

# Wiring Diagrams Installation Notes



These Specifications offer the professional general guidelines for rapid access to the information required to know, design and install a home automation system implemented in a workmanlike way.

Please note that all devices and suitable systems for the creation of home automation systems must be used in compliance with standards CEI 64-8 VII edition 2012, and in compliance with Decree no. 37 of January 2008 relative to provisions regarding system installation activities inside buildings, with special reference to articles 6.1, 2.d and 2.f.

AVE S.p.A. products are intended for installation. Products and accessories must be installed by qualified personnel. The products must be installed and used for the intended use and in compliance with the standards applicable to the various types of plants, taking account of the instructions in the catalogue and instruction leaflets. However, before putting the products installed into service, the system must be tested by inspection personnel to ascertain that it is working, and in observance of the safety standards, as indicated by the legislation in force. AVE S.p.A. reserves the right to modify and improve its products shown in the catalogue and present in the price list without notice due to the constant process of adapting to changes in production, technology and standards. The product information sheet and other equivalent documentation can be obtained on request from the Technical Assistance Department of AVE SpA. Please visit the corporate website for updates and data confirmation ([www.ave.it](http://www.ave.it)).

## Wiring **Diagrams**

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## Installation **Notes**

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## AVE **References**

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HOME AUTOMATION

HOTEL MANAGEMENT

VIDEO INTERCOM

ANTI INTRUSION

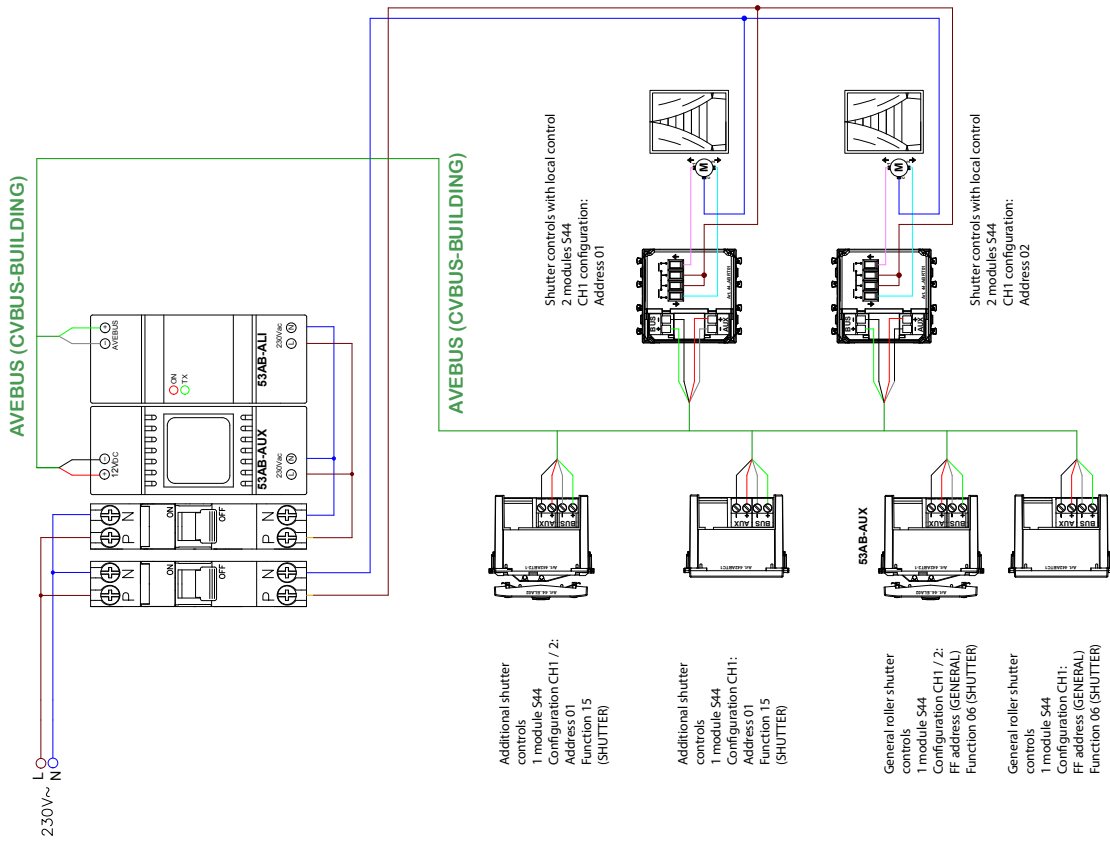
 WIRING DIAGRAMS  
AND PRESCRIPTIONS

*Ave material must be installed by qualified people and the plant must be tested by an expert; according to the current standards*

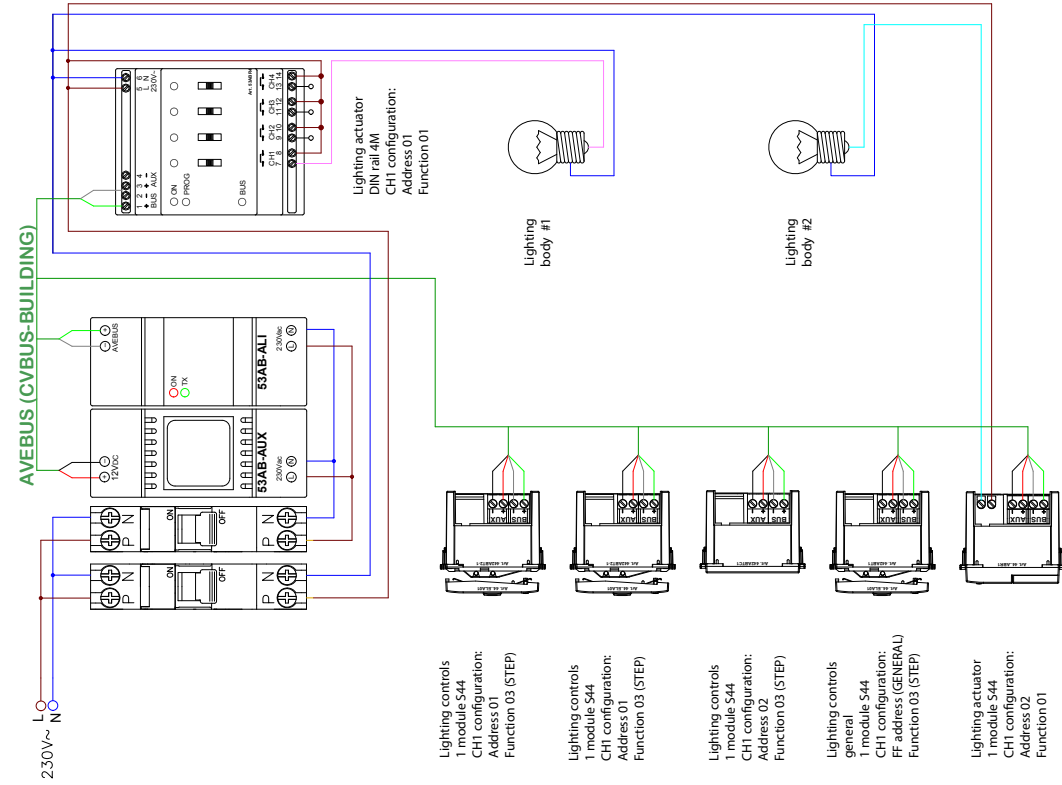
*The installer takes care to leave his name and address to the customer and preferably also the name and address of the local technical support centre*



## Shutters function controls and actuators



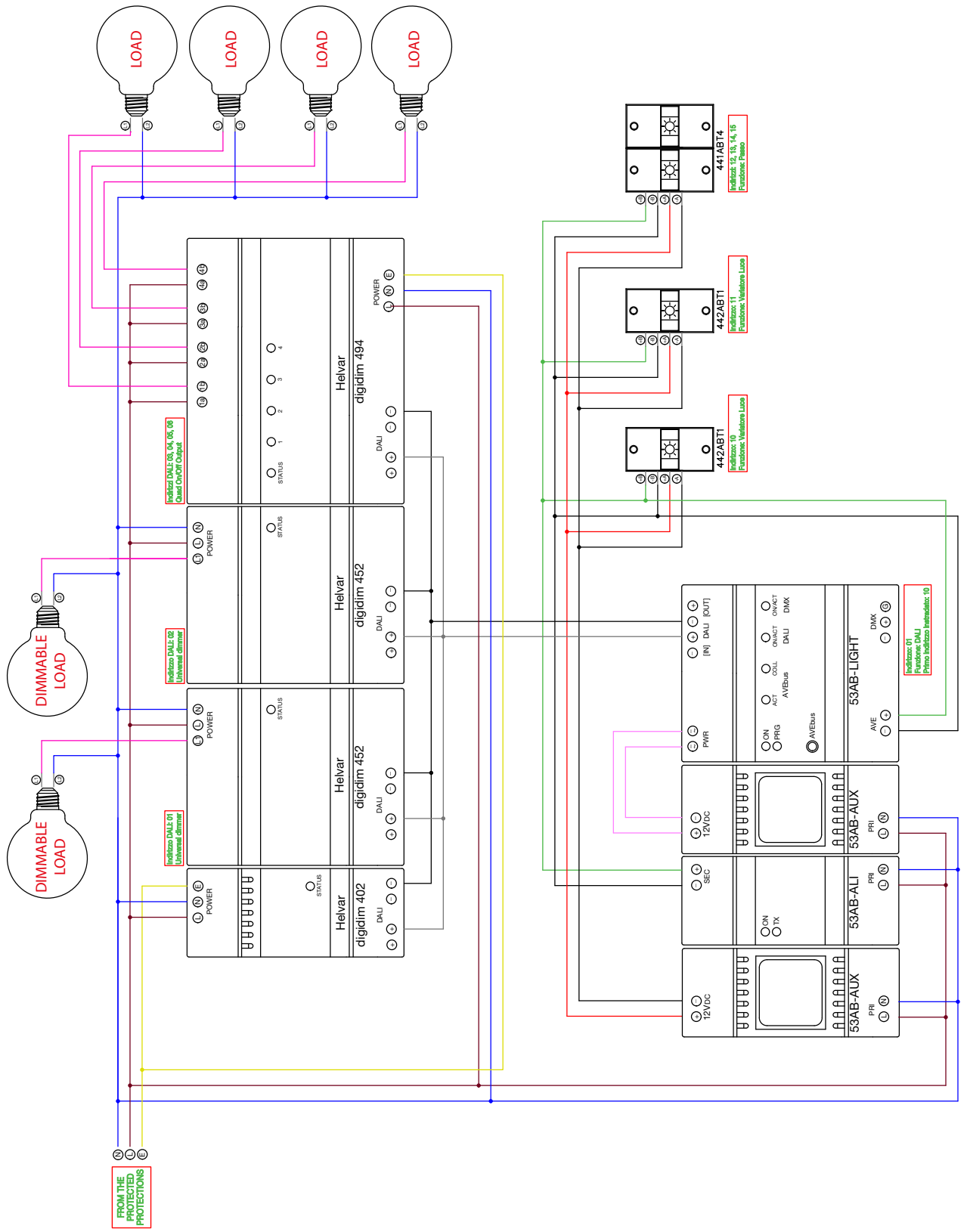
## Controls and lighting function actuators

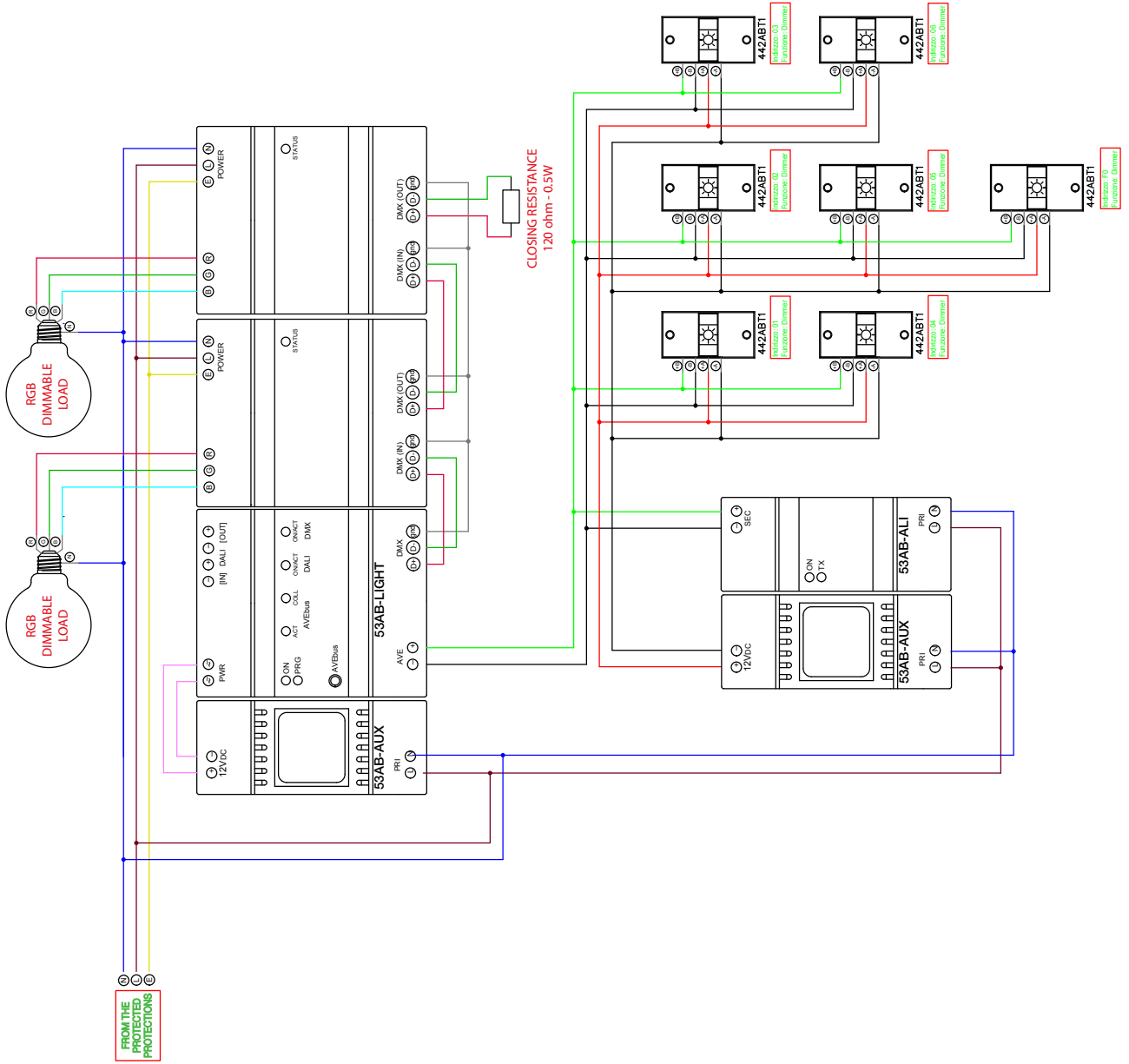




# DALI / DMX lighting management

Example of connection of a DALI lighting management home automation system with 2 dimmable loads and 2 ON / OFF loads

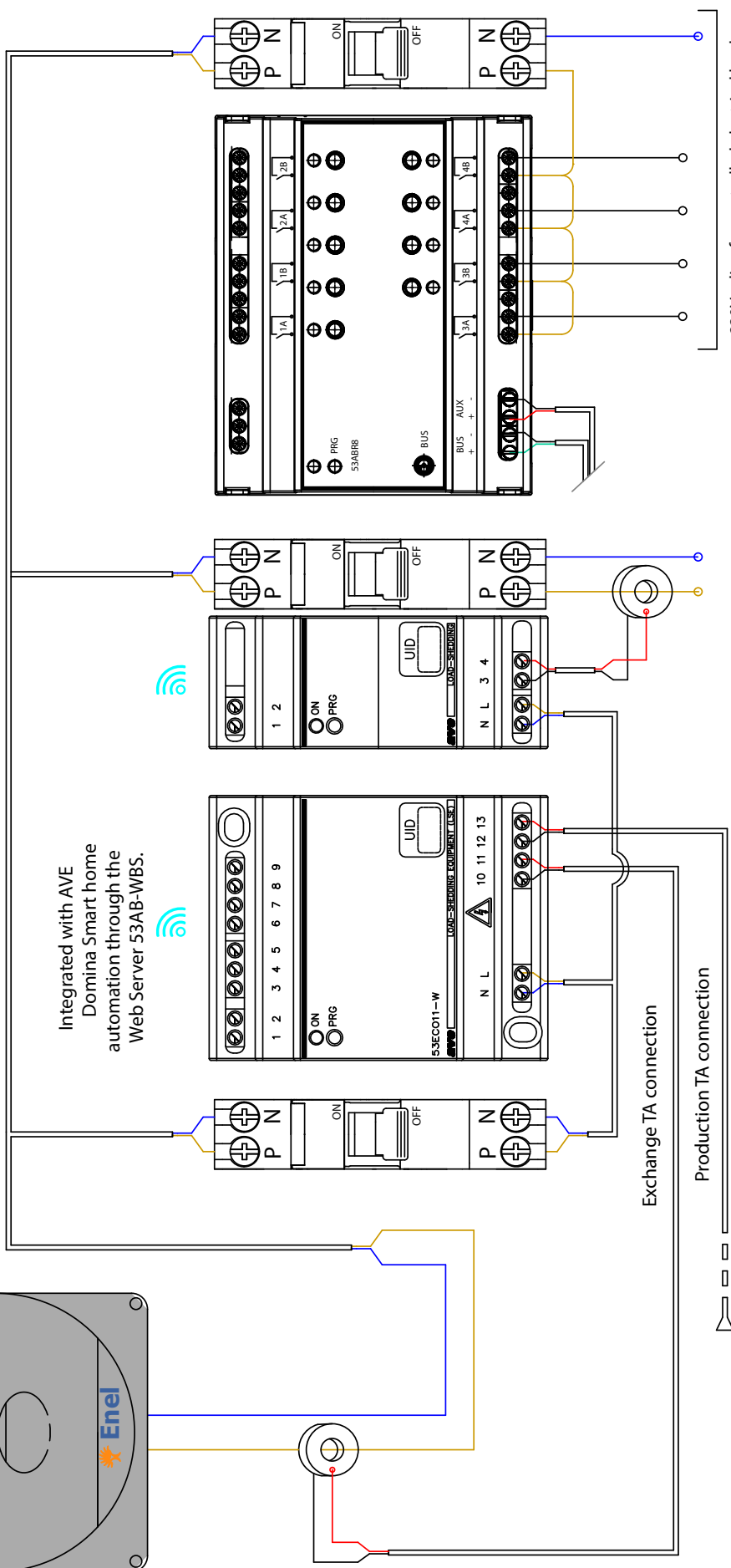
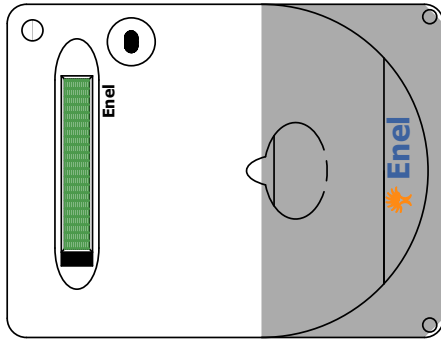






# Wireless load control

Example of connection of a home automation system with economizer device for energy management art. 53ECO11-W



Integrated with AVE Domina Smart home automation through the Web Server 53AB-WBS.

