

CONOTEC

CONOTEC CO., LTD.
DIGITAL TEMPERATURE CONTROLLER



ISO 9001:2008

Digital Panel Meter

Instruction Manual



- A user manual for this product is posted on the company website.
- Please download the technical document and communications manual on the company website

01 Safety precautions

Please read the safety precautions carefully for correct operation of the product.

- ✘ The specifications and dimensions specified in this instruction manual may be changed without any notice for performance enhancement.

⚠ Warning

1. This product was not made as a safe device. Therefore, this product should be attached with dual safety devices if it is used for the control purposes (e.g. a device vulnerable to accident and property damage, etc.).
2. Do not wire, inspect or service this product while the power is being supplied.
3. You must attach this product to a panel. Otherwise, it may cause an electric shock.
4. When connecting the power, you must check the terminal number.
5. Do not ever disassemble, process, modify or repair this product.

⚠ Caution

1. Please make yourself familiar with all the operation instructions, safety precautions and warnings before using this product. Comply with related specifications and capacity requirements
2. Do not wire or install this product to any unit with high inductive load (e.g. motor, solenoid, etc.).
3. Use a shielded cable with a proper length when extending a sensor.
4. Do not use any part that generates an arc when used in the same power or directly switched in close proximity.
5. Keep the power cable away from a high-voltage cable and do not install this product in any place that is full of water, oil and dust.
6. Do not install this product in any place that is exposed to direct sunlight or rain.
7. Do not install this product in any place that is subject to strong magnetic power, noise, vibration or shock.

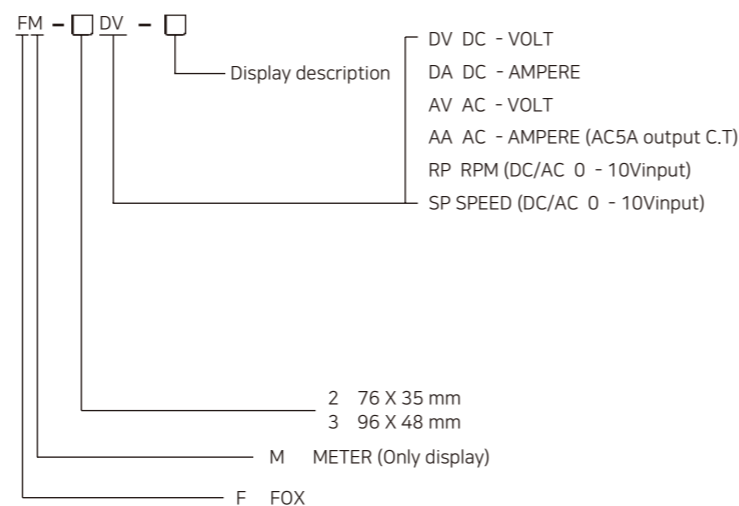
8. Keep this product away from any place that generates strong alkaline or acid substances. Use a separate pipe.
9. Do not sprinkle water onto this product for cleaning when installing it in the kitchen.
10. Do not install this product in any place where the temperature/humidity ratings are exceeded
11. The sensor cable should not be cut or cracked..
12. Keep the sensor cable away from a signal cable, a power cable or a load cable. Use a separate pipe.
13. Keep in mind that the follow-up service will not be available if this product has been arbitrarily disassembled and modified
14. ⚠ symbol on the terminal wiring diagram indicates a safety statement that alerts a warning or caution.
15. Do not use this product near any device generating strong high-frequency noise (e.g. high-frequency welding machine, high-frequency sewing machine, high-frequency radio, large-capacity SCR controller, etc.).
16. Using this product in any method other than those specified by the manufacturer may lead an injury or a property damage
17. The product is not a toy. Keep it away from children.
18. The product should be installed only by an expert or a qualified person.
19. The company will not be liable for any damage caused by the violation of the above warnings and cautions or by a consumer's fault

⚠ Danger

Caution: Risk of electric shock

- Electric shock - Do not touch the AC terminal while the current is flowing. It may cause an electric shock.
- Disconnect the input power before checking the input power.

02 Name



03 INPUT description and Measurement range

- FM2 Series

DC (V)	FM-2DV-3	20.00V		
	FM-2DV-4	200.0V		
AC (A)	FM-2AA-1	20.00A	FM-2AA-50	50.00A
	FM-2AA-2	200.0A	FM-2AA-100	100.0A
	FM-2AA-4	2.000A	FM-2AA-300	300.0A
AC (V)	FM-2AV-5	600.0V		
DC (A)	FM-2DA-1	20.00A		

- FM3 Series

	DC (V)	AC (V)	DC (A)	AC (A)	rpm m/min
1	199.9 mV	199.9 mV	19.99 A	19.99 A	19.99 A
2	1.999 V	1.999 V	199.9 A	199.9 A	199.9 A
3	19.99 V	19.99 V	1999 A	1999 A	1999 A
4	199.9 V	199.9 V	1.999 A	1.999 A	1.999 A
5	300 V	550 V			
X	option	option			

