



 **NOTIFIER**[®]
by Honeywell



AM-8200

Fire Detection System

Installation
MANUAL

Rev A.01

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NOTE: Do not try to install the control unit and devices connected without reading this manual.

DETECTION SYSTEM LIMITS

An alarm or fire detection system can be very useful for the prompt warning of any dangerous event, such as fire, a robbery or a simple burglary, in some cases it can automatically manage events (transmission of messages for room evacuation, automatic fire-extinguishing, TVCC system interface, access route or door blockage, automatic warning to authorities, etc.), but in any case, it does not ensure protection against damages to propriety or damages caused by fires or robberies).

Moreover, each system may not properly operate if it is not installed and maintained according to the manufacturer's instructions.

PRECAUTIONS



- These instructions contain procedures to be followed in order to avoid damages to equipment. It is assumed that the user of this manual has performed a training course and that he knows the applicable rules in force.
- The system and all its components must be installed in an environment having the following features:
 - Temperature: -5 °C , +40 °C.
 - Humidity: 10 % - 93 % (without condensation).
- Peripheral devices (sensors, etc.) which are not perfectly compatible with the control unit may cause damages to the same control unit, and a bad operation of the system in any moment. Therefore, it is essential to only use material which is guaranteed by NOTIFIER and is compatible with its own control units. Please consult NOTIFIER Technical Service for any doubt.



- This system, like all solid state components, may be damaged by induced electrostatic voltages: handles the boards keeping them among the edges and avoid to touch the electronic components.
- An appropriate earthing connection ensures, in any case, a sensitivity reduction to disturbances.
- Please consult NOTIFIER Technical Service if you cannot solve installation problems.
- Any electronic system does not operate if it is not powered. If power supply from the mains fails, the system ensures its operation through battery, but only for a limited period of time.
- During the system planning phase, take into account the autonomy required to appropriately dimension the power supply and batteries.
- Skilled personnel shall periodically check the state of batteries.
- Disconnect the MAINS and the batteries BEFORE removing or inserting any board.
- Disconnect ALL power supply sources from the control unit, BEFORE performing any servicing.
- The control unit and the connected devices (sensors, modules, repeaters, etc.) may be damaged, if a new board is inserted or removed, or if the powered cables are connected.
- The most common cause for malfunctioning is inappropriate maintenance.
- Take special care of these aspects since you start the system planning phase; this will facilitate future servicing and will reduce cost.

1293



EN 54-2:1997
EN 54-2:1997/AC:1999
EN 54-2:1997/A1:2006
EN 54-4:1997
EN 54-4:1997/AC:1999
EN 54-4:1997/A1:2002
EN 54-4:1997/A2:2006
No. 1293 - CPR - 0537

This panel is market with the CE 1293 label to comply with the Directives :

Construction Products Directive 89/106/EEC (Including 2004/108/EC and LVD Directive 2006/95/CE

And certified as EN 54.2 ed EN 54.4



This device must be installed and must operate in accordance with these instructions and to the rules in force in the installation place.



This product must be disposed of using the appropriate bins for electrical and electronic products. This product must not be placed in bins for collection of other waste types.

EN 54 : Information



EN54-2 13.7 Max 512 Sensors / Manual Call Points per microprocessor.

AM-8200 control unit has a maximum capacity of 636 sensors and 700 address for modules each two loops.

If this function is not appropriately used, it can contravene the EN54.2 requirements.

This limit includes the possible conventional sensors and buttons connected to the system with zone modules.

Therefore, check the number of installed devices and ensure they are in conformity with the rule



- This fire detection control unit is in accordance with the requirements of EN54-2 and EN 54.4 rules. In addition to the basic EN 54 requirements, the control unit is in conformity with the following optional operation requirements

Optional Functions	EN 54.2 reference
Output to fire alarm devices	7.8
Output to fire protection equipment	7.10
Fault monitoring of fire protection equipment	7.10
Delays to outputs	7.11
Dependencies on more than one alarm signal	7.12 (type A)
Fault signals from point	8.3
Total loss of power supply	8.4
Disablement of addressable points	9.5
Test Condition	10
Indication of the test condition	10.2
Indication of zones in the test state	10.3



- The power supply section of the AM-8200 control unit is in conformity with the following EN54-4 requirements.

Function	EN 54.4 reference
Power supply from main source	5.1
Power supply from battery source in standby	5.2
Re-charging and check of the battery source	5.3
Power supply fault detection and signalling	5.4

GENERAL DESCRIPTION

AM-8200 control unit is a fire detection control unit manufactured in conformity with the EN.54.2 and EN.54.4 rules.

Technical features :

- Multi-microprocessor system with 7" TFT display (800 x 480 with backlit), 256 colors touch-screen with keyboard simulation to program and configure the system and the following specific functions : Reset Delay, Silence Buzzer , Silence/Restart Sounders, Reset, Evacuation.

Detection LINES:

2 analogue lines programmable to closed or open loop for the connection of the field elements

Each line can drive 159 sensors + 159 input and output modules

Max 4 loop each panel using the optional 2 loop LIB-8200 board.

Max 6 loop with the basic expansion box AM-8200BB

Max 6 loops using the AM-8200BB expansion box

Max 8 loop using the optional 2 loop LIB-8200 board LIB-8200 inside AM-8200BB expansion box

OPTION CARDS:

AM82-2S2C: 2 Serial ports+ 2 CanBus network

- 1 x RS.485 (optically isolated) to drive remote LCD repeaters and 1 x RS.232 (optically isolated) to connect a serial printer
- 2 x Can-Bus lines to connect in closed loop ring a network of max 16 loop or 32 loop

POWER SUPPLY:

- Input : 100÷240Vac, 1,9° 50÷60Hz
- Voltage 27,6Vdc - 4A total.
- Battery charger 27,5 Vdc – 1A (with temperature compensation).
- User output 28Vdc (+3% +/-18%) 3.5A, on board to power external loads such as sirens, bells, etc. .

OUTPUTS:

- 1 Supervised Sounder Output
- 1 General Alarm Output with contacts free from voltage / supervised Output (EOL 47KΩ)
- 1 General Fault Output with contacts free from voltage / supervised Output (EOL 47KΩ)

Mechanics

The control unit mechanics is suitable for wall installations.

For cabinet sizes refer to the below drawing "AM-8200 dimensions"

- Protection grade : IP 30
- Operation temperature : -5 °C to +40 °C
- Stockage temperature: -10 °C to +50 °C
- Weight: 7 Kg (AM-8200)
- Weight: 5 Kg (AM-8200BB)

Main Functions

3 password levels (Operator - Maintenance – Configuration)

4 total access levels in conformity with the EN.54 rules

Programmable text : point description through 32 characters; zone description through 32 characters

500 physical zones and 400 logical groups in stand-alone or 16 loop network configuration

CBE Control Equations (Control-by event) for activation with logical operators (And, Or, Xor , etc.).

History Event file with the last 2000 events in non-volatile memory (20.000 in the Network master LCD)

Real time clock

Line self-programming with automatic recognition of the type of the connected devices.

Automatic recognition of points having the same address.

Decision algorithms for the alarm and fault criteria.

Automatic sensitivity change Daytime /Night.

Signaling of need for sensor cleaning

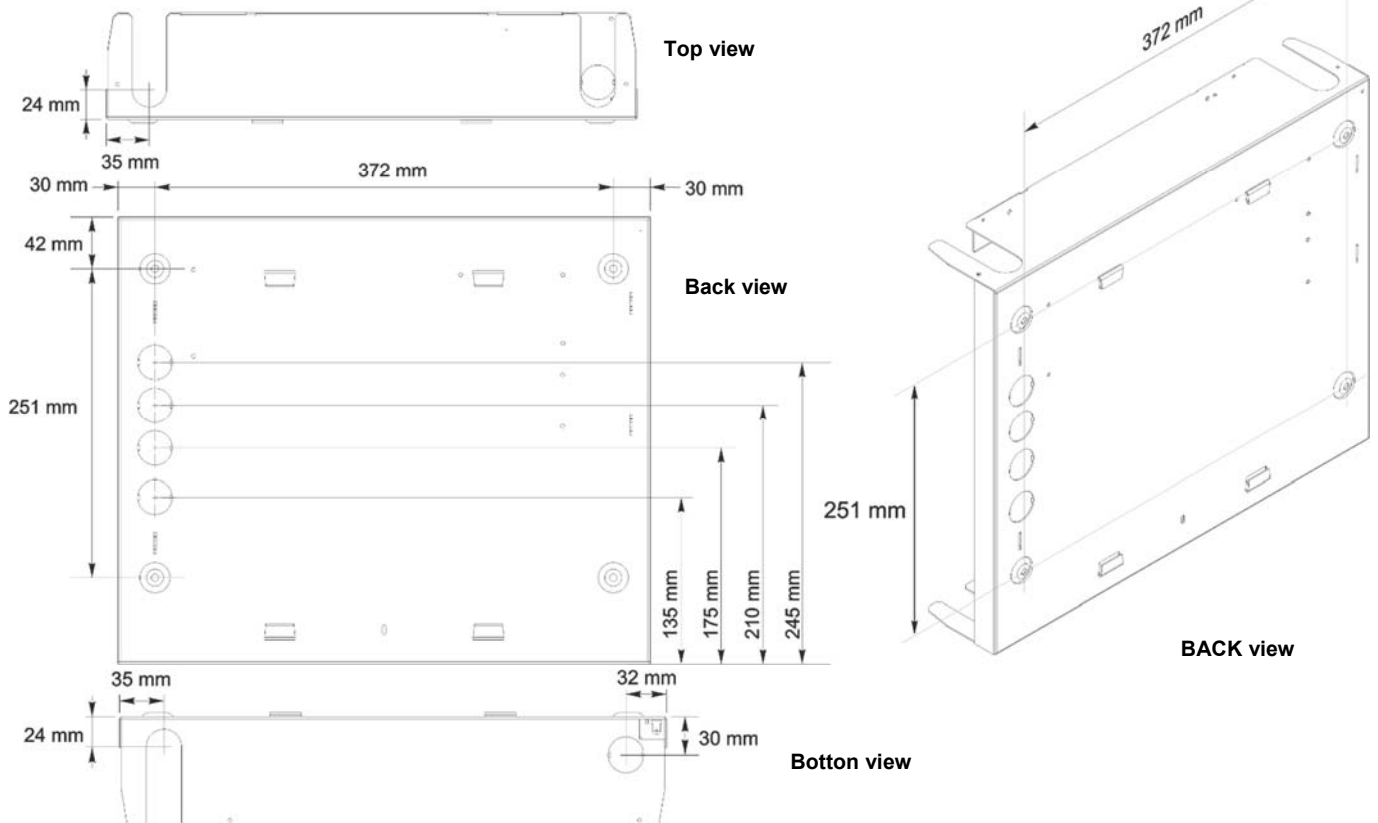
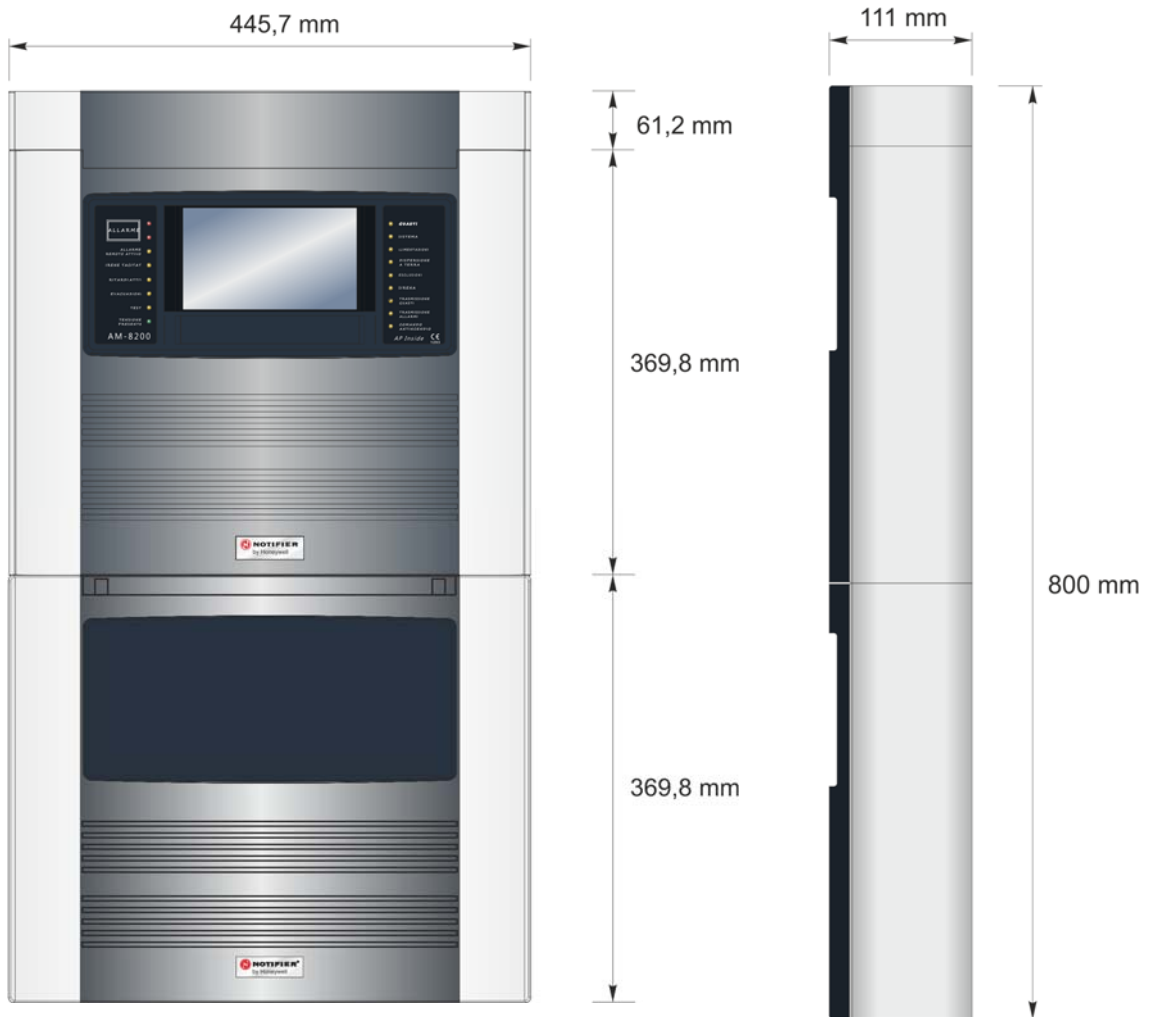
Signaling of poor sensor sensitivity

