



FULLY TOUCH SCREEN SERIES

MODEL

TX986ML220-V2E

TX986ML220-V2K

TX986ML024-V2E

TX986ML024-V2K



APPLICATIONS

- ▶ TX986 series is fully touch screen thermostat with many variants suitable for 2 pipe/4 pipe cooling & Heating Fan coil units and DX single stage compressor units. We introduce Bacnet and Modbus communication in this series. Option of 9 terminals & 13 terminals power box can occupy add-ons like AO, AI, DO and DI as per convenience
- ▶ Available in different colour body option with sky blue and black backlight. Fitted with built-in NTC10K sensor and optional Humidity sensor. Several external functions like remote sensor, key card, PIR sensor, Light controls are available in different variants as per site requirement

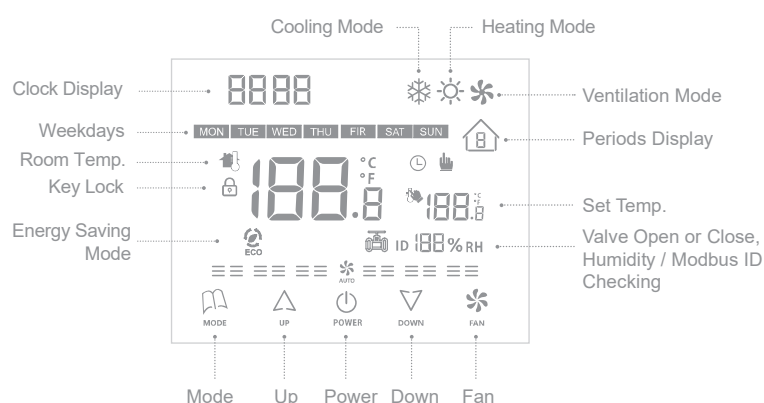
FEATURES

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> ◆ Modern Fully touchscreen design, suitable for offices, Hotels and residential buildings. ◆ Modbus RS485 Communicating. ◆ Applicable for 2 pipe/4 pipe fan coil unit cooling & heating. ◆ Applicable for Dx single stage compressor Units. ◆ Black LCD and Sky-blue LCD display selectable ◆ Big LCD with English only display | <ul style="list-style-type: none"> ◆ Special colors upon request with RAL number can be provided. ◆ Regular colour available in Black, White and Silver body ◆ User setting can be kept during power off ◆ Both Room and Set point Display ◆ Manual & Automatic Fan functions ◆ EC motor variants available. ◆ User setting can be kept during power off | <ul style="list-style-type: none"> ◆ Temperature unit C & F ◆ Fan load 5A resistive and inductive of 3A (fan load 8A resistive can provide on request) ◆ 13 terminal power box fits in 86cm x 86 cm & 9 terminal power box fits in 75cm x 75cm electrical junction box ◆ Real Time clock with infinite life battery backup |
|--|---|--|

SPECIFICATION

- ◆ Power supply 12v/24v/85-220v based on variants
Frequency:50~60Hz
- ◆ Function: Cooling/Heating
- ◆ Relay Life: 220±10% VAC, 3(5)A, 100,000 times
- ◆ Wiring Max: 16AWG
- ◆ Sensing Element: 10K(@25°C) NTC
- ◆ Display Accuracy: 1°C, Set-point accuracy: 1°C/step
- ◆ Set-point range: 10-32°C(50-90°F) • Display range: 0-50°C
- ◆ Protection Glass: IP 20 • Operation Temperature: -18~49°C
- ◆ Shipping Temperature: -35~65°C Suitable System: 2-pipe / 4-pipe FCU
- ◆ Suitable Valve: 2-line/3-line valve • Relative Humidity: 10~90%
- ◆ 13 terminal power box fits in 86cm x 86 cm & 9 terminal power box fits in 75cm x 75cm electrical junction box

