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ZONiNG

ZITY zoning system Quick installation manual



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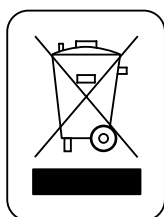
ZONiNG

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Quick installation guide

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WEE (WEEE)

Do not dispose of Electrical and Electronic Devices as household waste. These devices should be taken away for recycling. Act according to the legislation in force.

NOTES ON RADIO TRANSMISSION

The central control unit should preferably be located in a high place and away from metal masses and conductive elements. Otherwise, the range between the thermostats and the central control unit may be reduced.

Radio transmission does not take place on an exclusive frequency, so the possibility of interference cannot be excluded. Frequency inhibitors and radio equipment operating in a permanent transmission mode in the same frequency band (433 MHz) may impair the normal operation of the ZONING. The system is designed to work on two different frequencies (433.92 and 434.33 MHz) to minimise this type of problem.



The installation should be carried out by authorised personnel only. Perform the entire installation without supply voltage. Protect the equipment with the usual devices.

Technical characteristics and warranty

MADEL ATD hereby declares that the ZOE / ZEBRA / ZITY equipment complies with the essential requirements and any other applicable or enforceable provisions of Directives 2014/35/EU LVD, 2014/30/EU EMC and 2014/53/EU RED, 2011/65/EU ROHS, 2001/95/EC General product safety, 2012/19/EU RAEE and Regulation 1907/2006 REACH.

ZITY central control unit

- Power 230 VAC/50-60 Hz
- ZITY consumption: 6 VA
- Mean range Radio: 50 m in open field, 20 m in habitat.
- Orientable external antenna.
- Frequency 434.33 MHz (Optional: 433.92 MHz). Work cycle <10%
- For installation up to 2000 m above sea level.
- Receiver, CAT II.
- 230 VAC/5A relay outputs (maximum load: 5A, $\cos \phi = 1$)
- Protection grade: IP 20
- Electrical insulation protection, CAT II
- Operating temperature: 0°C to 55°C
- Storage temperature: -10 °C to 60 °C
- Dimensions (LxHxZ): 160x90x65 mm
- Weight 0.5 kg

ZOE Thermostat

- Power 2 1.5 V LR06 AA batteries (alkaline)
- Average battery life 1 year (or longer). The batteries are supplied with the unit
- Battery life indicator.
- Carrier frequency (ISM band, Standard I-ETS 300-220): 433.34 MHz (Optional: 434.92 MHz)
- Mean range: 50 m in open field, 20 m in habitat
- Operating temperature: 0°C to 55°C
- Storage temperature: -10 °C to 60 °C
- Humidity Range: 10-90% (no condensation)
- Wall mount with bolts (supplied)
- Protection grade: IP 20
- NTC10K Temperature sensor. Accuracy 0.1°C
- Configurable control hysteresis +/-0.2 to 0.5°C
- CA control accuracy according to Standard EN15500. CA=0.3 (Test report CLMS17-741. CSTB)
- Economy ECO mode ($\pm 3^\circ\text{C}$ setpoint temperature variation)
- Frost protection for $T < 7^\circ\text{C} \pm 3^\circ\text{C}$
- Dimensions (LxHxZ): 70x110x19 mm
- Weight 0.13 kg (with batteries)

ZEBRA Thermostat

- Power supply: 12 VDC
- Consumption: < 0.3 VA
- Control output: Modbus RTU Rs485
- Wiring: S <1.5 mm²
- Operating temperature: 0°C to 50°C
- Storage temperature: -20 °C to 60 °C
- Humidity Range: 10-90% (no condensation)
- Wall mount with bolts (supplied)
- Protection grade: IP 20
- NTC10K Temperature sensor. Accuracy 0.1°C
- CA control accuracy according to Standard EN15500. CA=0.4 (Test report CLMS17-742. CSTB)
- Economy ECO mode ($\pm 3^\circ\text{C}$ setpoint temperature variation)
- Frost protection for: $T < 7^\circ\text{C} \pm 3^\circ\text{C}$
- Dimensions (LxHxZ): 85x108x13 mm
- Weight 0.11 kg

WARRANTY

MADEL ATD guarantees all its products against production defects for a period of two (2) years. This period will start from the date of delivery of the merchandise to the DISTRIBUTOR. The warranty will only cover replacement of defective products, not including labour, travel, replacement of other damaged products, etc., or any other disbursement, expenses or consequential damages. The warranty will not cover the damage incurred in the products due to incorrect installation, handling or storage in poor conditions.

The procedure to follow in the case of return under warranty of the equipment of the Madel ZONING system is the following: If there is any problem, you should contact the MADEL technical support service (902.550.290) who will try to solve any problems and answer any questions about the installation. It is important to call from the place where the equipment is installed in order to carry out the necessary tests to diagnose the equipment. If any anomaly is detected, the return of the equipment for factory inspection will be authorised. Our technical support will provide a written authorisation for the return of the equipment under warranty. This authorisation can only be completed by Madel technical staff and should be attached to the equipment. It will also serve for monitoring its return, which should be made through your usual distributor.