Programmable alarm threshold for sensors

Pre-defined software function programming for the various devices used

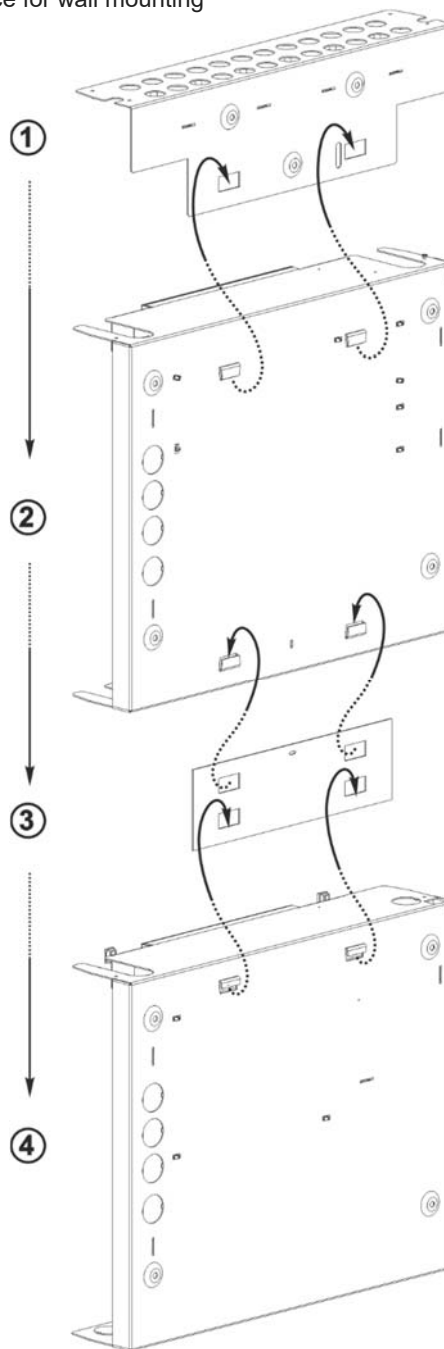
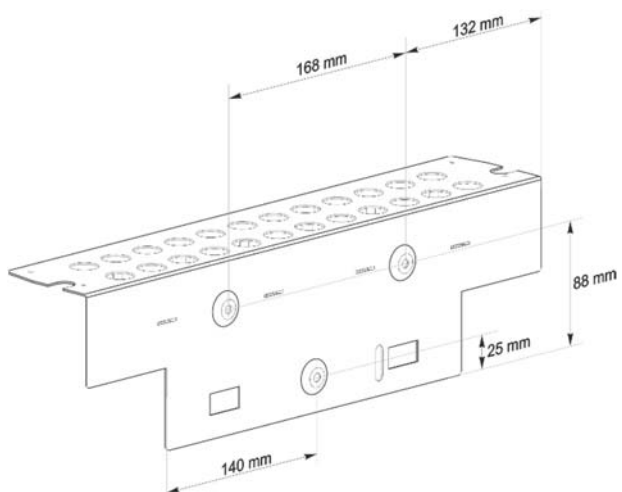
Walk-Test function for zones.

AM-8200 dimensions

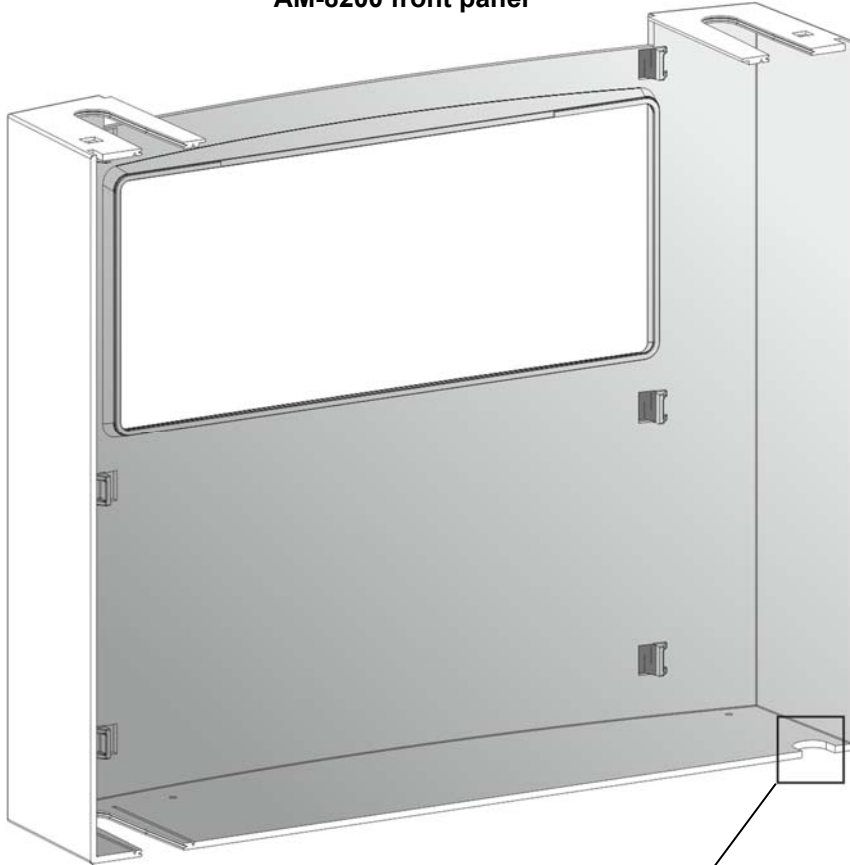


AM-8200 and AM-8200-BB Installation

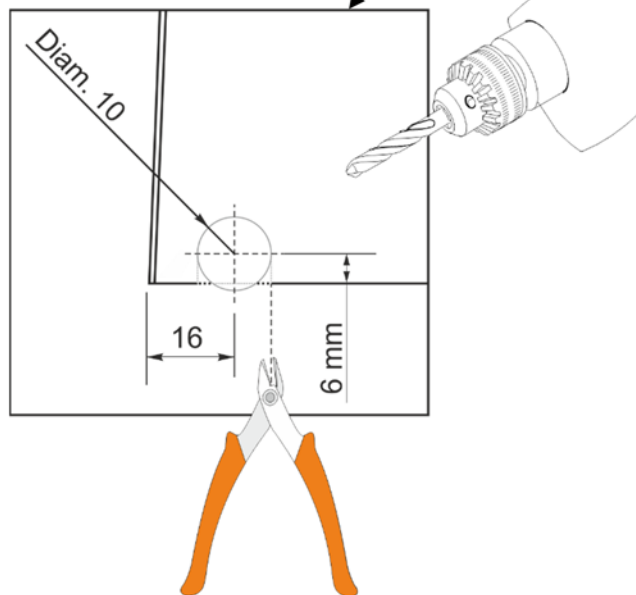
Sequence for wall mounting

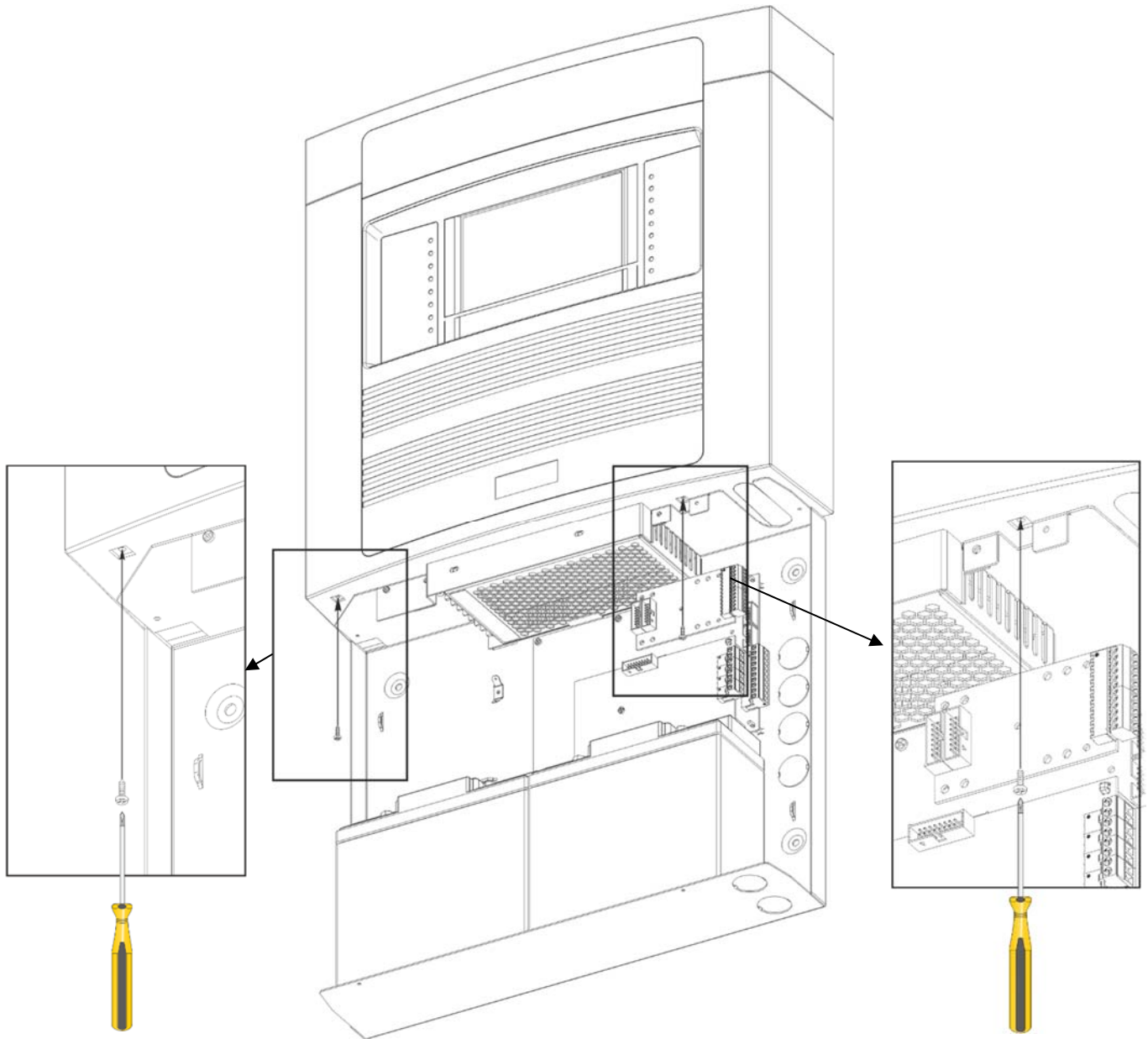


AM-8200 front panel

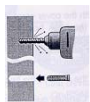


Warning:
Drill into the lower part of the panel of the AM-8200 with a 10mm diameter drill bit for the passage of the 230Vac power cable of the AM-8200BB.





