ALPICAIR

Manual

Thermostat

TH-1732C
TH-1732C(0-10V)
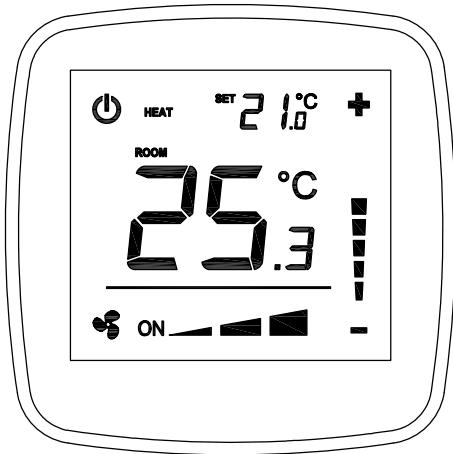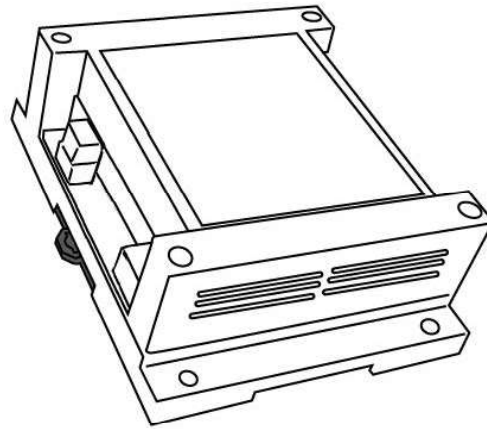
TH-1732C + TH-1732D Thermostat Installation Guide
3 Speed Fan / 0-10V control / 3 Way Heating/Cooling Valve Modbus® RTU Communications

Control panel   TH-1732C

Controller   TH-1732D

1) Features:

- Easy operation and settings with touch key function displayed on LCD.
- Temperature Differential adjustable.
- Temperature reading calibration(offset).
- Both Set & Room Temperature Displayed.
- Anti-freeze protection.
- User settings can be retained when the thermostat is power off.
- Setback function(Remote ON/OFF)
- Three system mode (Heat/Auto/Cool) Independent temperature set point
- Three speed FAN, ON or Auto speed control.
- Control panel and controller use RJ45 jack wiring connection, easy to install.
- MODBUS:RTU/SLAVE protocol
    Interface: RS-485
    Baud rate: 9600/19200 bps

2)Technical data:
Control panel (TH-1732C):

- Power supply : 18VDC from controller (TH-1732D-2 OR TH-1732D-3)
- Power consumption : 3 VA.
- Display : LED-backlit, 2 colors LCD.
- Temperature indication : Celsius.
- Temperature display range : 0°C ~ 50°C
- Temperature control rage : 5 ~ 35°C

- Temperature adjustment scale : 0.5°C
- Temperature reading calibration:-5 ~ +5°C
- Antifreeze protection: 5.0°C (Standby mode Only)
- Switching differential (Hysteresis) : 0.2°C/0.4°C/0.6 °C/0.8°C/ 1°C
- Temperature sensor : 10K Ohm NTC
- Temperature display resolution: 0.1°C.
- Sampling resolution: 1 minute interval.
- Storage temperature : -10°C ~ 60°C.
- System mode: Heat/Auto/Cool
- Fan Mode: Off/Low/Med/High/Auto
- Setback energy saving temperature: Heat: 16°C / Cool: 27°C

Controller (TH-1732D-2):

- Power supply : 200-240Vac,50-60Hz
- Power consumption : 7 VA.
- Output: Dry contact (SPST,SPDT)
- Output rating: 5(2.5)A/250Vac
- Remote Setback input contact: NO or NC (Select by jumper) Power
- Indicator: Green LED
- Alarm Indicator: Red LED

Controller (TH-1732D-3):

