

## INTRODUCTION

**KLIC-DI** is an interface that allows a **bidirectional** communication between a KNX automated system and the air-conditioning units of commercial and variable refrigerant volume series.

This device allows to control all basic functionalities of this type of air conditioning machines as well as to handle communication errors between the AC unit and the device and error codes of the AC machine itself.

## MASTER CONTROL VS. SLAVE CONTROL

The great majority of internal units of commercial series and variable refrigerant volume systems are controlled with a wired control that is connected to the terminal P1/P2 available in these units.

KLIC-DI is compatible with the use of wired controls. Nevertheless, it is important to establish one of these controls as master control and the other one as slave control. This way, if the wired control is the master, KLIC-DI must be configured as slave in the parameterization of the device and vice versa, if the KLIC-DI is the master control, the wired control must be configured as slave.

Note: Depending on the type of wired control, these settings could be adjusted:

- For BRC1D remote controller, there is a micro switch labelled as M/S inside. Therefore, removing the casing of the control will be needed

- For BRC1E remote controller, this configuration is made from the installation menu in the wired remote itself

- For BRC1H remote controllers, downloading an app will be needed to set master/slave mode.

In any case, it is necessary to remove the bus and connect it again in order to set the new configuration.

It is hardly recommended to check the configuration of the wired control when carrying out the installation.

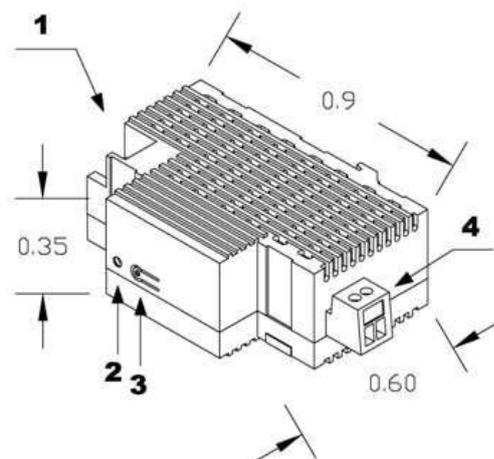


## INSTALLATION

KLIC-DI is a device of reduced dimensions (90 x 60 x 35 mm) with two terminals for integrating air conditioning machines of commercial series and variable refrigerant volume units in a KNX automated system:

- **EIB bus connector**, for its connection to the KNX bus of the system.
- **P1/P2 terminal**, for its connection to the air-conditioning indoor unit through a 2-wired cable with cross-section area lower than 0.75-1.25 mm<sup>2</sup>.

Nr	Description
1	EIB connector
2	Programming and checking LED. For more information about the color code, check the manual
3	Programming button
4	2-wire communication terminal



This device does not require any external power supply, since it is powered by the KNX bus.

To install the KLIC-DI, the device must be connected to the KNX bus through the EIB connector in the same way as any other KNX devices.

On the other hand, to connect the device KLIC-DI to the air-conditioning indoor unit, the terminal P1/P2 located in the PCB of the AC unit must be connected to terminal P1/P2 located at one side of the KLIC-DI (this connector is included as accessory with the device).



If a wired control is included in the installation, the device KLIC-DI can be also connected to the terminal P1/P2 of the wired control itself.

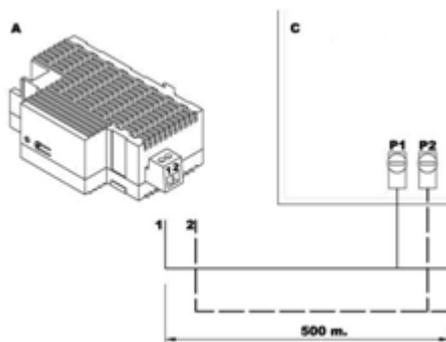
In order to locate the terminal P1/P2 in the PCB of the wired control, remove the casing that covers the control and look for the terminals labelled as P/P1 and N/P2.



**Important note:** Do not wire KLIC-DI to the air conditioning unit until Daikin installers conclude the commissioning of the VRV installation.