LCD DISPLAY & KEYS DESCRIPTION



FUNCTION

- 2-pipe FCU cooling&heating, Modulating 0-10V output
- 3 Speed Fan + Auto Fan Control
- Energy Save Mode and Comfort Mode Settings
- 7 Days 6 Periods Programmable Function
- Key Pad Lock
- Both Room and Set-Temp Display

ORDERING PART NUMBERS






























PART NUMBERS	OPERATING VOLTAGES	APPLICATIONS	VALVE TYPE	ADDON FUNCTIONS
TX986ML220-V2E	85-240VAC	2-PIPE	0-10VDC	EXTERNAL SENSOR
TX986ML220-V2K	85-240VAC	2-PIPE	0-10VDC	HOTEL KEYCARD
TX986ML024-V2E	24VAC	2-PIPE	0-10VDC	EXTERNAL SENSOR
TX986ML024-V2K	24VAC	2-PIPE	0-10VDC	HOTEL KEYCARD

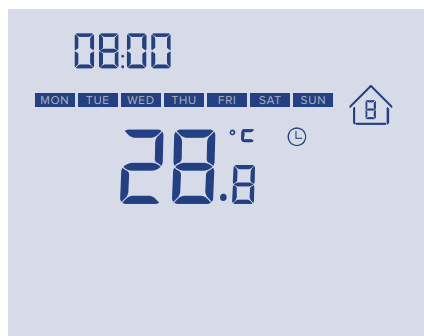
ABBREVIATION

CASING/COVER COLOR		BACKLIGHT COLOR	
BLACK	B	Sky Blue backlight + Black letters(TN LCD)	SB
WHITE	W	Black backlight + White letters (VA LCD)	BW

*ordering example TX986ML024-V2K-WSB

OPERATION INSTRUCTION

MODULATING VALVE CONTROL	POWER ON OR OFF	INCREASE / DECREASE
Thermostat acquires the room temperature via its integrated sensor and maintains the set-point by modulating output.	By pressing POWER button  to change the power On/Off status.	In the ON state, press UP  or  DOWN to increase or decrease the setting parameters.
HEAT/COOL/VENT	FAN OPERATION	
Pressing the MODE button  to select heat  cool  or ventilation  mode.	Fan can be selected as manual or automatic 3-speed operation. In manual mode, the fan will be switched to the selected speed via controls output Gh,Gm,Gl (by pressing FAN button ). In automatic mode, the fan speed will be switched upon difference between the room temperature and set point. When room temperature reaches set-point, valve will be closed meanwhile, fan will be turned off as well (fan can be changed to low speed via ISU setting code 17).	
TEMPERATURE DISPLAY		
Both the room temperature and the set-point are displayed.		
COMFORT MODE	KEY LOCK	
In the comfort mode, the set point can be changed by pressing UP  or DOWN  buttons. Different applications include cool only, heat only and manual heat/cool changeover.	The default status of “Key lock” is all keys available and it can be changed in ISU mode. Key lock function includes the following settings: All keys are available (Default) System button is locked out. Fan and system buttons are locked out . All buttons are locked . The following operating modes are available :	
ENERGY SAVING MODE		
By pressing MODE  for 3 seconds can activate the energy saving mode with  icon appearing on the screen. If energy saving is activated by button pressed, pressing any button will stop energy saving mode. For heating mode, if energy saving function is enabled, the set-point will be changed to remote setback heating set-point. The range of remote setback heating set-point is from 10 °C to 21 °C and default value is 18 °C. The value can be changed in ISU mode with step of 1 °C. For cooling mode, if energy saving function is enabled, the set-point will be changed to remote setback cooling set-point. The range of remote setback cooling set-point is from 22°C to 32°C and default value is 26 °C. The value can be changed in ISU mode with step of 1 °C .		
FREEZE PROTECTION MODE	TIME SETTING	
Freeze protection can be disable(default) or enabled via ISU mode. If freeze protection is enabled(it is not available in cooling only application) and thermostat is in OFF mode while the room temperature is below 6 °C , the thermostat will open heating device before the temperature rises to 8 °C	In ON/OFF states, press  and  for 5 seconds, you will hear Bee sound “bibi” for twice, and the time area 88.88 will be flashing, press  to select minutes, hours or week, then press  to adjust the relevant time, press  to confirm.	
TO SELECT MANUAL AND PROGRAMMABLE		
Press and hold  and  for more than 5 seconds, the icon of  or will flash, press  to select manual  or programmable  press  to confirm.		
ADJUSTING OF WEEKLY PROGRAMMABLE		
After selected programmable mode, press  for more than 5 seconds, you will hear Bee sound “ bibi” twice, then press  to select setting item of periods, time and temp. press  or  to adjust the relevant value, press to  confirm. The sequence: 5+2 programmable mode, time adjusting temperature adjusting from 1-6 periods of Monday to Friday time adjusting temperature adjusting from 1-2 periods of Saturday and Sunday (5+2programable mode, 5 every mode has 6 periods and 2 every mode has 2 periods)		