- Power supply : 24Vac,50-60Hz
- Power consumption : 7 VA.
- Output: Dry contact (SPST,SPDT)
- Output rating: 5(2.5)A/250Vac
- Analog Output: 0-10VDC or
  4-20mA (Select by jumper)
  Control signal load(Resistive):
  0-10VDC ,Minimum 1000Ω
  4-20mA ,100-500Ω
- Remote Setback input contact:
  NO or NC (Select by jumper)
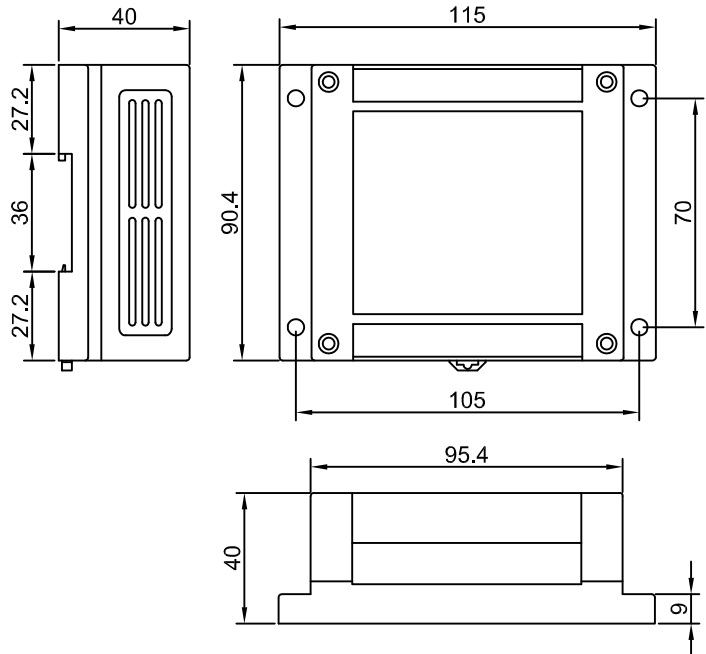- Power Indicator: Green LED
- Alarm Indicator: Red LED

Dimensions (TH-1732C):
Unit: mm
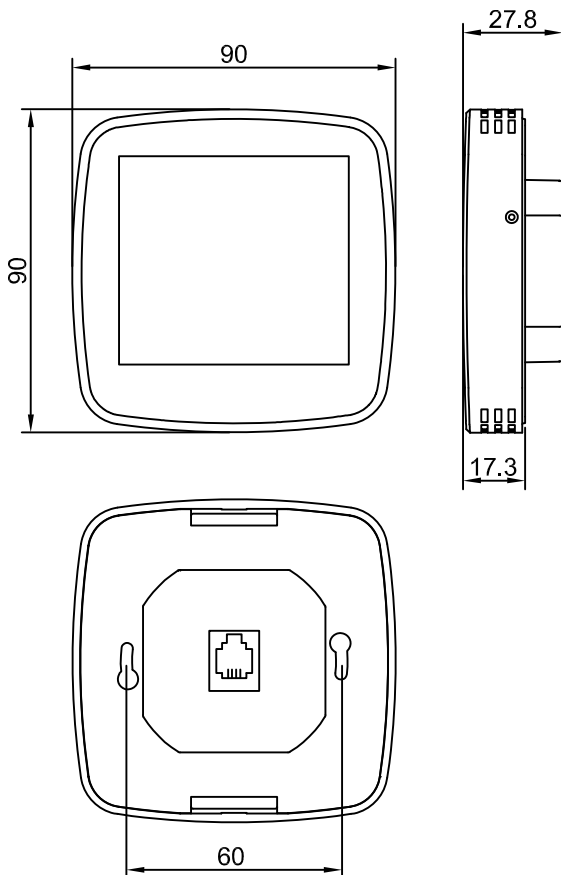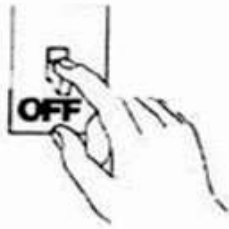
Dimensions (TH-1732D):
Unit: mm

3) To Install Thermostat

1. The thermostat should be mounted on an inside wall of a room where heating is installed, approx. 5 ft. (1.5m) above the floor.
2. Avoid areas that exhibit unusual heating or cooling conditions such as in direct sunlight, near a fireplace, stove,door, window, or stairway.
3. Be aware of furnishings which may block airflow or alter temperature such as; sofas, chairs, bookcases, track lighting, lamps, stereo components, television sets.
4. Hot water pipes in the wall, a stove, refrigerator, or fireplace on the other side of a prospective wall may affect the accuracy of your thermostat.
5. Locating the thermostat in a damp area will cause corrosion, and shorten the life of the thermostat.
6. Do not install where air circulation is poor (ie. In a corner, or an alcove, or behind an open door).
7. All construction work and painting should be complete before installing unit.
8. This thermostat does not require leveling.