### CONNECTIONS DIAGRAMS

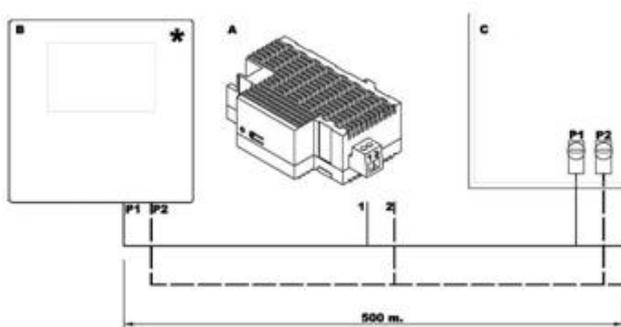
#### KLIC-DI (master, without wired control in the bus):



**Note:** Each KLIC-DI is able to control **only one** indoor unit.

It is not possible to connect several indoor units in series to be controlled with KLIC-DI.

#### KLIC-DI (master/slave) + Wired control (slave/master):



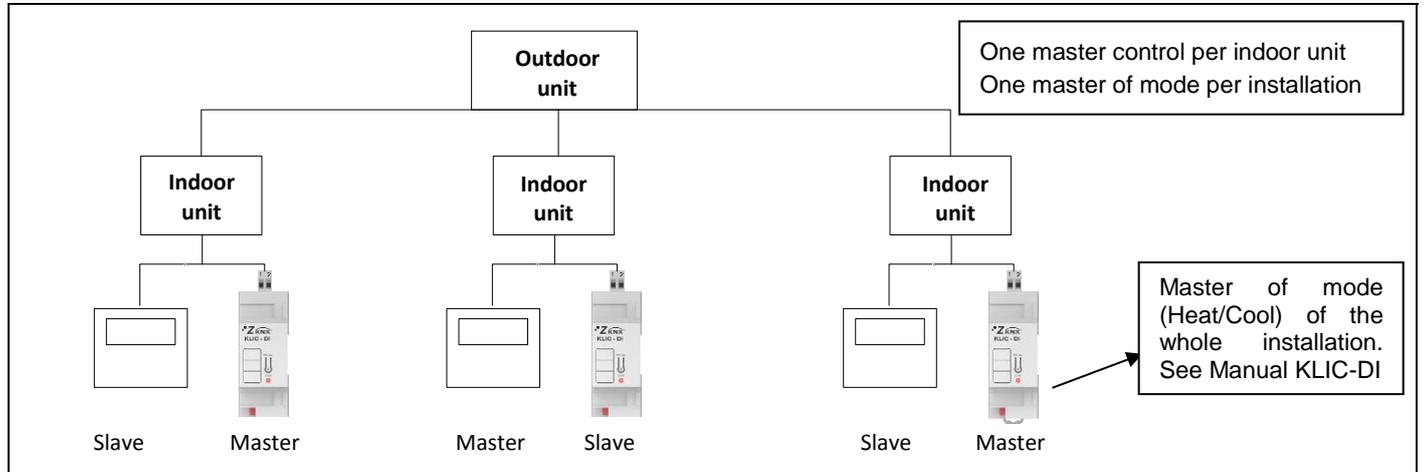
Legend Connection Diagrams	
A	KLIC - DI
B	Wired control
C	Indoor unit
P1- P2	Connection bus
1- 2	Zennio connection terminal
*	The wired control must work as slave when KLIC-DI is master and vice versa

**Note:** The infrared remote controllers **BRC7\*** y **BRC4\*** can only work as SLAVE. In case that any of these remote controllers are installed, KLIC-DI should be configured as MASTER.