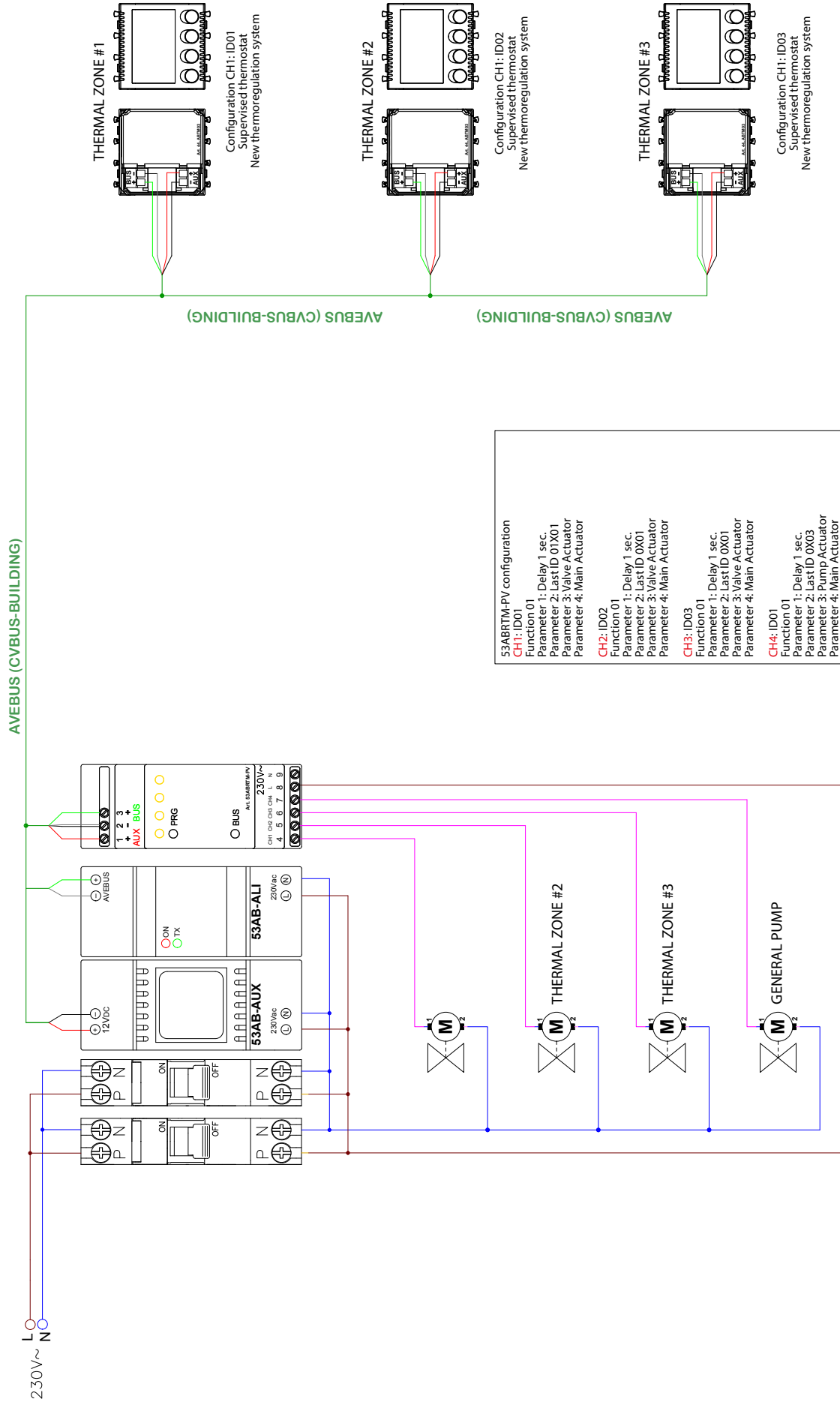


Exchange TA connection  
Production TA connection

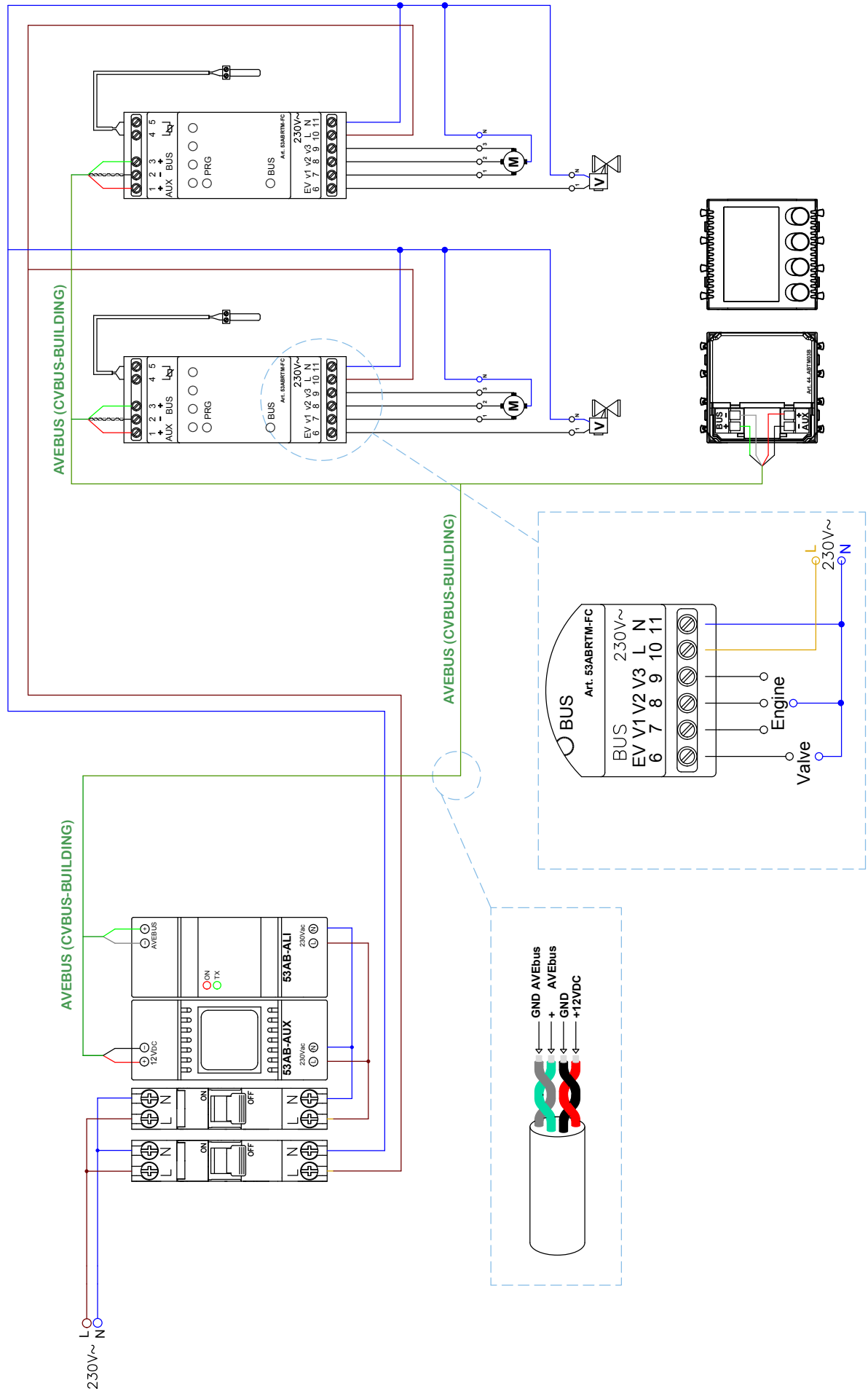
230V ~ line for controlled electrical loads.  
Size according to the load any N.O. type contactor

# 3 Zone Thermoregulation + General Pump

Example of connection of a 3-zone thermo-regulation domotic management system + general delivery pump





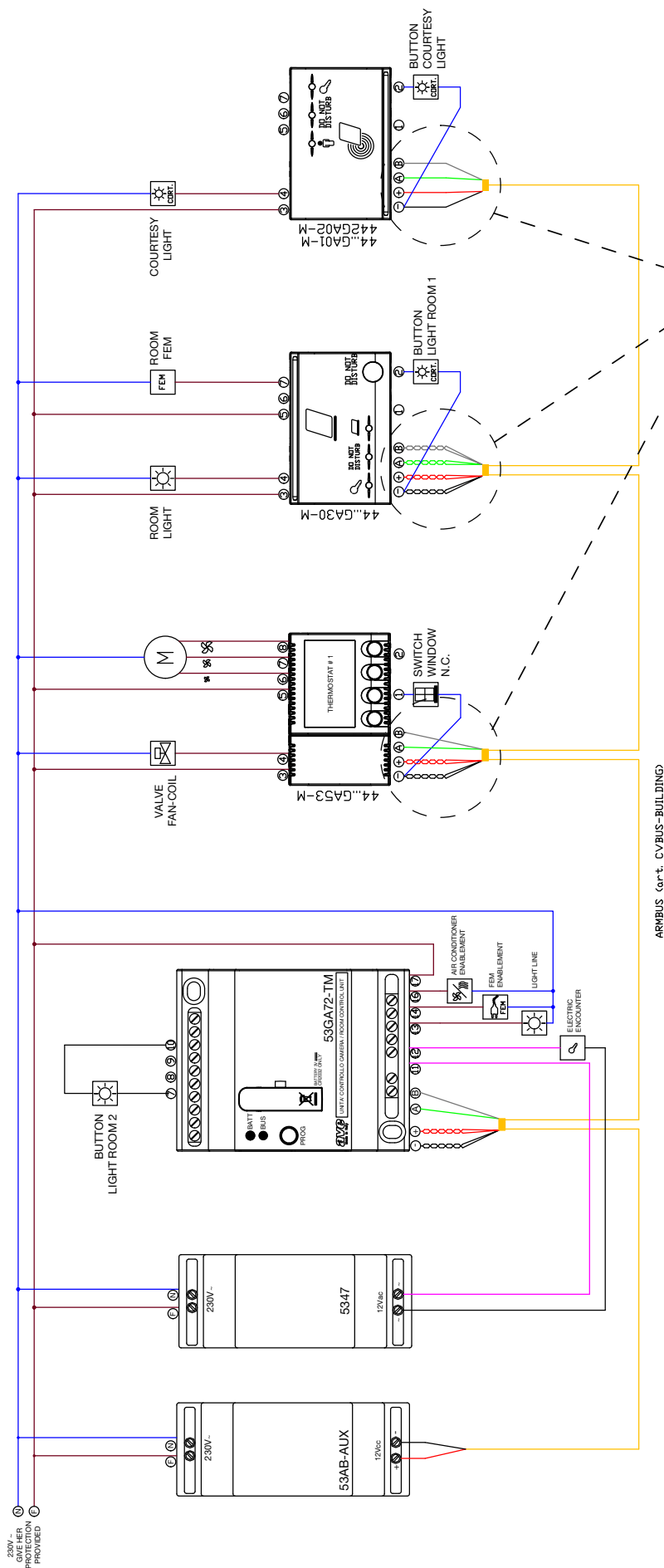






# Stand-alone hotel management

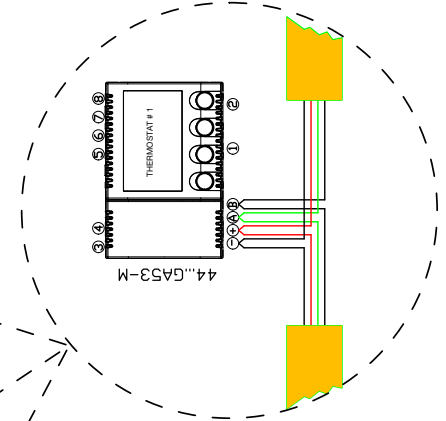
Connection scheme of a system with room control unit, external reader, internal reader and thermostat



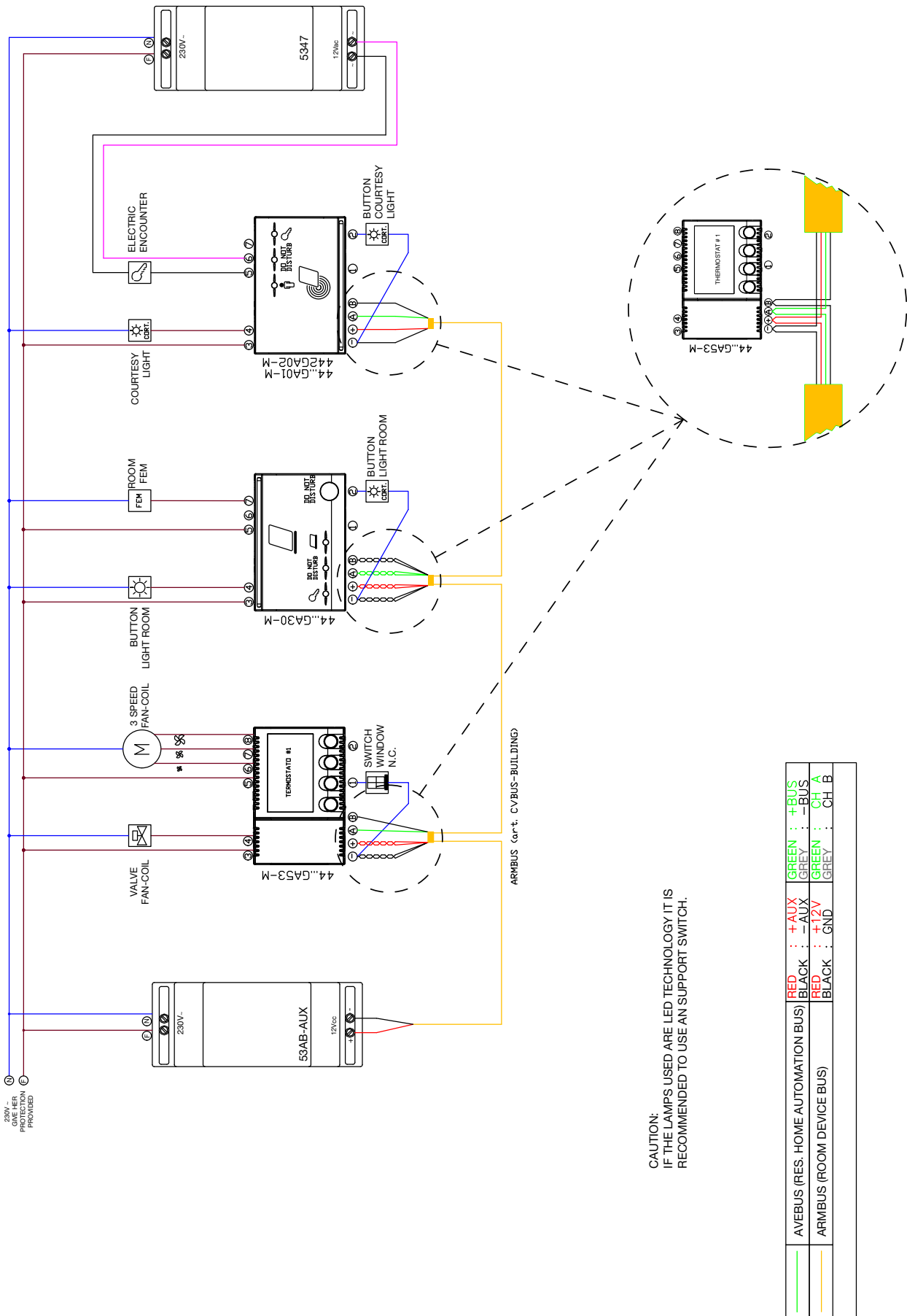
ARMBUS Ga-t. CVBUS-BUILDING

**CAUTION:**  
IF THE LAMPS USED ARE LED TECHNOLOGY IT IS  
RECOMMENDED TO USE AN SUPPORT SWITCH.

**NOTE:**  
THE FEM OUTLETS, CLIMATE, ELECTRIC ENCOUNTERER ARE PRESENT  
BOTH ON THE DEVICES AND ON THE ROOM CONTROL UNIT.  
CHOOSE TO USE THE WIRING WHICH TO USE.



	AVEBUS (RES. HOME AUTOMATION BUS)	RED	+AUX	GREEN	+BUS
	ARMBUS (ROOM DEVICE BUS)	BLACK	-BUS	GREY	-BUS
		RED	+12V	GREEN	CH A
		BLACK	GND	GREY	CH B



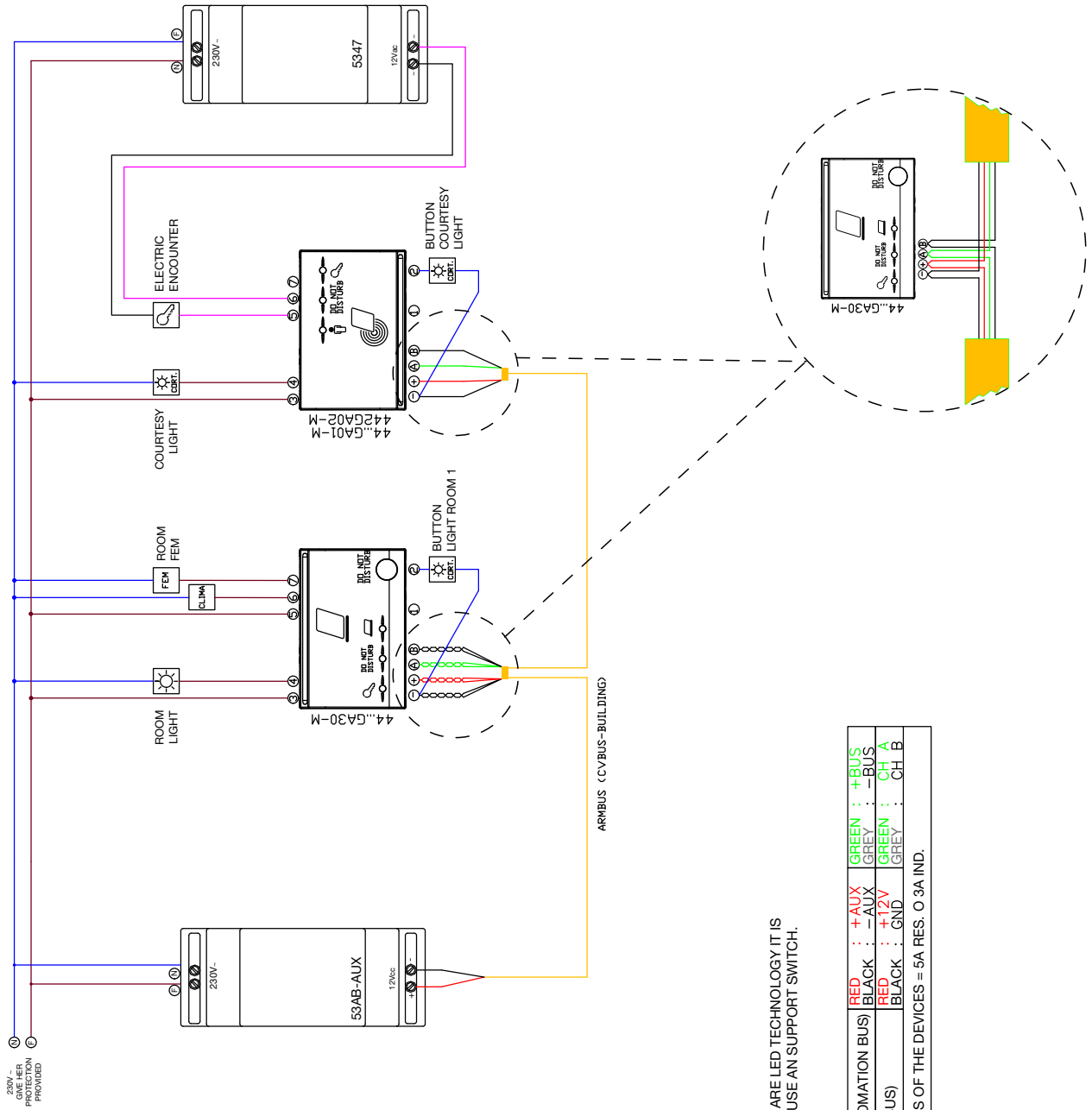
CAUTION:  
IF THE LAMPS USED ARE LED TECHNOLOGY IT IS  
RECOMMENDED TO USE AN SUPPORT SWITCH.

AVEBUS (RES. HOME AUTOMATION BUS)	RED : +AUX	GREEN : +BUS
	BLACK : -AUX	GREY : -BUS
ARMBUS (ROOM DEVICE BUS)	RED : +12V	GREEN : CH A
	BLACK : GND	GREY : CH B



# Stand-alone hotel management

Connection scheme of a system with external reader + internal reader



CAUTION:  
IF THE LAMPS USED ARE LED TECHNOLOGY IT IS  
RECOMMENDED TO USE AN SUPPORT SWITCH.

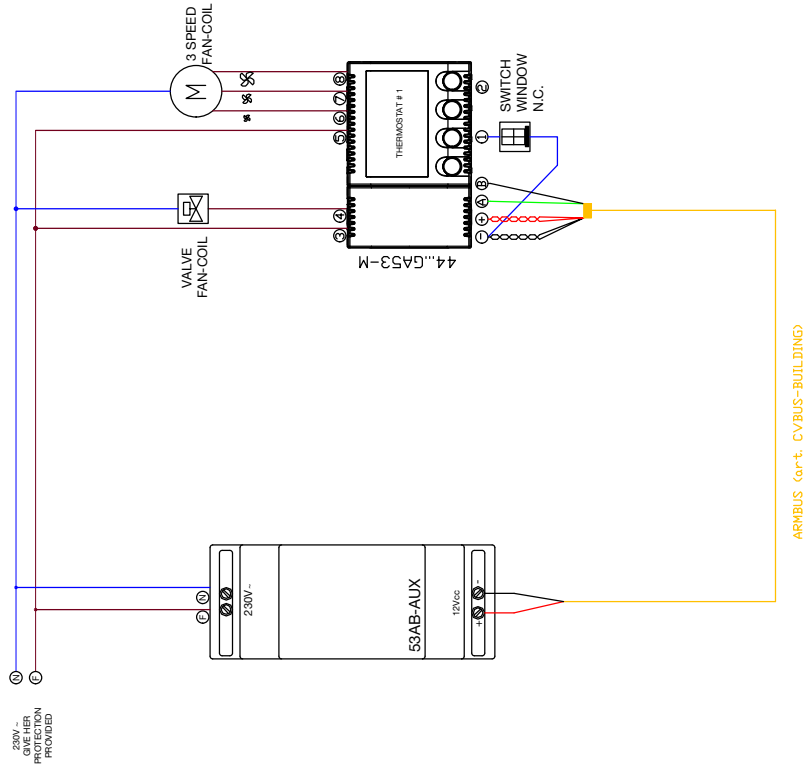
GREEN	AVEBUS (RES. HOME AUTOMATION BUS)	RED	+AUX	GREEN	+BUS
GREY	-BUS	BLACK	-AUX	GREY	-BUS
RED	ROOM (DEVICE BUS)	RED	+12V	GREEN	CH A
BLACK	GND	BLACK	GND	GREY	CH B

MAX RANGE CONTACTS OF THE RELAYS OF THE DEVICES = 5A RES. 0.3A IND.

ATTENTION IF THE LAMPS USED  
THEY ARE LED TECHNOLOGY IS RECOMMENDED  
USE A HANDSET CONTACTOR

—	AVEBUS (RES. HOME AUTOMATION BUS)	RED : +AUX	GREEN : +BUS
—	ARMBUS (ROOM DEVICE BUS)	BLACK : -AUX	GREY : -BUS
—		RED : +12V	GREEN : CH A
—		BLACK : GND	GREY : CH B

MAX RANGE CONTACTS OF THE DEVICES = 5A RES. 0.3A IND.



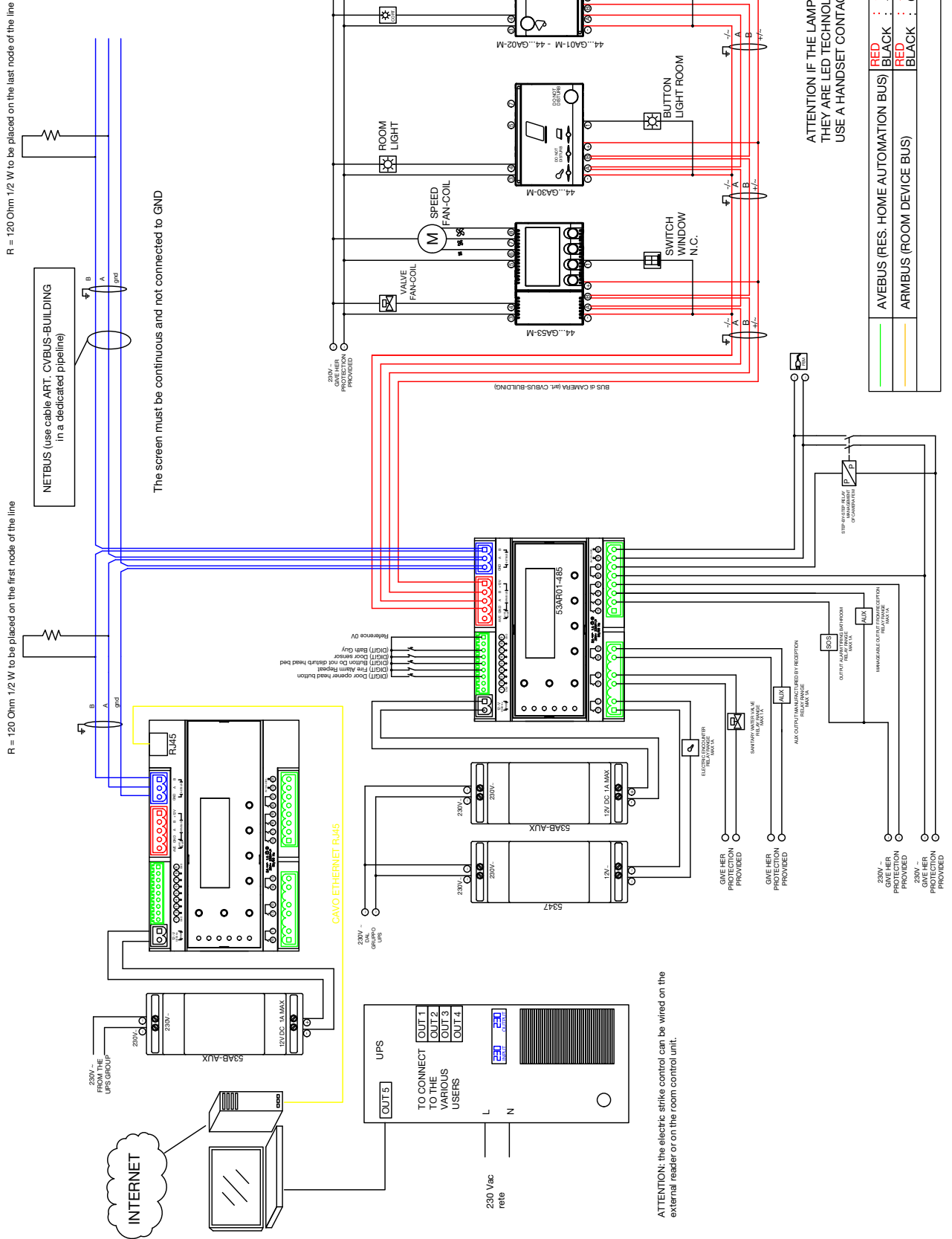
TO ACCESS THE PARAMETERS OF THE THERMOSTAT  
PRESS THE TWO AT THE SAME TIME  
"ARROW" BUTTONS FOR 3 SECONDS  
TO ACCESS THE MENUS AND / OR CONFIRM  
PRESS THE "FAN" BUTTON.