Installation Instruction
for the electrician

⚠ **DANGER** ⚠

Electric Shock Or Fire Hazard

READ ALL WIRE SIZING, VOLTAGE REQUIREMENT AND SAFETY
DATA AVOID PROPERTY DAMAGE AND PERSONAL INJURY

OFF

Electrical connection

Before commencing any work on the electrical connections, you must first disconnect the device from the mains. None of the 230V-connections must be live until the installation has been com-pleted and the housing is closed. Only qualified electrician or the manufacturer's service staff are permitted to open the terminal box.

Caution!

There are parts that carry mains voltage behind the cover. The terminal box must not be left unsupervised when it is open (Prevent non-spe-cialists and especially children, from gaining access to it)

3-1.Installation (TH-1732C)

1.Use a flathead screwdriver to open the front housing from the top side of the thermostat.
2.Insert RJ45 jack cable on the back of TH-1732C
3.Fix the back cover to the wall with the screws and anchors.
4.Replace the front housing back onto the thermostat.
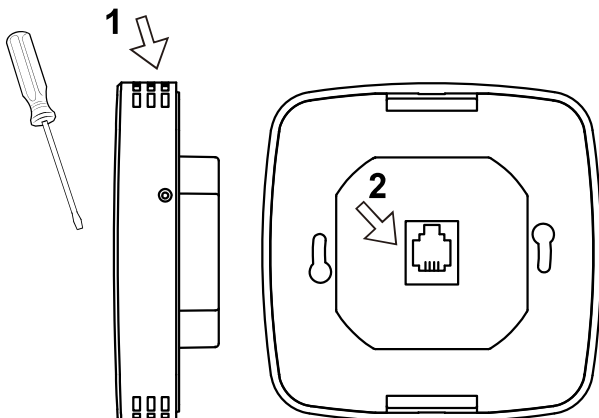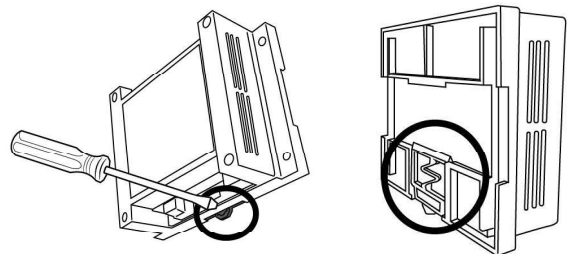
3-2.Installation (TH-1732D)

**Mount the unit on the wall
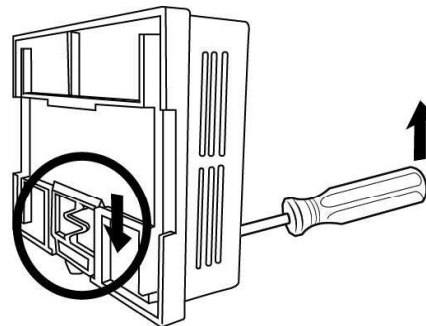
Use four screws to fix the unit on the wall
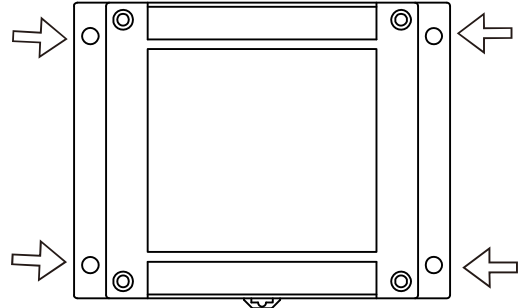
**Mount the unit on the din-rail