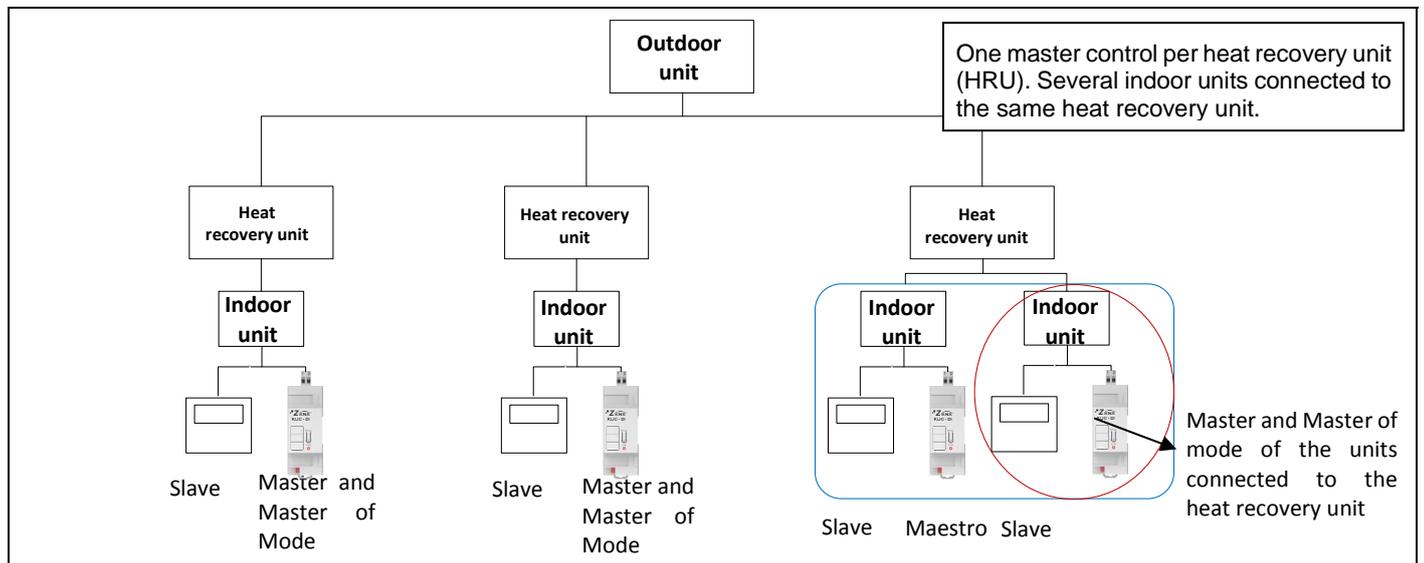
Once the device is powered from the KNX bus, the physical address and the corresponding application program KLIC-DI can be downloaded.

**SPECIAL INSTALLATION CASES**

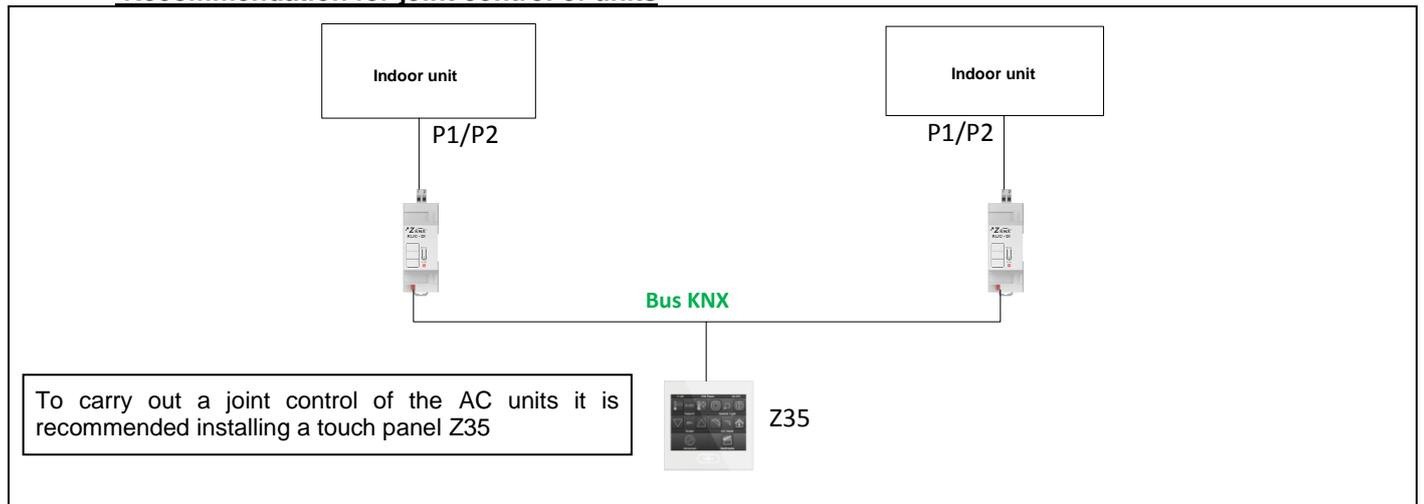
**Variable Refrigerant Volume system without Heat Recovery Unit**