All returned equipment must be in perfect conditions of use and must have all the initial additional components, such as sensors, aerial, etc.

1 Connection of system components

1-A Direct expansion system with radio gateway

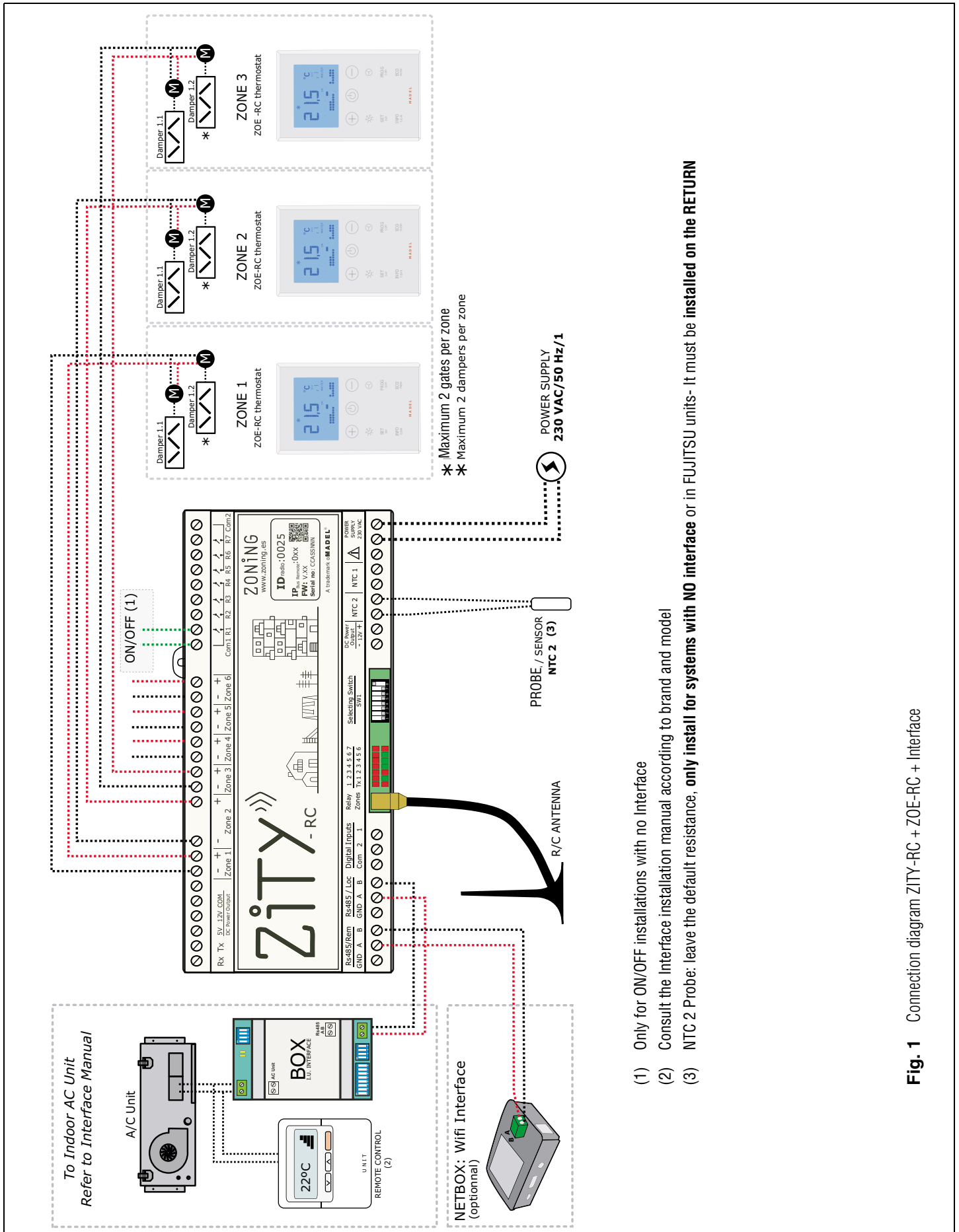


Fig. 1 Connection diagram ZITY-RC + ZOE-RC + Interface