Follow the graphic description below when mounting the unit
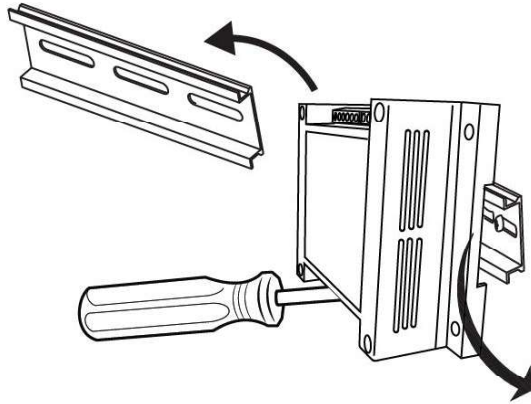
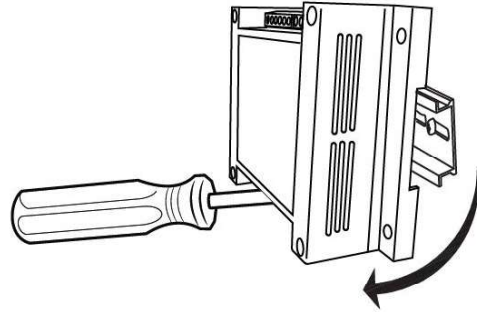Insert a Flat-head screw-driver in the position as shown above.

Tilt the screw-driver to the direction as shown above to push down the retractor.

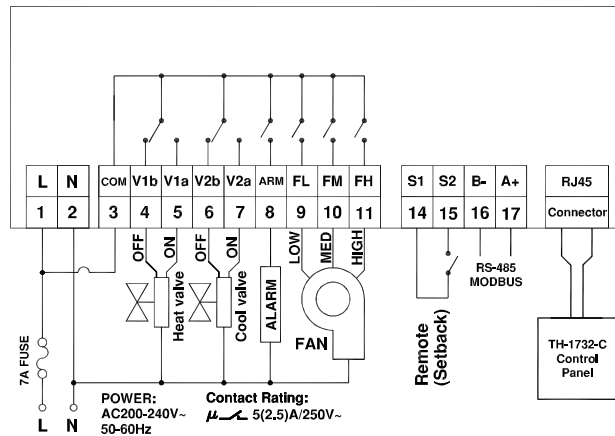****Remove the unit on the din-rail**

Align the top of the back plastic housing with the top of the Din-rail.
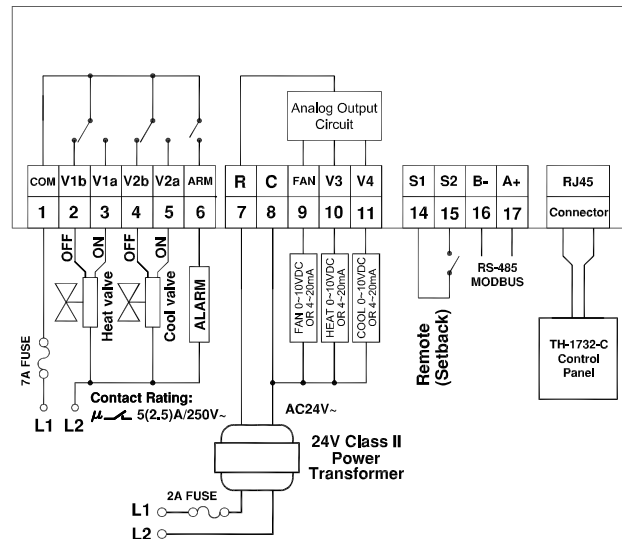Push down the retractor and mount.

Push down the retractor to remove the unit off the din-rail.