PERIODS	SYMBOLS	DEFAULT TIME	DEFAULT TEMP.
WORKDAYS	1	06:00AM	22 °C
	2	08:00AM	22 °C
	3	11:30AM	22 °C
	4	12:30PM	22 °C
	5	17:00PM	22 °C
	6	22:00PM	22 °C
WEEKEND	1	06:00AM	22 °C
	2	23:00PM	22 °C

SYMBOLS	DESCRIPTION
🏠	1 ST PERIOD, WAKE UP
🏠	2 ND PERIOD, LEAVE
🏠	3 RD PERIOD, BACK FROM LUNCH
🏠	4 TH PERIOD, LEAVE
🏠	5 TH PERIOD, BACK FROM DINNER
🏠	6 TH PERIOD, WAKE UP

ADJUSTING OF WEEKLY PROGRAMMABLE

IN PROGRAMMABLE MODE, SET-POINT AND TIME COULD NOT BE ADJUSTED

PERIODS DESCRIPTION

SETUP FUNCTION SETTINGS AND OPTIONS

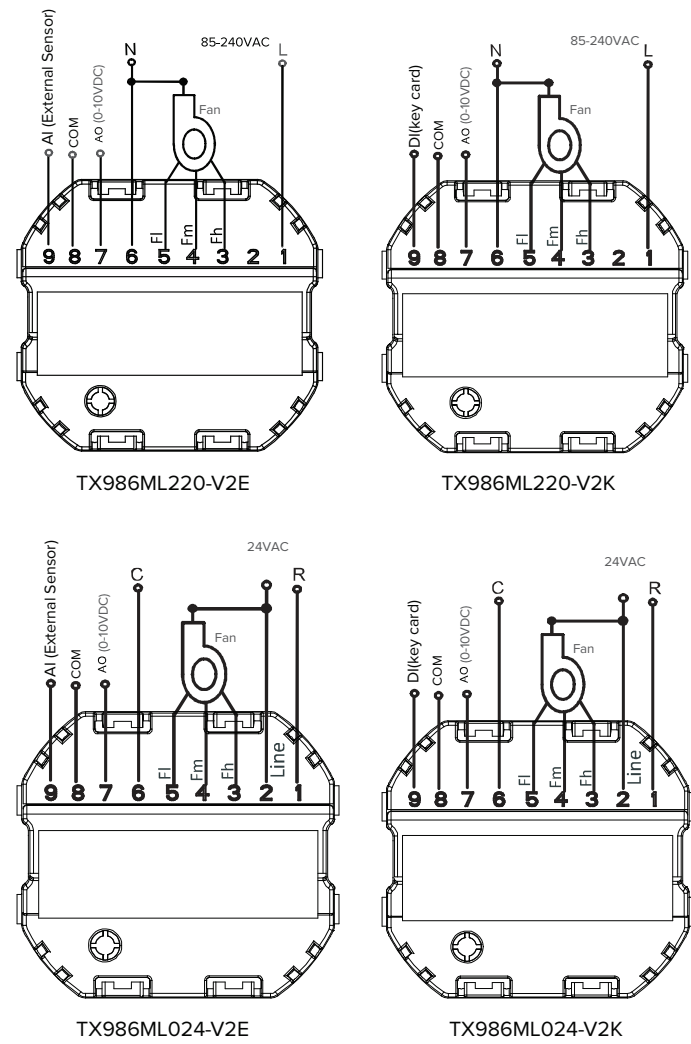
- Press and key for 5 seconds to enter ISU setting mode, the ISU code will be flashing.
- Press or to select the setting items from 1-26. press to confirm.
- Press and revise the values of the setting items, press to confirm.