The control unit must be installed to the wall so as to allow a clear view of the display and easy access by the operator. For example, it allows an optimal view of the display at 1.5 m height.



The control unit is designed to be installed to the wall through self-blocking cleats (masonry walls) or self-tapping screws (pre-fabricated panels). It is recommended not to install the panel near heat sources (radiators, etc.)
Use screws of max 5 mm.



Moreover, if the control unit must be installed to the wall beside a corner wall, the minimum distance from the latter must be at least 200 mm, so as to avoid the opening of the front panel.

Extractable labels on the front panel

AM-8200-EU control panel is provided with extractable labels to indicate the functions Status via LED. A set of some different languages labels are provided in each EU panel



ELECTRICAL FEATURES

- Operation temperature: $-5^{\circ}\text{C} \div +40^{\circ}\text{C}$.
- Relative humidity: $10\% \div 93\%$ (without condensation).
- Storage temperature: $-10^{\circ}\text{C} \div +50^{\circ}\text{C}$.

Earthing

The earthing system must be performed in conformity with CEI and ISPELS rules or rules valid in the country where the panel is installed.

In any case, must have a resistance lower than 10 Ohm (measured at the well with disconnected users). This complies the CEI 68-12 rule for TN installations.

The earth connection to the control unit is compulsory and it must be performed on the CNAL terminal block. (refer to basic board topography).

Main power supply (AM-8200)

The control unit is powered by the mains voltage and, in case of mains breakdown it can continue to normally operate due to the re-chargeable battery contained in the same control unit.

The required features for the mains supply are:

- Voltage: $100 \div 240\text{Vac}$ single-phase $-15\% \div +10\%$.
- Frequency: 50/60Hz.
- Current 1.9A (AM-8200), 3.8A (AM-8200 + AM-8200BB)
- **N.B.: particular care must be taken when the installation is performed near powerful electromagnetic sources (ex. repeaters, radio relays, motors, etc.).**

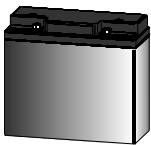
Power supply

The internal power supply has the following output: 28,8Vdc – 29,0Vdc, 3,5 A ripple max. 500mVpp (Power supply for control unit, user output, external load power supply).

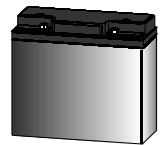
User Output : 28,5Vdc – 28,9Vdc, 2A with 2 A resettable fuse

Battery charger section

- Output voltage = $26.5\text{Vcc} \div 28.5\text{Vcc}$ (temperature compensation).
- Output current = 1A ~ 500mVpp max
- Number of batteries that can be connected = 2 x 12 V – min.7Ah max.18Ah max.
- The battery charger section has the following signaling thresholds
 - Exhausted battery threshold = 21.5 Vdc.
 - Re-charge Fault threshold = 3.4 Vdc (voltage difference between the two batteries).
 - Battery release threshold = 19.5 Vdc
 - Threshold of internal battery resistance = 0.6 ohms



Batteries



Average duration declared by the manufacturer - 3-5 years at an ambient temperature of 20°C

N.B. Life decreases in accordance with a higher operating temperature and possible discharging-recharging cycles

Recommended Batteries:

Capacity 17-18 Ah (max. stand-by capacity)

Yuasa type NP18-12B o NP7-12BFR (UL94) Bolt - Capacity (20hr) = 12V 17.2Ah – Dimensions: 181 x 77 x 167.
Fiamm type FG21803 o FGV21803 (UL94) Bolt - Capacity (20hr) = 12V 18.0Ah – Dimensions: 181 x 77 x 167.

Depending from the Stand-by time required in the System and from Loads calculation, the user can select an intermediate value.

Main power supply (AM-8200BB)

The control unit is powered by the mains voltage and, in case of mains fault it can continue to normally operate due to the re-chargeable battery contained in the same control unit.

The required features for the mains supply are:

- Voltage: 100-240 Vac single-phase -15% ÷ +10%.
- Frequency: 50/60Hz.
- Current 1.9A
- **N.B.: particular care must be taken when the installation is performed near powerful electromagnetic sources (ex. repeaters, radio relays, motors, etc.).**

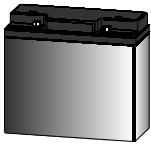
Power supply

The internal power supply has the following output: 28.8Vdc ÷ 29,0Vdc, 3.5 A ripple max. 500mVpp (Power supply for control unit, user output, external load power supply).

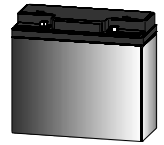
User Output : 23.0Vdc ÷ 28.8Vdc, 2A with 2 A resettable fuse

Battery charger section

- Output voltage = 26.5 Vdc ÷ 28.5 Vdc 500mA, Vpp max (temperature compensation).
- Output current = 1A ~ 500mVpp max
- Number of batteries that can be connected = 2 x 12 V – min.7Ah max.18Ah max.
- The battery charger section has the following signaling thresholds
 - Exhausted battery threshold = 21.5 Vdc.
 - Re-charge Fault threshold = 3.4 Vdc (voltage difference between the two batteries).
 - Battery release threshold = 19.5 Vdc
 - Threshold of internal battery resistance = 0.6 ohms



Batteries



Average duration declared by the manufacturer - 3-5 years at an ambient temperature of 20 C°

N.B. Life decreases in accordance with a higher operating temperature and possible discharging-recharging cycles

Recommended Batteries:

Capacity 17-18 Ah (max. stand-by capacity)

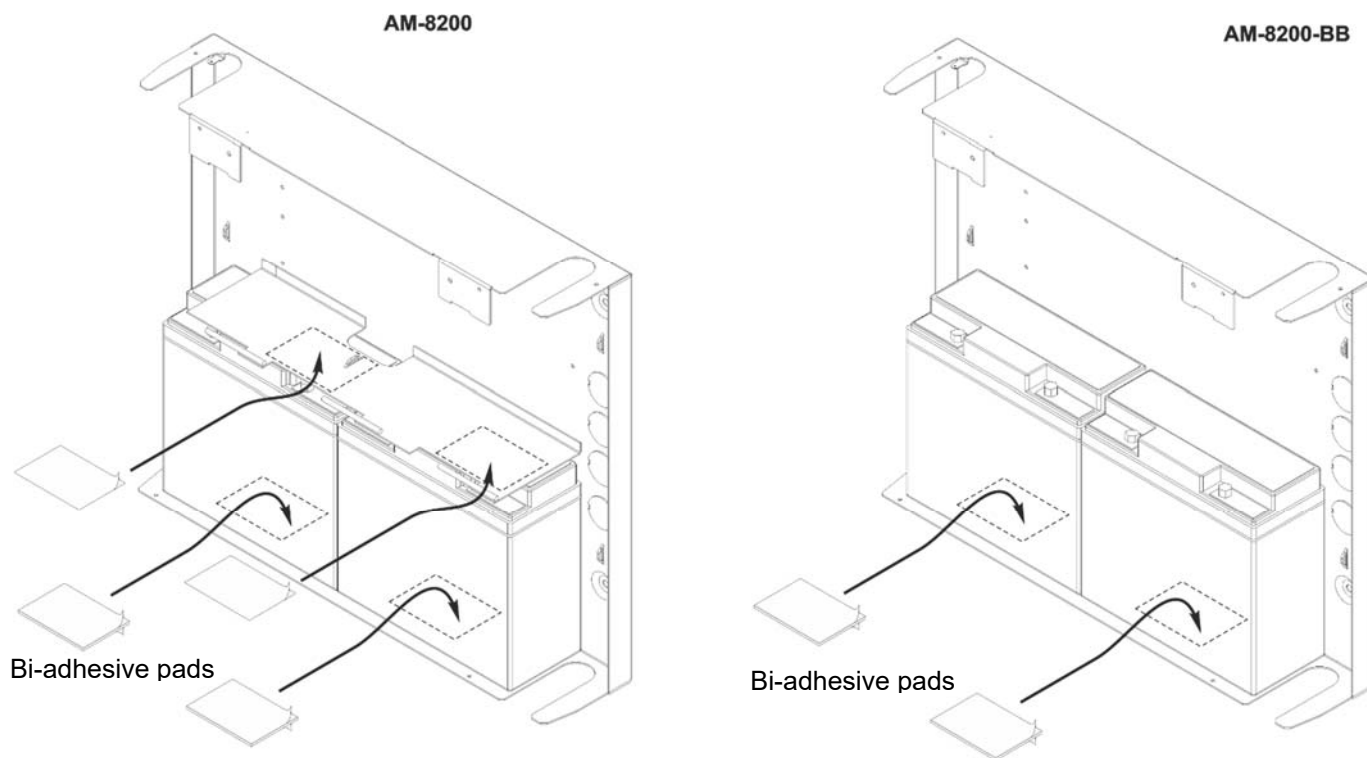
Yuasa type NP18-12B o NP7-12BFR (UL94) Bolt - Capacity (20hr) = 12V 17,2Ah – Dimensions: 181 x 77 x 167.

Fiamm type FG21803 o FGV21803 (UL94) Bolt - Capacity (20hr) = 12V 18Ah – Dimensions: 181 x 77 x 167.

Depending from the Stand-by time required in the System and from Loads calculation, the user can select an intermediate value.

Batteries Installation

Place the Bi-adhesive pads on the metal chassis and place the batteries on it.



Power supply and battery operation

The main microprocessor of the control unit periodically checks the state of the main AC power supply source, batteries and the recharging circuit. The control unit will automatically switch on the stand-by battery source when AC mains fails.

When the control unit operates through AC mains, the main microprocessor controls the battery charger output and the presence of them. To perform this test, the output battery charger is temporarily switched off and the battery voltage is read (signaling of missing batteries <math><15.0V</math>).

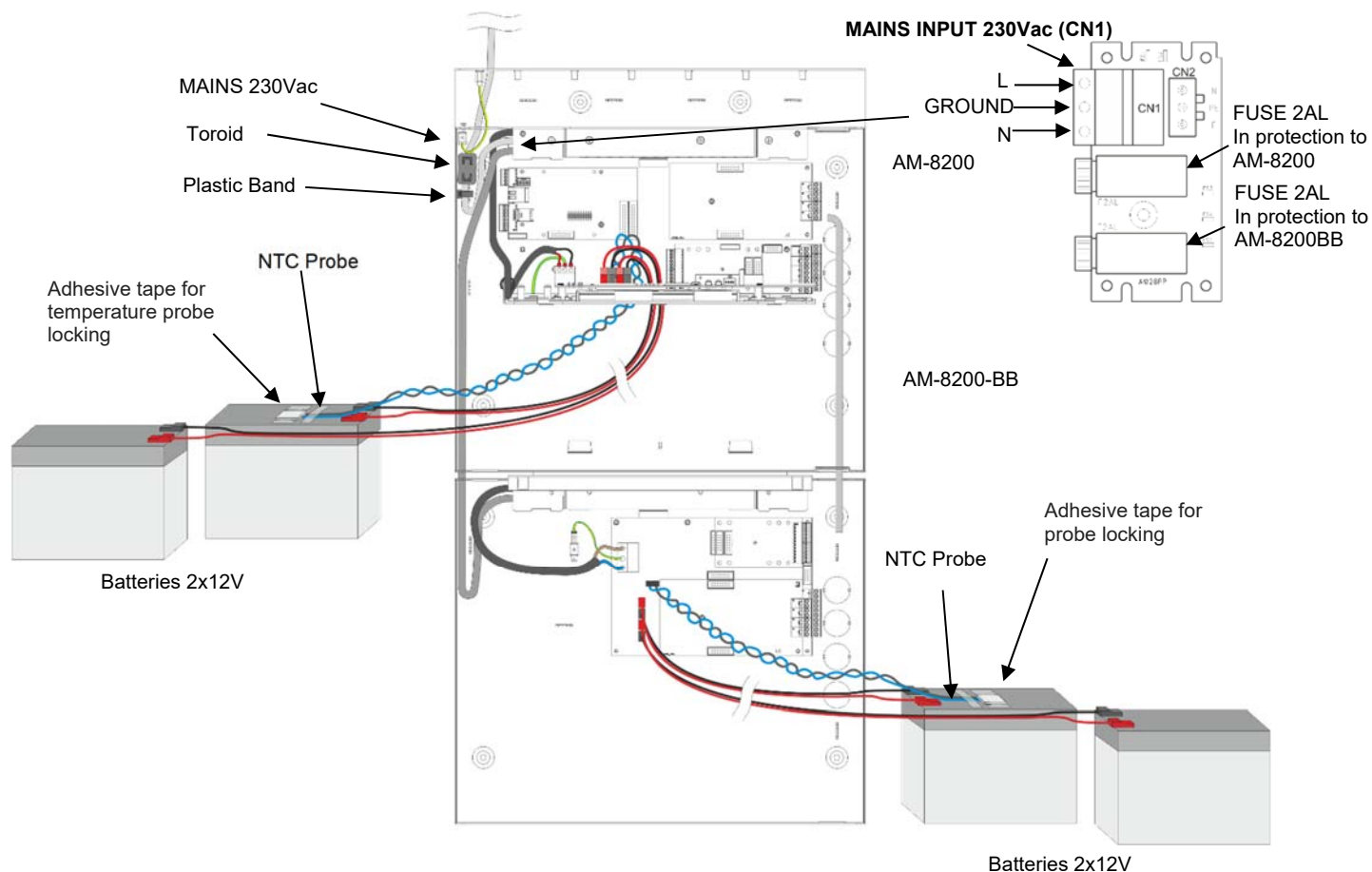
When the control unit operates as a battery (in the absence of the AC mains) "Low Battery" breakdown will be indicated when their voltage is <math><21.5V</math> and, to prevent irreversible damages the voltage will be automatically switched off, by disconnecting the batteries, when the voltage is <math><19,5V</math>.



