

## UB Unitary Controller

UB1211EN, UB2204EN, UB2221EN, UB4334SEN

SPECIFICATION SHEET



### Product Overview

The UB series stand alone controllers are intended for Heating, Ventilating, Air-Conditioning in comfort control. It can be used to control temperature, humidity and so on. Built-in multiple application programs are selectable. Modulating output with 0...10VDC, 2...10VDC or 4...20mA signal output. Support DIN and Panel installation. Chinese / English display.

### Features

- Large LCD, English display, beautiful appearance
- Operating voltage AC 24 V
- Multiple application programs selectable via Application Number
- Universal inputs for NTC20K, NTC10K, PT1000 temperature sensors and 0...10 VDC signals
- Modulating output with DC 0...10 VDC, 2...10VDC or 4...20mA signal output, direct or reverse action
- Two-position digital output, direct or reverse action
- PI parameter adjustable
- One Button for winter/summer changeover easily
- Entering or changing of all data via operating buttons on the controller, possible without additional tools
- Support DIN, In-door panel installation
- Schedule (Only provided by UB4334SEN )

## TECHNICAL DATA

Power Supply	Operating voltage:	AC 24V $\pm$ 10%
	Frequency	50 Hz/60Hz
	Power supply requirement	Class2 power supply
Power consumption	UB Series Controller	8VA
LCD	Actual and nominal values	4 digits
Display Resolution	Temperature	0.5°C
	Humidity	0.1%
	CO2 density	1PPM
	Pressure	1 Pa
VDC out put		20Vdc $\pm$ 10% @ 75mA
Environmental Conditions	Storage and transport	
	Temperature	-20...+65°C
	Humidity	< 95%RH
	Operation	
	Temperature	0...+50°C
	Humidity	< 95%RH
IP code	Housing	IP20
CE conformity	In accordance with European Union directives	EN 60730
	Electromagnetic compatibility EMC	2004/108/EC
Other international Approval		UL, C-tick

## Product Models

Model	Input		Output	
	Analog Input	Digital Input	Analog Output	Digital Output
UB1211EN	1	2	1	1
UB2204EN	2	2	0	4
UB2221EN	2	2	2	1
UB4334SEN	4	3	3	4

## INPUT AND OUTPUT SPECIFICATION

Analog Input Specification				
Input Type	Temperature Sensor			Voltage Input
Sensor Type	20K ohm NTC	10K ohm NTC	PT1000	Transducer
Operating Range	Outdoor: -40°C ~110°C Indoor: -20°C ~ 110°C	Outdoor:-30°C ~ 110°C Indoor: -20°C ~ 110°C	Outdoor: -40°C ~110°C Indoor: -20°C ~ 110°C	0~10V
Out of Range Detection	Yes	Yes	Yes	Yes
Other Requirements	N/A	N/A	N/A	Input Impedance shall be ≥10K ohms
Digital Input Specification				
Input Type	Dry Contact			
Voltage Rating	0 ~ 30 VDC open circuit (max)			
Current Rating	5 mA short circuit current (max)			
Performance Requirements	Open circuit (≥3000 ohm) Closed circuit (≤500 ohm)			
Circuit Protection	These circuits shall survive direct connection to GND and 24VAC without failure			
Digital Output Specification				
Voltage rating	20~30Vac, 50/60Hz			
Current rating	25mA to 500mA (AC), continues; 800mA (AC ms) for 60 milliseconds;			
Analog Output Specification				
Current output range	4mA~20mA DC			
Tolerance	The null output value shall be ≤3mA DC The full scale output value shall be ≥21mA DC.			
Output load resistance	550 ohm ( max)			
Accuracy	±2%			
Thermal drift	0.02% per degree C (over 0°C~50°C @ 20mA)			
Voltage output range	0~10V DC			
Tolerance	The null output value shall be ≤70 mV DC The full scale output value shall be ≥10 V DC.			
Maximum current output	10mA DC			
Accuracy	±2%			