PARAMETER 1	SEASON
PARAMETER 2	TEMPERATURE MOD. COMFORT SUMMER
PARAMETER 3	TEMPERATURE MOD. SUMMER SAVINGS
PARAMETER 4	TEMPERATURE MOD. COMFORT WINTER
PARAMETER 5	TEMPERATURE MOD. WINTER SAVING
PARAMETER 6	HYSTERESIS
PARAMETER 7	DELTA TEMPERATURE
PARAMETER 8	THERMOSTAT OFFSET
PARAMETER 9	DEVICE ADDRESS

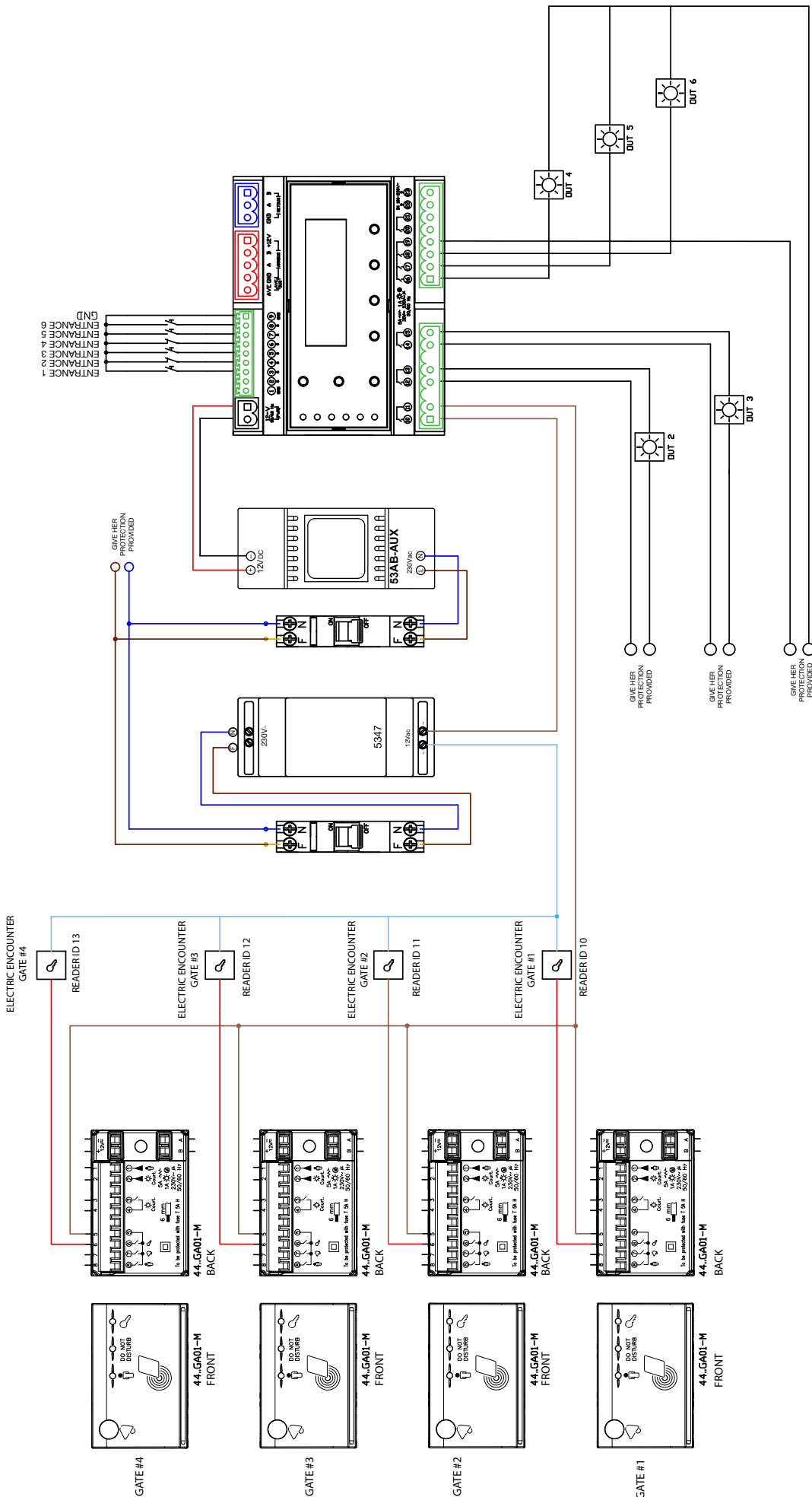


# Online Hotel Management

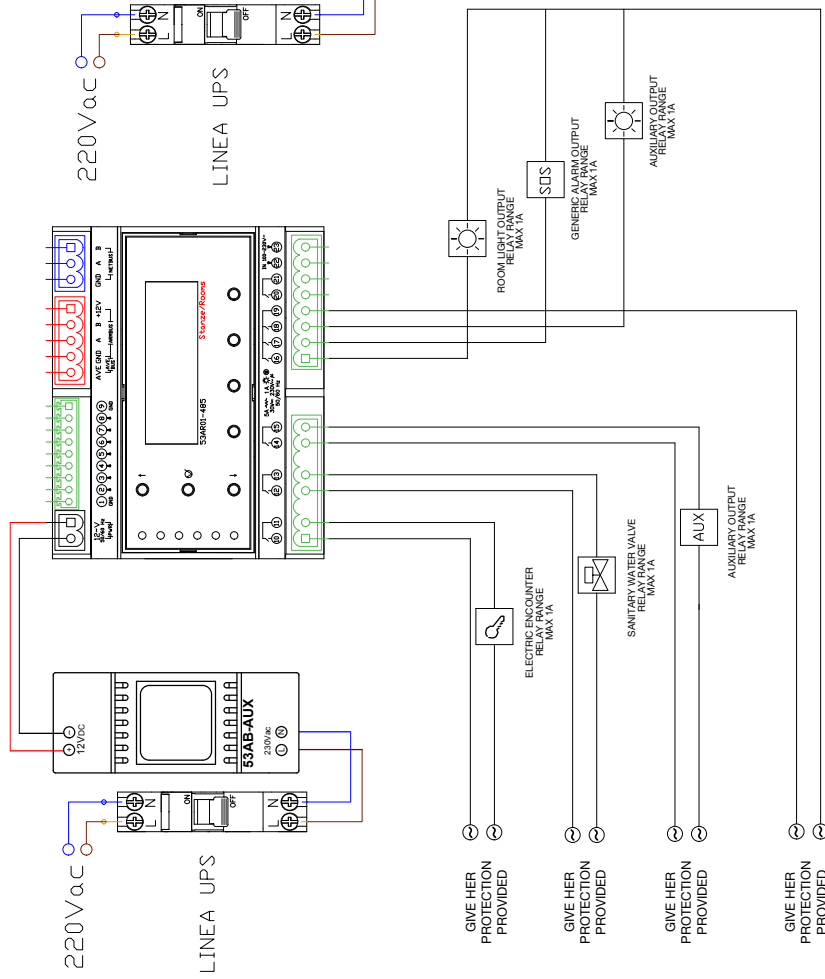
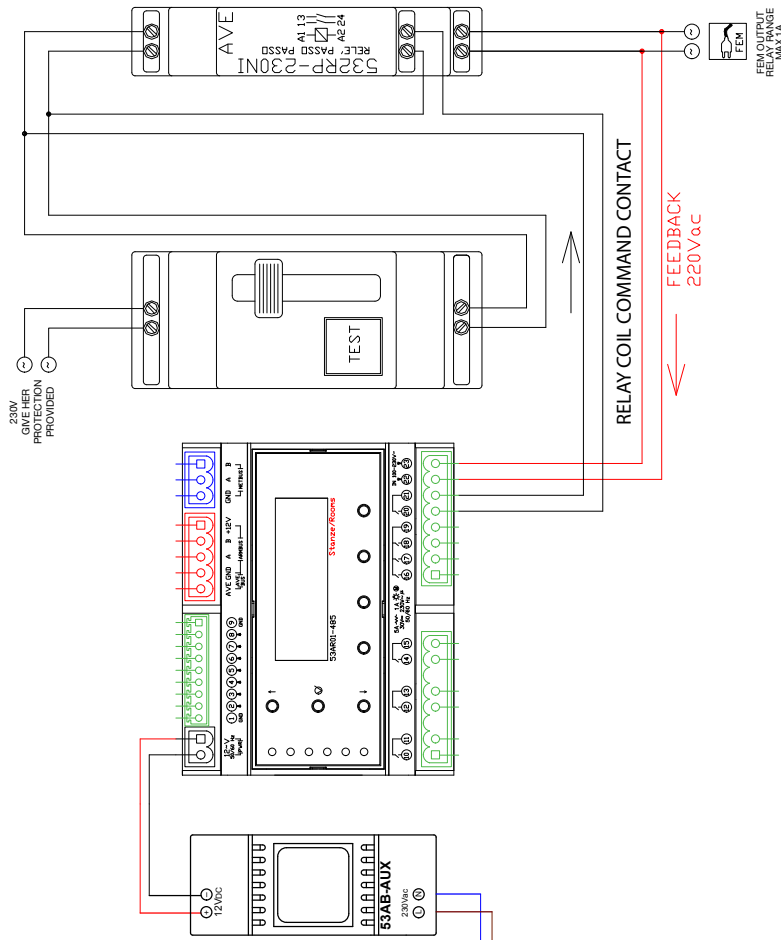
## Connection scheme of a network system with ethernet concentrator, room control unit, external reader and thermostat



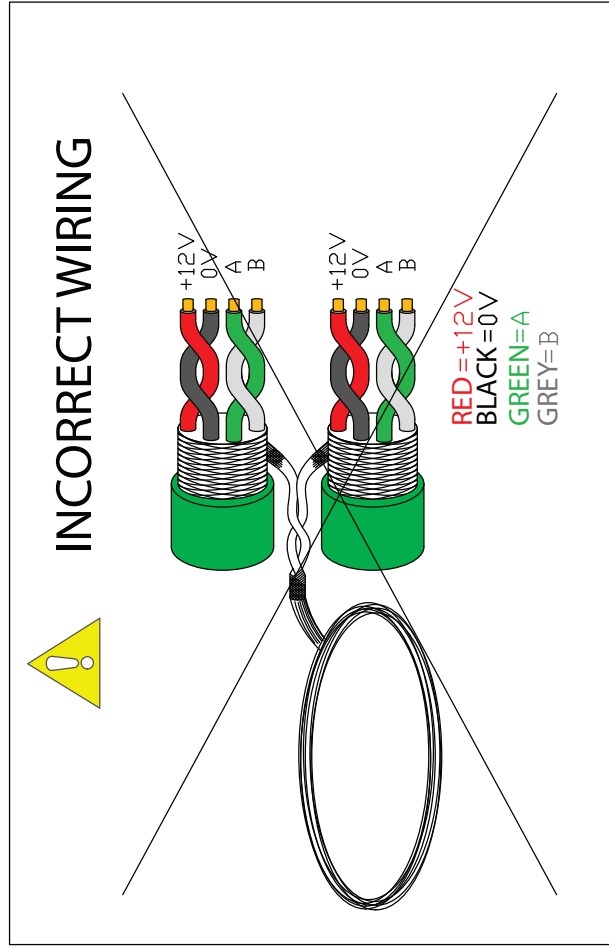
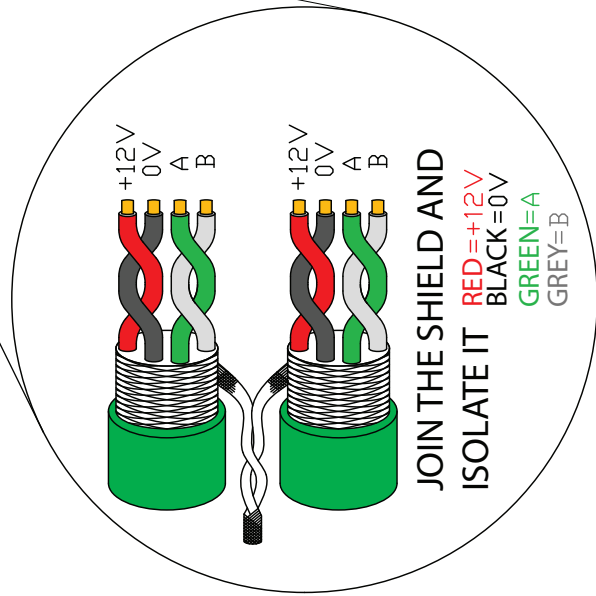
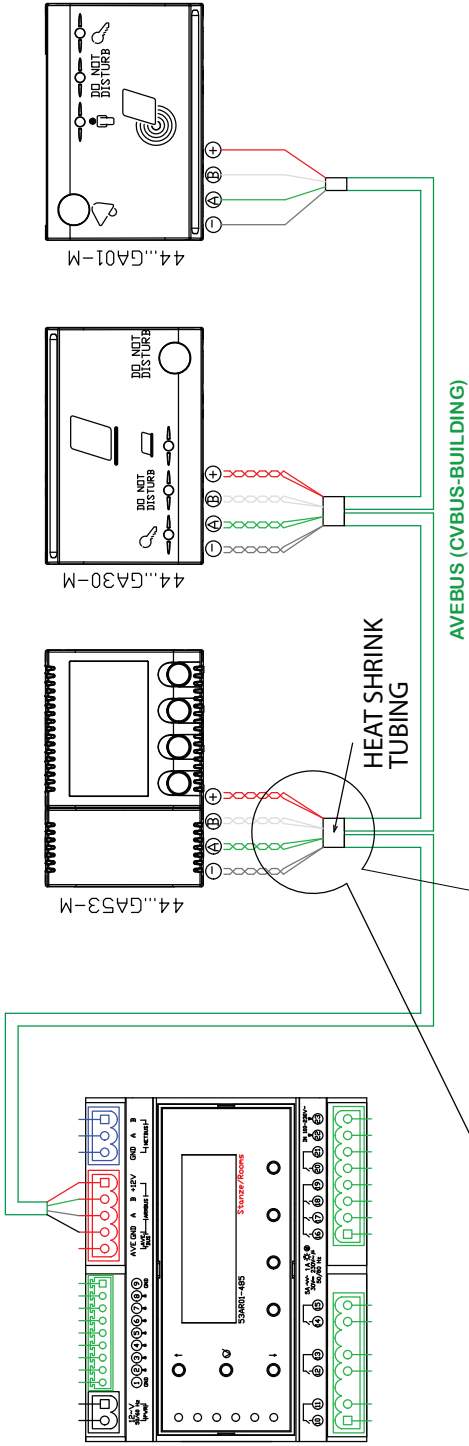
AVEBUS (RES. HOME AUTOMATION BUS)	RED	+ AUX	GREEN	+ BUS
ARMBUS (ROOM DEVICE BUS)	BLACK	- AUX	GREY	- BUS
	RED	+12V	GREEN	CH A
	BLACK	GND	GREY	CH B

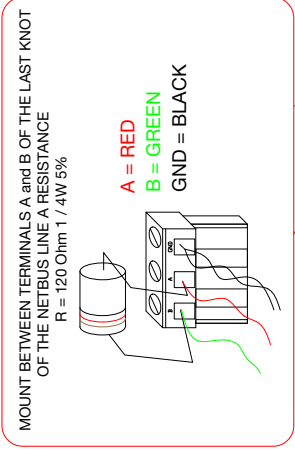






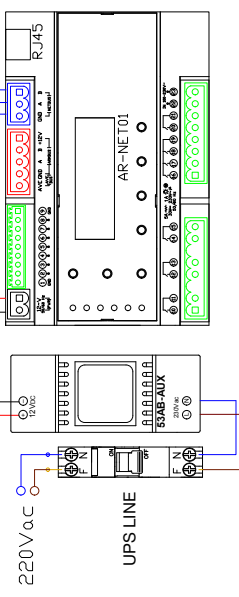
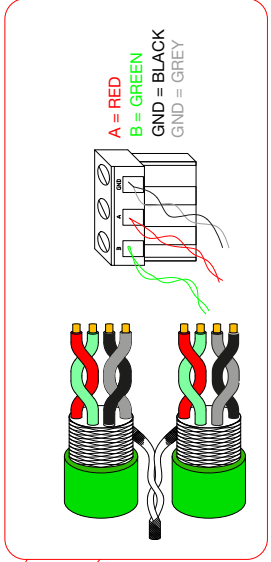
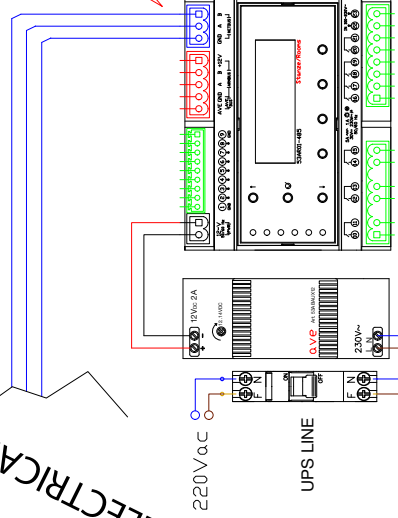
AVEBUS (RES. HOME AUTOMATION BUS)	RED : +AUX	GREEN : +BUS
ARMBUS (ROOM DEVICE BUS)	BLACK : -BUS	GREY : -AUX
	RED : +12V	GREEN : CH A
	BLACK : GND	GREY : CH B



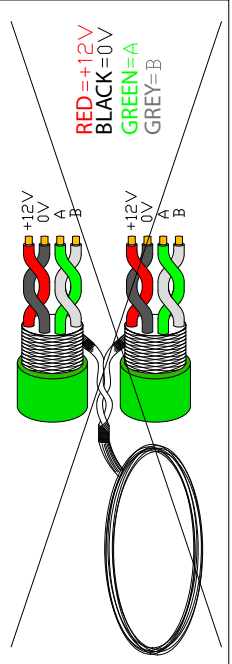


ATTENTION: USE THE **CVAVE-BUILDING CABLE** FOR CONNECTION OF THE NETBUS CABLE  
DO NOT USE **UTP CABLE** FOR BUILDING THE BUS

ELECTRICAL SYSTEM

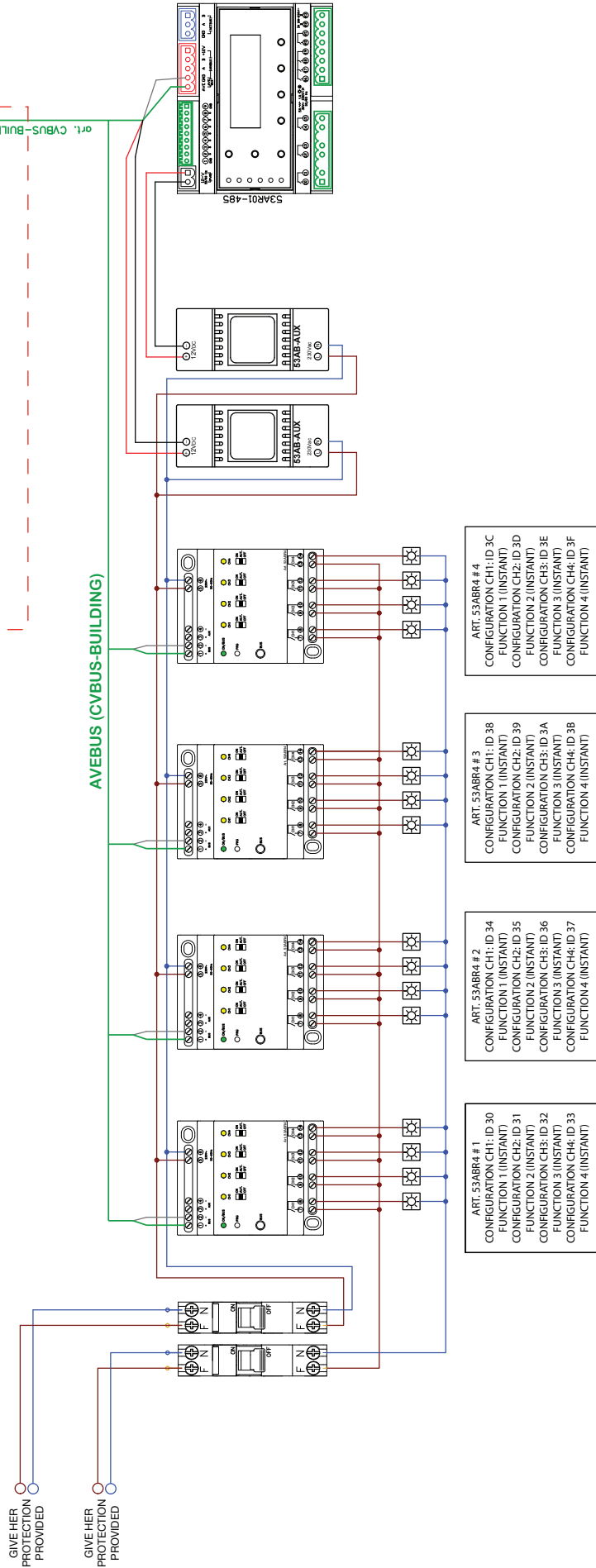
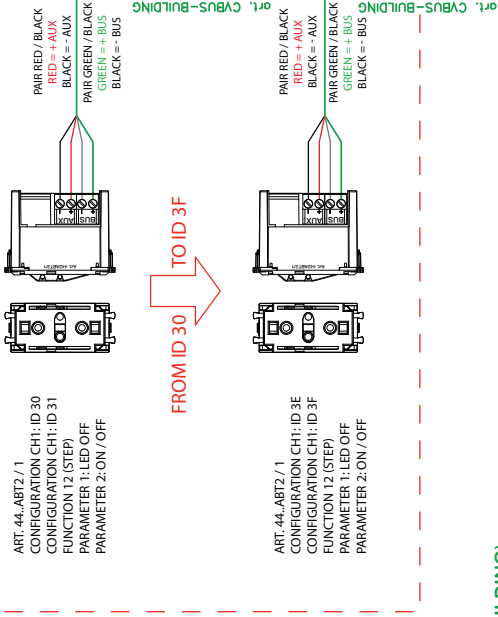


