flow Velocity")
※ Only switch wide to small range

DIP Switch 3	DIP Switch 4	DIP Switch 5	RANGE (m/s)
□	□	□	1
■	□	□	2
□	■	□	5
■	■	□	10
□	□	■	15
■	□	■	20
□	■	■	40
■	■	■	60

◎ 4. Setting the Device ID :
Set the slave device ID for Modbus RTU.

DIP Switch 6	DIP Switch 7	DIP Switch 8	Device ID
□	□	□	1
■	□	□	2
□	■	□	3
■	■	□	4
□	□	■	5
■	□	■	6
□	■	■	7
■	■	■	8