Digital Temperature and Humidity Controller

MF133 / MF433 / MF733 / MF933

MF33--230-E1

Please read this manual carefully before using and keep this manual in a safe place for further reference

General Information

- MF33 is three digits display temperature and humidity controller, 1% accuracy for temperature, 5% accuracy for humidity
- Temperature and humidity sensor can not be used under condensation circumstance
- Measuring range, temperature is 0°C to 60°C, humidity range is 0-95RH%(no condensation)
- MF133/MF433/MF733, single loop controller

  MF933 single loop or double loop controller, ON/OFF control, hysteresis available for each loop
- Heating/cooling control selectable, humidity or dehumidifying selectable, refer to parameter level 3
- RS-485 communication available on request
- Controller operating range: 0°C to 50°C, humidity range is 0-85RH%(no condensation)

1. Ordering Information

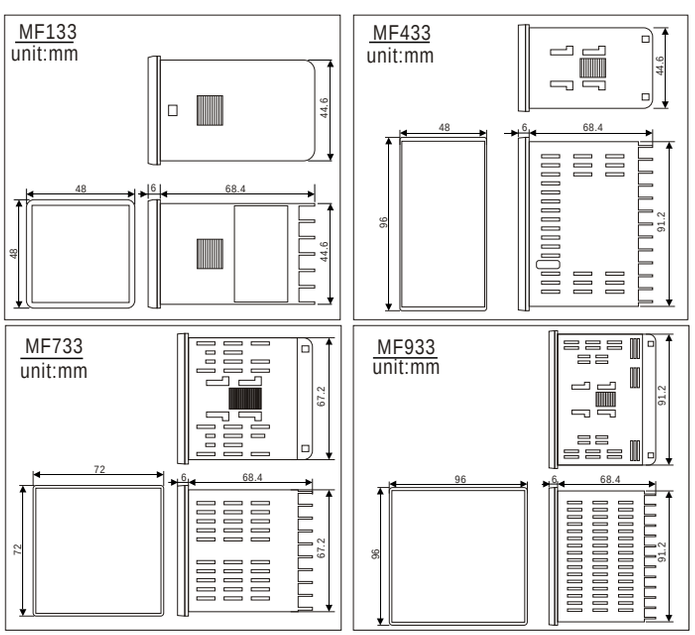
Please select correct code before ordering

Model(Size Width x Height)
MF133(48mm*48mm)
MF433(48mm*96mm)
MF733(72mm*72mm)
MF933(96mm*96mm)