All wirings MUST be checked BEFORE they are connected to the control unit.

It is recommended to perform at least the following checks:

Mains and Batteries connection



The connection to the 230 Vac power supply mains must be performed through three-conductor cable (phase- neuter-earth).

The identification of the earth conductor coming from the mains must be performed on the CN1 terminal block (refer to basic board topography) and must be fixed at the cabinet by means of cable –tightening strip so that it cannot be accidentally stripped off from the terminal block.

The 230 Vac power supply cable must be fixed inside the control unit by means of an appropriate cable fixing device.

NOTE: The cable fixing collars must be HB flammability class.

The mains supply conductors shall not be consolidated by means of a soft welding..

A sectioning device external to the control unit must be provided for the 230 Vac power cable (contact separation: 3 mm min.) The sectioning device must be omni-polar or must disconnect the line phase
Power Supply connection must be done following this procedure: **(Refer to Base Board)**

- 1 – Turn off the main power switch of the 230 Vac mains.
- 2 – Disconnect the CN1 terminal block from the control unit.
- 3 – Connect the mains cable.
- 4 – Re-connect the CN1 terminal block
- 5 – Turn on the mains switch
- 6 – Install and connect the batteries as indicated in this manual.

➤ **N.B.: Once the control unit has been powered, it will automatically start operating. However, in accordance with the battery storage period, it is necessary to wait some hours before the batteries are completely re-charged.**

- 7 – Check the operation of the LED indicators on the panel, according to the paragraph “TEST AND STARTING OPERATION”.
- 8 – Close the control unit.

Current consumption from Power Supply

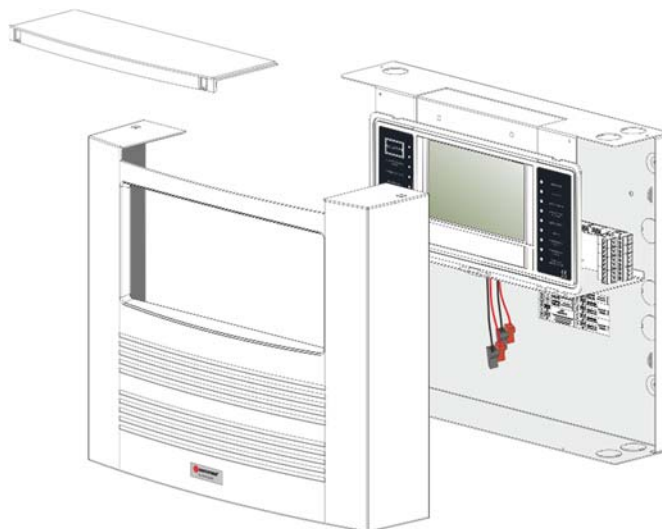
- Current from power supply in **Normal Condition** :
 - **AM-8200-KLCD (CPU-AM-8200)** Board at nominal voltage (29Vdc): 179mA
 - **AM-82-BBMB (CPU-AM8200BB)** Board at nominal voltage (29Vdc): 135mA
 - **LIB-8200 (LIB)** Board at nominal voltage (29Vdc): 50mA
 - **AM82-2S2C (INTERFACE RS232/485/CAN-BUS)** at nominal voltage (29Vdc): 28mA
 - **AM82-BST-C (AMPLIFIER BOARD CAN-BUS)** at nominal voltage (29Vdc): 39mA
- Current from power supply in **Alarm Condition**
 - **AM-8200-KLCD (CPU-AM-8200)** Board at nominal voltage (29Vdc): 345mA
 - **AM-82-BBMB (CPU-AM8200BB)** Board at nominal voltage (29Vdc): 177mA
 - **LIB-8200 (LIB)** Board at nominal voltage (29Vdc): 92mA
 - **AM82-2S2C (INTERFACE RS232/485/CAN-BUS)** at nominal voltage (29Vdc): 28mA
 - **AM82-BST-C (AMPLIFIER BOARD CAN-BUS)** at nominal voltage (29Vdc): 39mA

Current consumption from battery

- Current from battery in **Normal Condition** in the absence of mains voltage 230Vac:
 - **AM-8200-KLCD (CPU-AM-8200)** Board at nominal voltage (24Vdc): 113mA
 - **AM-82-BBMB (CPU-AM-8200BB)** Board Card at nominal voltage (24Vdc): 95mA
 - **LIB-8200 (LIB)** at nominal voltage (24Vdc): 53mA
 - **AM82-2S2C (INTERFACE RS232/485/CAN-BUS)** at nominal voltage (24Vdc): 32mA
 - **AM82-BST-C (AMPLIFIER BOARD CAN-BUS)** at nominal voltage (24Vdc): 45mA
- Current from battery in **Alarm Condition** in the absence of mains voltage 230 Vac:
 - **AM-8200-KLCD (CPU-AM-8200)** Board at nominal voltage (24Vdc): 255mA
 - **AM-82-BBMB (CPU-AM-8200BB)** Board at nominal voltage (24Vdc): 95mA
 - **LIB-8200 (LIB)** at nominal voltage (24Vdc): 53mA
 - **AM82-2S2C (INTERFACE RS232/485/CAN-BUS)** at nominal voltage (24Vdc): 32mA
 - **AM82-BST-C (AMPLIFIER BOARD CAN-BUS)** at nominal voltage (24Vdc): 45mA

See the appendix at the end of this manual for proper battery calculation in Stand-by and in Alarm condition.

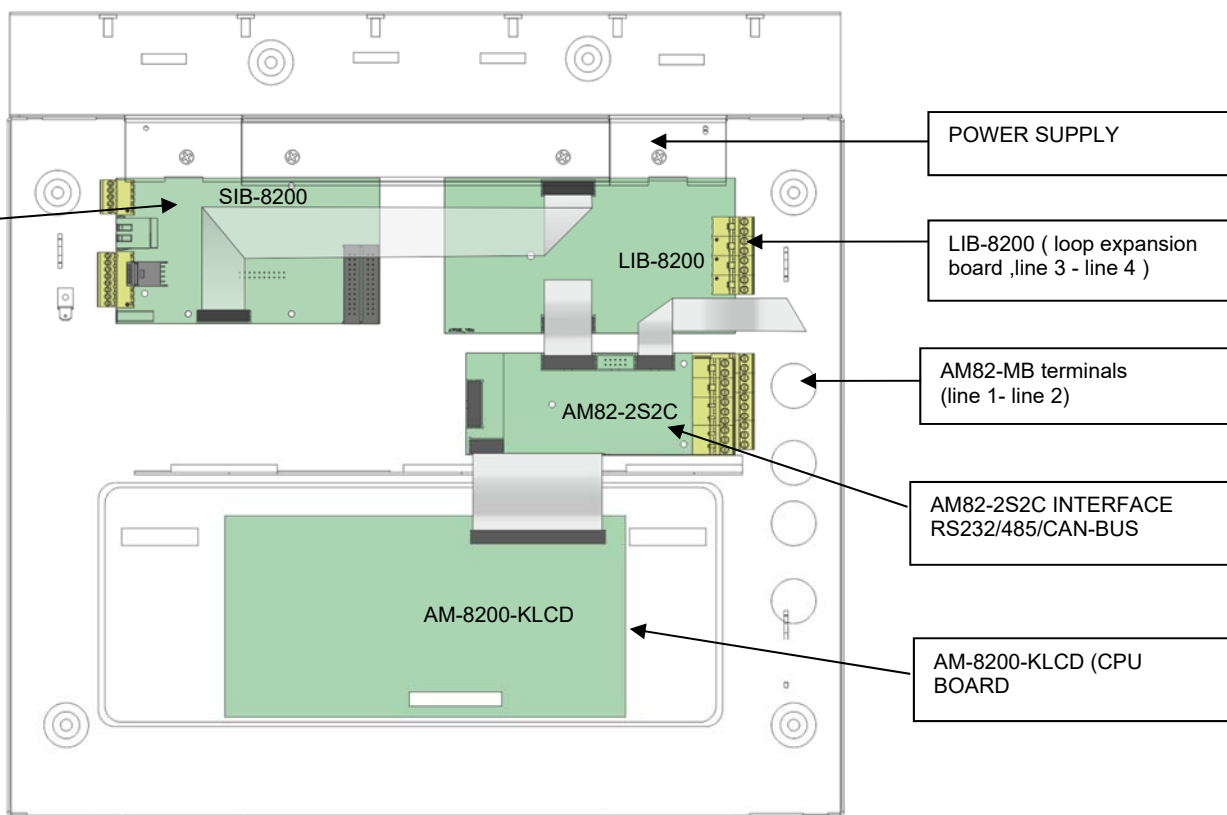
SYSTEM COMPONENTS



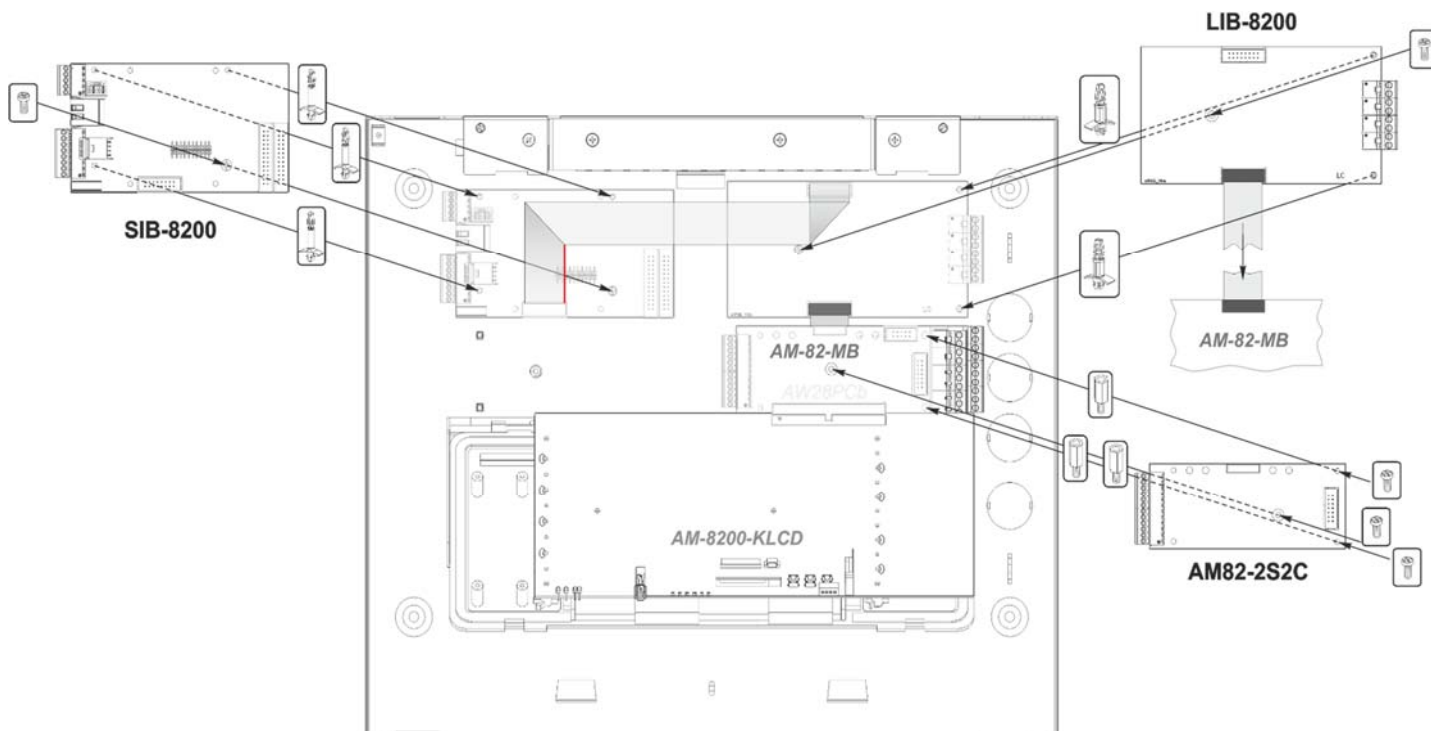
AM-8200

- AM-8200 Box is equipped with: AM-82-MB + AM-8200-KLCD
- AM-8200 Box can contain up to 2 Loop Interface cards LIB-8200
- Each LIB-8200 card can drive up to 2 ADV detection loops
- Each ADV Loop line can connect up to 159 detector and 159 Modules in Advanced protocol.
- One amplifier board CAN-BUS (AM82-BST-C)
- One optional interface RS232/485/CAN-BUS (AM82-2S2C)