1-B Direct expansion system with wired gateway

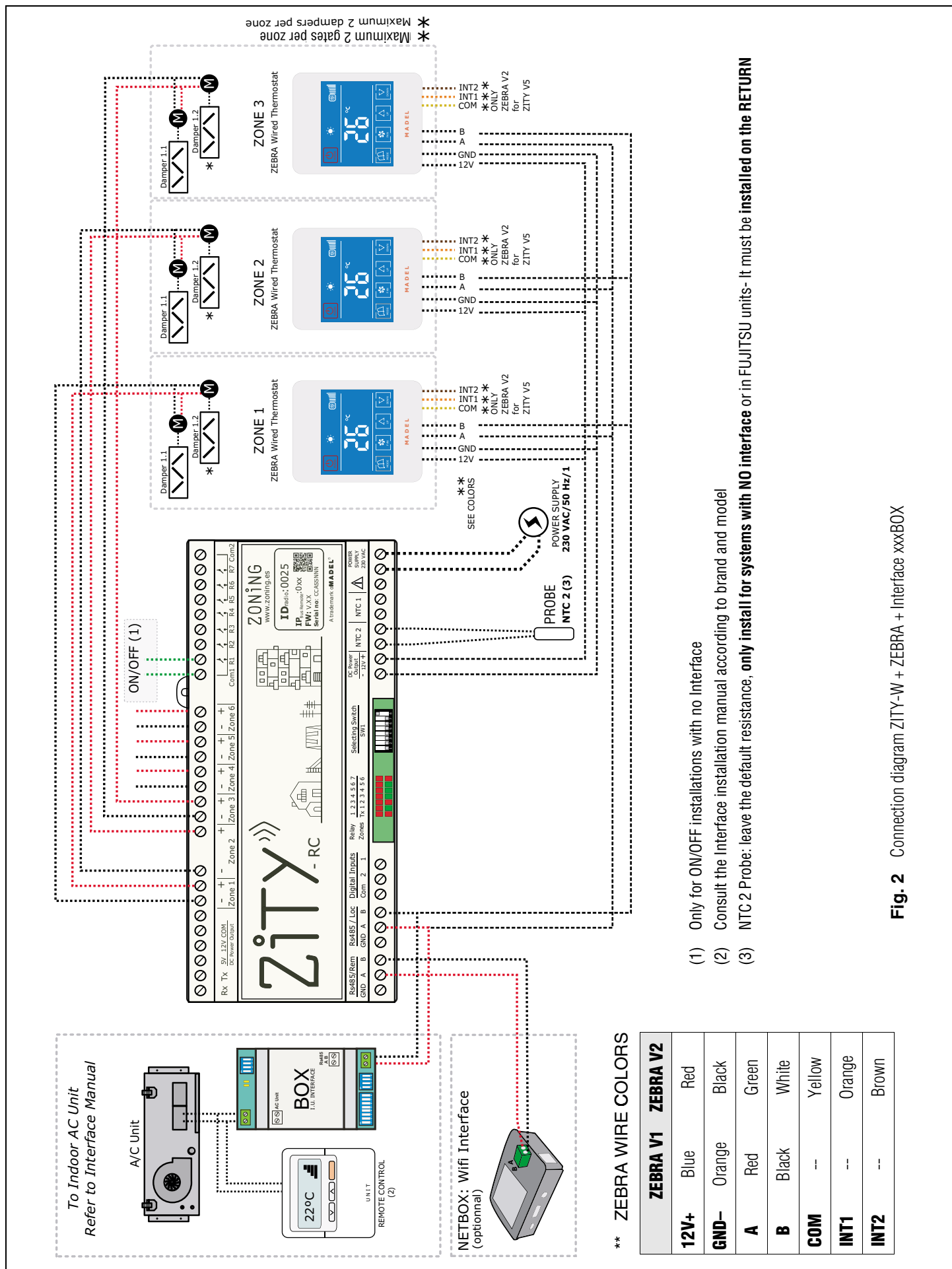
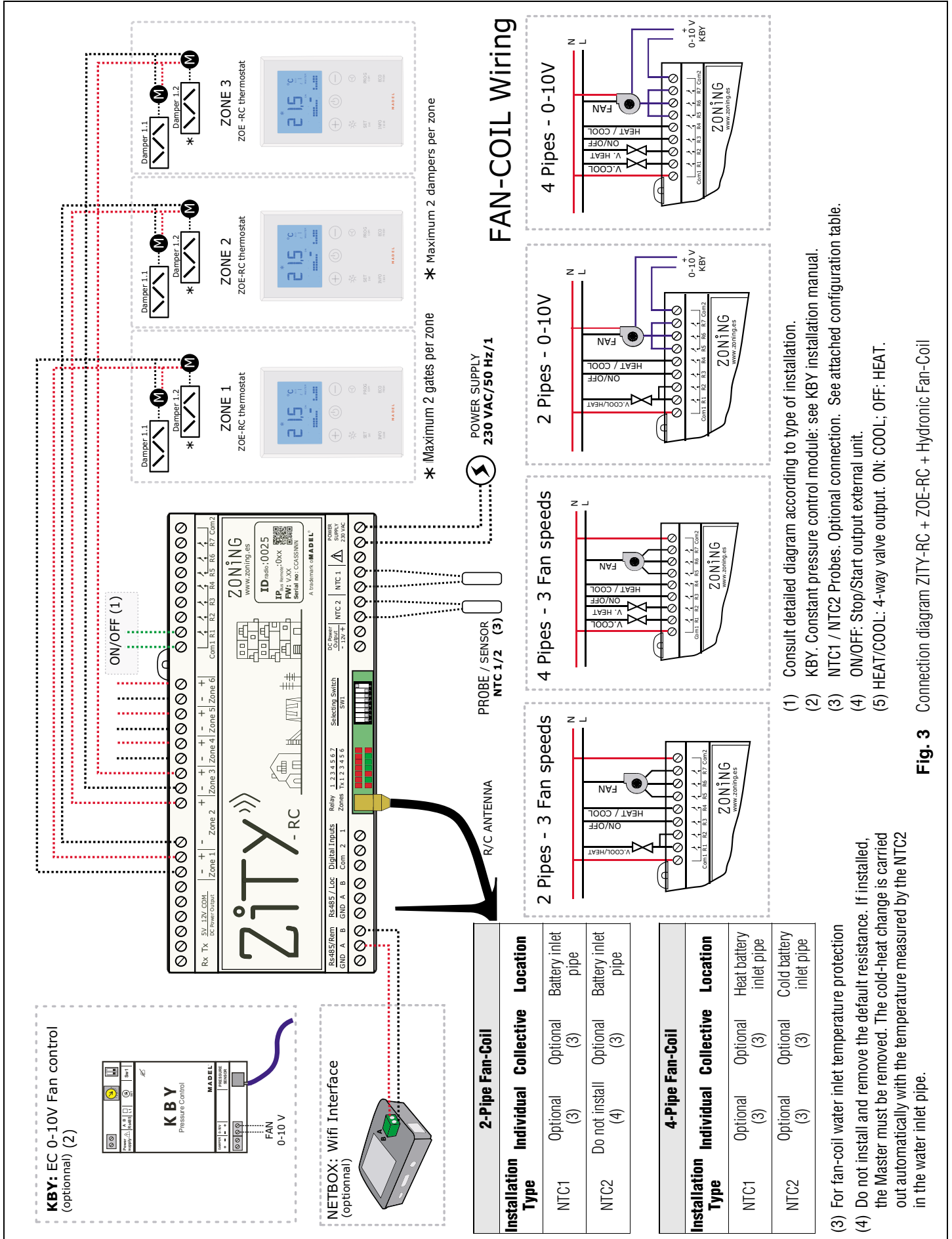
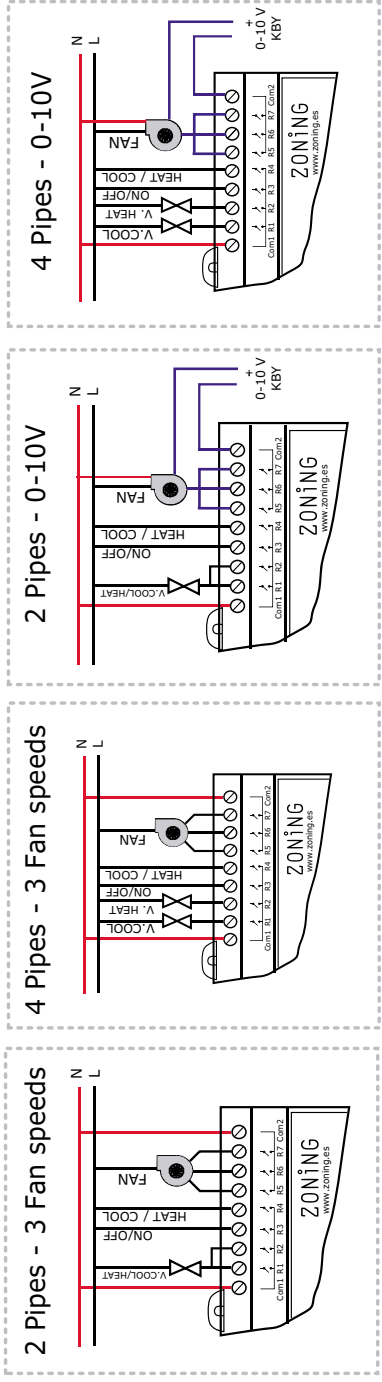