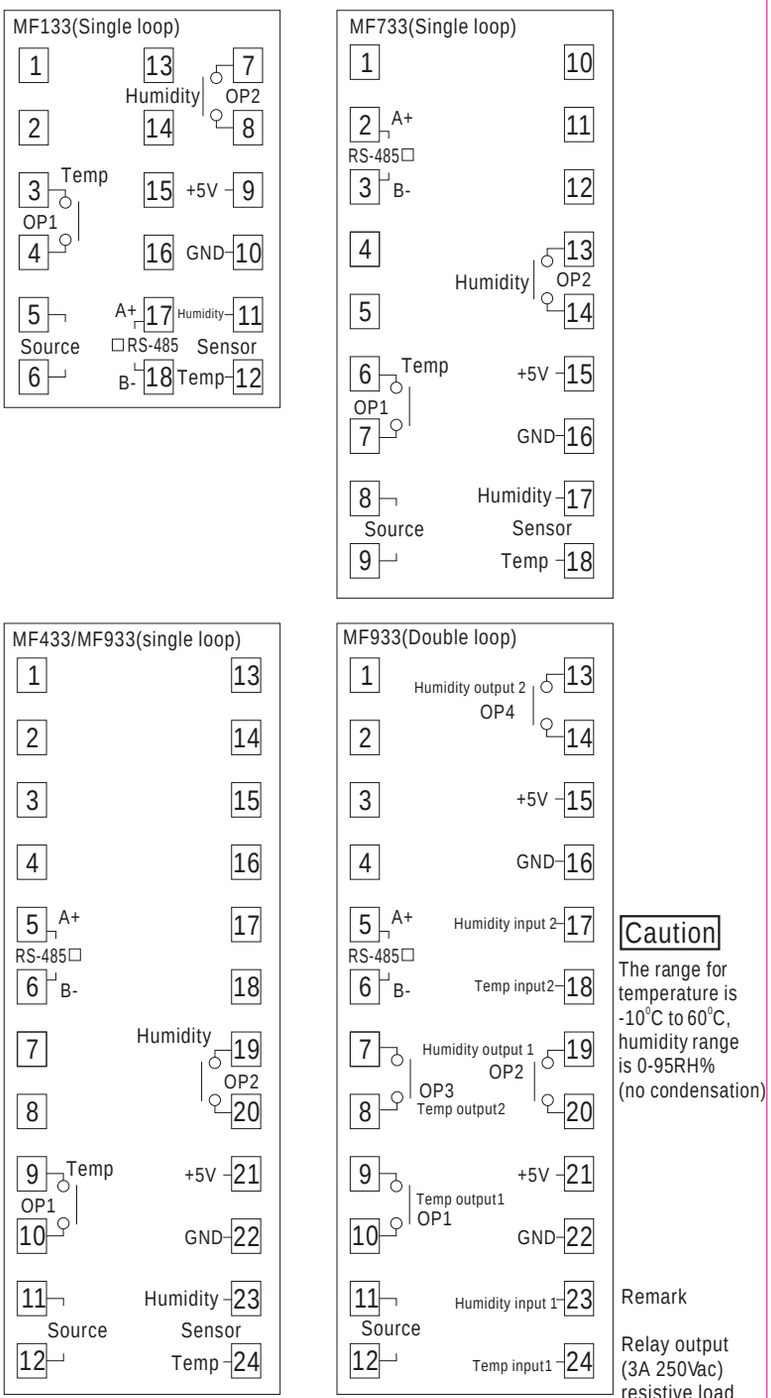
□ -□ □ - □ □ - □ □
① ② ③ ④ ⑤ ⑥ ⑦

1. Control Loops
   1: Single loop 2: Double loop(Only MF933 available with this option)
2. Output 1 for temperature control(OP1), heating or cooling configurable
   0: No output 1: Heating 2: Cooling
3: Output 1 for humidity control(OP2), humidifying or dehumidifying configurable
   0: No output 1: humidifying 2: dehumidifying
4: Output 2 for temperature control(OP3), only for MF933, heating or cooling configurable
   0: No output 1: heating 2: Cooling
5: Output 2 for humidity control(OP4), only for MF933, humidifying or dehumidifying configurable
   0: No output 1: humidifying 2: dehumidifying
6:Communication
   0: Without communication 5: With RS-485(MODBUS-RTU)
7:Power supply
   A: 220VAC B: 85~265VAC D: 24VDC

2. Mounting and Dimensions



3. Wiring Diagram



Caution

The range for temperature is -10°C to 60°C, humidity range is 0-95RH% (no condensation)

Remark

Relay output (3A 250Vac) resistive load

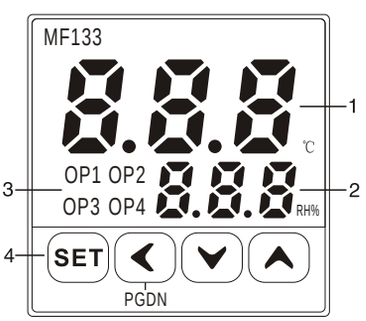
4 wires temperature and humidity sensor HTMR-030 or HTMC-030

HTMR-030 or HTMC-030
- +5V(Red wire)
- GND(Black wire)
- Temperature(white or other color)
- Humidity(green or other color)

How to distinguish between temp and humidity input

Use a multimeter and put the range at 20K ohm, under ambient temp between 20~30°C, measure the resistance between +5V wire and any other wire, if the resistance you get is 5~15K, then the wire should be for temp input, the other will be for humidity.

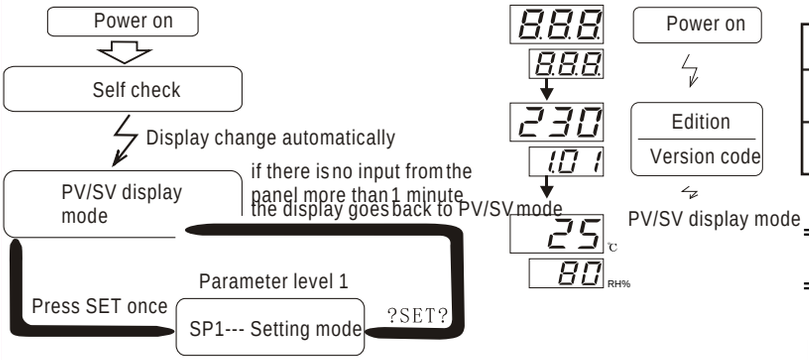
4. Panel layout and description



1: Display temperature value and parameter notation
2: Display humidity and parameter value
3: OP1 indicator, temperature output 1 indicator
   OP2 indicator, humidity output 1 indicator
   OP3 indicator, temperature output 2 indicator
   OP4 indicator, humidity output 2 indicator
4: SET key, function key
   ◀ PGDN Shift key, double loop shift to next page
   ▼ Decrement key
   ▲ Increment key

5. Setting and Configuration

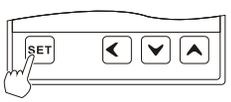
5.1 Power up and setting procedure



6. Parameter levels

6.1 Parameter level 1

Press SET once to parameter level 1



6.1.1 Setting procedure for parameter at level 1

Below parameter will display one by one by press SET once,
press SET 0.5S to save the configuration, press SET 3 s to exit to PV/SV display mode