INCORRECT WIRING



AVEBUS (RES. HOME AUTOMATION BUS)	RED : +AUX BLACK : -AUX	GREEN : +BUS GREY : -BUS
ARMBUS (ROOM DEVICE BUS)	RED : +12V BLACK : GND	GREEN : CH A GREY : CH B

USE ONLY ADDRESSES FROM 30 TO 3F (MAX 16 LIGHT ADDRESSES)



ART. 53ABR4 # 1  
CONFIGURATION CH1: ID 30  
FUNCTION 1 (INSTANT)  
CONFIGURATION CH2: ID 31  
FUNCTION 2 (INSTANT)  
CONFIGURATION CH3: ID 32  
FUNCTION 3 (INSTANT)  
CONFIGURATION CH4: ID 33  
FUNCTION 4 (INSTANT)

ART. 53ABR4 # 2  
CONFIGURATION CH1: ID 34  
FUNCTION 1 (INSTANT)  
CONFIGURATION CH2: ID 35  
FUNCTION 2 (INSTANT)  
CONFIGURATION CH3: ID 36  
FUNCTION 3 (INSTANT)  
CONFIGURATION CH4: ID 37  
FUNCTION 4 (INSTANT)

ART. 53ABR4 # 3  
CONFIGURATION CH1: ID 38  
FUNCTION 1 (INSTANT)  
CONFIGURATION CH2: ID 39  
FUNCTION 2 (INSTANT)  
CONFIGURATION CH3: ID 3A  
FUNCTION 3 (INSTANT)  
CONFIGURATION CH4: ID 3B  
FUNCTION 4 (INSTANT)

ART. 53ABR4 # 4  
CONFIGURATION CH1: ID 3C  
FUNCTION 1 (INSTANT)  
CONFIGURATION CH2: ID 3D  
FUNCTION 2 (INSTANT)  
CONFIGURATION CH3: ID 3E  
FUNCTION 3 (INSTANT)  
CONFIGURATION CH4: ID 3F  
FUNCTION 4 (INSTANT)



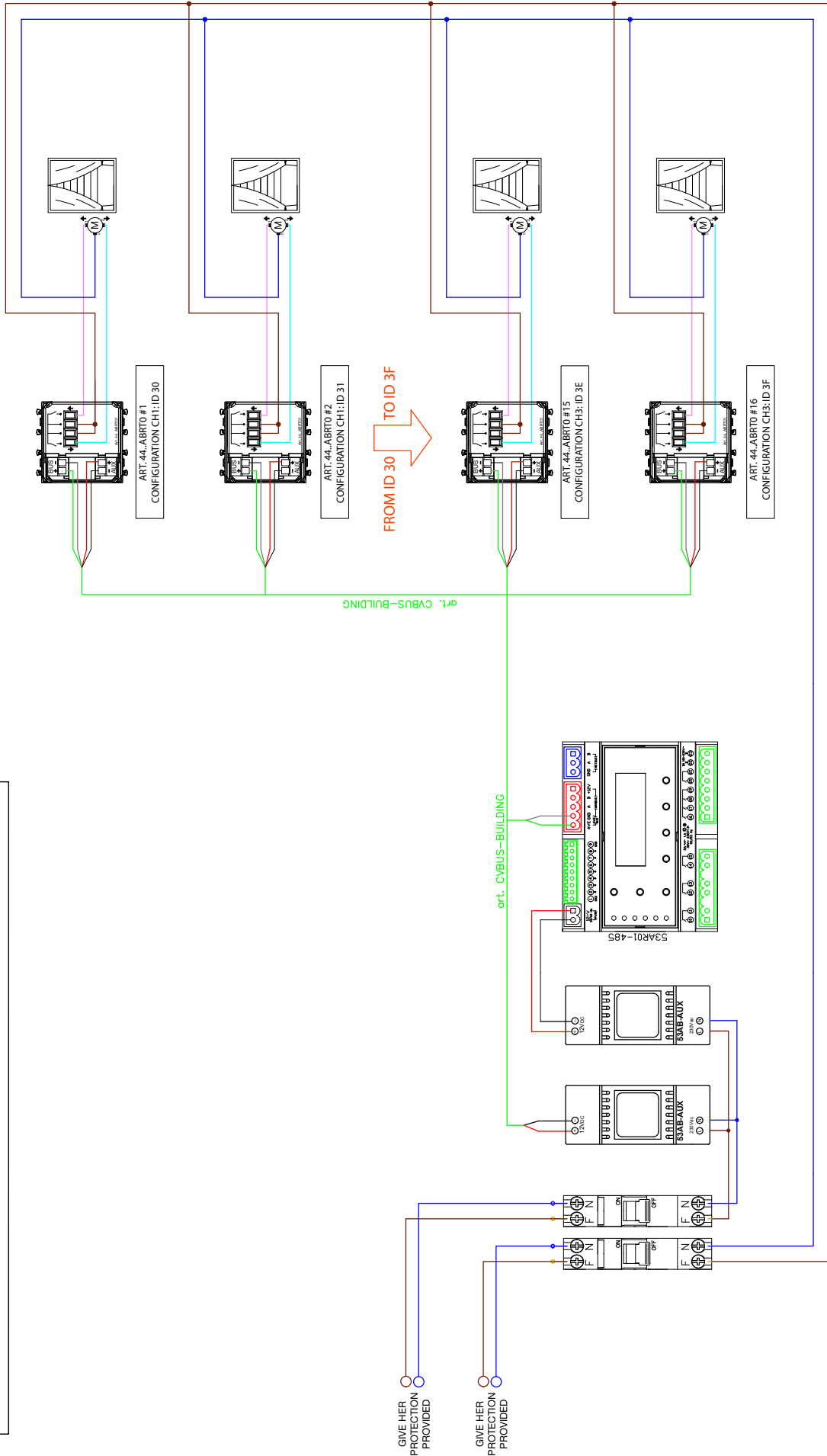
# Online Hotel Management

Connection scheme for Home blinds

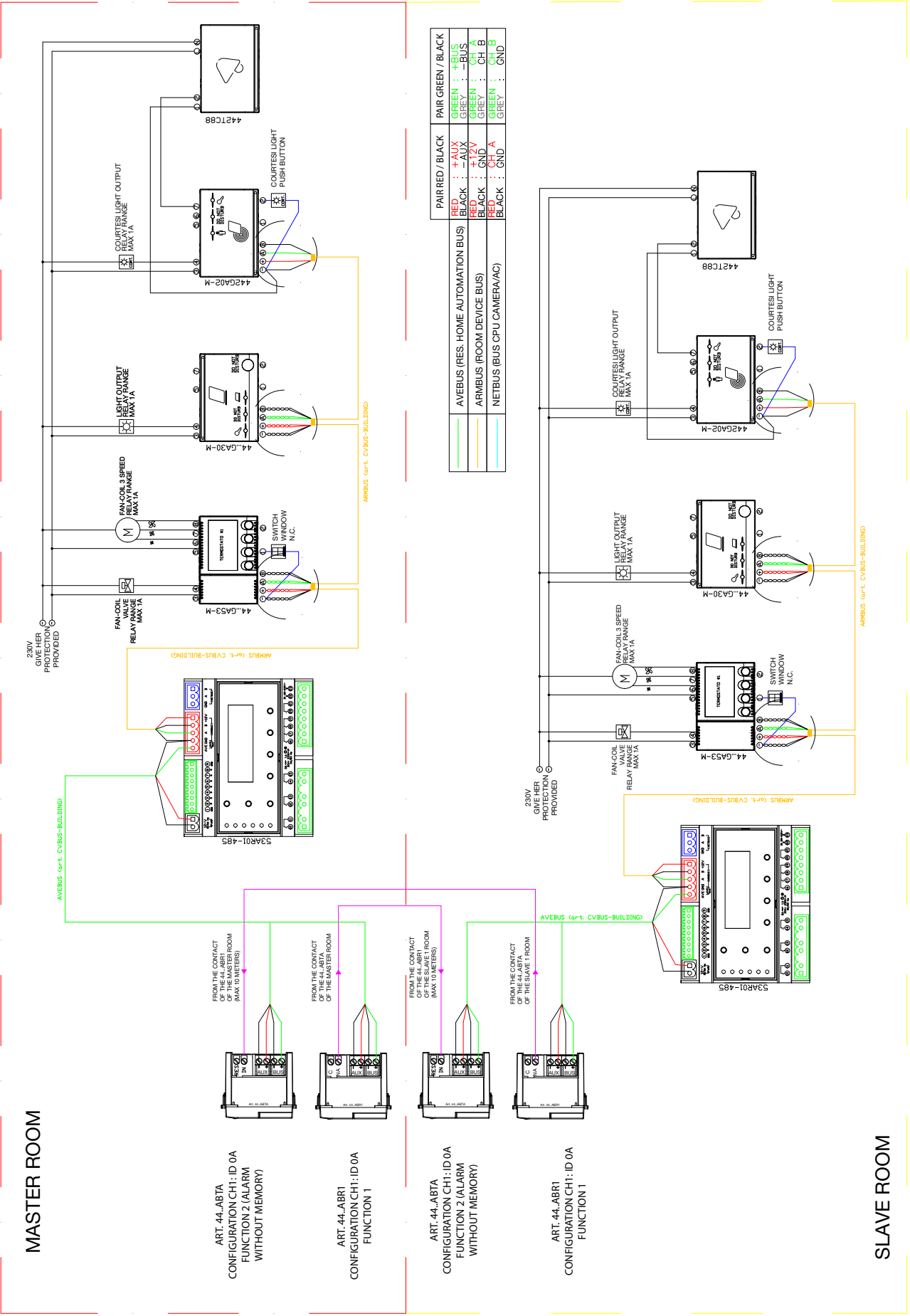


	AVEBUS (RES. HOME AUTOMATION BUS)	RED : +AUX	GREEN : +BUS
	ARMBUS (ROOM DEVICE BUS)	BLACK : -AUX	GREY : -BUS
		RED : +12V	GREEN : CH A
		BLACK : GND	GREY : CH B

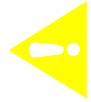
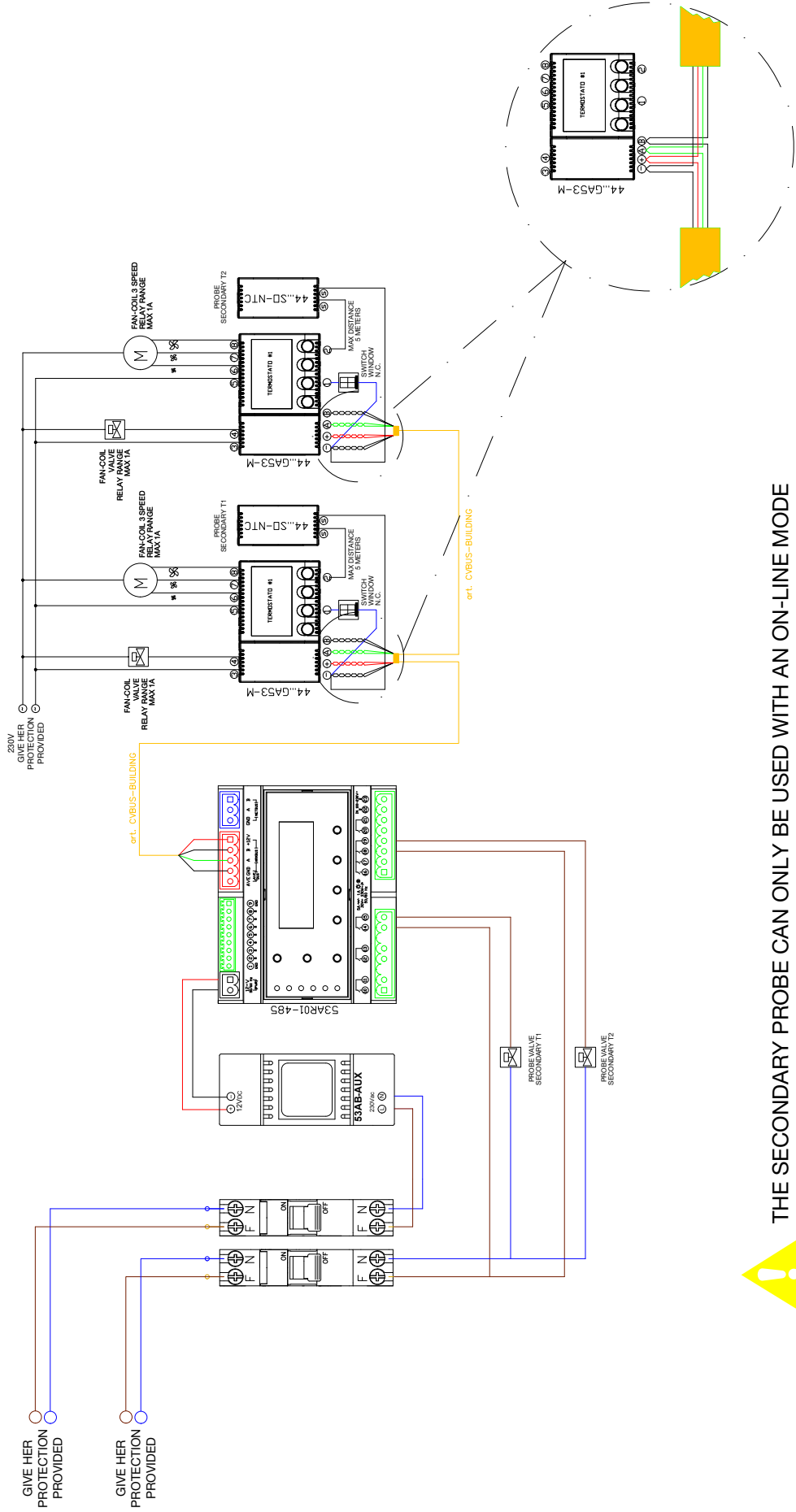
USE ONLY ADDRESSES FROM 30 TO 3F (MAX 16 SHUTTER ADDRESSES)







	AVEBUS (RES. HOME AUTOMATION BUS)	RED	+ AUX	GREEN	+ BUS
	ARMBUS (ROOM DEVICE BUS)	BLACK	- AUX	GREY	- BUS
		RED	+12V	GREEN	CH A
		BLACK	GND	GREY	CH B



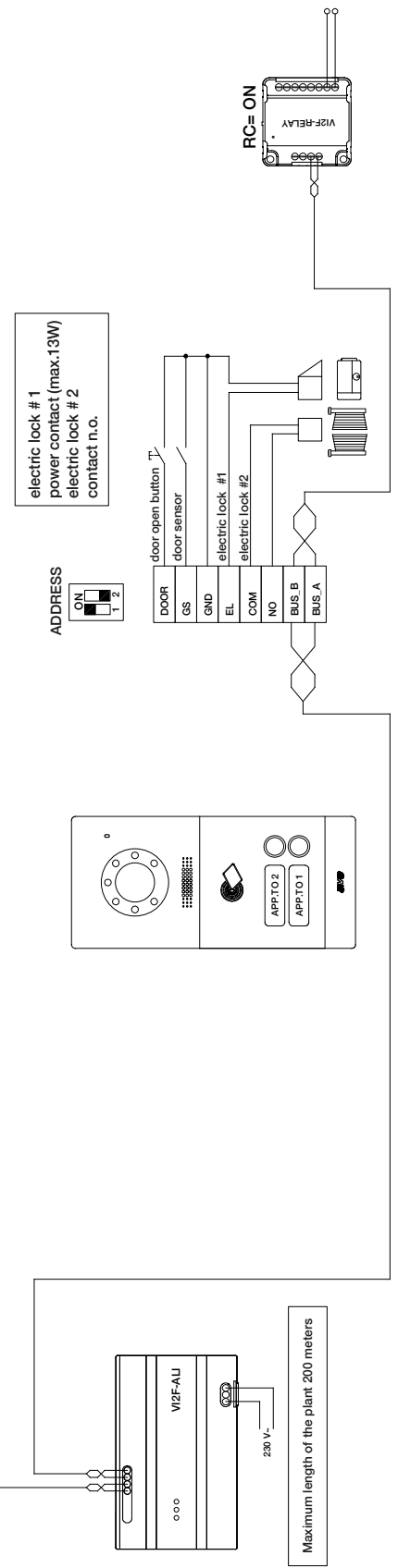
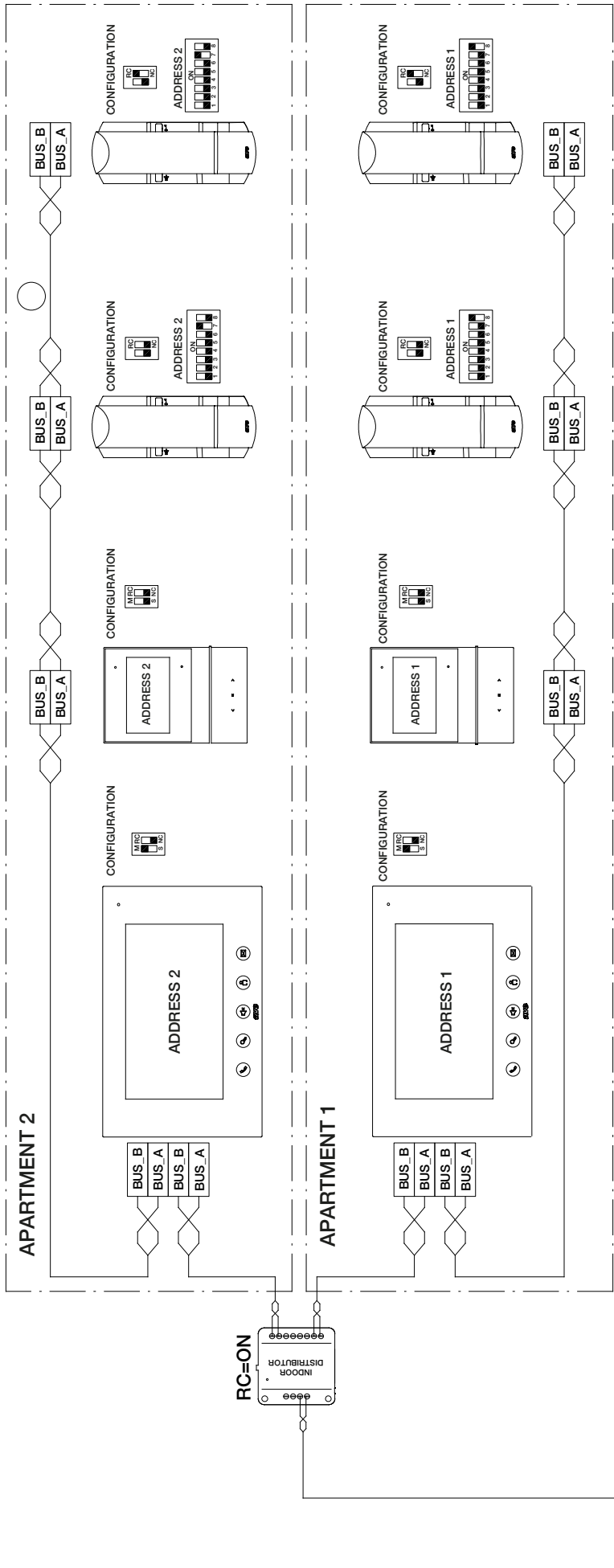
THE SECONDARY PROBE CAN ONLY BE USED WITH AN ON-LINE MODE





# V44 EASY 2-wire range video intercom

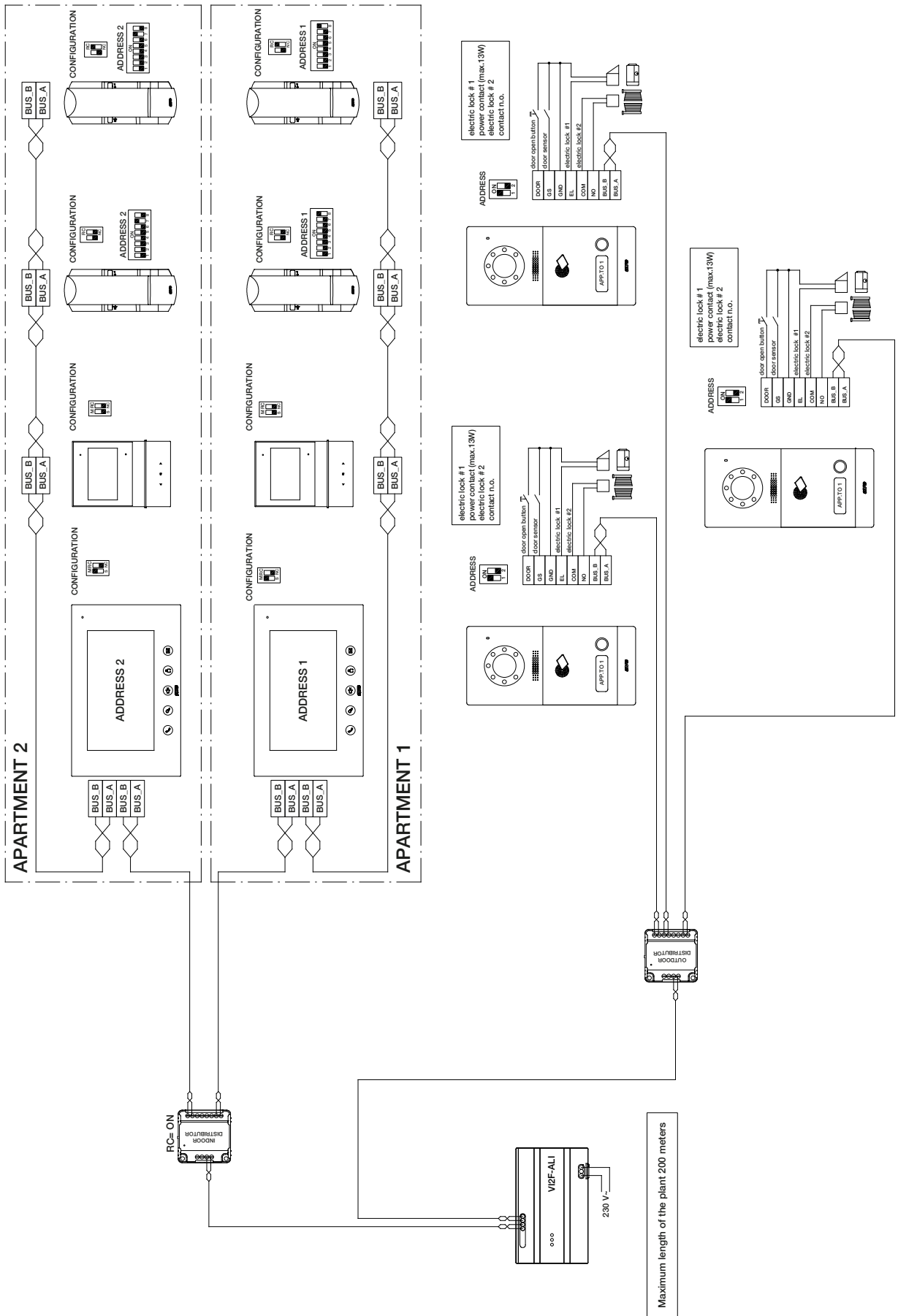
Connection diagram of a two-family system with external auxiliary relay