Fig. 2 Connection diagram ZITY-W + ZEBRA + Interface xxxBOX

1-C Fan-Coil system 2 and 4 pipes via radio



FAN-COIL Wiring



2-Pipe Fan-Coil		
Installation Type	Individual	Collective Location
NTC1	Optional (3)	Battery inlet pipe
NTC2	Do not install (4)	Battery inlet pipe

4-Pipe Fan-Coil		
Installation Type	Individual	Collective Location
NTC1	Optional (3)	Heat battery inlet pipe
NTC2	Optional (3)	Cold battery inlet pipe

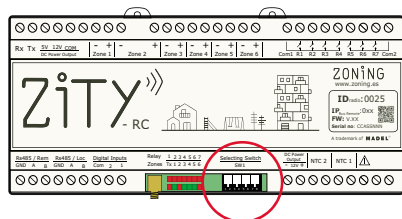
- (1) Consult detailed diagram according to type of installation.
- (2) KBY: Constant pressure control module: see KBY installation manual.
- (3) NTC1 / NTC2 Probes. Optional connection. See attached configuration table.
- (4) ON/OFF: Stop/Start output external unit.
- (5) HEAT/COOL: 4-way valve output. ON: COOL; OFF: HEAT.

Fig. 3 Connection diagram ZITY-RC + ZOE-RC + Hydronic Fan-Coil

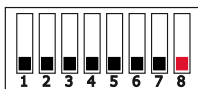
2 System configuration

2-A Configuration with ZOE-RC thermostats (via radio)

- 1 Configure the central control unit: select switch SW1 according to the type of machine and position DIP8 in learning mode (DIP8 down).



Direct expansion



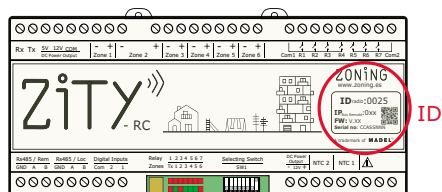
2-Pipe Fan-Coil



4-Pipe Fan-Coil

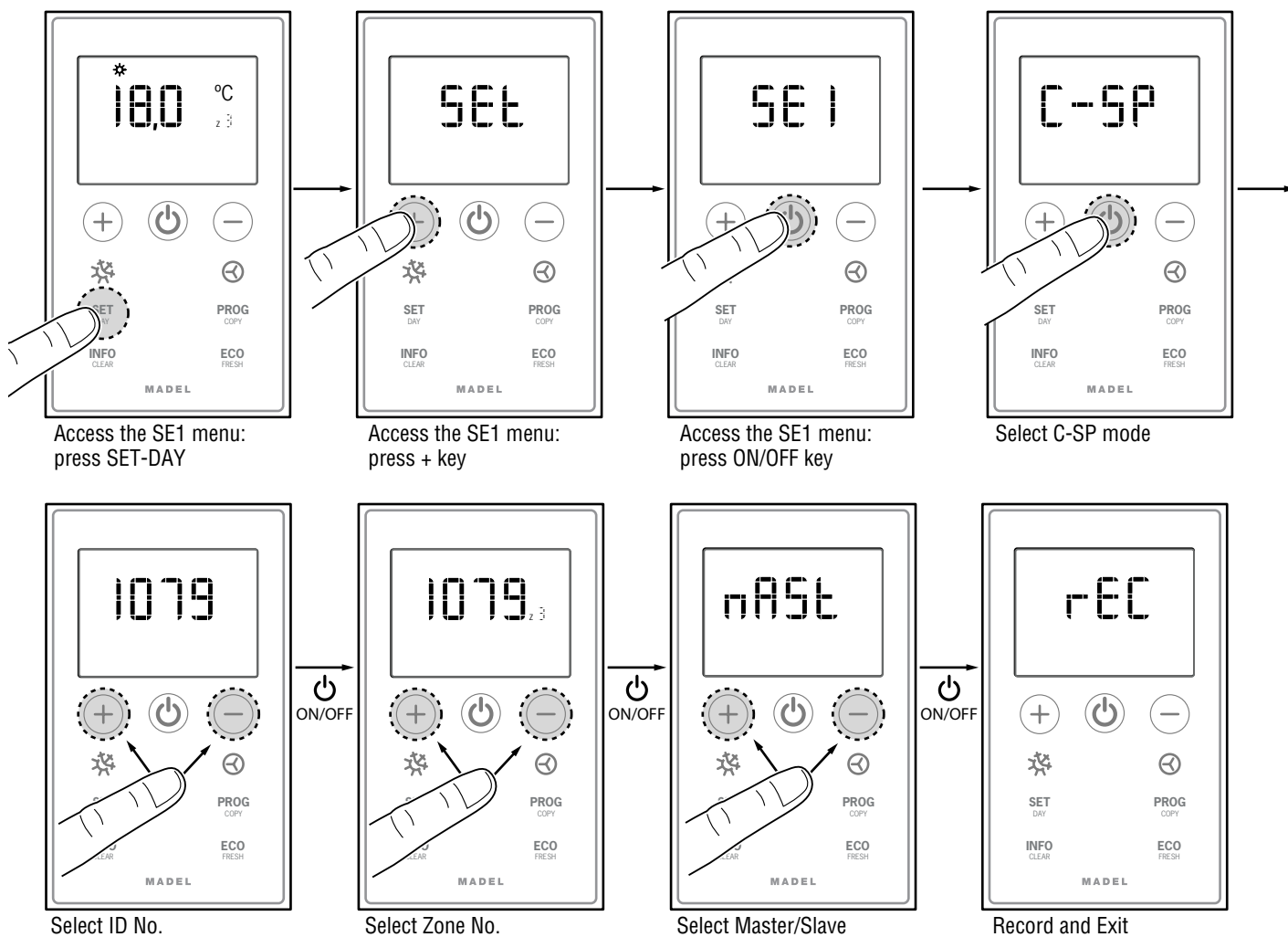


- 2 Connect the thermostats and the central control unit, via the following steps:



- Locate on the front label the ID number (radio ID) of the ZITY central control unit and associate this number to each of the thermostats.
- Assign a zone number to each thermostat (corresponding to the motorized control that has been connected to outputs 1 to 6 of the ZITY central control unit).
- Select whether the thermostat is Master or Slave. In each system, it is compulsory to set a single thermostat as Master. If there is no Master or there is more than one, the ZITY central control unit will be in error.