Notation	Name	Range	Description
SP1	Temp SV1	-15℃ to 85℃	Configure the temperature setting value for output 1 HYS=AH1. controlled by Op1 relay
SP2	Humidity Sv1	0 to 100	To define the setting value of humidity for Op1 HYS=AH2, controlled by Op2 relay
SP3	Temp SV for second loop	-15 to 85	To define the setting value of temperature for second loop HYS=AH3, controlled by Op3 relay
SP4	Humidity SV for second loop	0 to 100	To define the setting value of humidity for second loop HYS=AH4, controlled by Op4 relay
UAd	Device address	1-127	used to check the address device in communication
LCK	Access protection	0-999	LCK=0, all parameters can be modified LCK=1, all parameters locked except LCK LCK=102, Press SET to parameter level 2 LCK=103, Press SET to parameter level 3 LCK=104, Press SET to parameter level 4

6.2 Parameter level 2

SET LCK=102, press SET to parameter level 2, Below parameter will display one by one by press SET once, press SET 0.5 S to save the configuration, press SET 3 s to exit to PV/SV display mode

Notation	Name	Range	Factory default	Description
SC1	SC1 for #1 loop	-10 to 10	0	Input offset, compensate the error caused by temperature sensor for #1 loop
SC2	SC2 for #1 loop	-10 to 10	0	Input offset, compensate the error caused by humidity sensor for #1 loop
SC3	SC3 for #2 loop	-10 to 10	0	Input offset, compensate the error caused by temperature sensor for #2 loop
SC4	SC4 for #2 loop	-10 to 10	0	Input offset, compensate the error caused by humidity sensor for #2 loop

6.3 Parameter level 3

SET LCK=103, press SET to parameter level 3

Notation	Name	Range	Description
Ad1	OP1 control mode	00~16	=15, Cooling =16, Heating Temperature control of #1 loop
AH1	AH1	0~100	Hysteresis for OP1
Ad2	OP2 control mode	00~16	=15 dehumidifying =16 humidifying Humidity control of #1 loop
AH2	AH2	0~100	Hysteresis for OP2
Ad3	OP3 Control mode	00~16	=15, Cooling =16, Heating Temperature control of #2 loop
AH3	AH3	0~100	Hysteresis for OP3
Ad4	OP4 Control mode	00~16	=15 dehumidifying =16 humidifying Humidity control of #2 loop
AH4	AH4	0~100	Hysteresis for OP4

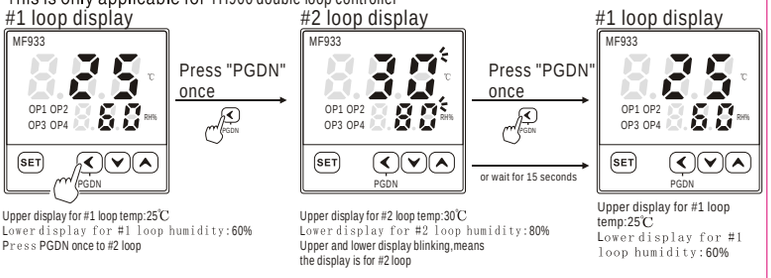
6.4 Parameter level 4

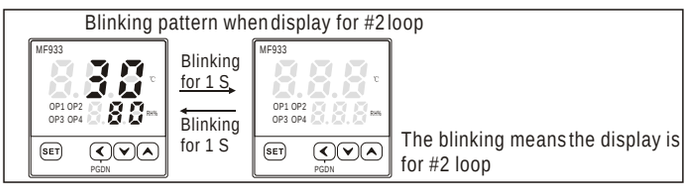
SET LCK=104, press SET to parameter level 4, Below parameter will display one by one by press SET once, press SET 0.5 S to save the configuration, press SET 3 s to exit to PV/SV display mode

Notation	Name	Range	Factory default	Description
Add	Add	1-127	1	To define the device address in communication application
bAU	bAU		9.6	To define the communication speed 2.4 4.8 9.6 19.2

7. Double loop controller TH900 SV checking

This is only applicable for TH900 double loop controller





8. RS-485 Communication details

Interface: Base on standard RS-485
Connection method: 2 wire system, half-duplex multidrop connection
Communication distance: 1.2km (max.)
Communication speed: 2400bps, 4800bps, 9600bps, 19200bps
Data type: Start bit: 1
Data bit: 8
Parity bit: None
Stop bit: 1
Protocol: Modbus-RTU
Support maximum write digits 36, read digits 37

R: Read
R/W: Read and Write

Parameters	Address	Range	Description
Reserved	000H		R
Reserved	001H		R
#1 loop PV for temperature	002H	-15 to 85	R
#1 loop PV for humidity	003H	0 to 100	R
#2 loop PV for temperature	004H	-15 to 85	R
#2 loop PV for humidity	005H	0 to 100	R
Reserved	006H		R
Reserved	007H		R
#1 loop SV for temperature	008H	-15 to 85	R/W
#1 loop SV for humidity	009H	0-100	R/W
#2 loop SV for temperature	00AH	-15 to 85	R/W
#2 loop SV for humidity	00BH	0-100	R/W
Device address checking Uad	00CH	1-127	R
Access protection LCK	00DH	0-1	R/W

Remark: please do not write on any data after address 00DH