**3-pipes Variable refrigerant volume system with Heat recovery unit**



**Recommendation for joint control of units**



#### CENTRALISED CONTROL OF AC UNITS

KLIC-DI can be used with a Daikin centralised control provided that the latter is only used for monitoring. In case that Daikin centralised control is used as a controller of the Daikin system, there might be incompatibilities.

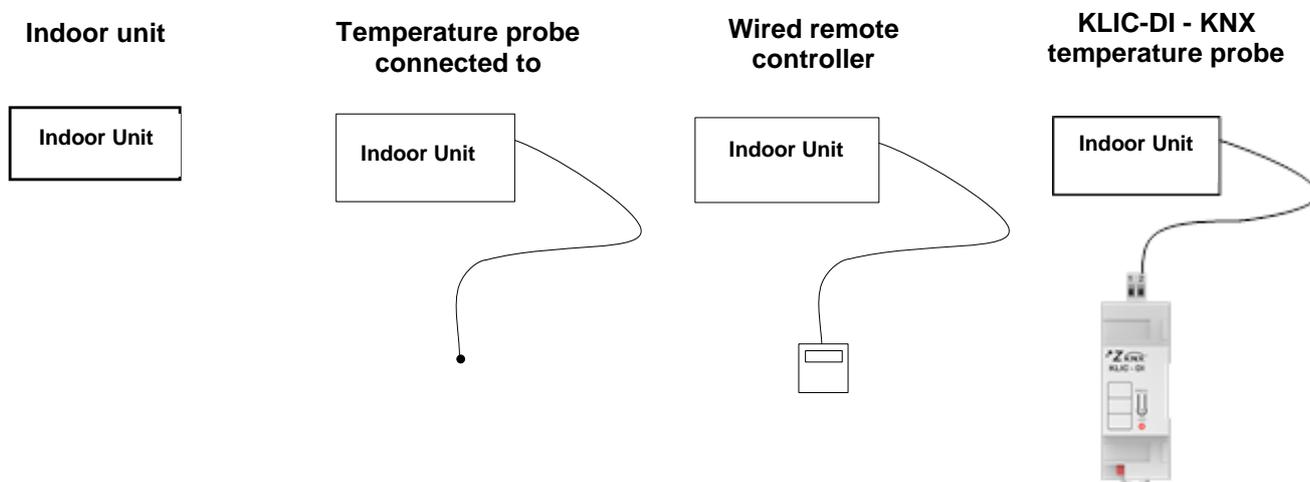
#### AIR TEMPERATURE REGULATION – AC UNIT FUNCTIONING

Air conditioning units carry out a regulation of the airflow temperature according to the setpoint temperature they receive and a reference temperature, which is measured by a temperature probe in the air conditioning system. In AC systems, this reference temperature is provided by the **internal temperature probe of the indoor unit**, the **temperature probe of the wired remote** or a **temperature probe connected to the indoor unit** (placed in the room).

**Note:** It is not recommended to perform a thermostatic control to switch on/off of the AC unit. It influences negatively over its operation.

Thanks to **KLIC-DI**, a **temperature received from KNX bus** can also be used as reference temperature instead of the temperature probe of the wired remote controller. The installer must select the wired remote controller as reference temperature and KLIC-DI as master.

Thus, the possible reference temperatures are:



When considering the reference temperature, it will be needed to set the mode of the AC unit, choosing the corresponding option:

- Mode 20 2-01: The machine takes as reference a combination between the external temperature probe (wired remote controller or KNX temperature probe) and the internal temperature probe of the unit.
- Mode 20 2-02: Solely the internal temperature probe of the unit is considered as reference.
- Mode 20 2-03: Solely the external temperature probe is considered as reference.