3-3 .Wiring diagram

TH-1732D-2

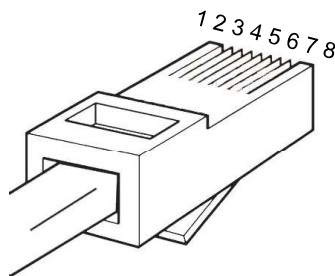**TH-1732D-3**

3-4.Communication cable

Use RJ45 (8p8c) connector cable to connect TH-1732C and TH-1732D.
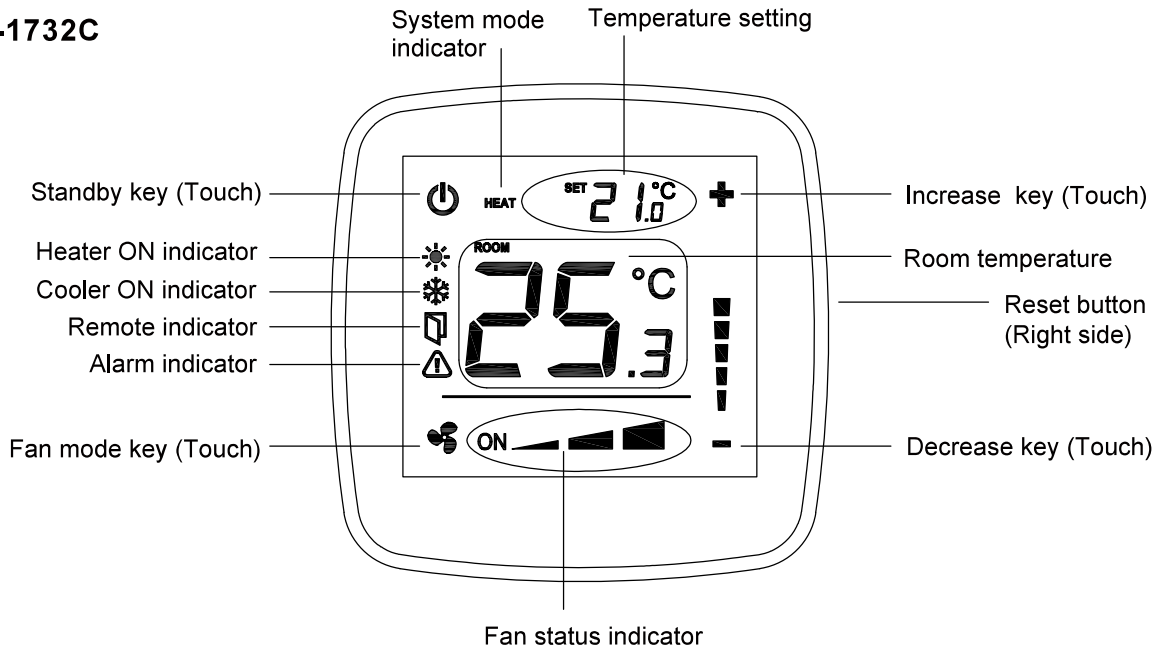The recommended maximum length is 20M.

RJ45 Pinout

Cat-5 or higher cable

1:White Green   5:White Blue
2:Green   6:Orange
3:White Orange   7:White Brown
4:Blue   8:Brown

4) Descriptions

TH-1732C

- System mode indicator
- Temperature setting
- Standby key (Touch)
- Increase key (Touch)
- Heater ON indicator
- Room temperature
- Cooler ON indicator
- Reset button (Right side)
- Remote indicator
- Alarm indicator
- Fan mode key (Touch)
- Decrease key (Touch)
- Fan status indicator

HEAT SET 2 1.0°C

ROOM 25.3°C

ON

Jumper setting:

JP1:FAN (Terminal 9)
JP2:HEAT(Terminal 10)
JP3:COOL(Terminal 11)   JP4:Remote (Terminal 14,15)

0~10V   4~20mA   N.C.   N.O.

Jumper setting:

JP4:Remote (Terminal 14,15)

N.C.   N.O.

Terminals

JP1 JP2 JP3 JP4

Indicator:
Power: Green
Alarm: Red

TH-1732D-3

Remote   RS-485 Modbus   Reset button   Control panel connector

Terminals

JP4

Indicator:
Power: Green
Alarm: Red

TH-1732D-2

Remote   RS-485 Modbus   Reset button   Control panel connector

5) Operation

[Setting temperature]

Press ⊞ or ⊟ and the LCD will show a flashing temperature with "TEMP SET" symbol.

Proceed and press ⊞ or ⊟ to set a desired temperature.

Adjustable temperature range is from 5°C to 35°C, with 0.5°C resolution per step. When completed setting of desired emperature, please wait for 3 seconds until the LCD stops flashing and the thermostat starts to operate.

[Stand-by mode]

Press ⏻ will enter "Stand-by" mode. Stand-by mode, LCD shows "OFF".

Press ⏻ again will disable the "Stand-by" mode and return to normal mode.

[System mode setting]

Press and hold ⏻ for 3 seconds,system mode symbol (HEAT,COOL or AUTO) will flashing.

Proceed and press ⏻ to switch system mode HEAT,COOL or AUTO .

When the setting is completed , please wait for 3 seconds until the LCD stops flashing and the thermostat starts to operate.

[Fan mode setting]

Press 🌀 to switch Fan mode.
The fan speed will switch to Low -- Med -- High -- Auto -- Off by pressing 🌀 alternately.