# V44 EASY 2-wire range video intercom

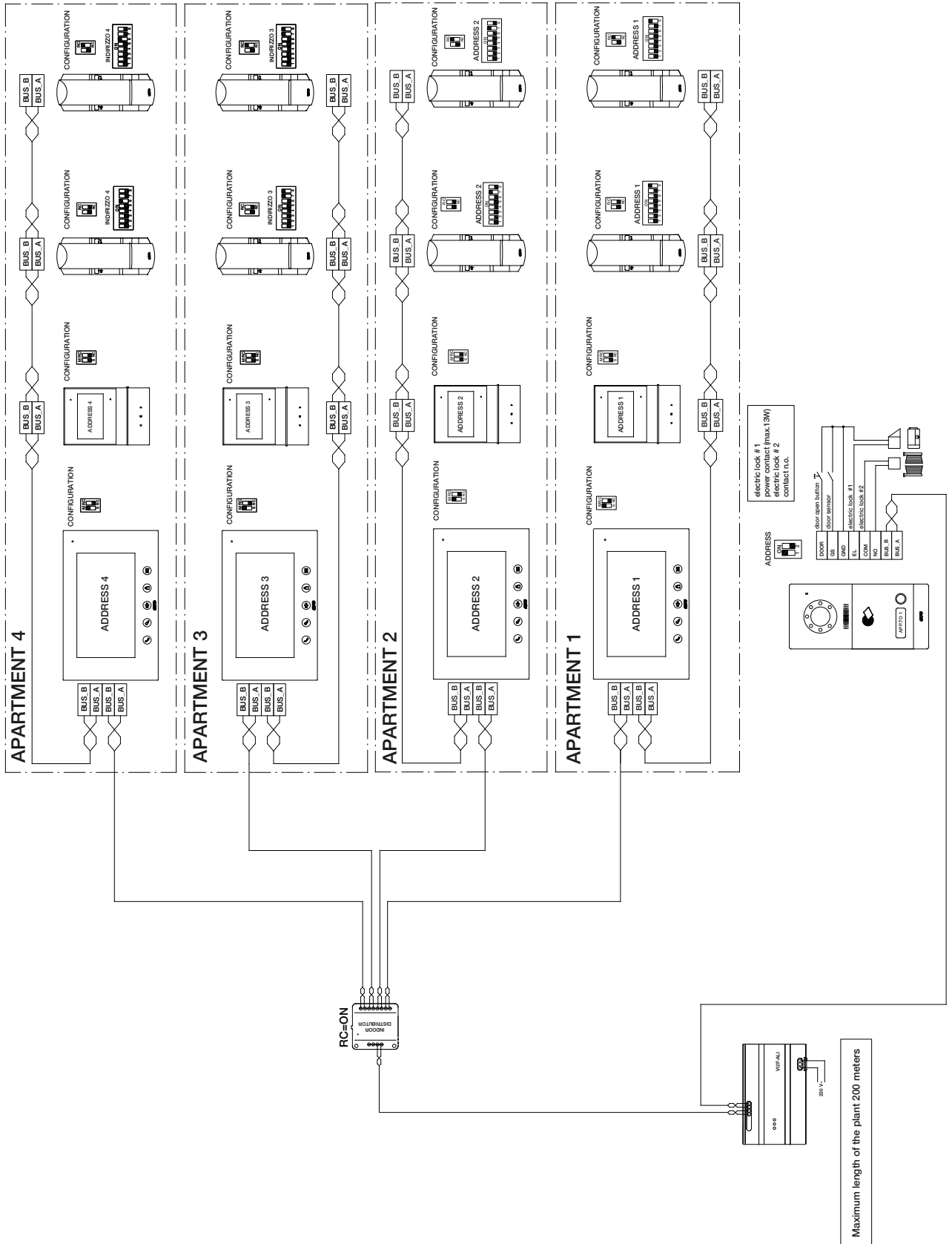
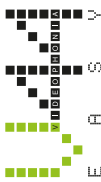
Connection diagram of a two-family system with 3 outdoor stations





# V44 EASY 2-wire range video intercom

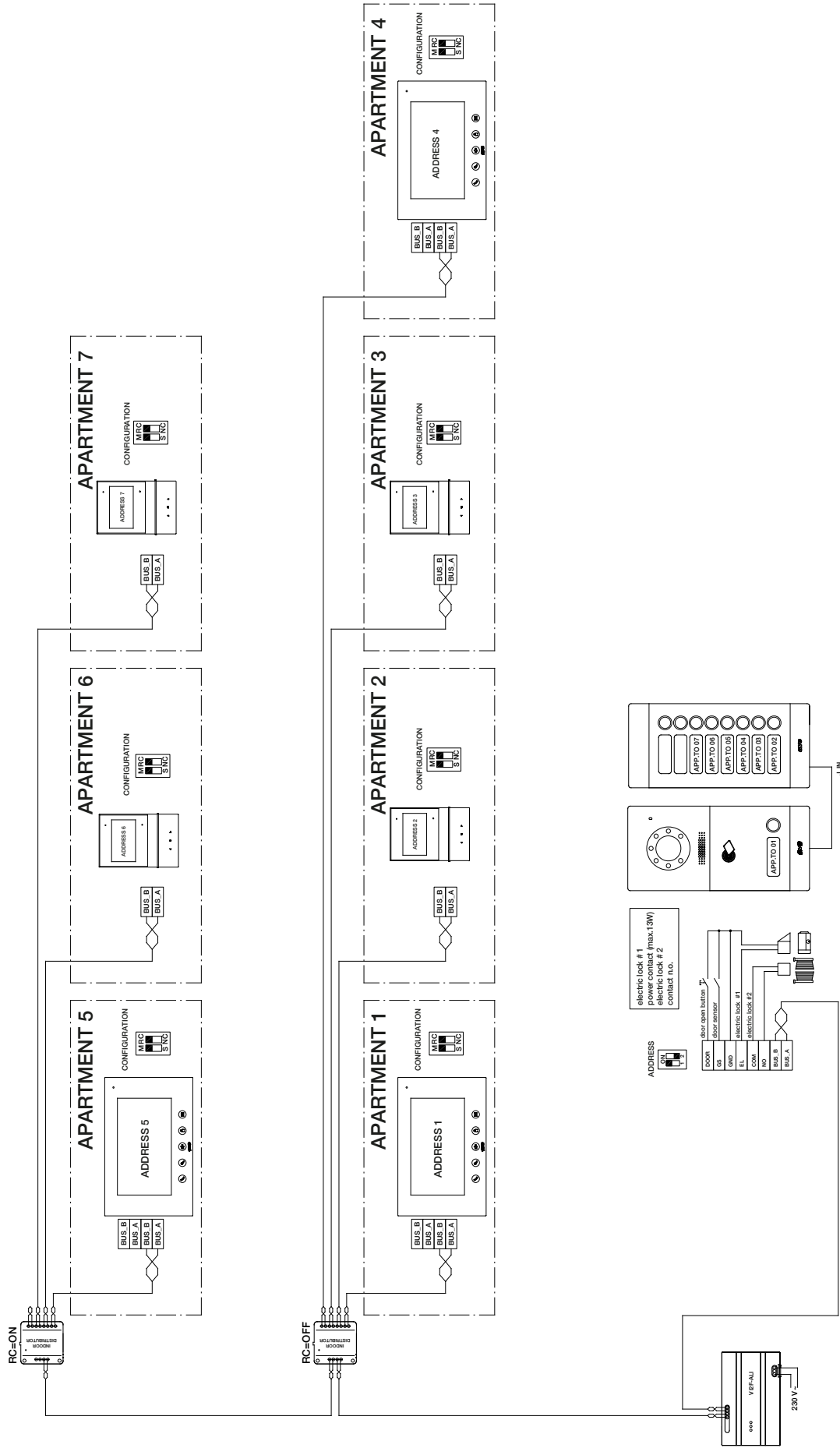
Connection diagram of a four-family system





# V44 EASY 2-wire range video intercom

Connection diagram of a system with 7 apartments

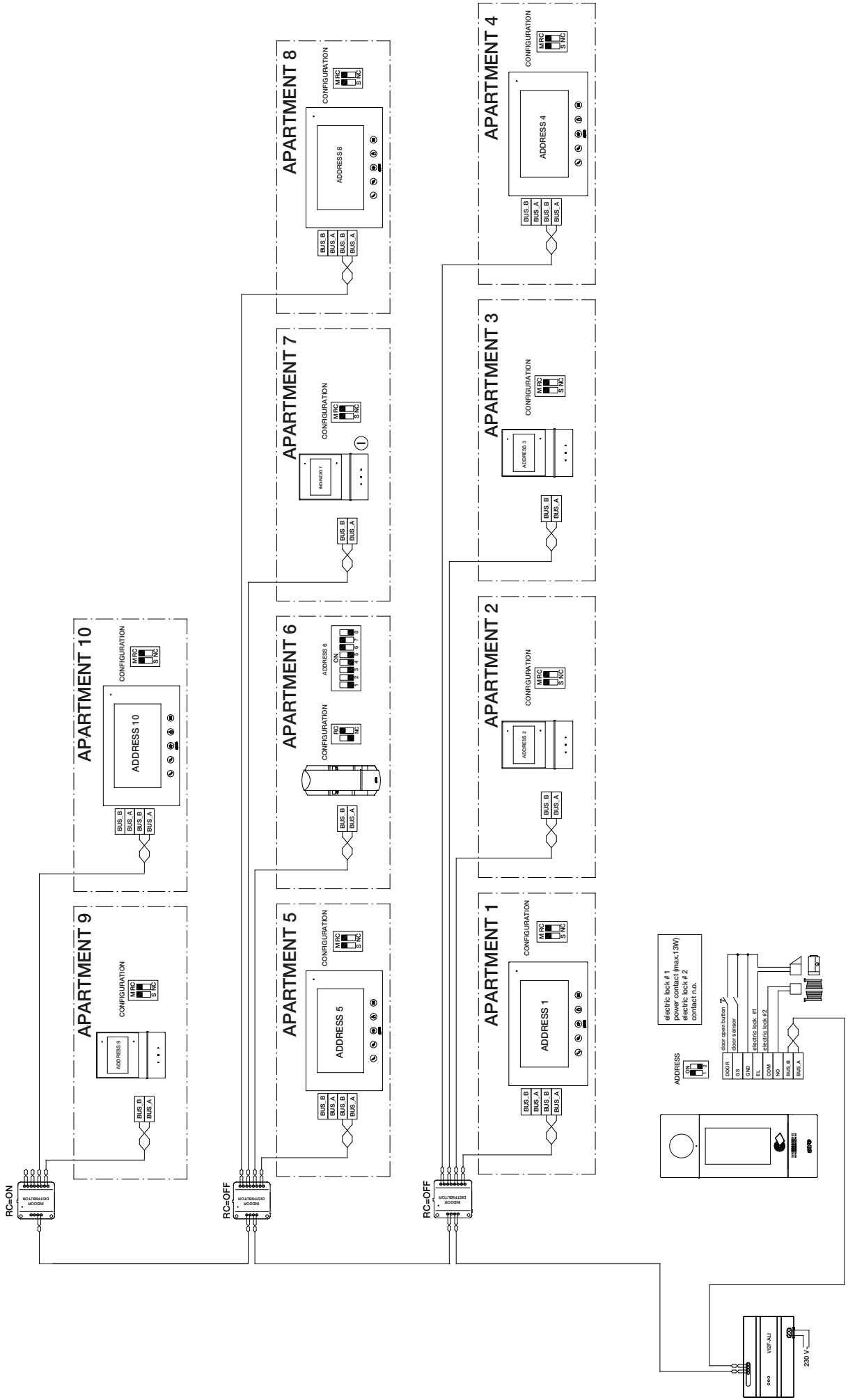


Maximum length of the plant 200 meters



# V44 EASY 2-wire range video intercom

Connection diagram of a system with 10 apartments



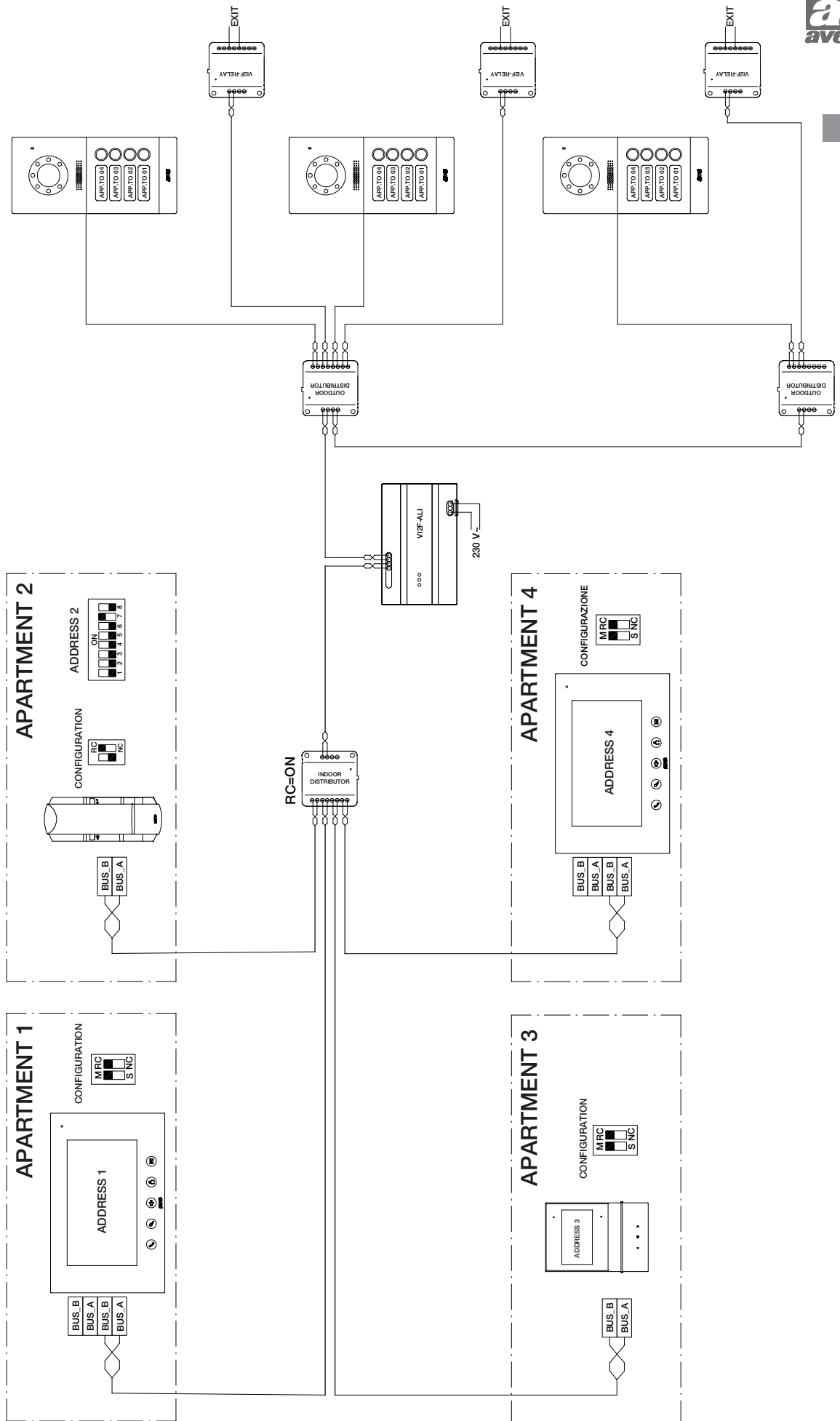
Maximum length of the plant 200 meters

AVE S.P.A.'s SERVICE AND THE RELATED WIRING DIAGRAMS FOR INSTALLATION ARE PROVIDED AS GUIDELINES, IT BEING UNDERSTOOD THAT, ACCORDING TO MINISTERIAL DECREE 37/08, PROJECT LIABILITY IS ALWAYS THE BURDEN OF THE PROJECT DESIGNER AND OF THE INSTALLATER FOR ALL THAT CONCERNS EXECUTION OF THE WORKS.



# V44 EASY 2-wire range video intercom

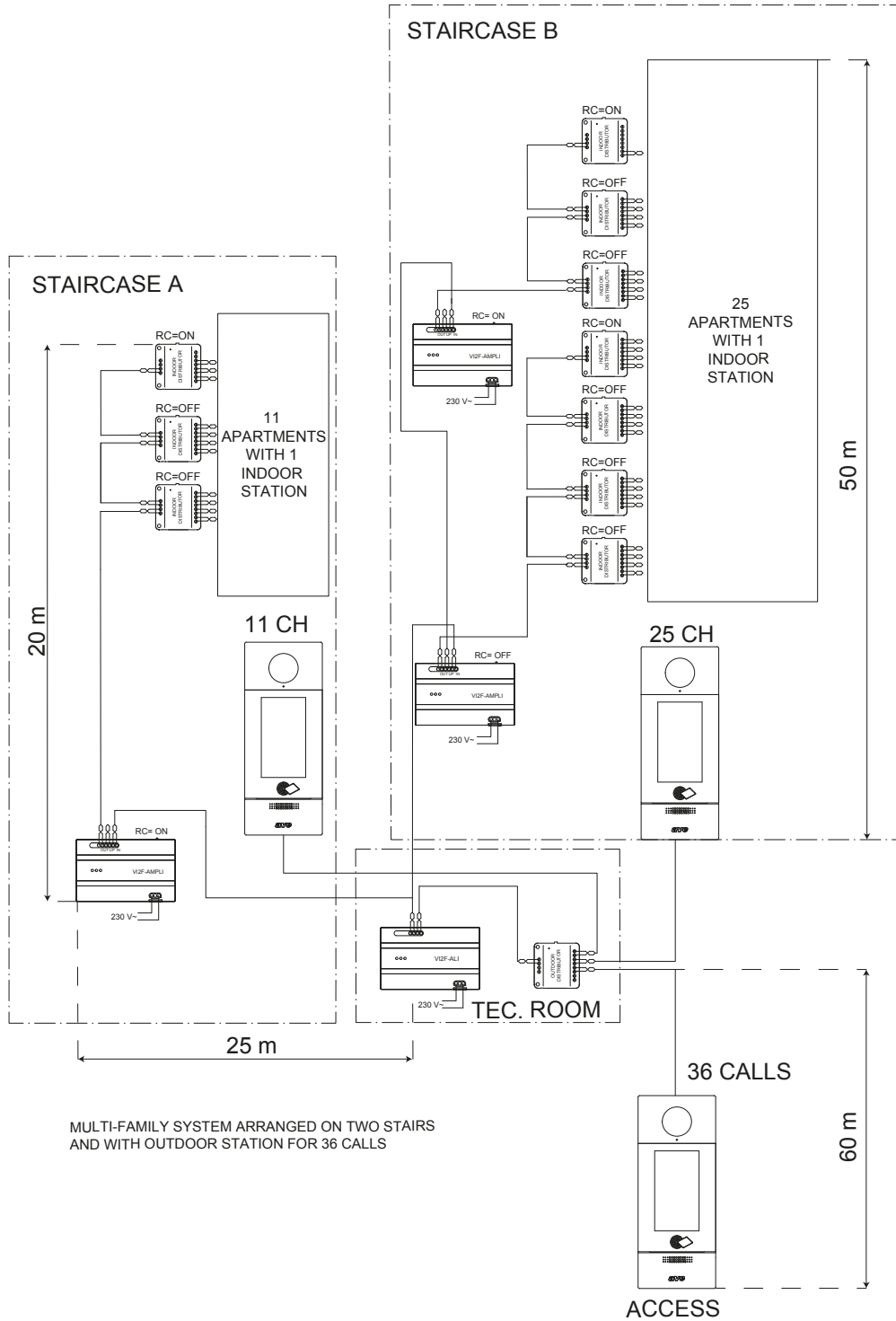
Connection diagram of a four-family system with 3 external stations and auxiliary external relay