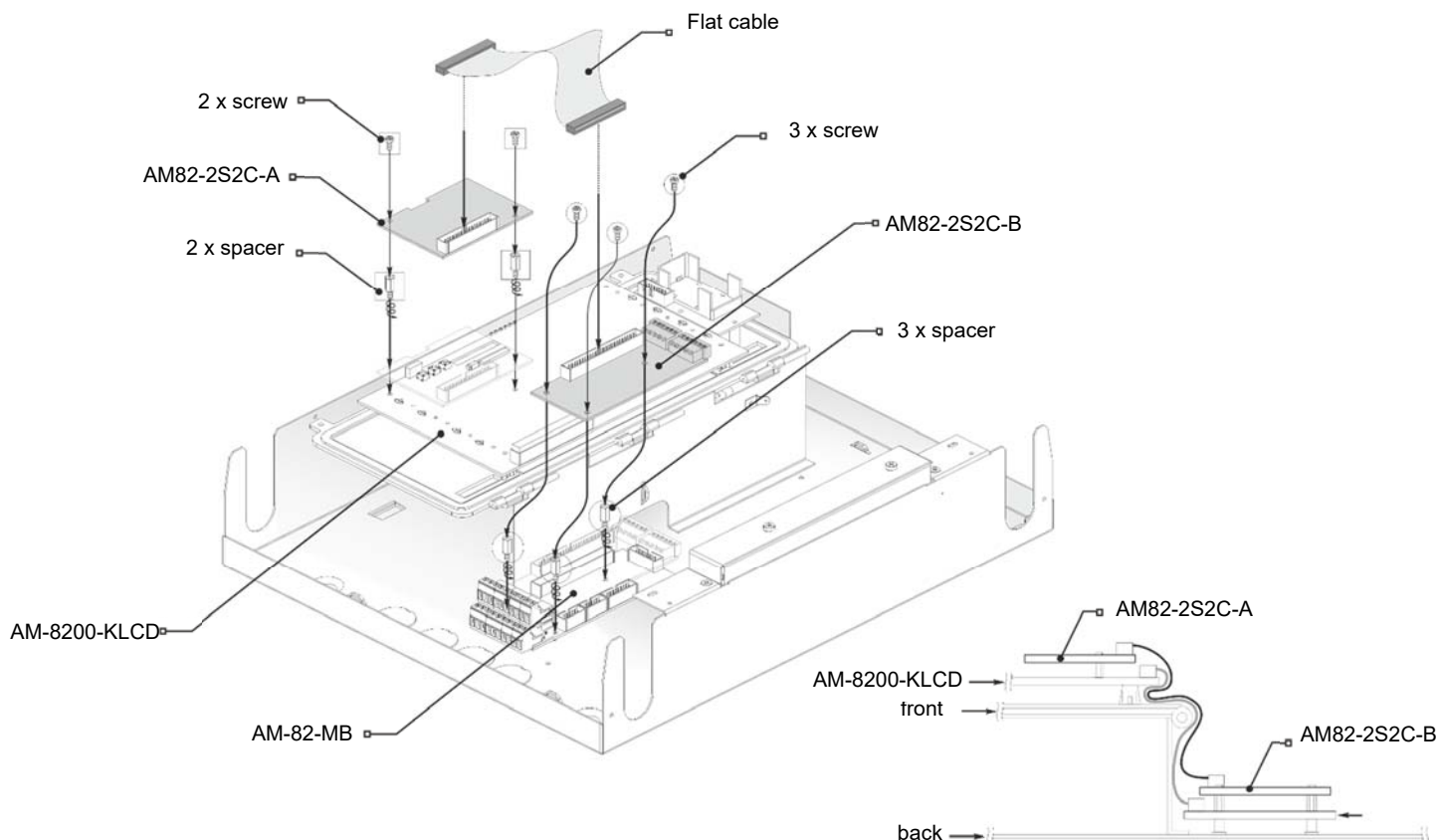
BOARDS AND INTERCONNECTION AM-8200



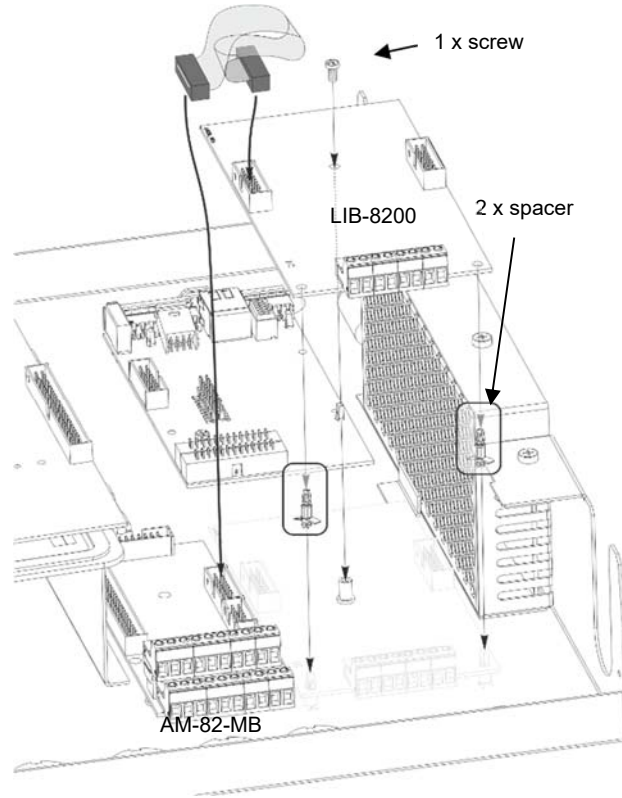
Boards Assembly



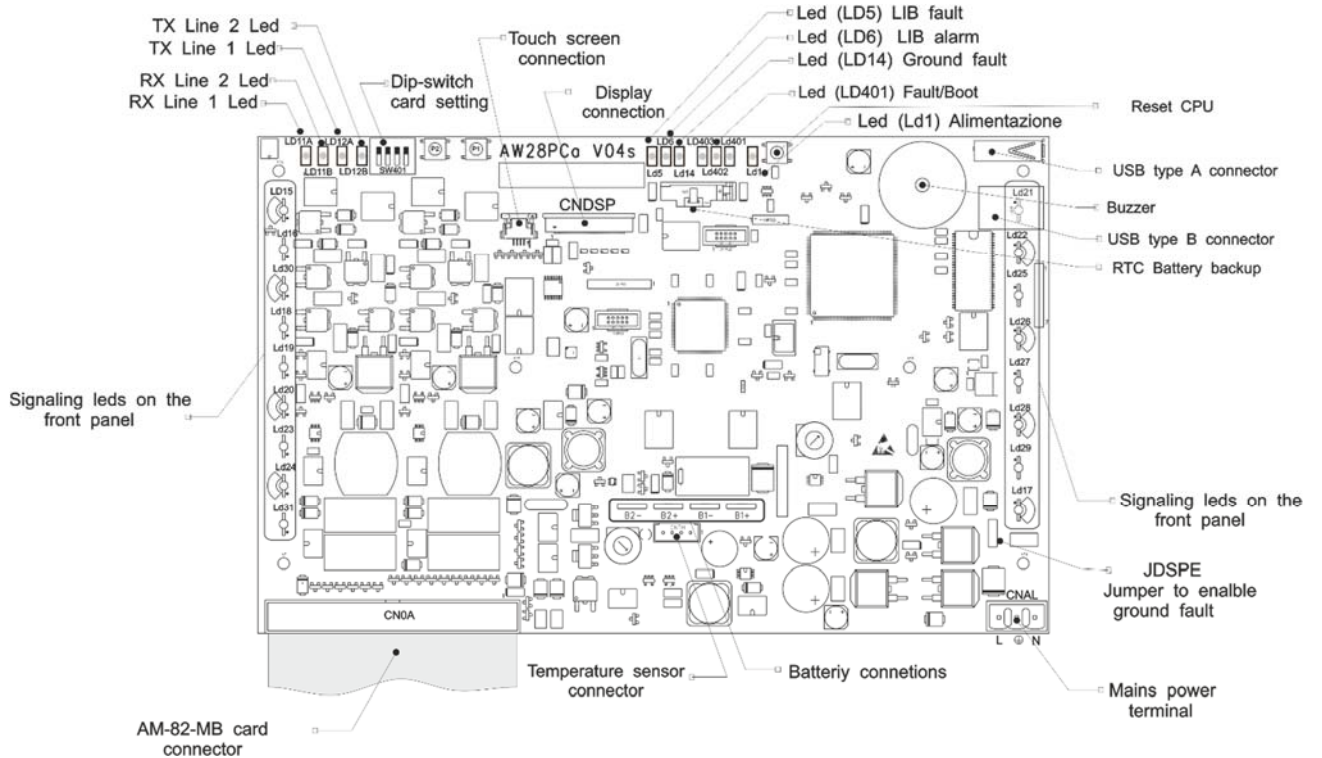
AM82-2S2C Assembly



LIB-8200 Assembly



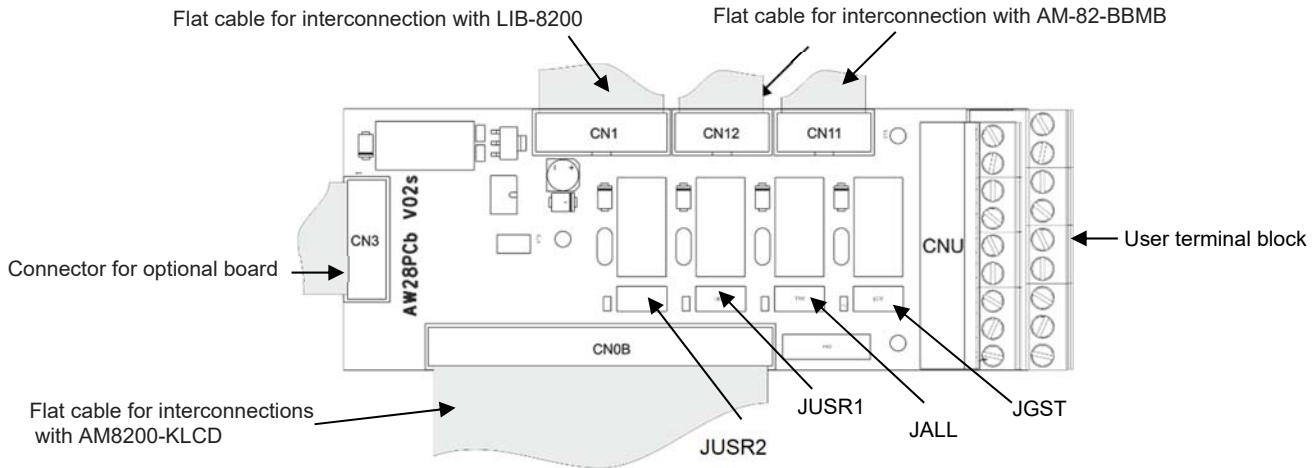
AM-8200-KLCD (AM-8200 CPU Board)



DIP SWITCH SW401 on CPU Board

Dip switch				Note
1	2	3	4	
OFF	OFF	OFF	OFF	Normal Operating setting
ON	OFF	OFF	OFF	Copy the configuration in the USB memory key
OFF	OFF	OFF	ON	Firmware updating
ON	OFF	OFF	ON	Restore factory configuration
ON	ON	ON	ON	from USB memory key loads configuration previously prepared by PK-8200 SW Tool

AM-82-MB Terminal Board



CN1 terminal

N°	description	Function	Note
L	Phase	230Vac mains Power Fused with 2 AL	
⊕	Ground		
N	Neutral		