If you want to revise the other setting items, please repeat above step b. and c. while setting, press to exit, the setting items and values as below form shown.

NO	FUNCTION	SETTING AND OPTIONS	DEFAULT
1	SYSTEM TYPE	0 > Heat only 1 > Cool only 2 > Two pipes 1H1C manual(Default)	2
2	TEMPERATURE UNIT SETTING	0 > ° F 1 > ° C	1
3	FAN CONTROL TYPE	0 > AUTO ONLY 1 > CONSTANT ONLY 2 > BOTH(DEFAULT)	2
4	KEY LOCK SETTING	0 > ALL KEYS ARE AVAILABLE (DEFAULT IS 0) 1 > SYSYEM BUTTON IS LOCKED OUT 2 > ONLY RESERVED FOR OTHER MODEL SETTING 3 > ALL BUTTONS ARE LOCK OUT	0
5	N/A	THIS ITEM IS NOT AVAILABLE(REERVED FOR OTHER MODEL'S ISU MODE SETTING)	
6	FREEZE PROTECTION	0 > DISABLED ; 1 > ENABLED	0
7	DISPLAY TEMP. ADJUSTMENT	-2 °C(-4°F); -1.5°C(-3°F) -1°C(-2°F) -0.5°C(-1°F) 0°C(0°F), 0.5°C(1°F) 1°C(2°F) 1.5°C(3°F) 2°C(4°F)	0.0 °C (0°F))
8	REMOTE SETBACK HEATING MODE	RANGE 10-21°C (RANGE 50-70°F)	18°C(64°F)
9	REMOTE SETBACK COOLING MODE	RANGE 22-32°C (RANGE 72-90°F	26°C(79°F)

