

## Parameters

### Electrical Parameters:

Buspro power supply	DC15-30V Class 2
Buspro power consumption	95mA/DC24V
Maximum current per CH	5A
Relay life time	60000 actuations

### Environmental Conditions:

Working temperature	-5°C~45°C
Working relative humidity	Up to 90%
Storage temperature	-20°C~+60°C
Storage relative humidity	Up to 93%

### Approved

CE, RoHS, UL

### Product Information:

Dimensions	72×90×66 (mm)
Net weight	240.5(g)
Housing material	Nylon, PC
Installation	35mm DIN rail installation
Protection rating	IP20

## HDL Buspro Cable Guide

CAT5/CAT5E	HDL Buspro	HDL Buspro/KNX
Brown/ Orange	DC24V	Red
Brown white/ Orange white	COM	Black
Blue white/ Green white	DATA-	White
Blue/ Green	DATA+	Yellow

## Important Notes

- **Buspro cable** – CAT5E or HDL-Buspro/KNX cable.
- **Buspro Connection** – Series connection (hand-in-hand)
- **Type of Valve** - check the valve on working voltage, make sure the input voltage match with valve.
- **FAN Type**- Any fan which is to be connected to the module must use an AC 0-10 volt power source. check the type of FAN, make sure the type is AC or 0-10V, connect to correct terminal.
- **Check Connections** – after the installation has been completed, ensure all connections are securely tightened.
- **Output Circuit** – The load on each relay circuit must not exceed the specified capacity of 5A.
- Ratings for each output contacts:
  - 240V, 5A, General Use, 30,000 cycles, 40 °C;
  - 240V, 1.6FLA/9.6LRA, Motor (PF>=0.6), 30,000 cycles, 40°C;
  - 120V, 5A, General Use, 30,000 cycles, 40°C;
  - 120V, 1.6FLA/9.6LRA, Motor (PF>=0.6), 30,000 cycles, 40°C;

## Overview



HDL-MAC01.431 is designed to control centralized HVAC systems. Capable of accepting environmental temperature input data, the module can optimize fan speed, mode, and temperature settings. The module can also be used in a master-slave mode, so that a single panel can control several HVAC modules.

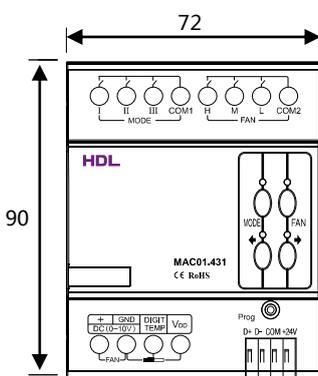
## Functions

- Supports high, medium, and low fan speeds.
- Supports cooling, heating, and dehumidification.
- Optimized air conditioner management algorithm.
- Supports 3 working modes: common mode, complex mode, forced cooling mode.
- Supports input from up to four temperature sensors.
- A single 'master' module can control 8 'slave' modules.
- Supports DC 0-10V fan speed control.
- Supports easy programming.
- Supports firmware updates via HDL Buspro software.

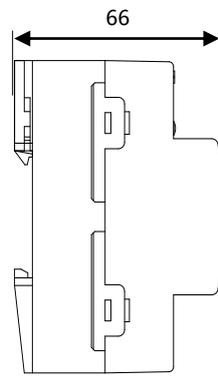
## Installation Steps

- Labeling the AC power cable, load cables, and HDL Bus cable
- Mount the device on a DIN rail
- Connect the fan, AC, and valve, ensuring there are no short circuits or loose connections.
- Connect Buspro cable paying particular attention to the wire and port colors.
- Organize and tidy the cables separating the Buspro cable from the AC power cable.
- Ensure that each relay channel does not exceed 5 amps.

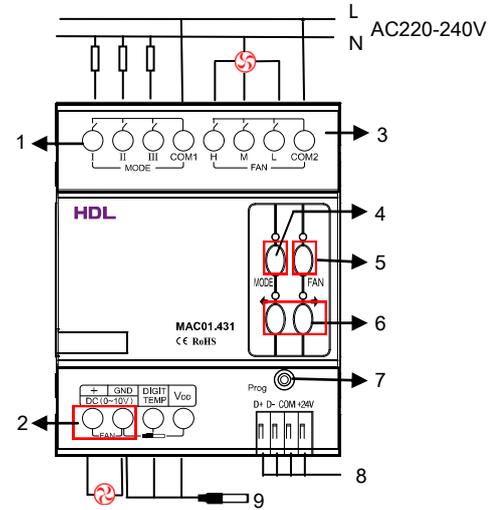
## Dimensions and Wiring



Front View



Side view



HDL-MAC01.431 Features

1. Relays I, II and III are used to control air conditioner work mode. These relays can be configured via HDL Buspro software.  
**Normal mode:** it connected with heating, cooling or dehumidification valves of AC controller.  
**Complex mode:** it connected with heating, cooling or dehumidification of AC controller. The running time and the state can be set by users.  
**Forced cooling mode:** The relays are each connected to different cooling AC controllers. When the temperature is 3 degrees above the set temperature, relays I and II will activate simultaneously. If the temperature is less than 3 degrees above the set temperature, relay I will activate cooling, whereas II will be inactive.
2. Additional fan control via a DC0-10V output.(The fan functions and associated voltages must be configured using the HDL Buspro software. ) Extra fan control method, DC0~10V output. Need to specify the voltages for high wind, medium wind and low wind in HDL Buspro software.
3. Fan motor connection
4. Mode button
5. Fan speed button
6. Previous/next button
7. LED indicator button (The indicator button will flash when the module is operating correctly. When pressed for 3 seconds the module ID can be modified via the HDL Buspro software.)
8. HDL Buspro interface
9. Temperature sensor input ( DBS18B20, Twist shielded cable should be used for the sensor cabling. If other cables are used sensor malfunction may occur.)

## Safety Precautions



- It is recommended that a fuse or MCB is connected to the power input
- The tightening torque should not exceed 0.4Nm
- Power cable (Switch): 0.75mm<sup>2</sup> to 2.5mm<sup>2</sup>
- The module should be mounted on a Din rail inside DB box.
- Do not expose the module to liquids, or corrosive elements
- Ensure that the Bus interface is correctly connected to the Bus cable
- The Bus cable must only be connected to DC24V
- **CAUTION - Risk of Electric Shock - More than one disconnect switch may be required to de-energize the equipment before servicing**

## Package Contents

- Datasheet\*1 / Device \*1 / Bus connector\*1