04 Model perdescription

• DC VOLT METER : FM - □DV - □	• DC AMPHERE METER : FM - □DA - □	• AC VOLT METER : FM - □AV - □
• AC AMPHERE METER : FM - □AA - □	• RPM METER : FM - □AA - □	• SPEED METER : FM - □AA - □
• Order made from others : FM - □XX - □		

05 Performance

Input Signal	Instrumentation input signal of voltage or current, Option (DC4~20mA, DC1~5V)
Method of A/D conversion	Duplex integral calculus system
Response time	2.5~3/ second
Speed of Response	About 3second (Max. Range)
The number of line for max indication	3 1/2Line (1999)
Display	7segment LED, letter's height=14mm
Excess range of polarity indication	FM3 Series In opposite case of the input signal is indicated like "--" automatically. Excess +1999 Shortage -1999
	FM2 Series M-III When a measurement input value exceeds 11.0% of its maximum permissible input value M-L.L. When a measurement input value exceeds -10.0% of its maximum permissible input value

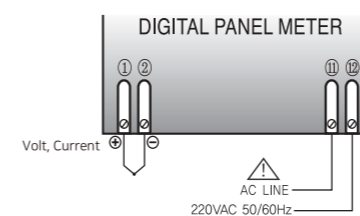
06 Regular

Supply voltage	220VAC ±10% 50/60Hz (110VAC, 24VDC, 12VDC option)
Consumotion Power	Below1.5VA
Ambient temp.	0 ~ 50°C
Ambient humi.	35 ~ 80%RH
Storage ambient temp.	-10 ~ 70°C

07 Method of AC (alternating current) measurement

- Nowadays gradually increased personal computer, which has a variable speed drive system, the short pulse current than a given value. These devices are being introduced that occur on daily basis, but caused by many cases on the measured average value was inaccurate when using the existing tester, so a root-mean-square value measurement method is needed.

08 Terminal wiring diagram

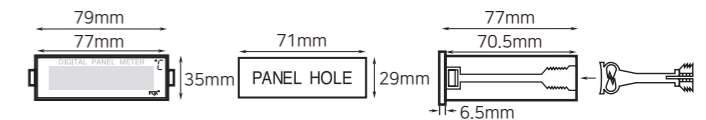


- ① Connection of the power supply.
Please connect the power supply with terminal No.11,12

- ② Connection of the input.
The AC input signal (alternating current voltage or current) connect with terminal No.1,2
The direct-current input signal (direct-current voltage or current) connect (+) with terminal No.1 and connect (-) with terminal No.2

09 Diemension and panel hole sizes

(Unit : mm / error : ±0.5)



10 Easy error diagnosis instructions

- ✘ If an error is displayed while the product is running

- **ER1** : It is case where the product was subject to a strong external noise and internal data memories have been damaged. In this case, contact us for product service.
- Although this controller was designed to withstand a certain level of external noise, it is not supposed to withstand all levels of noise.
- If the product is subject to a noise greater than 2KV, it could be internally damaged.
- If **O-E** (open error) or **S-E** (short error) is displayed, there is something wrong with a sensor. Please check the sensor.

✘ The above specifications may be changed without any notice for performance enhancement. Please make yourself fully familiar with and follow the above precautions.

- Warranty period: One year from the date of purchase
- Address : (Street address) 56, Ballyongsandan 1-rp, Jangan-eup, Gijang-gun, Busan, ROK
(Land-lot address) 901-1, Ballyong-ri, Jangan-eup, Gijang-gun, Busan, ROK (46034)

- Product service : 070-7815-8289
- Customer service : 051-819-0425 ~ 0427
- FAX : 051-819-4562
- Email : conotec@conotec.co.kr
- SNS : Facebook, Instagram, Twitter, YouTube ▶ 'Search for 'Conotec'
- Website : www.conotec.co.kr

◆ Installation precautions

- This device should be connected to a protective earth terminal and a power supply in order to prevent an electric shock.
- Do not block the air outlet.

◆ Operation precautions

- ✘ An operating environment of this device is as follows.
- Ambient temperature : 0 ~ 60°C
- Ambient humidity : 80%RH or less
- Indoor uses only
- Pollution class 2
- Altitude under 2000m
- Installation category : II
- This device should be laid out in a way that its power cord is easy to handle.
- Using this product in any method other than those specified by the manufacturer may damage its protection function

■ Major products and development

- Temperature/humidity controller
- Counter and timer controller
- Current and voltage panel meter
- Temperature/humidity indicator
- Oven controller
- CO2 controller
- PID controller
- Unit cooler controller
- Heat pump controller
- Chiller controller
- Thermo-hygrostat controller
- Short message alarm
- Temperature/humidity transmitter
- Smartphone app and monitoring system

✘ This manual was prepared in the Naver Nanum fonts.