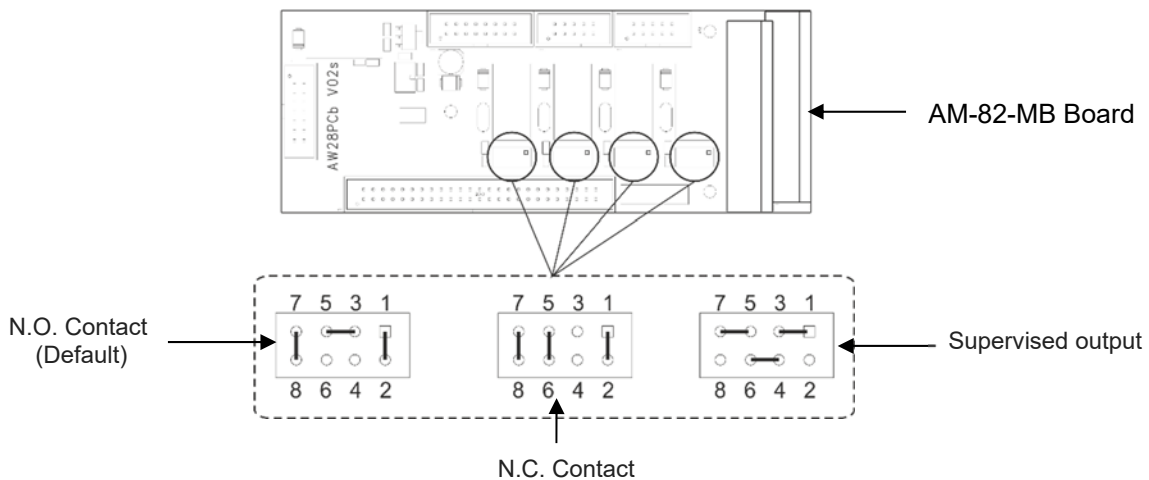
CNU terminal block

N°	Description	Characteristics	Note
20	Fault relay N.C./ N.O.	Max 30V 2A	Select N.O./N.C. with JGST Jumper or supervised output (resettable fuse 0.3A) with EOL resistor 47KΩ
19	Fault relay "Common"		
18	Sounder (Negative in non alarm)	1 A resettable fuse (this is a polarity inversion output).	EOL resistor = 47KΩ
17	Sounder (positive in non alarm)		
16	User 2 Relay N.C./ N.O.	Max 30V 2A	Select N.O./N.C. with JUSR2 Jumper or supervised output (resettable fuse 0.3A) with EOL resistor 47KΩ
15	User 2 Relay "Common"		
14	User 1 Relay N.C./ N.O.	Max 30V 2A	Select N.O./N.C. with JUSR1 Jumper or supervised output (resettable fuse 0.3A) with EOL resistor 47KΩ
13	User 1 Relay "Common"		
12	Alarm Relay N.C./N.O.	Max 30V 2A	Select N.O./N.C. with JALL Jumper or supervised output (resettable fuse 0.3A) with EOL resistor 47KΩ
11	Alarm Relay "Common"		
10	GND USR	2 A resettable fuse	
9	+24V USR		
8	Line 2 B-	Detection LINE 2	
7	Line 2 B+		
6	Line 2 A-		
5	Line 2 A+		
4	Line 1 B-	Detection LINE 1	
3	Line 1 B+		
2	Line 1 A-		
1	Line 1 A+		

Relay outputs

<u>FUNCTION</u>	<u>CHARACTERISTICS</u>
Siren	1 contact controlled by 24Vcc / 2A resistive
USR2	Max 2A resistive 30 Vdc, NO-NC or supervised output 0,3A Fused, selectable through Jumper JUSR2 (refer to basic board topography)
USR1	Max 2A resistive 30 Vdc, NO-NC or supervised output 0,3A Fused, selectable through Jumper JUSR1 (refer to basic board topography)
General Alarm	Max 2A resistive 30 Vdc, NO-NC or supervised output 0,3A Fused, selectable through Jumper JALL (refer to basic board topography)
General Fault	Max 2A resistive 30 Vdc, NO-NC or supervised output 0,3A Fused, selectable through Jumper JGST (refer to basic board topography)

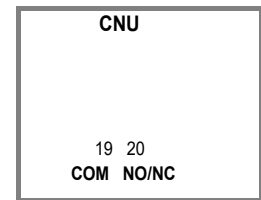
Instructions to setting the relay outputs as N.O. / N.C. or Supervised



General Fault relay

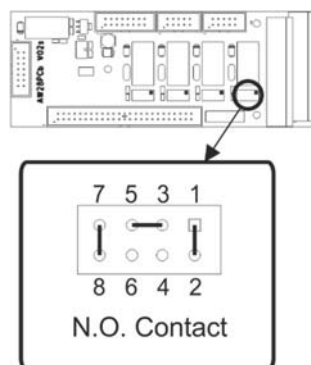
The General Fault relay is usually in energized state. It is de-energized in Fault condition. This output is available in free voltage.

Contact range: max 30 VAC/DC, 2A,
Non-inductive loads

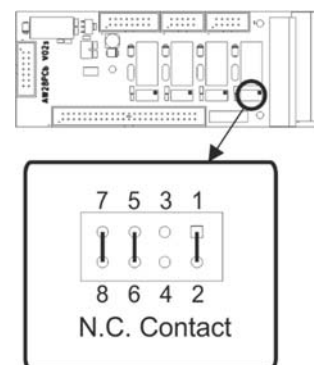


Main Fault output

Setting of the general fault output with N.O. contact (Jumper JGST).



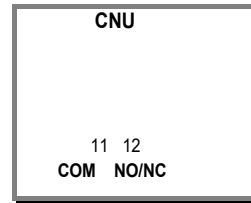
Setting of the general fault output with N.C. contact (Jumper JGST).



General Alarm relay

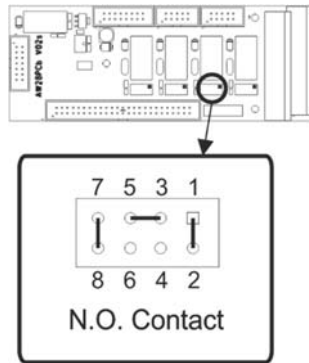
The main Alarm relay is available in free voltage contacts or as supervised output.

Contact range: max 30 VAC/DC, 2A,
Non-inductive loads.

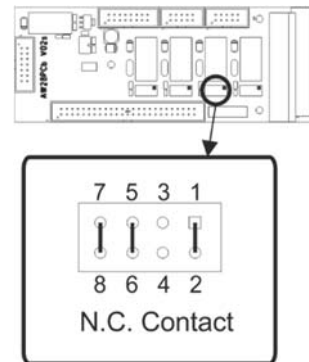


Main Alarm output

Setting of the general Alarm output with N.O. contact (Jumper JALL).

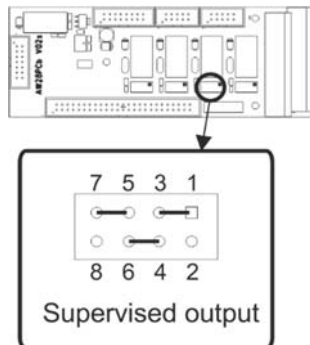


Setting of the general Alarm output with N.O. contact (Jumper JALL).

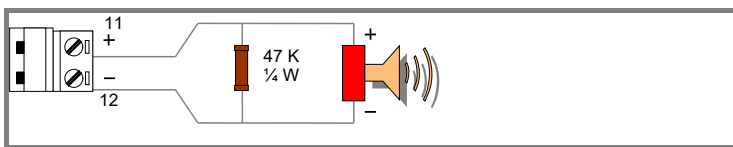


Supervised output (resettable fuse 0.3A) with EOL resistor 47KΩ

Setting of the general Alarm output as supervised output (Jumper JALL).



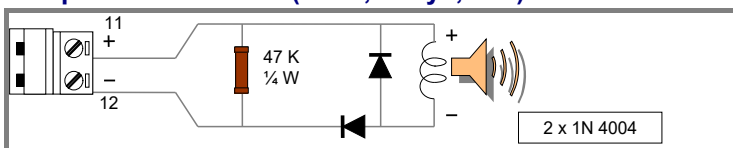
Polarized devices (electronic sirens, etc.)



NOTE:

Connect the 47KΩ , 1/4 W EOL resistor only on last sounder of the line

Non-polarized devices (Bells, relays, etc.)



ATTENTION:

Polarity displayed are in Alarm condition, at idle condition, they are inverted

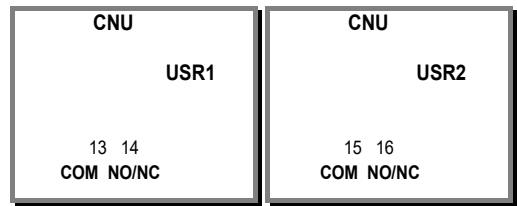
USR1 and USR2 relays

The USR1 and USR2 relays are available in free voltage contacts or as supervised outputs.

Contact range: max 30 VAC/DC, 2A,
 Non-inductive loads
 Selection of type of contact (Normally open ,
 Normally closed or supervised outputs) see page 15.

NOTE:

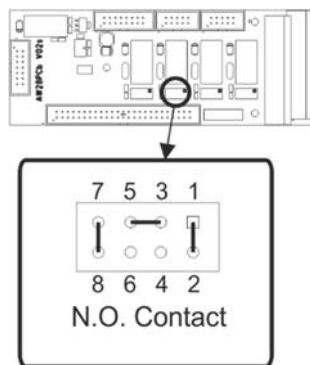
To program the activation of these outputs refer to "AM-8200 Programming Manual".



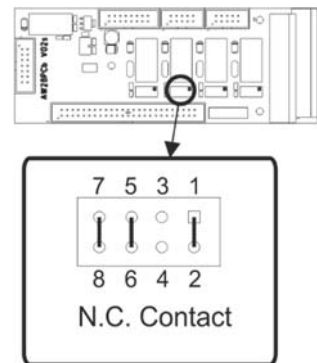
USR1 - USR2 Output

USR1 Output

Setting of the USR1 output with N.O. contact (Jumper JALL).

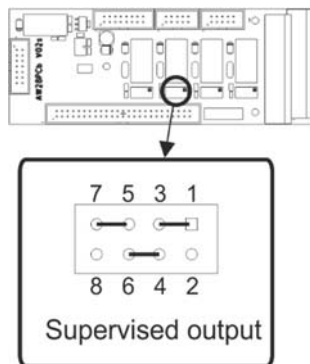


Setting of the USR1 output with N.C. contact (Jumper JALL).

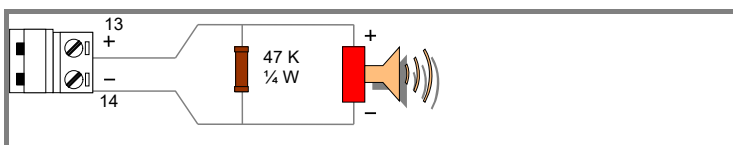


Supervised output (resettable fuse 0.3A) with EOL resistor 47KΩ

Setting of the USR1 output as supervised output (Jumper JALL).



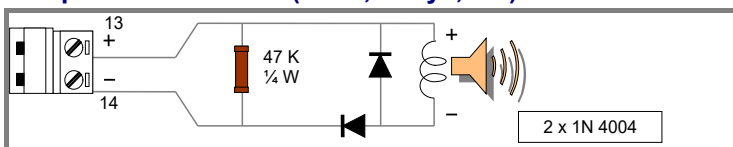
Polarized devices (electronic sirens, etc.)



NOTE:

Connect the 47KΩ , 1/4 W EOL resistor only on last sounder of the line

Non-polarized devices (Bells, relays, etc)

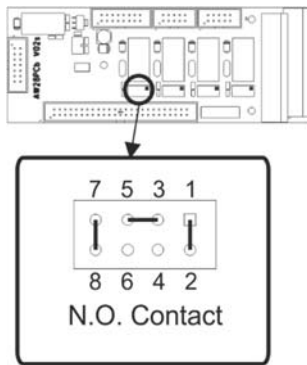


ATTENTION:

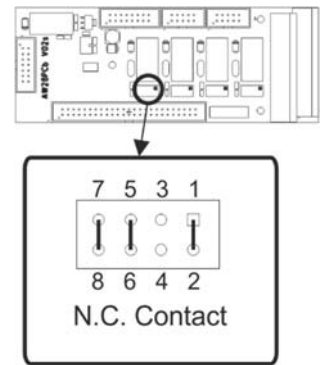
Polarity displayed are in Activated condition, at idle condition, they are inverted

USR2 Output

Setting of the USR2 output with N.O. contact (Jumper JALL).

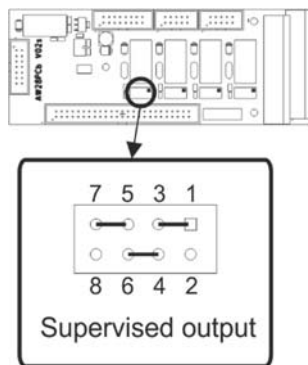


Setting of the USR2 output with N.C. contact (Jumper JALL).