10	MODBUS ID DISPLAY SETTING	0 > OFF(NO DISPLAY OF MODBUS ID) ; 1 > ON(DISPLAY)	0
11	P : ADJUSTMENT OF VALVE CONTROL	RANGE:1-10 FOR PROPORTIONAL OUTPUT ADJUSTMENT, IT SHOULD BE ADJUSTED BASES ON THE ACTUAL CONDITION	4
12	I : ADJUSTMENT OF VALVE CONTROL	RANGE:1-60 INTEGRAL OUTPUT ADJUSTMENT, IT SHOULD BE ADJUSTED BASES ON THE ACTUAL CONDITION	25
13	SENSOR SELECTION	0 > INTERNAL SENSOR(BUILT-IN) ; 1 > EXTERNAL SENSOR	0
14	BEE SOUND SETTING	0 > ON ; 1 > OFF	1
15	PROGRAM SETTING	0 > 5 WORKING DAYS A WEEK ; 1 > 6 WORKING DAYS A WEEK ; 2 > 7 WORKING DAYS A WEEK; 3 > CLOSE THE PROGRAM SCHEDULE; PS: IF YOU SELECTED 7 WORKING DAYS A WEEK, THE WHOLE SCHEDULE IS SAME(ONLY 6 PERIODS), IF YOU 5 WORKING DAYS A WEEK, IT WILL HAS 2 TYPES OF PERIOD FOR THE WEEK, WORKING DAYS 6 PERIODS, AND WEEKEND (HOLIDAYS) IS 2 PERIODS	0
16	MINI. OUTPUT ON/OFF TIME	0-4 MINUTES, WHEN THE SETTING IS 1, WITH 1MINUTE DELAY FOR BOTH ON OR OFF THE COMPRESSOR.	3
17	FAN STOP/RUN SETTINGS	0 > FAN WILL BE SWITCHED TO LOW SPEED WHEN THE VALVE TURNS OFF 1 > FAN WILL BE TURNED OFF WHEN THE VALVE TURNS OFF	0
18	ON / OFF BACK-LIGHT SETTING WHEN STANDBY	0: OFF, THE BACK-LIGHT WILL BE OFF ALWAYS EVEN THE USER PRESSING ANY KEY 1: ON, THE BACK-LIGHT WILL BE ON FOR ABOUT 15 SECONDS IF ANY KEY PRESS	0
19	ON / OFF MEMORY SETTING	0: OFF, USER SETTING WILL NOT KEEP WHEN POWER OFF (WHILE ELECTRIFIED, THE THERMOSTAT WILL BE OFF) 1: ON, USER SETTING WILL BE KEPT WHEN POWER OFF (WHILE ELECTRIFIED, THE THERMOSTAT WILL BE ON	0
20	BACK-LIGHT SETTINGS	10-60 SECONDS(USER CAN ADJUST BACK-LIGHT TIME ACCORDINGLY TO ACTUAL DEMANDS)	15
21	VALVE OPEN VALUE SETTING	0: OFF, THE VALVE OPEN VALUE WILL NOT BE DISPLAYED ON THE LCD 1: ON, THE VALVE OPEN VALUE WILL BE DISPLAY ON LCD (ONLY AVAILABLE FOR MODULATING TYPE THERMOSTAT	0
22		RESERVED FOR ADDITIONAL ISU SETTINGS	
23		RESERVED FOR ADDITIONAL ISU SETTINGS	
24		RESERVED FOR ADDITIONAL ISU SETTINGS	
25		RESERVED FOR ADDITIONAL ISU SETTINGS	
26		RESERVED FOR ADDITIONAL ISU SETTINGS	

WIRING DIAGRAM



NO	TERMINALS	DESCRIPTION
1	L	LIVE LINE IN
2		
3	FH	HIGH SPEED FAN
4	FM	MEDIUM SPEED FAN
5	FL	LOW SPEED FAN
6	N	NEUTRAL IN
7	AO	ANALOG OUTPUT 0-10VDC
8	COM	COM FOR MODULATING VALVE & EXTERNAL SENSOR/ KEY CARD
9	AI / DI	EXTERNAL SENSOR/KEY CARD

NO	TERMINALS	DESCRIPTION
1	R	24 V ACTIVE
2	LINE	220V LINE FOR FAN
3	FH	HIGH SPEED FAN
4	FM	MEDIUM SPEED FAN
5	FL	LOW SPEED FAN
6	C	24V NEUTRAL
7	AO	ANALOG OUTPUT 0-10VDC
8	COM	COM FOR MODULATING VALVE & EXTERNAL SENSOR /KEY CARD
9	AI / DI	EXTERNAL SENSOR / KEY CARD