## Size of Product

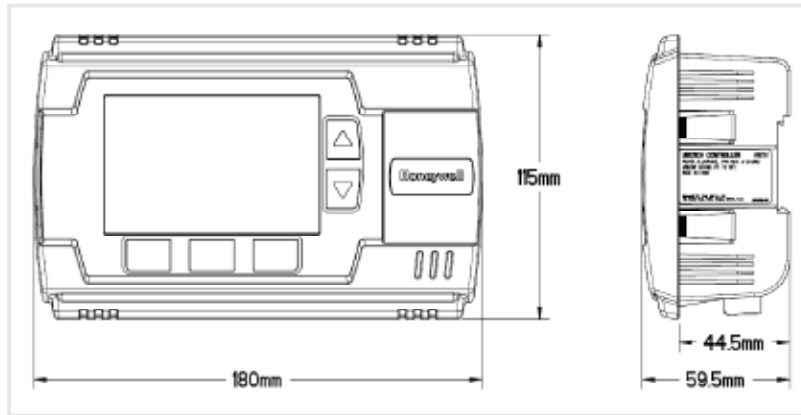


Figure 1: Size of Product

## Installation

The controller has two ways of installation, panel and DIN rail installation.

### Panel Installation

Note: Panel Thickness:  $1.5 \pm 0.5\text{mm}$ ; Size of Panel Opening:  $103 \pm 1\text{mm} \times 156 \pm 1\text{mm}$ ;

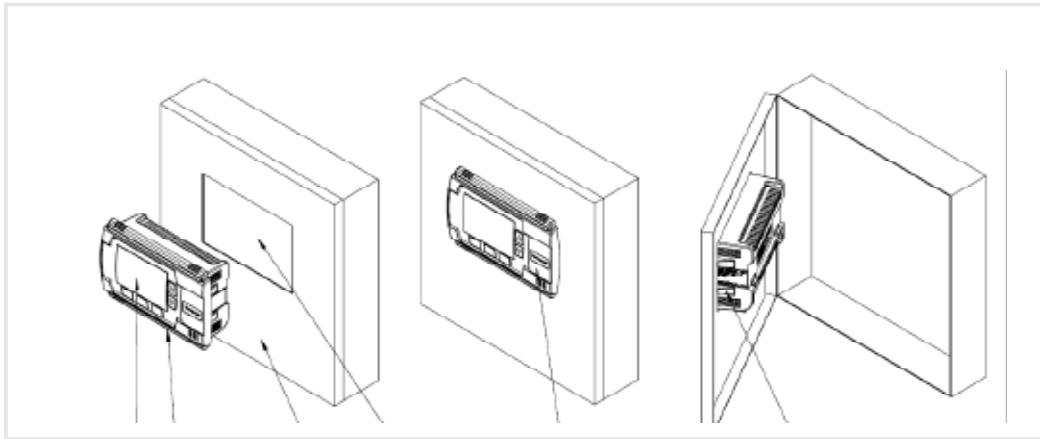


Figure 2: Panel Installation

The installation steps are as follows:

Holding the controller, gently put it into the opening of the panel, push the front cover of the controller with your palms (Note: Do not push the window), press the controller close to the panel and lock the four side latches on both left and right side together with the panel opening. (see Figure 2 and Figure 3)

The remove steps are as follows:

1. Press the four side latches on the back of the panel inward with fingers, and push the controller forward quickly to make the latches separate from the panel. (see Figure 4)

2. Remove the controller from front side of the panel.

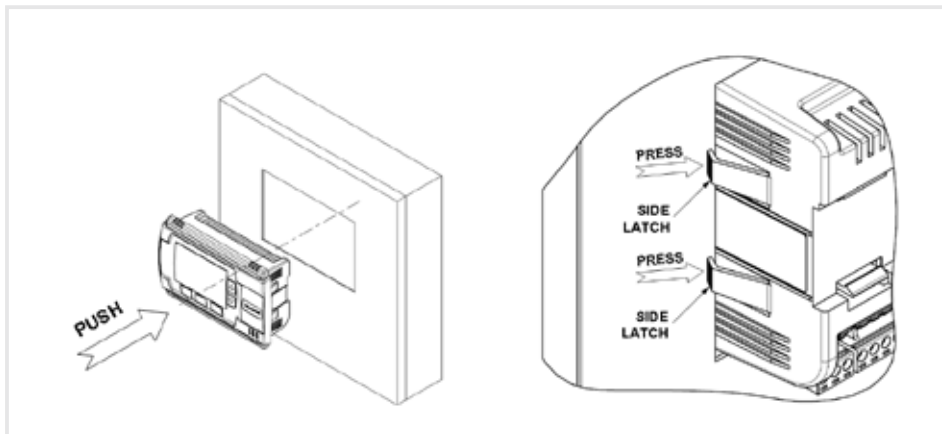


Figure 3: The Installation Sketch Map

Figure 4: The Remove Sketch Map

DIN Rail Installation:

Note: Standard of DIN Rail: EN50022; Size: 7.5 mm x 35 mm ;

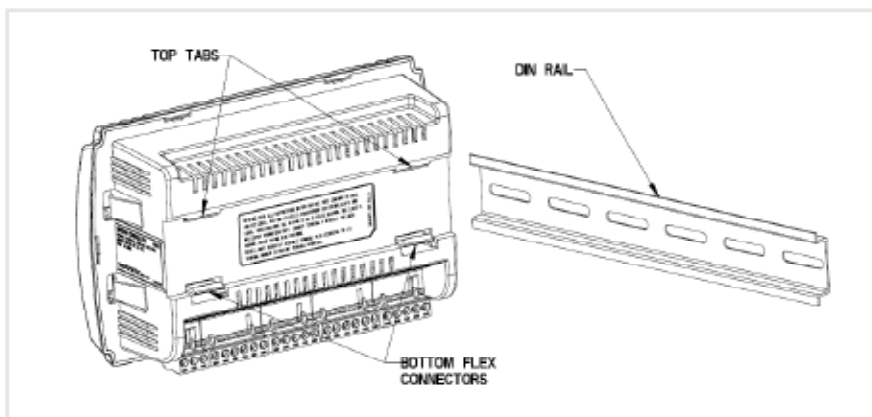


Figure 5: DIN Rail Installation

The installation steps are as follows:

1. Holding the controller with its top tilted in towards the DIN rail, hook the top tabs on the back of the controller onto the top of the DIN rail. (see Figure 5 and Figure 6)
2. Push down the controller to make sure the bottom flex connectors of the controller onto the DIN rail. (see Figure 7)

The remove steps are as follows:

1. Push straight up from the bottom of the controller to release the top tabs;
2. Rotate the top of the controller outward and remove the controller from the DIN rail.

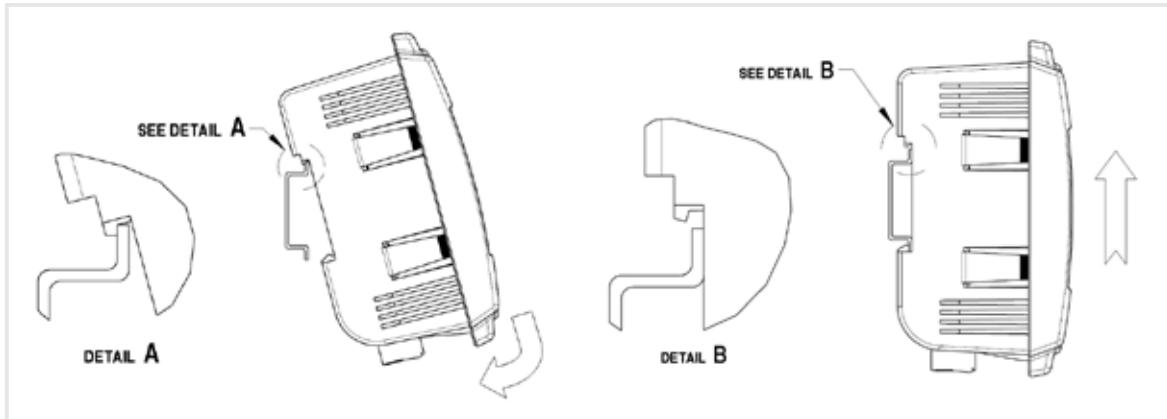


Figure 6: The Installation Sketch Map

Figure 7: The Remove Sketch Map

Wiring requirement:

The controller use terminal block, wiring available before and after installation. It is recommended that removing the pluggable block and wiring then plugging it into the header again one by one (See Figure 8)

Use the heaviest gauge wire available, up to 12 AWG (2mm), with a minimum of 18 AWG (1mm), for all power and earth ground wiring.

Screw-type terminal blocks are designed to accept up to 12 AWG (2mm) conductor or up to two 18 AWG (1mm) conductors. More than two wires that are 18 AWG (1mm) can be connected with a wire nut .Include a pigtail with this wire group and attach the pigtail to the terminal block.