To perform the steps described, it is necessary to access the Se1 menu of the ZOE-RC thermostat. See the following diagram:

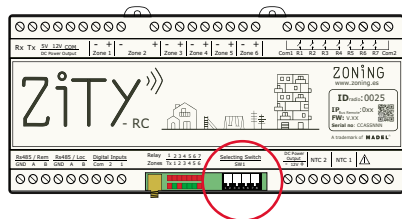


- 3 Learning and start-up: see section 3 to carry out this process.

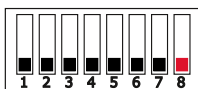
ZITY, quick installation guide (for air zoning installations)

2-B Configuration with ZEBRA thermostats (wired)

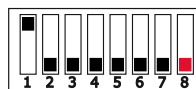
1 Configure the central control unit: select switch SW1 according to the diagram. There are two ZEBRA thermostat models: V1, 4-wire thermostat; V2: 7-wire thermostat.



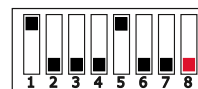
Direct expansion



2-Pipe Fan-Coil

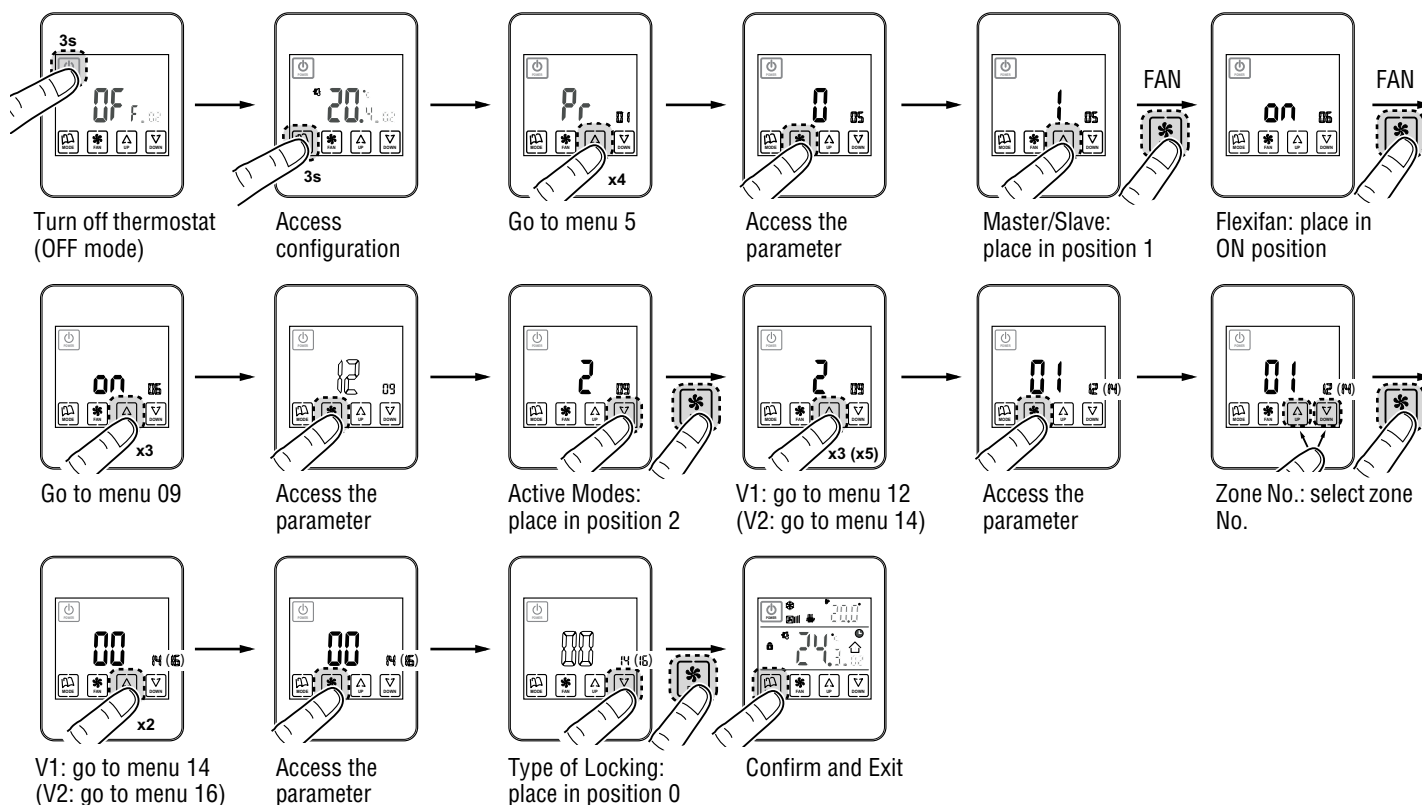


4-Pipe Fan-Coil



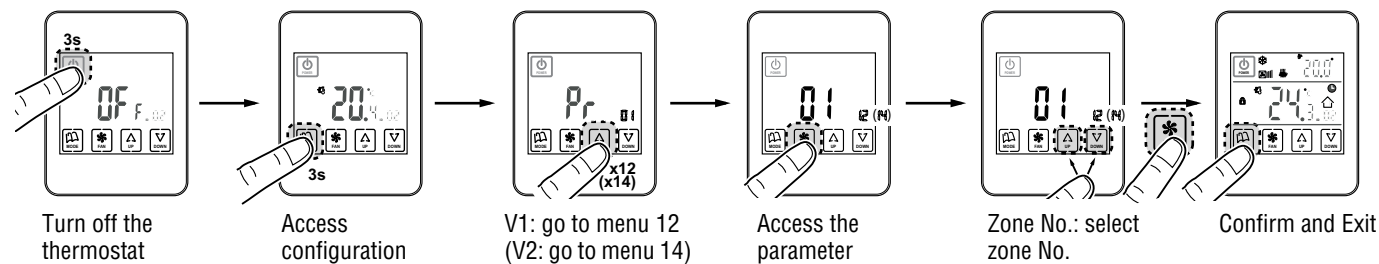
2 Connect the thermostats and the central control unit, via the following steps:

- **For the Master Thermostat:** define a single Master per installation. Configure menus 5 (Master/Slave), 6 (Flexifan), 9 (Active Modes), 12 (Zone Number) and 14 (Keypad Lock):



For more information about programming, see the ZEBRA thermostat manual

- **For the Slave Thermostat:** only configure menus No. 5 (Slave) and No. 12 (zone number):



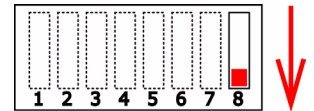
For more information about the rest of the menus, consult the advanced technical manual.

3 Learning and start-up: see section 3 to carry out this process.

3 Learning and start-up

In the first place, it is necessary to carry out the appraisal process in order to detect all the system's elements and later (once recognized) the start-up can be carried out.

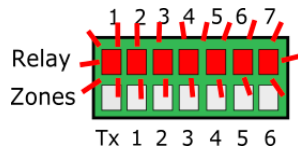
Make sure that DIP8 is OFF (down).



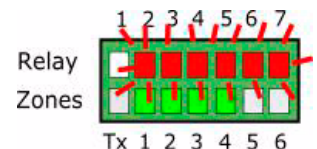
3.1 Recognition of components

1 Connect the 230VAC power supply of the ZITY central control unit.

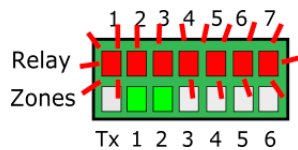
2 The central control unit is positioned in learning mode and the 7 LEDs corresponding to the relays begin to flash.



The upper row of LEDs corresponds to peripheral detection. Each time one of them is detected, the corresponding LED goes out.