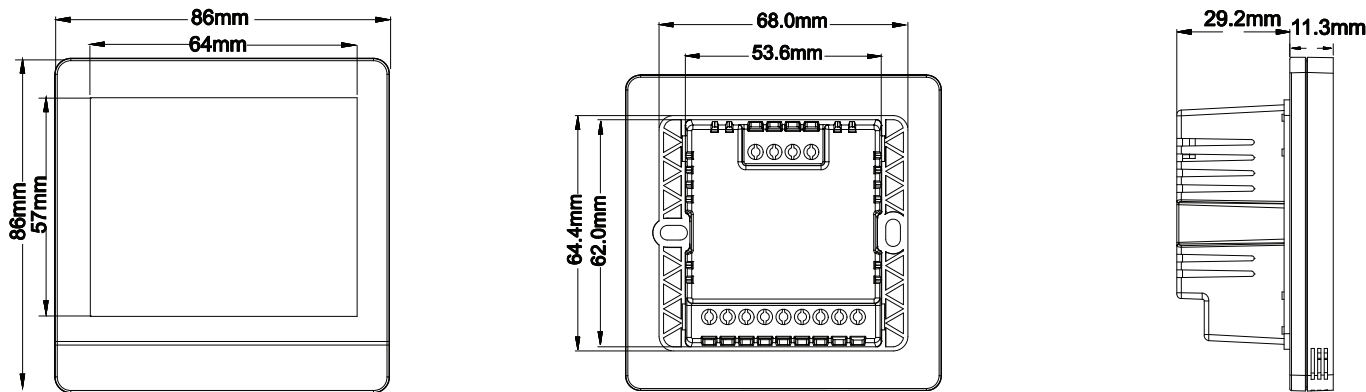
9 TERMINAL POWER BOX

*wiring is subject to change without notice based on addons

NOTE:

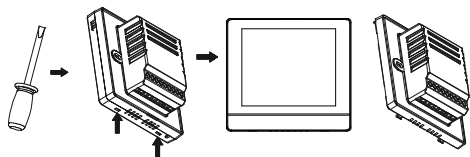
- ◆ The thermostat is high voltage input, please do wiring with technician.
- ◆ If the thermostat was burned by accidentally, please do not wiring it again by yourself, try to check it with a professional technician or contact with our manufacturer.

PRODUCT DIMENSION

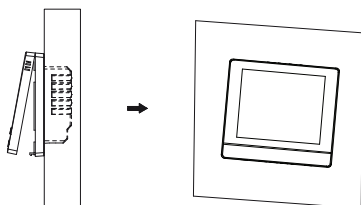


INSTALLATION AND COMMISSIONING

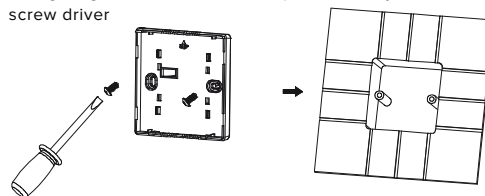
1. To take the front panel and back plate apart by screwdriver



3. Recombine the front panel and back plate by contract pins.



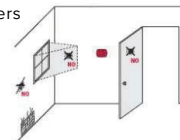
2. Wiring on the terminals of the back plate according to above wiring diagram, then fix the back plate on the junction box by screw driver



Install the thermostat about 5 feet(1.5m) above the floor in an area with good air circulation at average temperature.

Do not install in locations where the thermostat can be affected by:

1. Drafts or dead spots behind doors and in corners
2. Hot or cold air from ducts
3. Sunlight or radiant heat from appliances
4. Concealed pipes or chimneys
5. Unheated/uncooled areas such as an outside wall



TROUBLE SHOOTING TIPS

IF...	THEN...
Heating system does not turn on	Set the mode to Heat by pressing the Mode button. Wait five minutes for the heating system to respond.
Cooling system does not turn on	Set the mode to Cool by pressing the Mode button. Wait five minutes for the cooling system to respond.
The fan doesn't work	Check whether the Fan mode is set to Auto. Check whether the heating or cooling system works well or not.
The Mode button does not work	Check whether the Keypad is locked or not(ISU setting code 4). Check whether the system is working in Energy saving mode. Check whether the thermostat is off.
The Fan button does not work	Check whether the Keypad is locked or not(ISU setting code 4). Check whether the system is working in Energy saving mode. Check whether the thermostat is off.
The Up or Down button does not work	Check whether the Keypad is locked or not(ISU setting code 4). Check whether the system is working in Energy saving mode. Check whether the thermostat is off.



Touch makes you Comfortable

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