# V44 EASY 2-wire range video intercom

Connection diagram of a 2-staircase system with 36 apartments

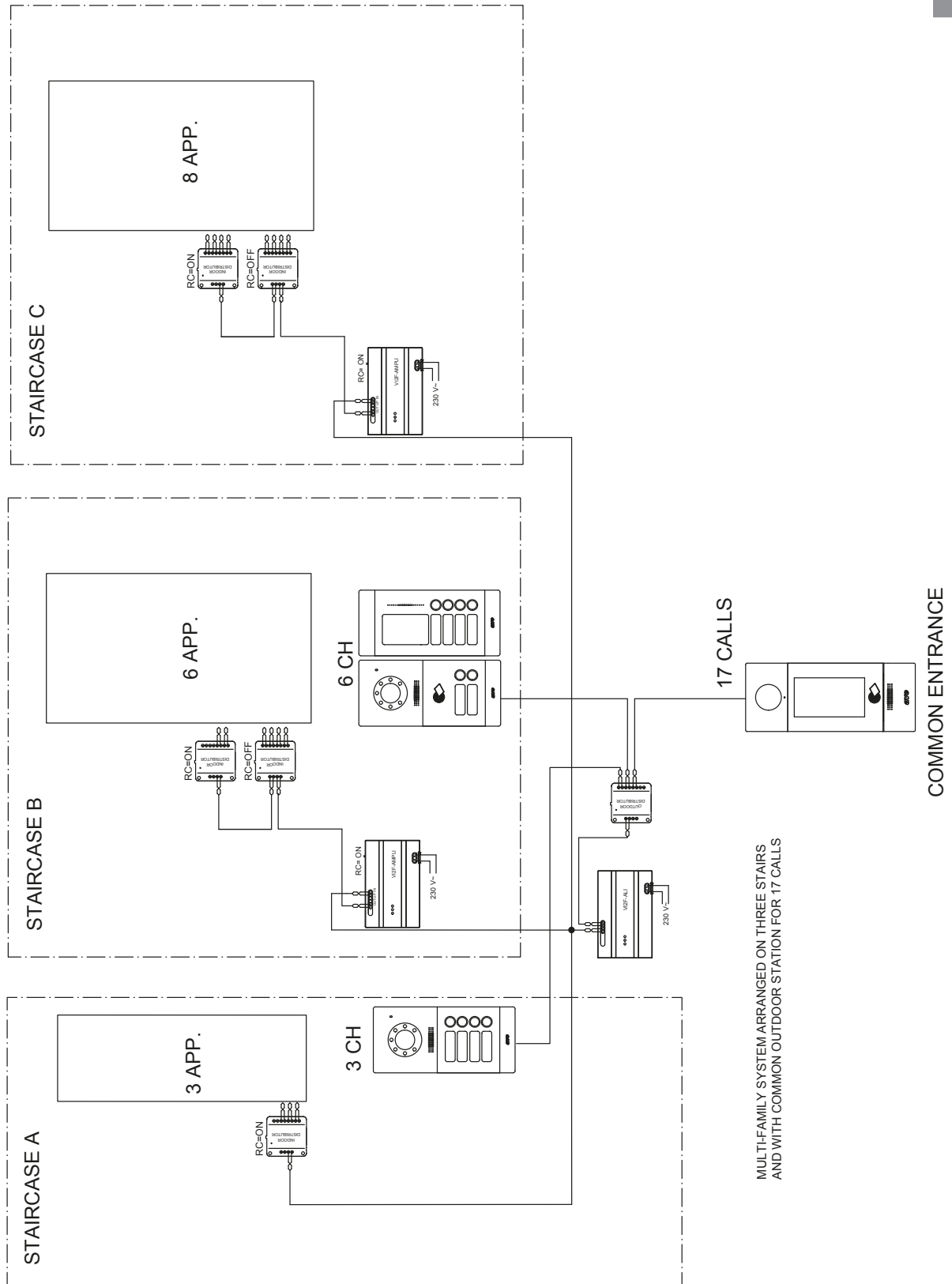


MULTI-FAMILY SYSTEM ARRANGED ON TWO STAIRS AND WITH OUTDOOR STATION FOR 36 CALLS



# V44 EASY 2-wire range video intercom

Connection diagram of a system of 3 rows of apartments

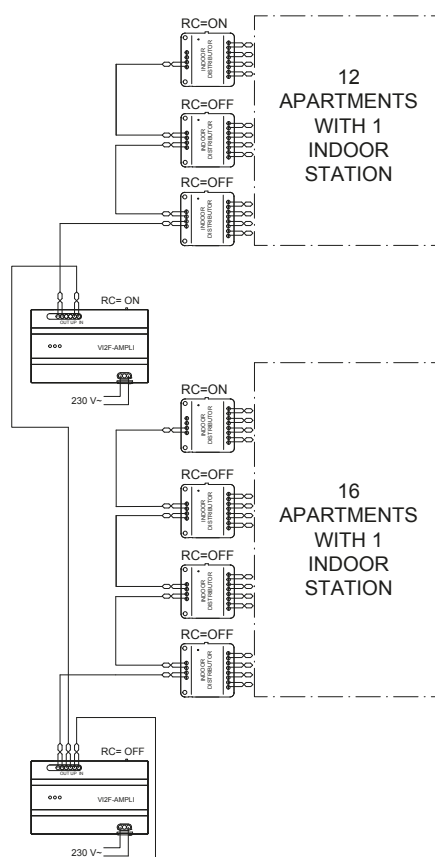
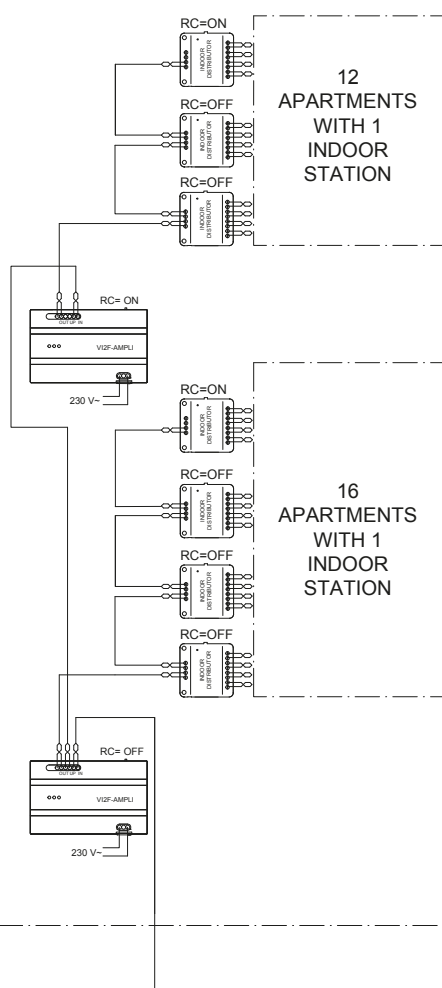






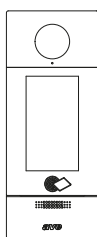
STAIRCASE C (7 floors)

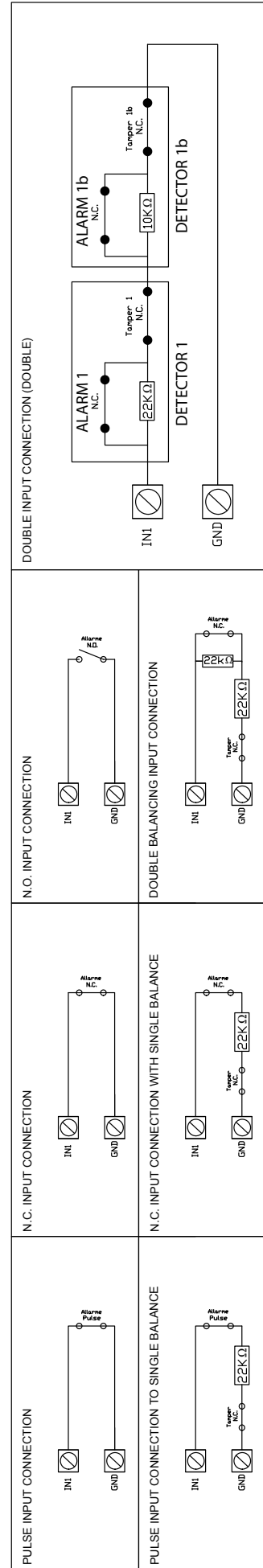
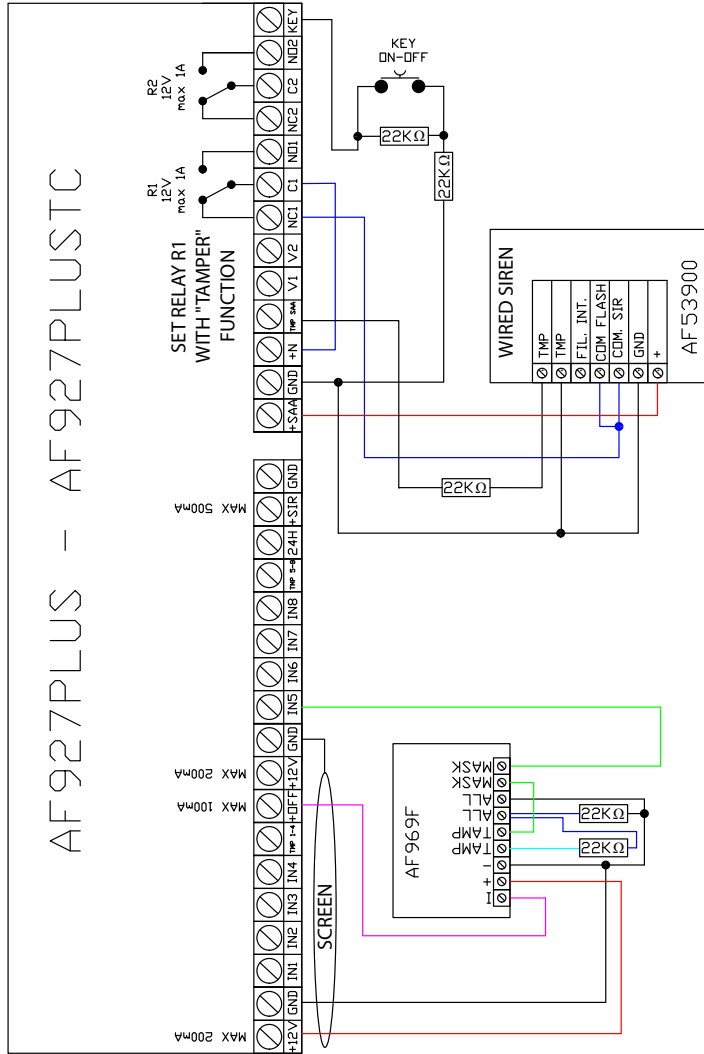
STAIRCASE D (7 floors)

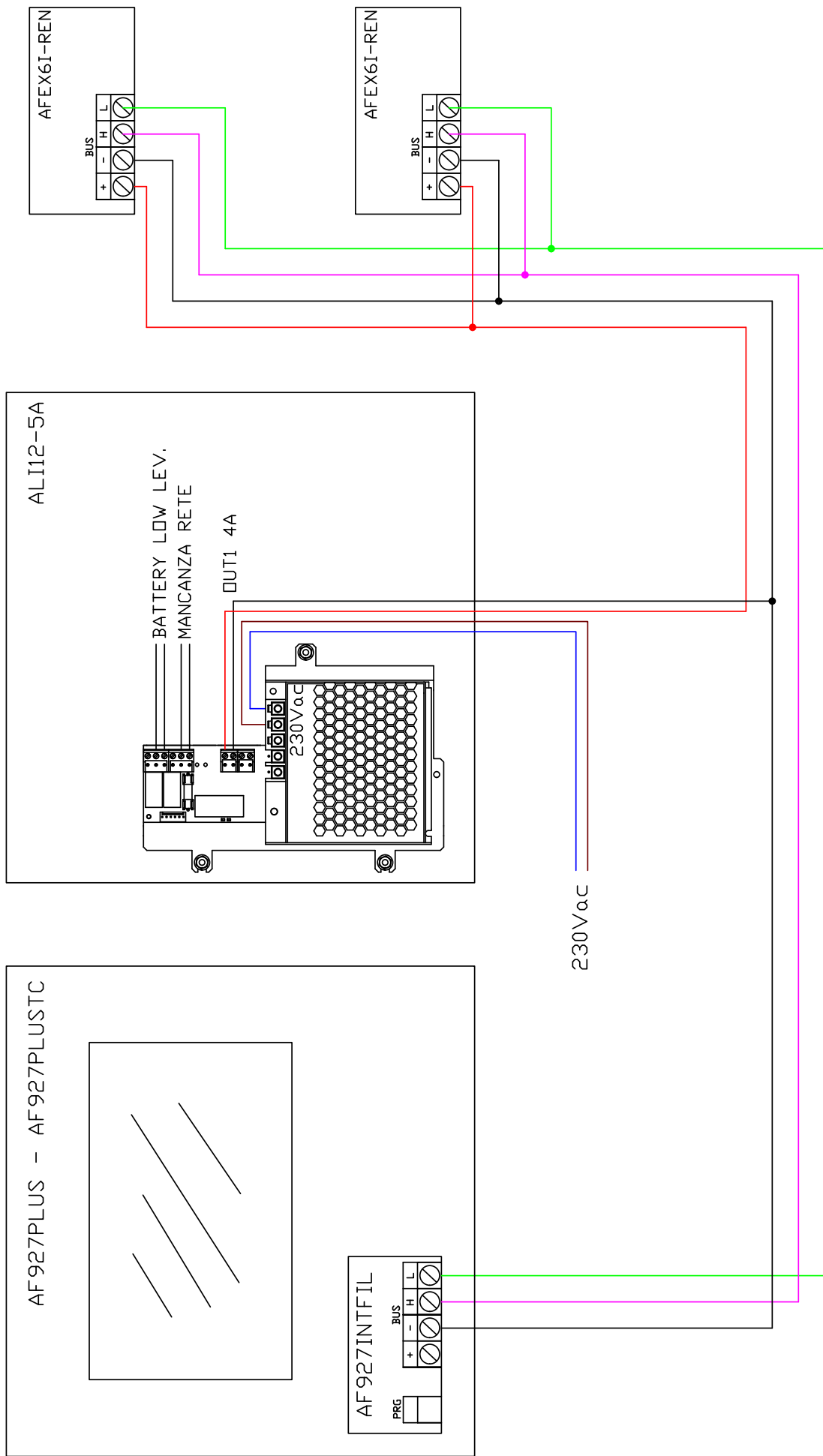


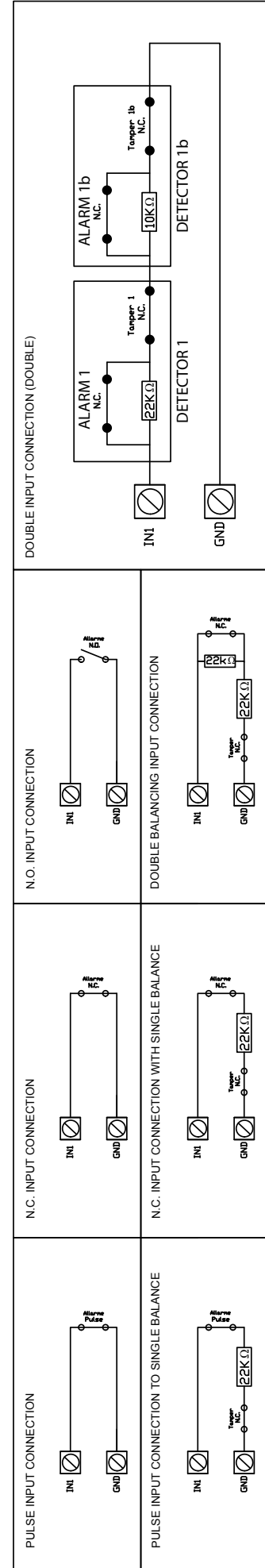
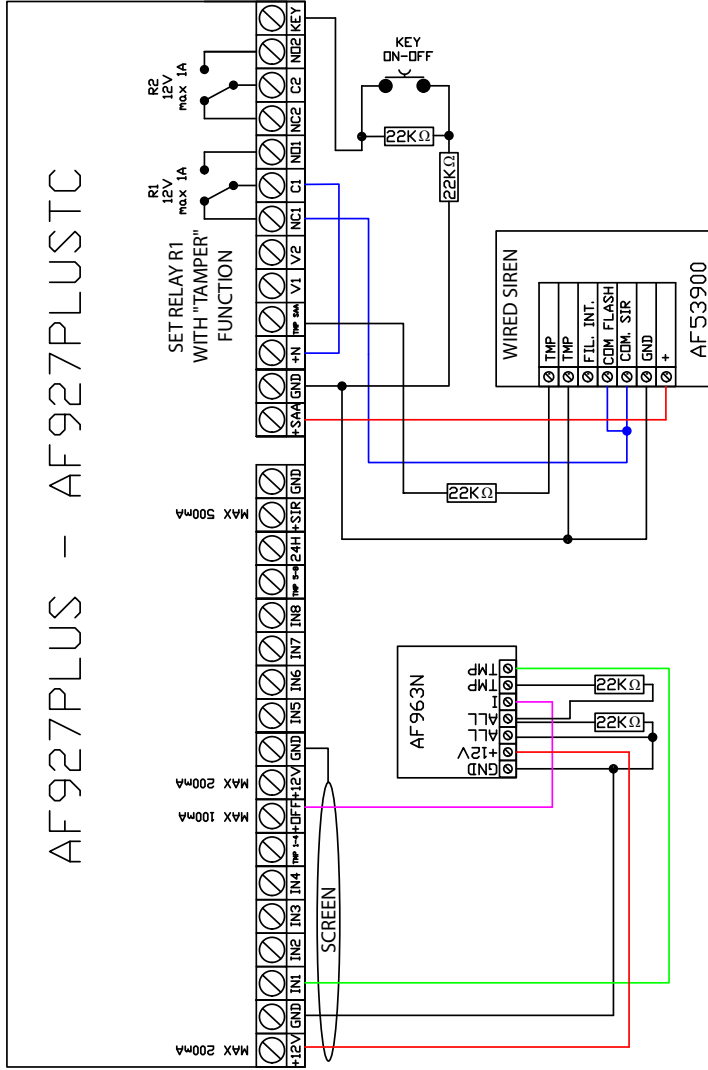
20 m

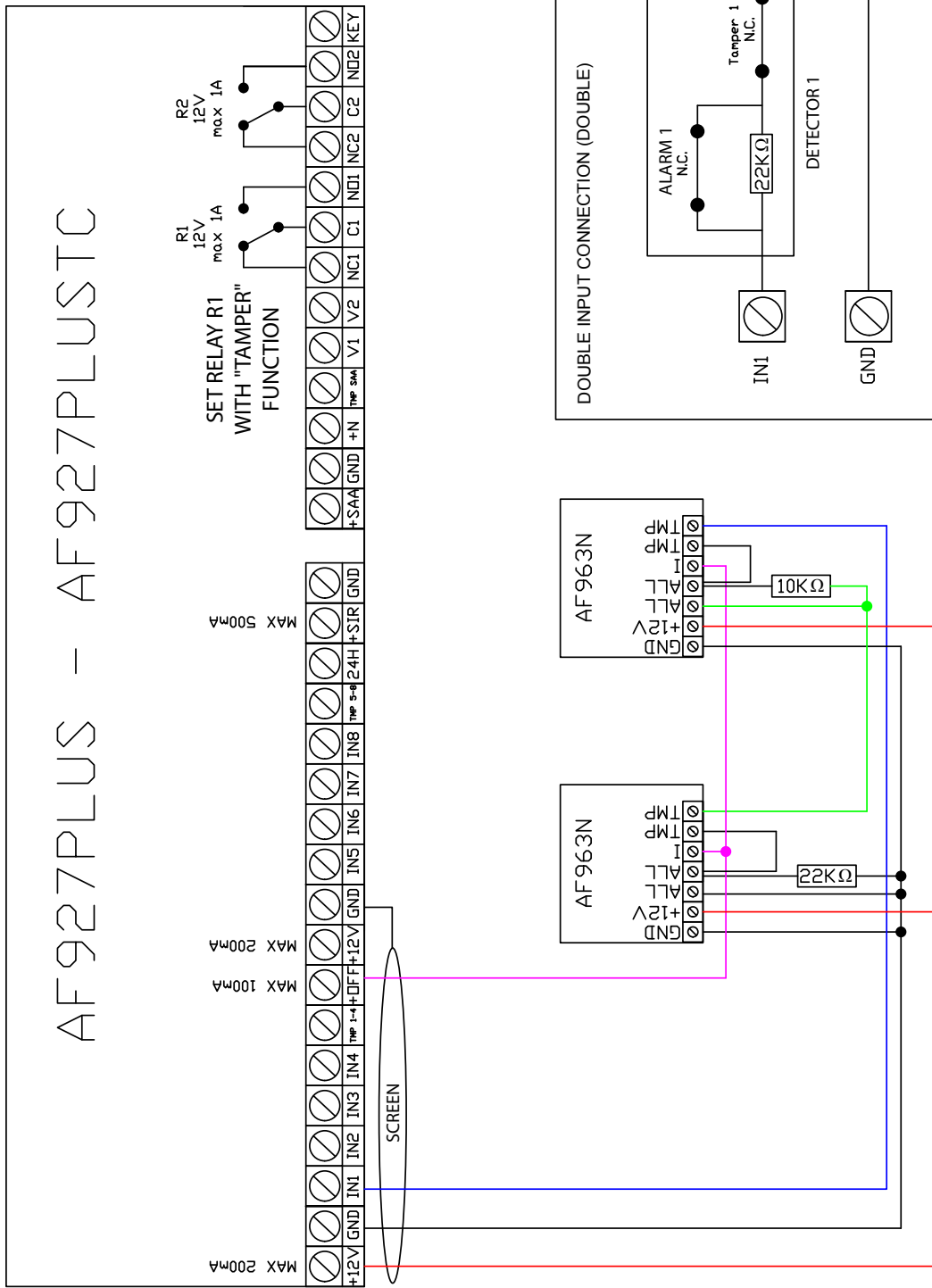
112 CALLS









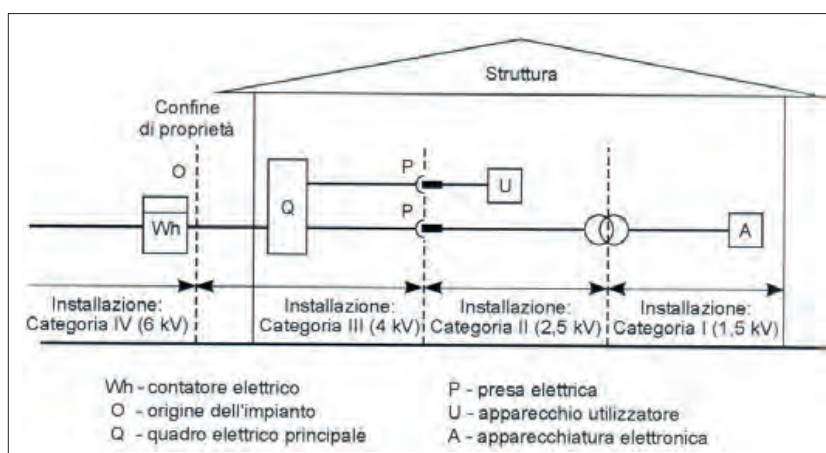




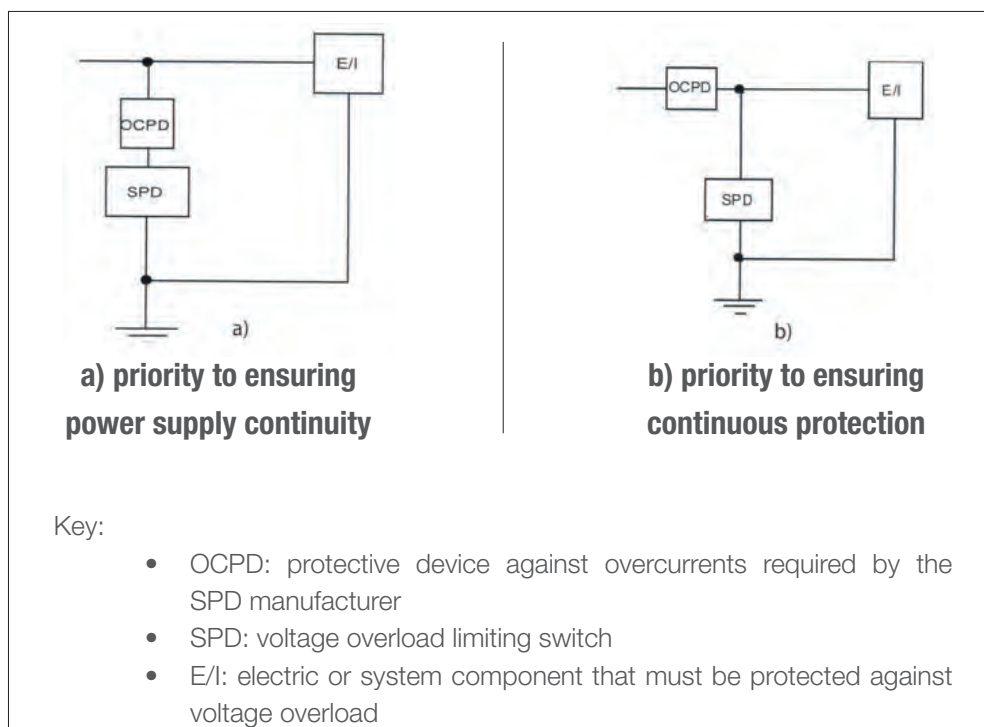
Voltage overload limitation and protection of people and their property are a legal and regulatory obligation, even before being a good rule for project design.