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Fan Low  ----   ON ▬▬

Fan Med  ----   ON ▬◢ ◢▬

Fan High ----   ON ▬◢ ◢ ◢

Fan Auto ----   ON ◢ AUTO ◢

Fan Off  ---- Do not show
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[Advanced settings]

Press and hold ⊞ and ⊟ at the same time for 3 seconds to enter Advance Setting. (TH-1732D-3 will enter OUT limit setting.) (TH-1732D-2 will enter Hysteresis setting.)

Press ⏻ will enter calibration setting.
Press ⏻ again will enter address setting.
Press ⏻ again will enter baud rate setting.
Press ⏻ again will return to normal mode.
If no key pressed for more than 5 seconds,it will return to normal mode.

Out limit setting (Th-1732D-3 only)

Enter "Out limit " setting,LCD shows "SET OUt". Press ⊞ or ⊟ to set the desired one. Out limit range is from 5 to 10.

5~10 means the analog output limits the maximum voltage or current.
(5~10V or 12~20mA).

Hysteresis setting (Th-1732D-2 only)

Enter "Hysteresis" setting,LCD shows "SET Hysteresis".

Press ⊞ or ⊟ to set the desired one.
Hysteresis (differential):0.2 /0.4/0.6/0.8/1.0°C

Calibration setting

Enter "Calibration" setting,LCD shows "SET CAL".

Press ⊞ or ⊟ to set the desired one.
Calibration range is from -5°C to +5°C, with 0.5°C resolution per step.

Address setting (Modbus)

Enter "Address" setting,LCD shows "SET Address".

Press ⊞ or ⊟ to set the desired one.
Address range is from 1 to 64.

Baud rate setting (Modbus)

Enter "Baud rate" setting,LCD shows "SET bps(k)".

Press ⊞ or ⊟ to set the desired one.
The baud rate can be setting to 9600 or 19200 bps.

6) Supplement

*** Frost Protection function
When the system is under heat or Auto mode running stand-by mode will trigger Heater ON and maintain the room temperature at 5°C .

*** Remote setback function
When the remote setback contact starts, the system will operate in energy saving mode. (Heat:16°C /Cool: 27°C)

*** Alarm function
The following conditions will start the Aalrm output.
A)Abnormal connection between control panel and controller.
B)Heater-ON(Cooler-ON) for more than 5 minutes, set temperature and room temperature greater than 5°C.
C)Sensor is abnormal.

7) Communication descriptions

Protocol: MODBUS-RTU/SLAVE
Interface: RS-485/baud rate:9600/19200bps
8-N-1(8 data bit/ No parity bit/1 start/stop bit)
Address range: 01~64

Function 1 (Read)

Address	Output status	Descriptions
0	Heat valve	0：Off、1：On
1	Cool valve	0：Off、1：On
2	Alarm	0：Off、1：On
3	Fan Low	0：Off、1：On
4	Fan Medium	0：Off、1：On
5	Fan High	0：Off、1：On

Function 2 (Read)

Address	Input status	Descriptions
0	Model	0：TH-1732D-2 1：TH-1732D-3
2	Remote switch	0：Release 1：Active

Function 3 (Read) / 6 (Write)

Address	Register Name	RW	Descriptions
0	System status	R	0：Heat、1：Cool
1	Analog OUT (Heat or Cool)	R	0~100% (TH-1732D-3 only)
2	Analog OUT (Fan)	R	0~100% (TH-1732D-3 only)
8	System mode	RW	1:Heat / 2:Cool 3:Auto
9	Fan mode	RW	0:Auto / 1:Low 2:Med / 3:High
10	Power status	RW	0:Stand-by 1:ON
11	Limit	R	5~10 (TH-1732D-3 only)
12	Calibration	R	**Table 1
13	Differential	R	**Table 2 (TH-1732D-2 only)
14	Room Temp.	R	Value: 0~500 (0~50.0°C)
15	Current Setting Temp.	R	Value: 50~350 (5.0~35.0°C)

Table 1 (Temperature calibration)

Value	0	1	2	3	4	5	6	7	8	9	10
°C	-5.0	-4.5	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0

Value	11	12	13	14	15	16	17	18	19	20
°C	+0.5	+1.0	+1.5	+2.0	+2.5	+3.0	+3.5	+4.0	+4.5	+5.0

Table 2 (Differential)

Value	2	4	6	8	10
°C	0.2	0.4	0.6	0.8	1.0

ALPICAIR AIR CONDITIONING

Note:

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