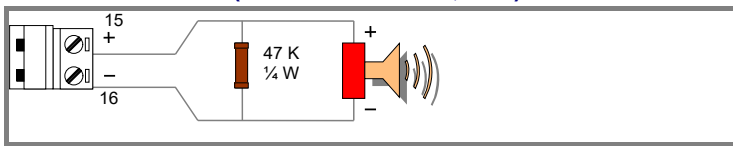


Supervised output (resettable fuse 0.3A) with EOL resistor 47KΩ

Setting of the USR2 output as supervised output (Jumper JALL).



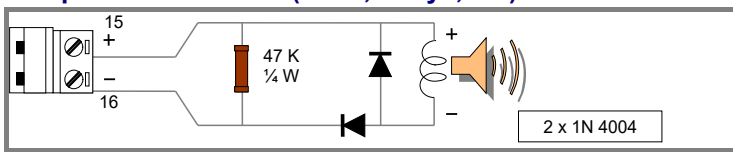
Polarized devices (electronic sirens, etc.)



NOTE:

Connect the 47KΩ , ¼ W EOL resistor only on last sounder of the line

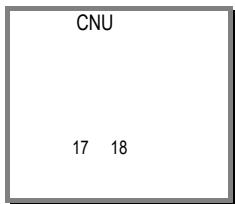
Non-polarized devices (Bells, relays, etc)



ATTENTION:

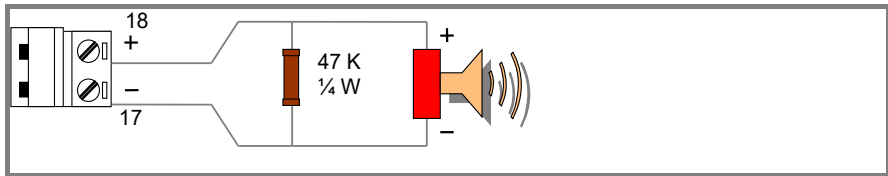
Polarity displayed are in Activated condition, at idle condition, they are inverted

Sounder connection - controlled output



Sounder output connections
(refer to basic board topography)
1A resettable fuse

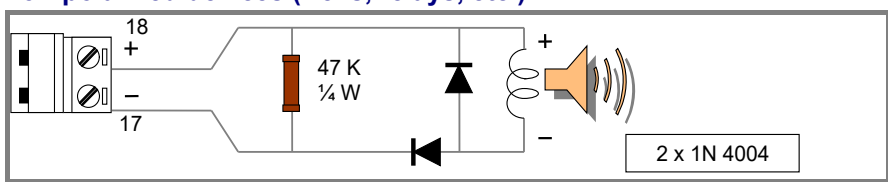
Polarized devices (electronic sirens, etc.)



NOTE:

Connect the 47KΩ, ¼ W EOL resistor only on last sounder of the line

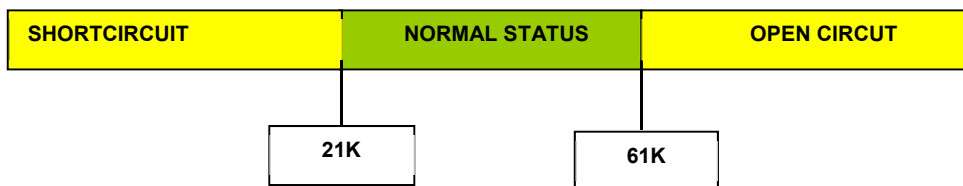
Non-polarized devices (Bells, relays, etc.)



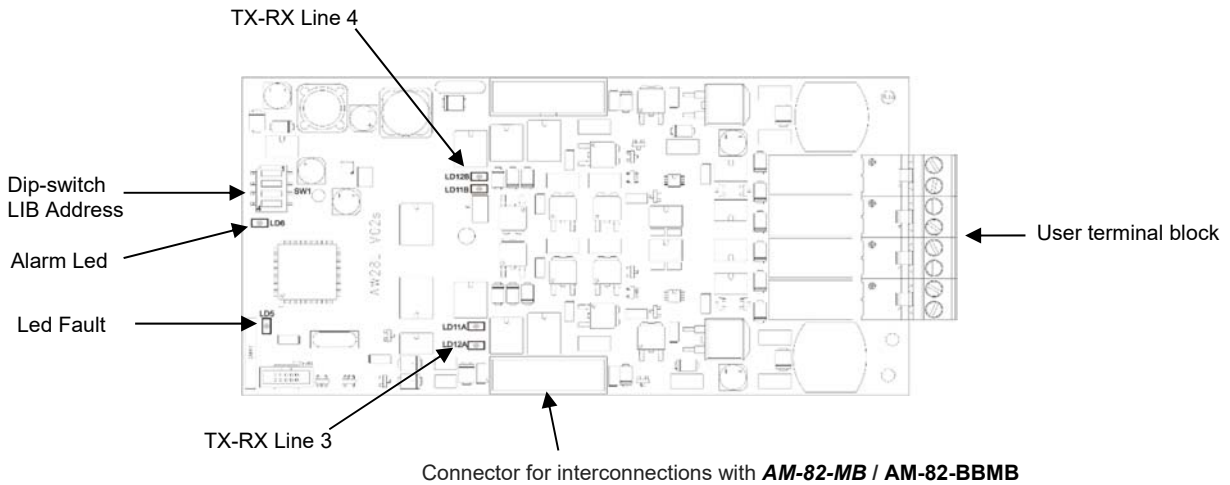
ATTENTION:

Polarity displayed are in Alarm condition, at idle condition, they are inverted

Thresholds for supervised outputs



LIB-8200 (Expansion Board)



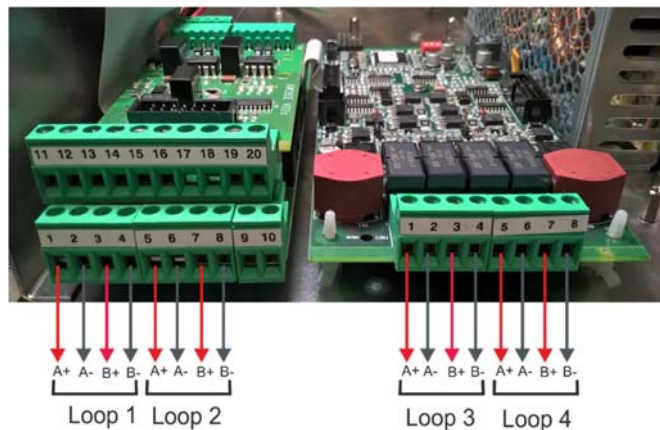
CNU terminal block

N°	Description	Characteristics	Note
8	Line 2 B-	Detection LINE 4 (if the board is mounted on AM-8200) Detection LINE 8 (if the board is mounted on AM-8200-BB)	
7	Line 2 B+		
6	Line 2 A-		
5	Line 2 A+	Detection LINE 3 (if the board is mounted on AM-8200) Detection LINE 7 (if the board is mounted on AM-8200-BB)	
4	Line 1 B-		
3	Line 1 B+		
2	Line 1 A-		
1	Line 1 A+		

Address DIP SWITCH SW1 on LIB-8200 Board

Dip switch				Note
1	2	3	4	
OFF	ON	OFF	OFF	if the board is mounted on AM-8200 is necessary to set the address n° 2
OFF	OFF	ON	OFF	if the board is mounted on AM-8200-BB is necessary to set the address n° 4