When the system is particularly sophisticated, as in the case of home automation, where delicate and, at times, vital processes and/or automatisms have to be regulated and controlled, protection against voltage overload, whether of atmospheric origin or from power lines entering the building, becomes an essential performance requirement for the system.

Standard CEI 64-8, as an addition to art. 443.2.2, proposes the figure below (Fig. 1) to identify voltage overload categories. Precisely, it divides the electrical system into four areas characterised by various voltage overload categories numbered from I to IV for which maintenance of the various impulse voltage levels is prescribed, depending on the nominal voltages and on the type of the electrical system.



**Fig. 1 – Division of the electrical system into four zones based on the voltage overload categories**



**Fig. 2 – SPD installation modes**

Tipo di SPD	L+N/PE
Tensione nominale circuito alimentazione	230 V <sub>ca</sub>
N° di poli	1P+N
Tensione massima continuativa	320 V <sub>ca</sub>
Classe di prova IEC 61643-1+ A1(2001)	II
Tipo sec. CEI EN 61643-11/A11	T2
Corrente nominale scarica L/N/PE (8/20 µs) per polo	10kA
Corrente massima scarica L/N/PE (8/20 µs) per polo	20kA
Corrente ad impulso (10/350 µs)	1,50kV (L o N / PE)
Livello di protezione con In-Up	Max. < 8W
Fusibile di protezione	132A gG
Segnalazione ausiliaria di guasto	NA + NC in scambio



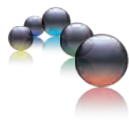
Voltage overload limiting switches (known as SPD: Surge Protection Device) must be installed in the various zones to limit the maximum voltage overload that can manifest in that zone. Specifically, Standard CEI EN 61643-11 defines three types of SPD:

- Type 1: the maximum discharge current occurs on a 10/350 µs wave. These voltage overload limiting switches must be installed at the input of the power supply line. They have to discharge important portions of the lightning current.
- Type 2: the test current has an 8/20 µs wave. These limiting switches are installed to discharge currents associated with induced voltage overloads and/or with non-significant portions of lightning current. They are installed at the access point of the power supply line to structures that are not directly exposed to lightning and to protect the internal circuits of structures subjected to direct lightning.
- Type 3: the wave is 1/50 µs in a short-circuited closed circuit. This type of limiting switches is intended for “fine” protection, that is when the devices are powered by circuits that are already protected upstream by SPD Type 1 or Type 2.

The protection of a home automation system in which the electronic components are important and sophisticated can only be implemented by arranging the various SPDs in three levels, installing each device between conductors on which voltage overload can manifest, with special care for electronic equipment and its dedicated protection with SPD type 3.

Standard CEI 64-8, in Enclosure 534, provides five diagrams for SPD insertion, based on the plant's power supply system (TT, TN, IT). In the residential framework, where the power supply system is usually TT, the recommended insertion diagrams are provided in Figures 2a and 2b, depending on whether you wish to prioritise power supply continuity or protection.





# INSTALLATION NOTES

## PRECAUTIONS AND PROTECTIONS FOR HOME AUTOMATION SYSTEMS

### REGULATIONS AND TIPS FOR RESIDENTIAL HOME AUTOMATION SYSTEMS - by the Department of Research and Development of AVE S.p.A.

362

General rules to be applied when installing a home automation system in a workmanlike way are basically defined by the current legislation and, in particular, by the following standards:

- CEI 64-8 VII Edition 2012: Electrical plants using rated voltage of no more than 1000V AC and 1500V DC;
- CEI 64-100/3:2011-2 : Residential Building - Guide to the preparation of infrastructures for electrical, electronic and communication plants - Part 3: single family homes, terrace houses and residences;
- EN 50090-9-1:2005 : Electronic systems for the home and buildings (HBES), Installation notes, General wiring for category 1 HBES systems on twisted pair wires;
- Guidelines CEI 205-14: Guide to design, install and test the plants (HBES);
- CEI CLC/TR 50090-9-2: Electronic systems for the home and buildings (HBES), Installation notes, inspection and installation tests (HBES). Summarising some basic points, the following expedients must be adopted to install a good electric/home automation system:
  - the ducts (corrugated pipes) for the passage of wires of the mains (LV) and the home automation bus (SELV) must be independent and separate;
  - in the junction boxes, if they are shared, the wires of the mains (LV) and the home automation bus (SELV) must be kept separate using dedicated partitions;
  - in the case of underfloor heating, the ducts (both LV and SELV) must be laid under the heating pipes to avoid overheating of cables with the plant in operation;
  - the ducts for electrical and home automation bus wiring must not, as far as possible, run parallel and, if they should meet, ensure that they cross over perpendicularly in order to minimise interference to the home automation bus;
  - the home automation bus must be made with a cable consisting of two pairs of wires (cross-section 0.5 mm<sup>2</sup>) with overall sheath;
  - do not connect the braided shield of the wire to the ground of the electrical plant but to the GND terminal of the bus power supply unit.

We recommend using the AVE cable designed for these projects, cod. CVAVEBUS or cod. CVBUSBUILDING.

Moreover, the home automation system must be preventively sized to ensure compliance with basic system requirements:

- the overall number of devices installed on the home automation bus must not be greater than the maximum load "C" defined as 300, if two bus power supply units cod. 53AB-ALI are used in parallel, or as 150 using a single bus power supply unit cod. 53AB-ALI;
- the overall number of devices installed on the home automation bus and the quantity of wiring must not be greater than the maximum capacity of the "Cap" bus defined, regardless of the number of bus power supply units, at 150nF;
- the maximum distance between the farthest device and the bus power supply unit must not be greater than 300 m. If compliance with this parameter cannot be ensured, even if the load limit "C" does not exceed the value 150, it is, anyhow, essential to insert the second bus power supply unit by physically positioning it to ensure that the maximum distance is not exceeded. Greater distances and a larger number of devices can be adopted by using line isolators.

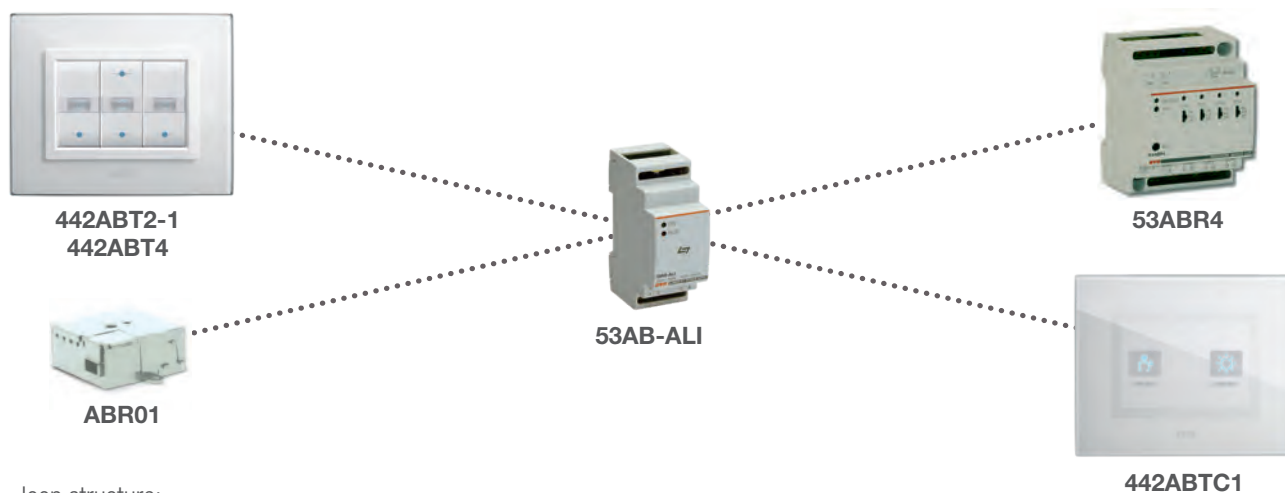
For more information, refer to the sizing table in the product documents.

## TYPE OF CONNECTIONS

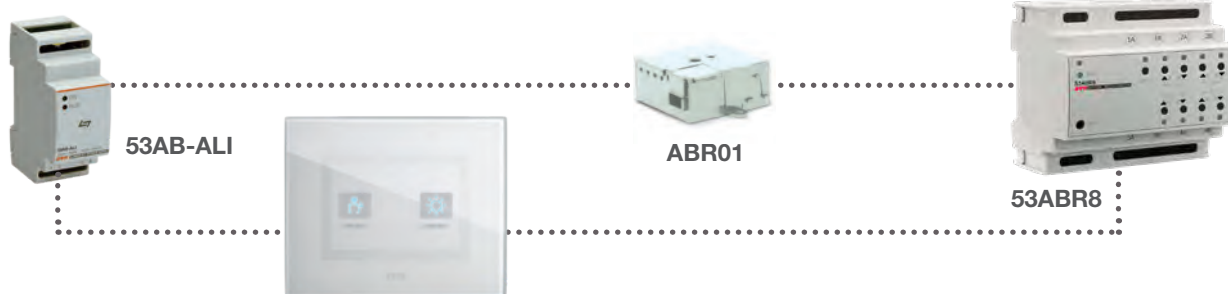
- linear structure: there is only one open backbone network to which all elements are connected;



- star structure: each element is connected to a central point;



- loop structure;



Using the cable:

### Using the cable cod. CVAVEBUS:



Green + Grey pair, used for AVEbus connection.

Red + Black pair, used for 12Vdc auxiliary power supply for devices.



# INSTALLATION NOTES

## PRECAUTIONS AND PROTECTIONS FOR HOME AUTOMATION SYSTEMS

### REGULATIONS AND TIPS TO INSTALL HOME AUTOMATION SUPERVISORS - by the Department of Research and Development of AVE S.p.A.

364

The home automation system with supervisors and graphic interface (Touch Screen Panels) allows to control all functions of the house from a single point. This makes the system accessible to everybody and extraordinarily easy to use: the touch of a finger will activate multiple functions, scenarios or simple commands at the same time.

The general rules to follow when installing a Touch Screen in a workmanlike way, in compliance with the current legislation, are given below:

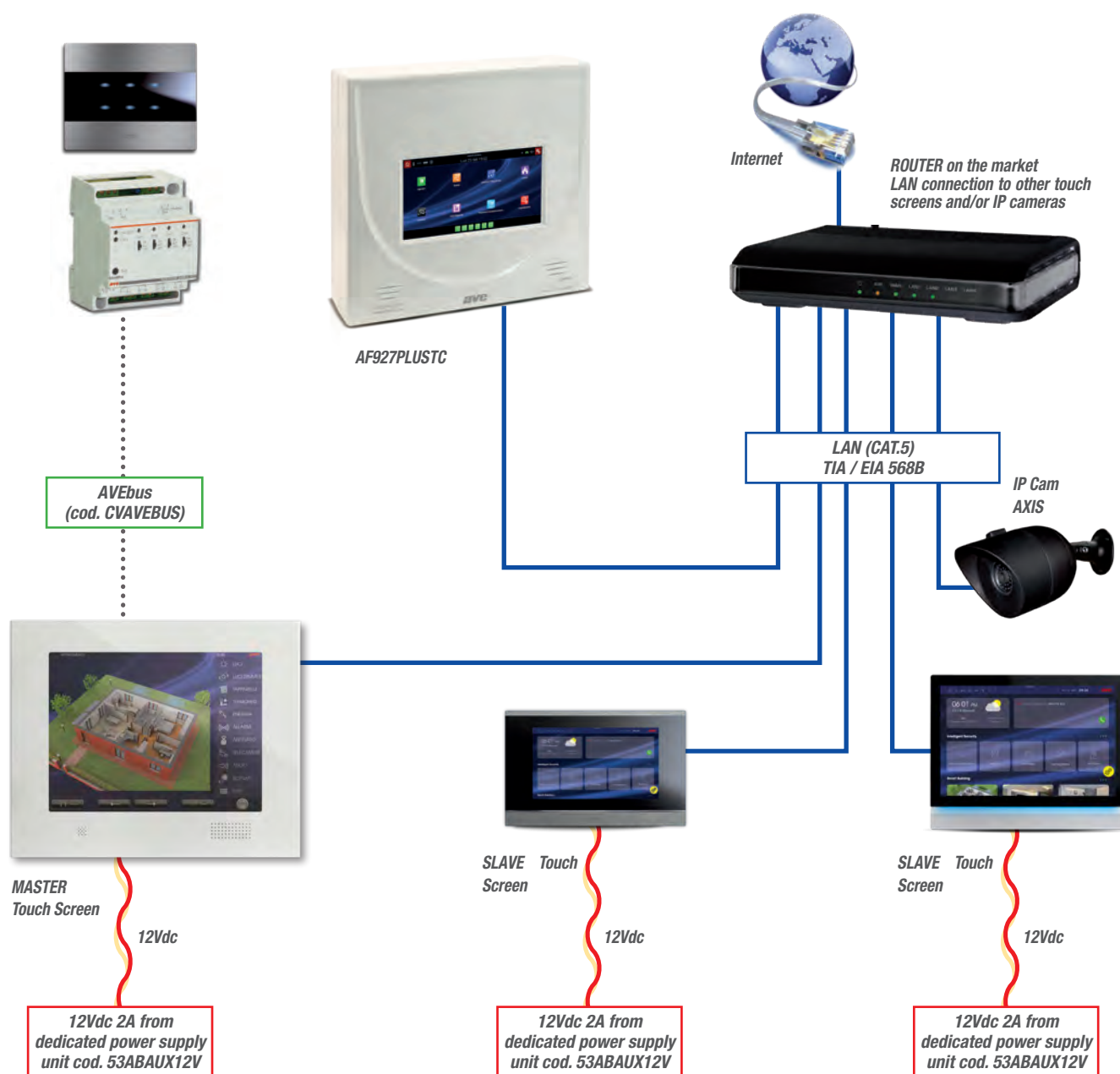
- do not expose the device to direct sun light;
- the temperature of the wall where the device is installed must not be greater than 30°C and, therefore, the areas around the device (both sides of the wall) must be free of heat sources (fan coil units, radiators, chimneys, cooking stoves, etc.);
- the temperature of the room where the device is installed must be between 5°C and 30°C;
- for proper operation of the Touch Screen, corrugated pipes with diameter 32 mm must be installed to guarantee correct air circulation between the embedded box containing the device and the room where it is installed;
- the devices must be installed using, when envisaged, the special spacer frame supplied (an essential requisite for product warranty).

General wiring rules are given below:

- wiring of the device must be from downward;
- the AVEbus line must be connected using the certified AVE cable;
- the 12Vdc power supply, which is necessary for device function, must be connected via a dedicated power supply unit item 53ABAUX12V using a cable with proper section according to the distances and power absorption of the device (for more information, refer to the product documents);
- the use of a power supply dedicated line with UPS protection is recommended;
- the Touch Screens must be powered between 12 Vdc and 13 Vdc; this voltage must be adjusted before connecting the device when all devices are disconnected;
- the LAN network connection between the various devices must be created with cable and wiring according to Standard TIA / EIA 568B;
- the connection to the anti-intrusion control unit AF999EXP and AF949 (through interface item TSINT02) must be implemented with a LAN network.

The remote assistance service is available throughout the product warranty provided that an Internet connection is ensured (refer to warranty notes and warnings on the commercial catalogue). To facilitate maintenance interventions and to reset the system, we also recommend preserving the copy of the initial configuration provided by the technician who started up the system.

# TYPE OF CONNECTIONS



HOME AUTOMATION

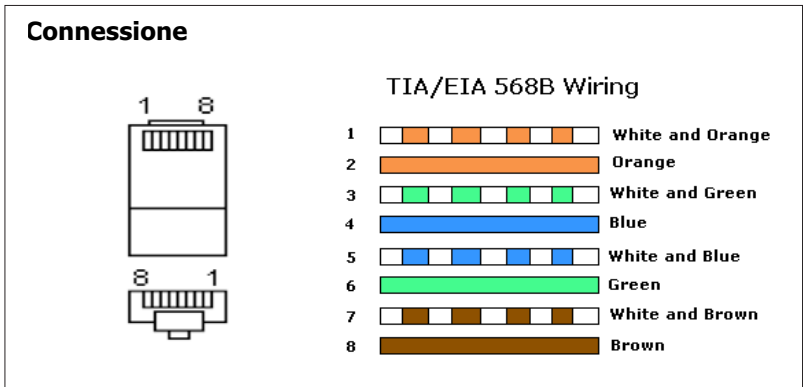
HOTEL MANAGEMENT

VIDEO INTERCOM

ANTI INTRUSION

WIRING DIAGRAMS AND PRESCRIPTIONS

**WARNING!**  
The Touch Screen power supply unit must strictly be between 12.00 Vdc and 13.00 Vdc.



Note: AVE Spa reserves the right to update and/or change the content of this document without prior notice to the user. Please check for updates at [www.ave.it](http://www.ave.it).



# INSTALLATION NOTES

## PRECAUTIONS AND PROTECTIONS FOR HOME AUTOMATION SYSTEMS

### RULES AND TIPS FOR HOTEL AUTOMATION SYSTEMS - by the Department of Research and Development of AVE S.p.A.

366

General rules to be applied when installing a hotel automation system in a workmanlike way are basically defined by the current legislation and, in particular, by the following standards:

- CEI 64-8 VII Edition 2012: Electrical plants using rated voltage of no more than 1000V AC and 1500V DC;
- CEI 64-100/3:2011-2 : Residential Building - Guide to the preparation of infrastructures for electrical, electronic and communication plants - Part 3: single family homes, terrace houses and residences;
- EN 50090-9-1:2005 : Electronic systems for the home and buildings (HBES), Installation notes, General wiring for category 1 HBES systems on twisted pair wires;
- Guidelines CEI 205-14: Guide to design, install and test the plants (HBES);
- CEI CLC/TR 50090-9-2 : Electronic systems for the home and buildings (HBES), Installation notes, inspection and installation tests (HBES).

Summarising some basic points for the installation of a good plant, the following expedients must be adopted:

- the ducts (corrugated pipes) for the passage of wires of the mains (LV) and of the communication bus (SELV) must be independent and separate;
- in the junction boxes, if they are shared, the wires of the mains (LV) and of the communication bus (SELV) must be kept separate using dedicated partitions;
- in the case of underfloor heating, the ducts (both LV and SELV) must be laid under the heating pipes to avoid overheating of cables with the plant in operation;
- the ducts for electrical wiring and for the communication bus must not, as far as possible, run parallel and, if they should meet, ensure that they cross over perpendicularly in order to minimise interference to the home automation bus;
- the communication bus must be made with a cable consisting of two pairs of wires (cross-section 0.5 mm<sup>2</sup>) with overall sheath. A standard AVE cable must be used for these projects. - When installing the ARMBus line, a bus line connecting the room control unit to all peripheral units of the hotel management system (cod. 44..GA01-M, cod. 44..GA02-M, cod. 44..GA30-M, cod. 44..GA52-T and cod. 44..GA53-M), wiring must be of the In and Out type according to the following colours:

#### Room Bus

- Green wire (Green + Grey pair): to be connected to terminal "A" of the Green connector;
- Grey wire (Green + Grey pair): to be connected to terminal "B" of the Green connector;

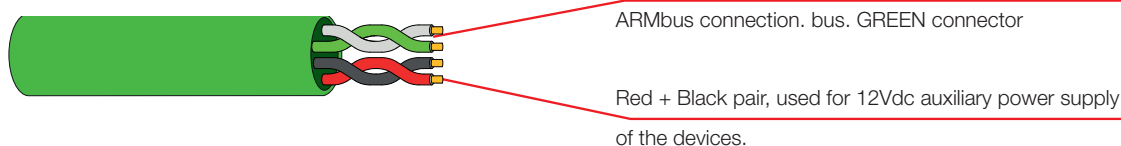
#### Power supply for devices

- Red wire (Red + Black pair): to be connected to the "+" terminal of the black connector;
  - Black wire (Red + Black pair): to be connected to the "-" terminal of the Black connector;
- 
- Do not tie knots, rings or wind coils with the braided shield of the wire in the vicinity of card readers;
  - Do not connect the braided shield of the wire to the ground of the electrical plant but to the GND terminal of the control unit;
  - On completion of the wiring, reposition the plastic protection of the retractable terminal of the devices and check that the strands cannot create short circuits with the bus and power connectors;

- When installing the NETbus line, the bus line that connects all the control units of the hotel management system (Blue connector present in items with cod. 53AR01-485, cod. 53AR02-485 and cod. AR-NET01), the wiring must be installed with an "In and Out" structure, following the colours as specified below:

- Green wire (Green + Grey pair): to be connected to terminal "A" of the blue connector;
- Grey wire (Green + Grey pair): to be connected to terminal "B" of the blue connector;
- Black wire (Red + Black pair): to be connected to terminal "GND" of the blue connector;
- Red wire (Red + Black pair): not used;

### Using the cable for ARMBus:



### Using the cable for NETbus:

Green + Grey pair, used for NETbus connection.