3 Every time the thermostat of one of the zones is recognised by the central control unit, the LED corresponding to the zone lights up in green.



For direct expansion machines, the LED R1 corresponding to the communication interface must be off.

For Fan-Coil type machines, no LEDs should be off.

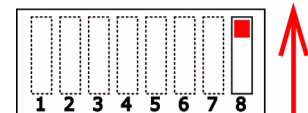
Consult the advanced technical manual to see how the rest of the LEDs should correspond with the peripherals.

3.2 Exit from learning mode

1 Wait 30 seconds after the last component has been detected.

2 Raise the DIP8

3 Cut the voltage to the ZITY central control unit.



3.3 Start-up in normal operating mode

1 Raise the voltage to the ZITY central control unit again.

2 When power is supplied to the central control unit it will begin to operate normally according to the configuration specified in the SW1.

3.4 Check operation

Check the operation of all zones by following this table:

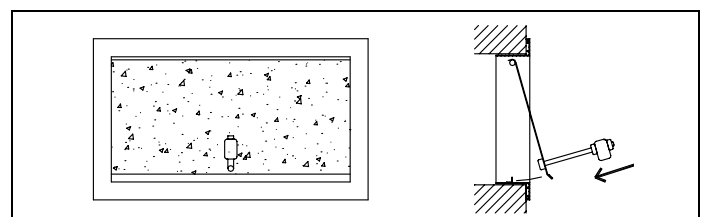
	1	2	3	4	5
	Select 18°C on all thermostats	Check that all grilles open	Wait for the machine to start from cold	Select 30°C on all thermostats	Check that all grilles close and the machine stops
	Select 30°C on all thermostats	Check that all grilles open	Wait for the machine to start from warm	Select 18°C on all thermostats	Check that all grilles close and the machine stops

3.5 Adjusting the by-pass gate

If mechanical bypass is available, proceed as follows:

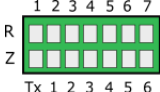
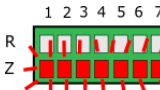
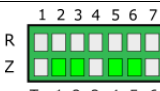
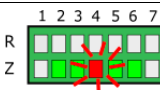
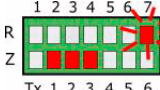
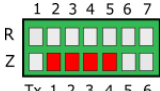
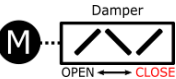
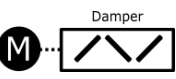
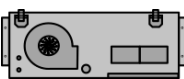
1 Leave the smallest area open

2 Move the counterweight until the gate opens and no noise is generated in the grilles. The closer the counterweight is to the gate is, the more it will open, the farther it is the more it will close.