**NOTE:** Some Daikin units may not count with all those modes. Please, contact the technician to verify that the mode settings are correct.

In mode 20 2-01, the combination between the external temperature probe and the internal temperature probe of the unit will be made as follows:

#### • Indoor unit in cooling mode

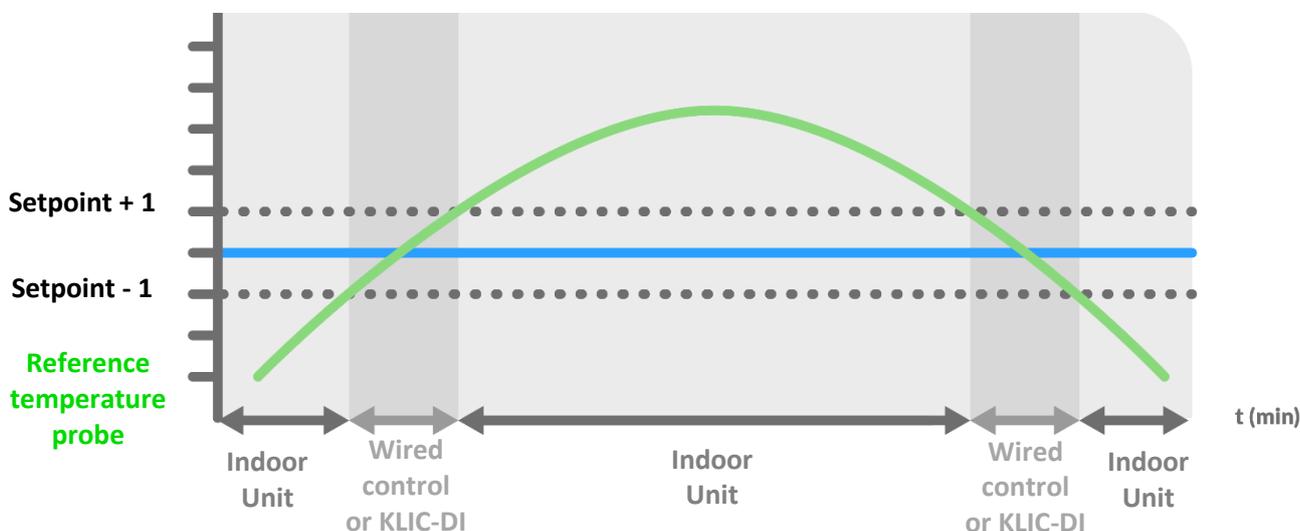
When the **real temperature is lower than the setpoint and it rises** above it (due to an external heating process), the regulation is performed considering:

- The temperature probe of the indoor unit, UP TO 1°C below the setpoint.
- The external temperature probe, FROM 1°C below the setpoint TO 1°C above the setpoint.
- The temperature probe of the indoor unit, 1°C ABOVE the setpoint.

When the **real temperature is higher than the setpoint and it drops** below it, the reference temperature is:

- The temperature probe of the indoor unit, UP TO 1°C above the setpoint.
- The external temperature probe, FROM 1°C above the setpoint TO 1°C below the setpoint.
- The temperature probe of the indoor unit, 1°C BELOW the setpoint.

## AC Unit in Cooling mode



- **Indoor unit in heating mode** (air in the room is usually cooler than the one that is pumped by the indoor unit)

When the **real temperature is below the setpoint and it rises** above it, the regulation is performed considering:

- The temperature probe of the indoor unit, UP TO 4°C below the setpoint.
- The external temperature probe, FROM 4°C below the setpoint TO 4°C above the setpoint.
- The temperature probe of the indoor unit, 4°C ABOVE the setpoint.

When the **real temperature is higher than the setpoint and it drops** below it, the reference temperature is:

- The temperature probe of the indoor unit, UP TO 4°C above the setpoint.
- The external temperature probe, FROM 4°C above the setpoint TO 4°C below the setpoint.
- The temperature probe of the indoor unit, 4°C BELOW the setpoint.

## AC Unit in Heating mode