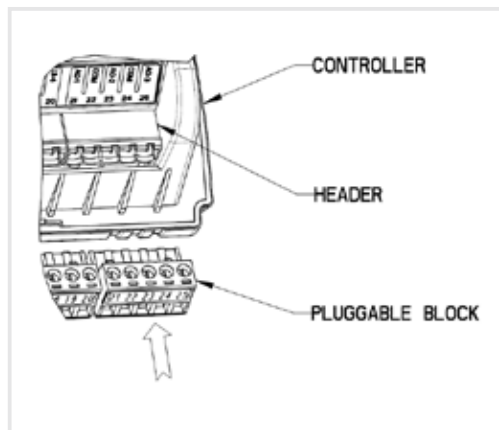


Figure 8: Terminal Block Sketch Map

Wiring diagram:

1. Model UB1211EN Terminal Wiring

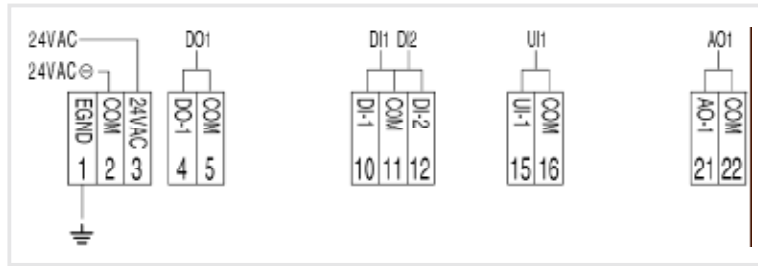


Figure 9: Model UB1211EN Wiring Diagram

2. Model UB2204EN Terminal Wiring

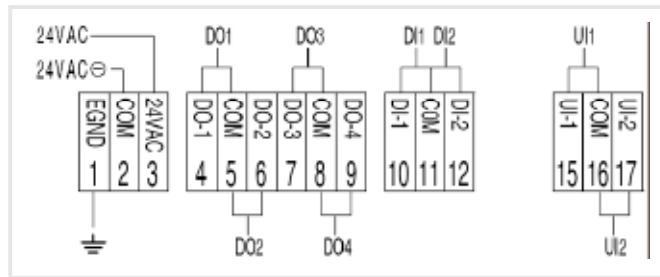


Figure 10: Model UB2204EN Wiring Diagram

3. Model UB2221EN Terminal Wiring

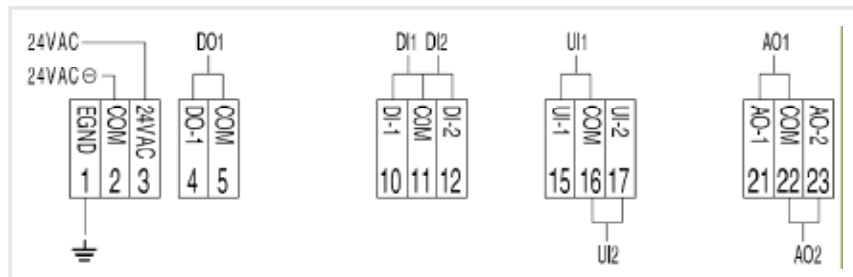


Figure 11: Model UB2221EN Wiring Diagram

4. Model UB4334SEN Terminal Wiring

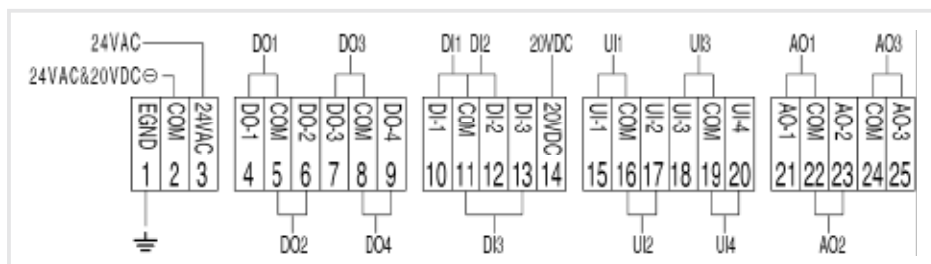


Figure 12: Model UB4334SEN Wiring Diagram

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