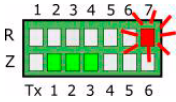
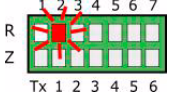
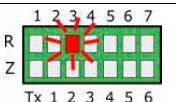


4 Most common errors

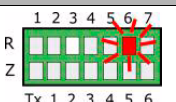
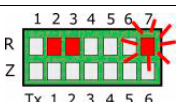
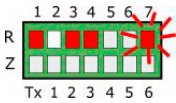
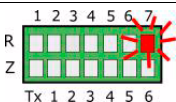
4.1 For all installations

ERROR	INDICATOR	CAUSE	SOLUTION
1 On supplying 230 VAC to the central control unit, no LED lights up on the central control unit		No voltage or no learning	<ul style="list-style-type: none"> • Check that voltage is reaching the ZITY control unit (230VAC ±10%). • Ensure the learning process has been performed
2 5 minutes after switching on the central control unit, all zone LEDs start to flash and all grilles are closed		Incorrect settings	<ul style="list-style-type: none"> • Check the settings of the thermostats. • Make sure that they are connected to the central control unit. • Repeat the learning process. • In Radio systems, check whether it works at a shorter distance and relocate the aerial.
3 Some of the zone LEDs do not light up and the rest do		Learning error	<ul style="list-style-type: none"> • The thermostat corresponding to the LED switched off has not been recognised in the learning process. • Reprogramme the thermostat and repeat the learning process, making sure that all LEDs light up during the process and that you wait 30s before completing.
4 Some of the zone LEDs are flashing and the gate valves of these zones close		Poor communication	<ul style="list-style-type: none"> • The control settings have been changed since the learning process. Configure it again. • Check that the thermostat is in the installation. • Check the location and the batteries in the thermostats via Radio. • Checking the wiring in the wired thermostats.
5 The R7 LED in the relay row flashes and the zone LEDs light up in red		More than one Master	<ul style="list-style-type: none"> • There are two thermostats declared as Master in the installation. Re-configure the thermostats in conflict and only leave one Master.
6 The central control unit does not show any error but the equipment does not start up		Timer programming	<ul style="list-style-type: none"> • Check that the thermostat PROG function is not activated and whether it corresponds to a switch-off time or is not set correctly.
7 When the grille has to open it closes (and vice versa)		Motors incorrectly connected	<ul style="list-style-type: none"> • Check motor connection. Polarity (black -, red +). • Check that it is tested in the correct operating mode (Cold/Heat)
8 One of the grilles is not working		Zone regulator connection	<ul style="list-style-type: none"> • Check motor connection. Polarity (black -, red +). • Check that the regulator is not obstructed.
9 All grilles are operating correctly, but the air conditioning equipment does not work		Air conditioning equipment incorrectly connected	<ul style="list-style-type: none"> • Check the central control unit settings according to the type of equipment. • Check the connection of the equipment with the board.

4.2 For direct expansion installations:

ERROR	INDICATOR	CAUSE	SOLUTION
1 The R7 LED in the relay row flashes and the zone LEDs light up in green		Interface communication error	<ul style="list-style-type: none"> Check the connection and configuration of the Interface (see manual for each brand and model).
2 LED R2 in the row of relays is flashing. The system does not start up		DX mode error	<ul style="list-style-type: none"> The operating mode is not sent. Impose a thermostat as MASTER and put the central control unit into Local Mode. In the case of remote systems check that the mode is sent by channel Rs485/Rem.
3 LED R3 in the row of relays is flashing. The system is blocked		Sensor error	<ul style="list-style-type: none"> In installations with NO INTERFACE, the resistance (by default) or the NTC probe are not connected. Or, the measured temperature is out of range.

4.3 For Fan-Coil installations:

ERROR	INDICATOR	CAUSE	SOLUTION
1 LED R6 in the relay row is flashing		Fan-Coil modo error	<ul style="list-style-type: none"> The operating mode is not sent. Impose a Master thermostat and put the central control unit into Local Mode. <p>In the case of sub-zone, ensure that the NTC2 probe is in the impulsión.</p>
2 The R7 LED in the relay row flashes and the R2 and R3 LEDs remain lit		Water temperature error in Heat Mode	<ul style="list-style-type: none"> Battery temperature in heat battery out of range. Check NTC1 connection
3 The R7 LED in the relay row flashes and the R1, R3 and R4 LEDs remain lit		Water temperature error in Cold Mode	<ul style="list-style-type: none"> Battery temperature in heat battery out of range. Check connection of NTC1 or NTC2 for 2T and 4T installations respectively.
4 LED R7 in the row of relays is flashing		Combined mode error	<ul style="list-style-type: none"> Check the position of Switch 7 of the ZITY or Active Modes of the ZEBRA thermostat. It is trying to make the central control unit work in Cold or Radiant Heat Mode.

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