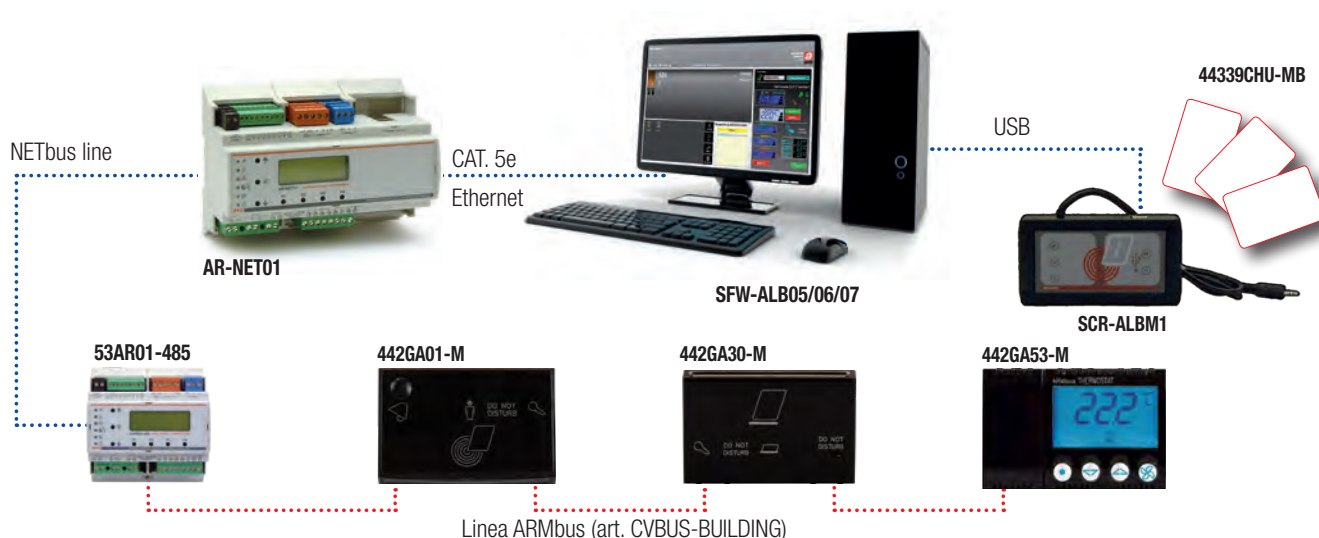
Green wire for signal "A" and Grey wire for signal "B".

Red + Black pair, use the Black wire for GND.



- Do not connect the braided sheath of the electrical wiring to the ground;
- An end of line resistance  $R=120\ \text{ohm}\ 1/4W$  must be inserted between terminals A and B (supplied with AR-NET01) on the blue connectors (NETbus) of the first device (typically the network interface item cod. AR-NET01) and the last of the bus line (typically cod. 53AR01-485 or cod. 53AR02-485);
- The PC used for supervision of the hotel management system must be dedicated only to this use and must be protected with an uninterrupted power supply;
- To use the additional remote assistance service (for subscription and cost contact the Ave sales network), the PC used for supervision must be connected to the Internet and have software installed for remote control;
- For connections between the supervision PC and the network interfaces AR-NET01 use a CAT cable. 5e

## Example of network system





# REFERENCES

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Luxury villa



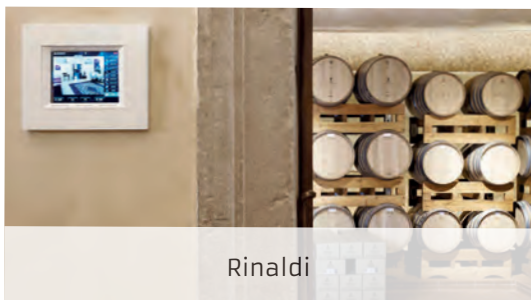
Garden 2000



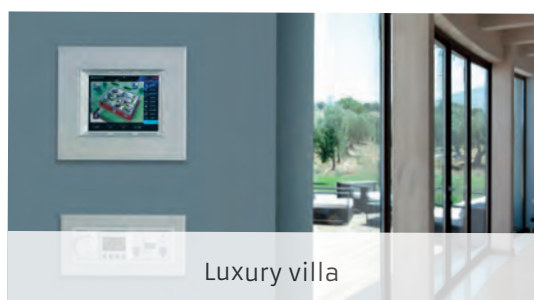
Hote Villa Flori



Hotel Torre Argentina



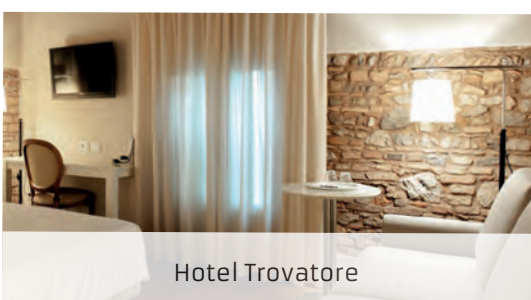
Rinaldi



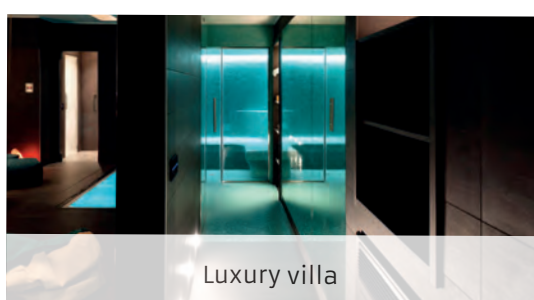
Luxury villa



Residence



Hotel Trovatore



Luxury villa



Rifugio Capanna



Luxury villa



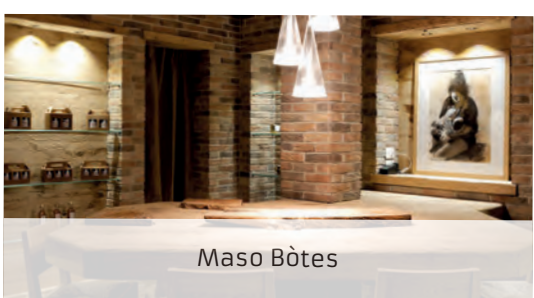
Resort Stella Island



Yacht Club Dubai



Hotel Villa Flori



Maso Bòtes



Yachting Azzurra



B&B L'Angolo di Verona



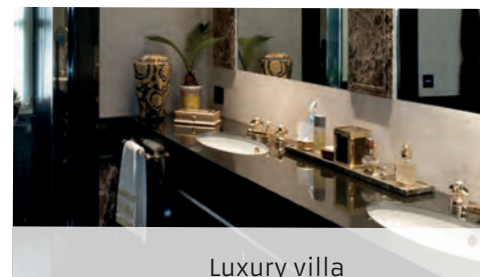
Hotel Contessa



Hotel Mykonos



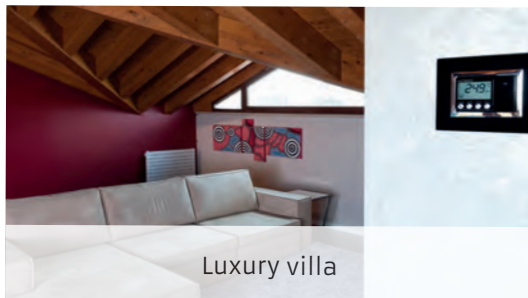
Exhibition Made



Luxury villa



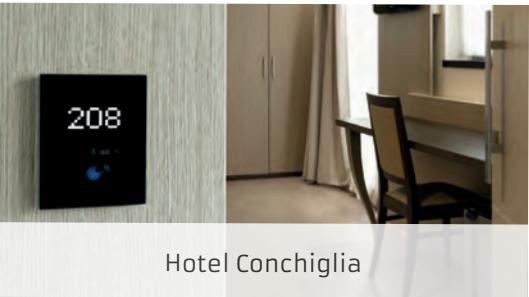
Hotel Ripa



Luxury villa



Hotel 4 Stagioni



Hotel Conchiglia



Luxury villa



Rifugio Capanna



Exhibition Simone Micheli



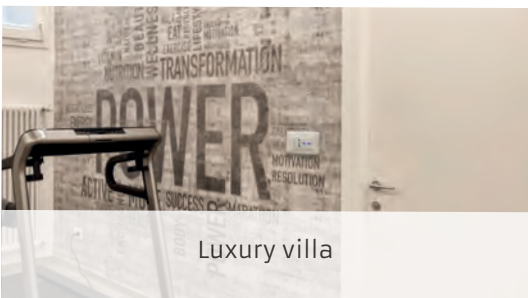
Columbus



Milleluci



Simone Micheli



Luxury villa



Luxury villa



Resort Stella Island

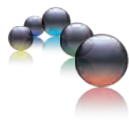


Luxury villa



Maso S.Lucia





## GENERAL SALES CONDITIONS FOR EXPORT

This document sets the general sales conditions that regulate the relationship between AVE Spa and its own customers here below referred to as Buyer. These general sales conditions are also indicated on the AVE website [www.ave.it](http://www.ave.it).

Any questions not mentioned specifically in these conditions are regulated by normal procedures in the sector, standards in the ANIE agreements and the Italian Civil Code.

### 1) GENERAL INFORMATION

The Buyer is obligated to manage packaging with care and keep the material in an appropriate manner, in environments without humidity, and with a temperature not lower than - 5 °C and not higher than + 40 °C.

The Buyer is obligated to inform its own buyers of the conservation methods of the materials supplied by the company AVE S.p.A.

The Buyer is obligated to sell the material in the original packaging without damaging it or, if this is not the case, to transmit to its own buyers the instructions that accompany the products by the supplier AVE S.p.A. These instructions can be found also in catalogues, technical sheets, leaflets, inserts and on the company website ([www.ave.it](http://www.ave.it)). The Buyer, in case of sales of AVE products in EU countries, is committed to ensure that the product instructions sheets in the AVE packaging, are available in the specific language of the destination country. Should they not be available, the Buyer undertakes to ask AVE for the integration of the instructions sheets to include the said required language and/or symbols necessary for the export of goods or the Buyer commits himself to provide for them.

If the Buyer opens the packaging before selling the products, it must make sure of the apparent integrity of the same products. In case of doubt, the products must not be sold.

AVE S.p.A. products are made to be installed. Products and accessories must be installed by qualified personnel. The products must be installed and used for their designated purpose and in conformity with the applicable standards for the various types of plants and also considering the catalogues specifications, the instruction sheets and the information published on the company website. Anyway, before using the installed products, it is necessary to have the entire plant tested by specialised personnel, to verify functionality and observance of the safety standards according to the laws in force.

AVE S.p.A. reserves the right to make changes and improvements to products illustrated in the catalogue and available in the price list, without giving prior notice, as a consequence of the constant updating process of production, technology and standards. On request, product sheets or other equivalent documentation is always available at the AVE S.p.A. Technical Assistance Office. We recommend to consult the company website for updated information and confirmation of data ([www.ave.it](http://www.ave.it)).

### 2) ORDERS

When submitting a purchase order (in any form), the Buyer accepts all the sales conditions in this document and waives its own general purchase conditions, unless there is a special agreement specifically accepted in writing by the supplier company AVE S.p.A. The purchase order is binding for the Buyer. The order is not binding for the supplier company AVE S.p.A., which is free to decide whether to accept it or not, by sending a written order confirmation within and not later than 5 working days. Cancellations of orders will not be accepted unless previously agreed on, in any case, AVE S.p.A. can ask for payment of any costs related to the said cancellation. The price list includes the cost of the packaging in standard boxes. Quantities of each item ordered must conform to those indicated in the price list; if there are differences, AVE S.p.A. reserves the right to round the quantity up to comply with standard quantity requirements.

### 3) PRICES

The prices are those listed in the AVE S.p.A. price list that is valid at the time of delivery, without VAT. AVE S.p.A. reserves the right to change prices when the order is recorded to adjust costs.

### 4) RESPONSIBILITY, DELIVERY AND RISKS

AVE S.p.A. is exonerated from all responsibility for delays that do not depend on its own malice or negligence. Delivery terms, except if otherwise agreed, are indicative and not binding. If the execution of the order is obstructed by force majeure, irregular raw material supplies or other unforeseeable circumstances, delivery terms are understood to be extended and both parties shall agree on new terms.

Delivery is considered completed when the products are handed over to the forwarder and/or carrier.

From the moment the goods are handed over to the carrier and/or the forwarder, AVE S.p.A. is discharged from all risk and responsibility related to events of any nature that could happen during transport, and this is also valid for goods sold with carriage at AVE S.p.A. care.

The Buyer must verify, in its own interest, the quantity and conditions of the goods before accepting them and if there is a difference, the carrier must be informed of reserves by written communication. AVE S.p.A. will reject any complaint about the number and status of the packages if the Buyer fails to express the same complaint in writing to the carrier at the time of goods acceptance, and if the said complaint is not sent to AVE S.p.A. within 8 (eight) days from receiving the goods.

### 5) WARNINGS, GUARANTEES AND COMPLAINTS

AVE guarantee on its own products is in conformity with the Civil Code and the Legislative Decree 6 September 2005 no. 206 (Consumers' Code). Given the above, AVE S.p.A. guarantees efficient function of its products against defects and quality deficiencies that can be blamed on the manufacturer for a period of 5 years for all its products, with the exception of Green division products of the catalogue in force when the order is placed (e.g., Safety Division - anti-intrusion series/systems, fire detection series/systems, technical alarm series/systems, sound diffusion series/systems, emergency devices and Domina Division - home automation

series/systems and hotel management), whose guarantees comply with those established by the Civil Code and by Legislative Decree no. 206 of 6 September 2005 (Consumption Code). The 5-year guarantee is valid from the production time of the item evidenced by the indication of the productive lot on the said product or, in case of lack of the said information, from the date of product delivery by AVE S.p.A., attested by a valid purchase document (fiscal receipt, cash register receipt, or similar). Any claim about the 5-years guarantee must be done by writing within 1 month starting from the date when the defect or lack of quality is found.

The Buyer is not covered by the guarantee, except in case of malice or negligence of AVE S.p.A., if it fails to provide proof to have stored the goods according to instructions in point 1) or in case the goods should be already installed, if it fails to provide proof that the installation was done in compliance with current laws and the D.P.R. n. 224/88 and according to the current applicable technical regulations. In any case, AVE S.p.A. will not be held responsible for defects or faults that are not a result of its own work.

### 6) RETURNS

No returns of goods are permitted without previous written approval by AVE S.p.A. AVE S.p.A. will consider only the requests made for goods which have been delivered 24 (twenty-four) months before the request itself. The goods also must be included in the price list of the supplying company AVE S.p.A. at the time of the request and the products must be packaged in the original packaging. Goods returned under guarantee: any requests to return products during the guarantee period for presumed defects or non conformities must be previously authorised by an AVE S.p.A. officer or agent. If the non conformity is proved and AVE S.p.A. is responsible, the returned products will be replaced with equal or equivalent products. Goods returned for commercial reasons: except for what has been specified above, we will consider only written requests for products included in the current price list in good conditions and with undamaged packaging. Any agreed return will be subject to a valorisation that is inferior to the purchase price and an additional 10% minimum reduction will be applied for expenses due checking, testing and warehouse activities. In case of authorised returns, the goods must be returned carriage free to the warehouse of the supplier company: AVE S.p.A. Via Mazzini, 75 - 25086 REZZATO (BS).

### 7) PAYMENTS AND INTEREST

Payments of invoices must be made on time, in compliance with the established due dates and for the agreed amount. Delays in payment, full or partial, of invoices after the agreed due date will immediately cause the starting of interests calculation as indicated in the Legislative Decree 231 of 09/10/02. In case of payment default, full or partial, AVE S.p.A. has the faculty to suspend supplies of materials and any payment of bonus or year-end discounts. If a "cash discount" was agreed on with a Buyer, it loses its validity if the invoices are not paid punctually and the Buyer is required to reimburse the discount.

### 8) PRIVACY

Pursuant to the personal data regulation, the Purchaser is hereby informed that his personal data will be processed by AVE S.p.A. (Data Controller) to correctly manage contractual relations and to fulfil certain legal provisions. Data processing is legally based on art. 6, sec. 1, lett. a (consent), lett. b (fulfilment of precontractual and contractual obligations), lett. c (fulfilment of legal obligations), lett. f (legitimate interest) EU Reg. 2016/679

PERSONAL DATA CATEGORIES: the personal data collected that will be processed are identification, biodata or commercial (such as, first name, last name, e-mail address, telephone and/or fax number). No sensitive or judiciary personal data shall be collected.

LEGITIMATE INTERESTS OF THE DATA CONTROLLER: it is necessary to process your personal data for the above purposes. Particularly, processing your data for IT safety purposes is AVE S.p.A.'s legitimate interest. Your data will be processed with appropriate manual, IT and telematic devices to guarantee the safety and confidentiality of your personal data, preventing its loss, illegal or incorrect use, and unauthorised access. Your data may only be accessed by persons appointed as Data Managers and persons appointed as AVE S.p.A.'s Data Processing Delegates and/or Officers.

DATA PROCESSING RECIPIENTS: your personal data will not be disseminated in any way, but may be shared with Data Managers, Data Processing Delegates or Data Processing Officers. Data may only be communicated to other subjects when required to fulfil legal obligations or to protect AVE S.p.A.'s contractual rights.

DATA STORAGE PERIOD: your personal data will be processed with manual, IT and telematic devices, and will be stored for the time required to carry out the above purposes, unless a longer period is either necessary or allowed by the law.

THE PARTY CONCERNED IS ENTITLED TO: 1) know, at any time, whether his personal data is subjected to processing or not and, if this is the case, to request and obtain access to his personal data and to information about the scope of data processing, the data categories processed, the addressees of the same, the data storage period; he is also entitled to receive information about the origin of the data and to receive a copy of the same (art. 15 EU Reg.); 2) request, at any time, the correction and/or integration of personal data (art.16 EU Reg.) or deletion of the same (art. 17 EU Reg.) or the limitation of data processing (art.18 EU Reg.); 3) request data portability (art. 20 EU Reg.); 4) object to data processing (art. 21 EU Reg.); 5) place a complaint with the competent control authority (Italian Data Protection Authority) if he deems that his personal data processing goes against the regulation in force.

Requests must be addressed in writing by mail to AVE S.p.A., Via Mazzini 75 25086 Rezzato (Brescia), to the Legal Representative or by e-mail to [privacy@ave.it](mailto:privacy@ave.it).

### 9) APPLICABLE LAW AND COMPETENT COURT

The rights and obligations of the parties are regulated by the Italian law. The Courts of Brescia has exclusive jurisdiction over every controversy.

The AVE S.p.A. has adopted this **Code of Ethics** with a view to **avoiding unethical conduct at any corporate level** such as might cause legal problems, jeopardise the Company's reputation and/or damage third parties or the environment.

Unethical **conducts** include, for example:

**false statements, failure to comply with applicable laws and regulations in administrative, commercial or technical activities, corruption, collusion, bribes, extortion, nepotism, money laundering, misuse of internal information, fraud, discrimination, sexual abuse, occupational safety, environmental pollution.**

**In establishing work and supply relationships, AVE invites all customers, suppliers, collaborators and employees to approve this code of conduct and observe the principles herein.**

By adopting this "Code of Ethics", **AVE S.p.A.** undertakes to operate in accordance with the principles of:

- **Reliability**, i.e. honesty, keeping of promises, integrity, transparency, trustworthiness, loyalty;
- **Respect**, i.e. respect for human rights;
- **Responsibility** at all corporate levels and in every administrative, commercial and/or technical activity;
- **Justice**, i.e. fairness, impartiality, observance of laws;
- **Care**, i.e. awareness of others, avoiding damage to people or to the environment.

**COMPLIANCE WITH LEGAL AND CORPORATE OBLIGATIONS**

**AVE S.p.A.** complies with:

- the obligations laid down by regulations relative to corporate, legal, administrative, accounting, fiscal aspects, as per documents deposited at the Corporate Administrative Management and, for the quality of the organisation and of products, in compliance with the regulations in force, including the use of the Quality Manual, legal obligations, regulations and Community Directives for the respect for privacy.

Regarding competence, the documents are seen and checked by the Board of Auditors in office and by the specifically appointed entities.

Relations with employees shall be governed by the applicable national collective bargaining agreement.

Staff is recruited based on technical and professional requirements, ensuring no discrimination in relation to gender, nationality, religion or race.

AVE's relations with customers are based on: mutual observance of current commercial and tax legislation; compliance with technical regulatory requirements for every activity or service carried out; absence of corporate offences, such as making false corporate communications, receiving, laundering and using money of unlawful origin, and engaging in fraudulent economic behaviour with customers or collaborators.

**RELATIONS WITH SUPPLIERS**

**AVE S.p.A.** demands loyalty and integrity from all its suppliers, as well as fair, non-binding business dealings, free of any form of corruption, including extortion, economic favours and any other form of compensation.

The supplier acknowledges the principle of freedom to choose an occupation. The supplier shall, under no circumstance, resort to forced or compulsory labour, i.e. work that is extracted by threat (withholding food or land or wages, physical violence, etc.) (ILO Conventions No. 29 and 105).

- The supplier is prohibited from employing children in violation of the provisions of the International Labour Organization Conventions (ILO Convention No. 138).

- The supplier undertakes to ensure that the total number of hours worked is equal to or less than the total established by national legislation or by the collective bargaining agreements of the country concerned.
- The supplier undertakes to ensure that breaks and days of holiday/leave correspond at least to the minimum conditions established by national legislation or by the applicable collective bargaining agreements.

**AVE** encourages suppliers to adopt an Environmental Management System (EMS) to ensure effective planning, operation and control of environmental aspects. This EMS shall satisfy the requirements of internationally recognised standards.

**OCCUPATIONAL HEALTH AND SAFETY OF WORKERS AT THE WORKPLACE**

For every activity or service carried out, the entire staff of AVE S.p.A. shall comply with Italian legislation and/or Directives on Occupational Health and Safety at the Workplace, adopting, where applicable and if possible, the following principles and criteria:

- Avoiding risks - "the risk evaluation regulation" Law Decree 81/2008 as amended is effective.
  - Evaluate risks that cannot be avoided;
  - Adapt the work to its employees, especially as regards the design of workplaces, the choice of equipment, and the establishment of work methods, in particular to alleviate monotonous and repetitive work and to reduce the effects on health due to such work;
- Replace anything dangerous with non-hazardous or less hazardous alternatives;
- Draw up a consistent prevention plan that covers technology, work organisation, working conditions, social relations and the influence of work environment factors on job performance;
- Give workers appropriate instructions, also by means of training, controls and by sharing methods and objectives.

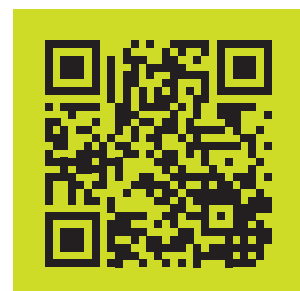
**CONFIDENTIALITY**

The entire staff of **AVE S.p.A.** shall comply with the ethical requirement of professional secrecy with regard to any information obtained while fulfilling its duties. Moreover, AVE expects suppliers and customers to maintain an adequate degree of confidentiality in all business dealings.

The privacy policy is effective and complied with.

**REPORTING UNETHICAL BEHAVIOUR**

**In order to comply with and guarantee the above provisions, the Board of Directors of AVE S.p.A. requires that any employee, partner, customer or third party who should become aware of any failure to comply with the ethical requirements set forth herein, report said incident, in writing, to the CEO /General Management of AVE S.p.A., which will investigate the matter and take any necessary action.**



HOME AUTOMATION

HOTEL MANAGEMENT

VIDEO INTERCOM

ANTI INTRUSION

WIRING DIAGRAMS AND PRESCRIPTIONS

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