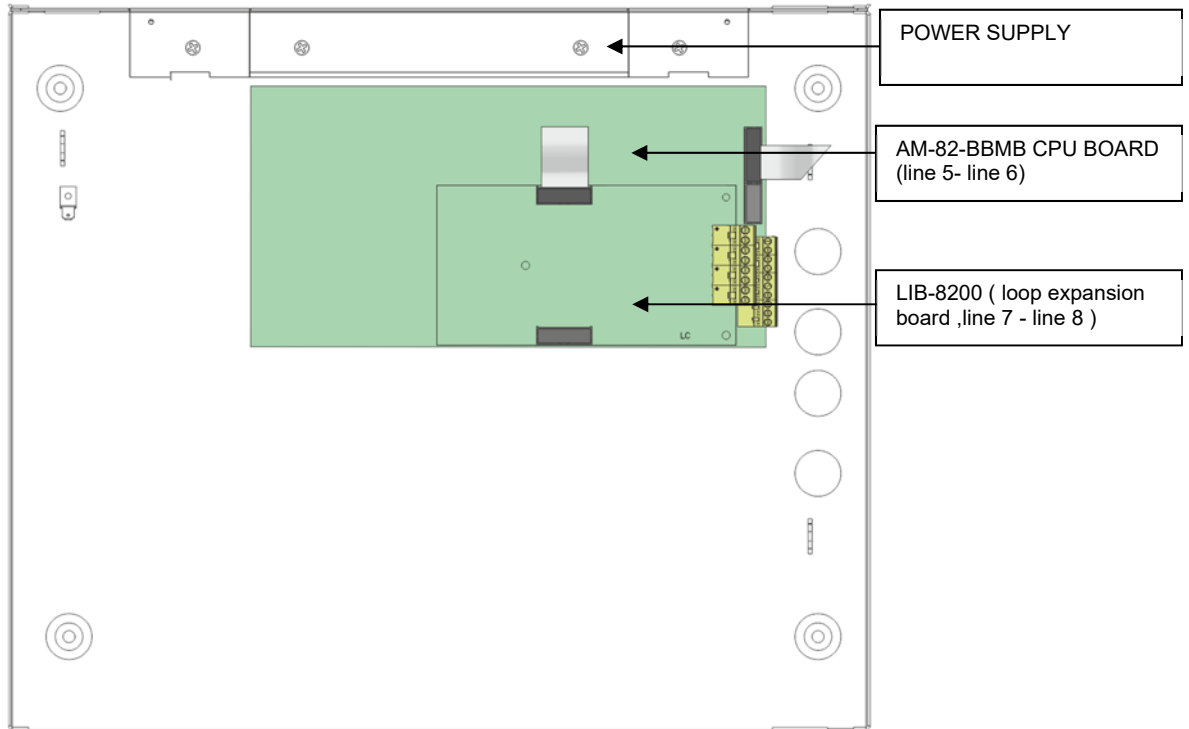
Detection Lines connection on AM-8200



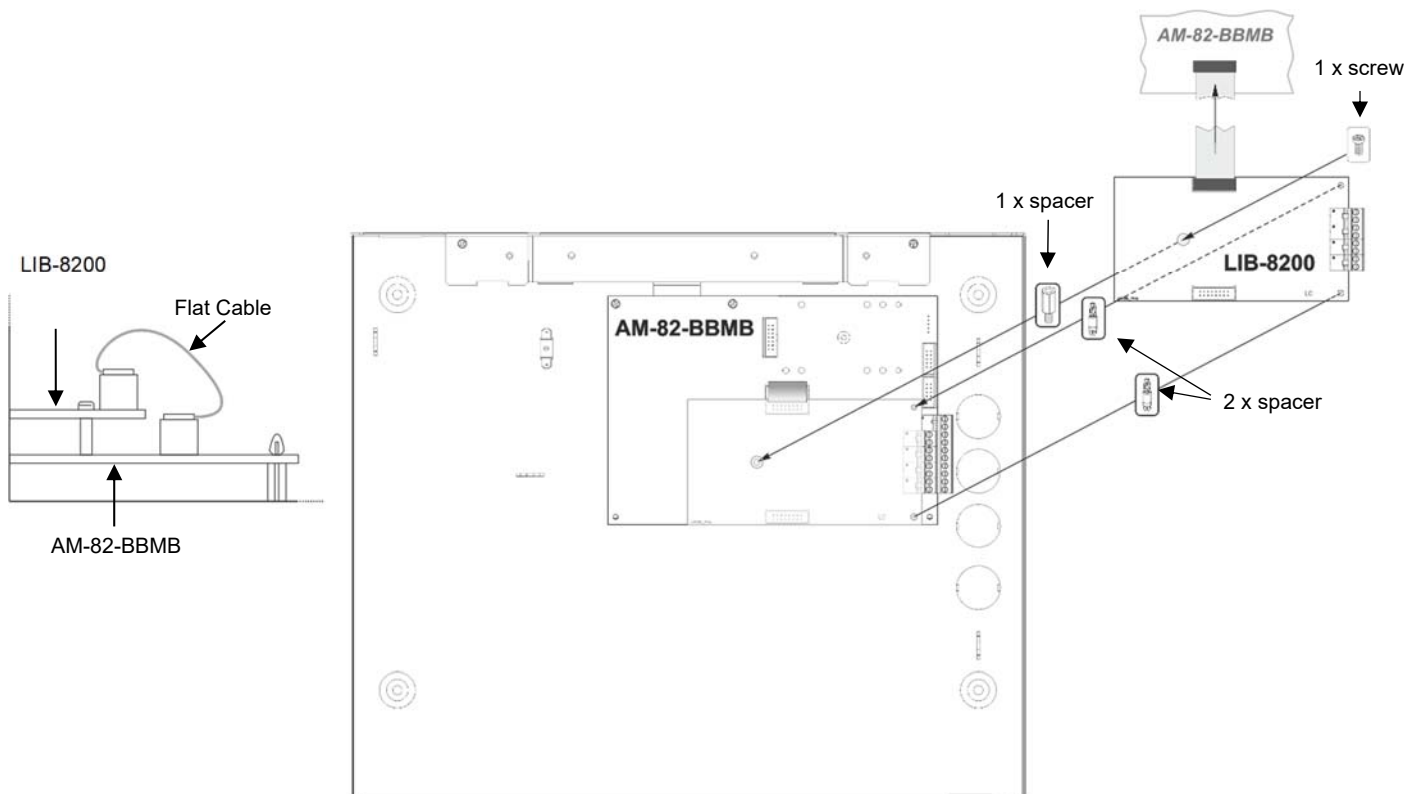
AM-8200-BB

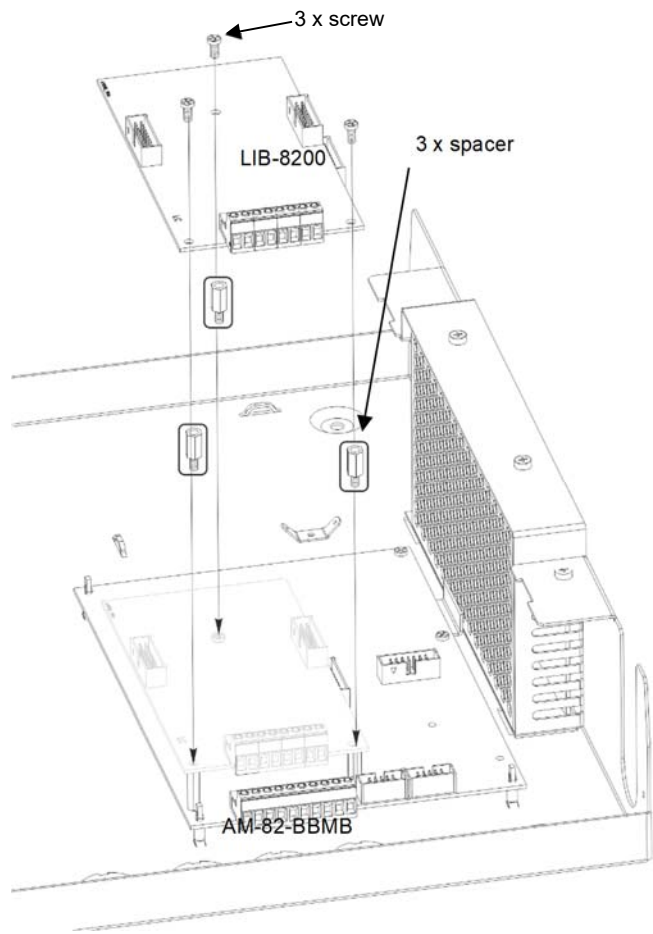
- AM-8200BB Box is equipped of one CPU Board (AM-82-BBMB) and can contain up to 2 Loop Interface cards (LIB-8200)
- Each LIB card can drive up to 2 ADV loop
- Each ADV Loop line can connect up to 159 detector and 159 Modules in Advanced protocol.

BOARDS AND INTERCONNECTION AM-8200BB

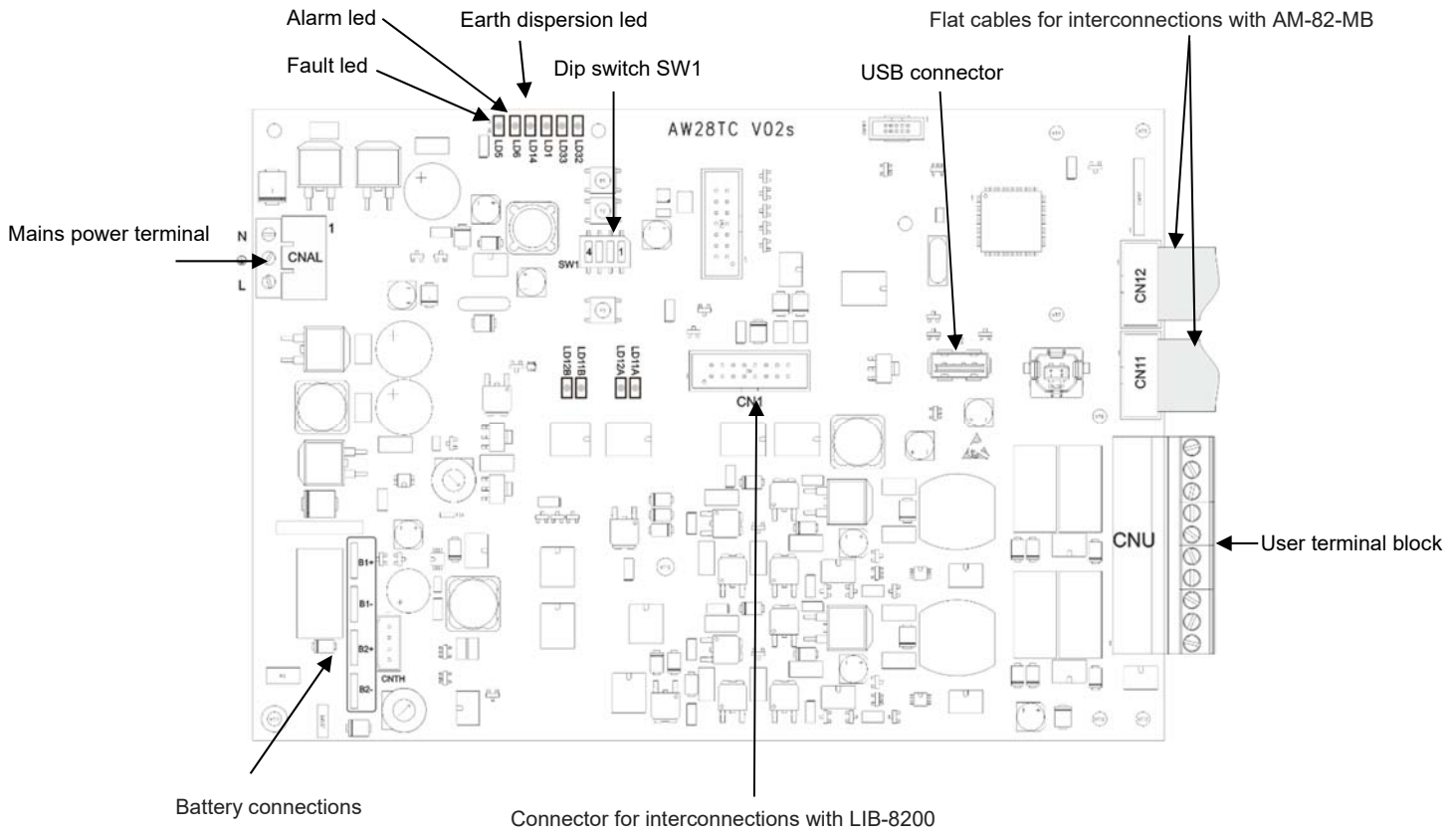


Boards Assembly AM8200BB





AM-82-BB MB (AM-8200BB CPU Board)



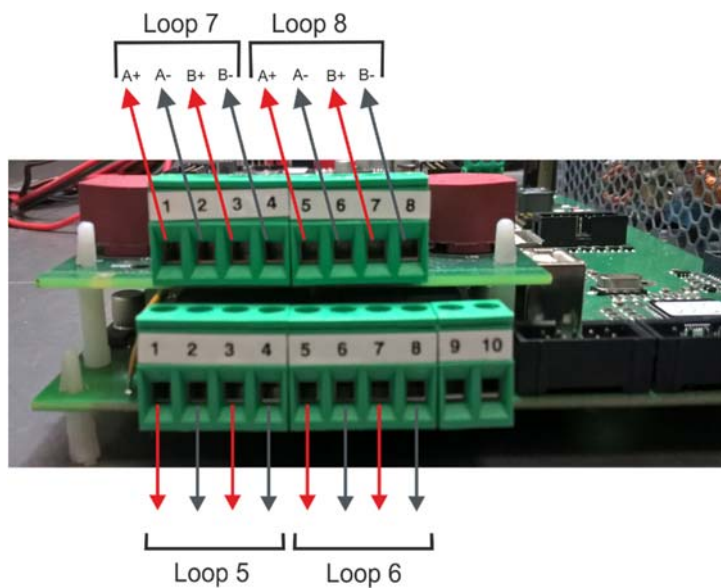
CNU terminal block

N°	Description	Characteristics	Note
10	GND USR	2 A Resettable fuse	
9	+24V USR		
8	Line 2 B-	Detection LINE 5	
7	Line 2 B+		
6	Line 2 A-		
5	Line 2 A+		
4	Line 1 B-	Detection LINE 6	
3	Line 1 B+		
2	Line 1 A-		
1	Line 1 A+		

ADDRESS DIP SWITCH SW1 on CPU Board

Dip switch				Note
1	2	3	4	necessary to set the address N° 3 on board AM-82-BBMB
ON	ON	OFF	OFF	

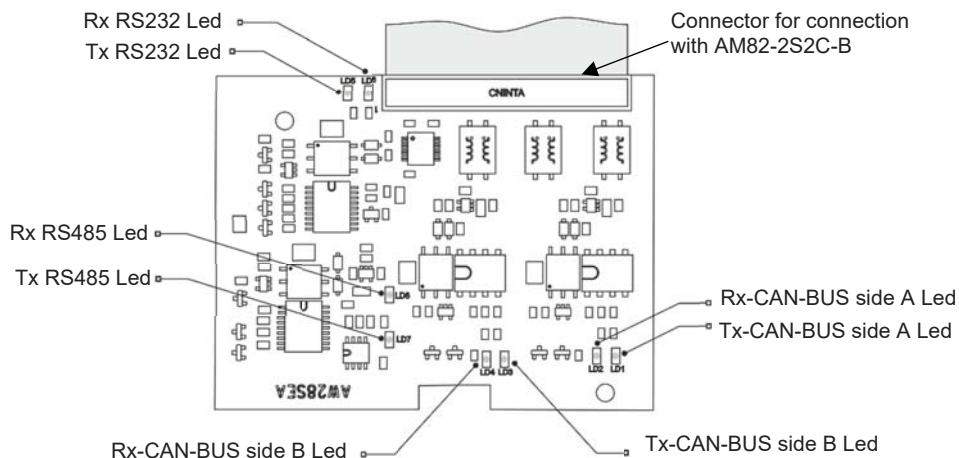
Detection Lines connection on AM-8200-BB



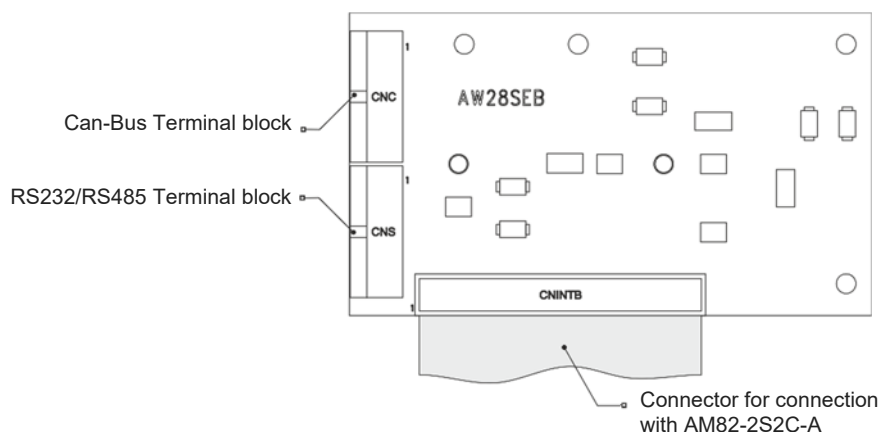
OPTION CARDS

AM82-2S2C INTERFACE RS232/485/CAN-BUS

AM82-2S2C-A Board



AM82-2S2C-B Board



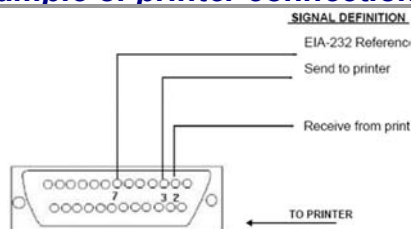
CNS terminal block

N°	Description	Characteristics	Note
01	TX	Communication line RS-232	Printer port Serial port is optically isolated
02	RX		
03	GND		
04	LIN+	Communication line RS-485	LCD-8200 port Serial port is optically isolated
05	GNDIS		
06	LIN-		

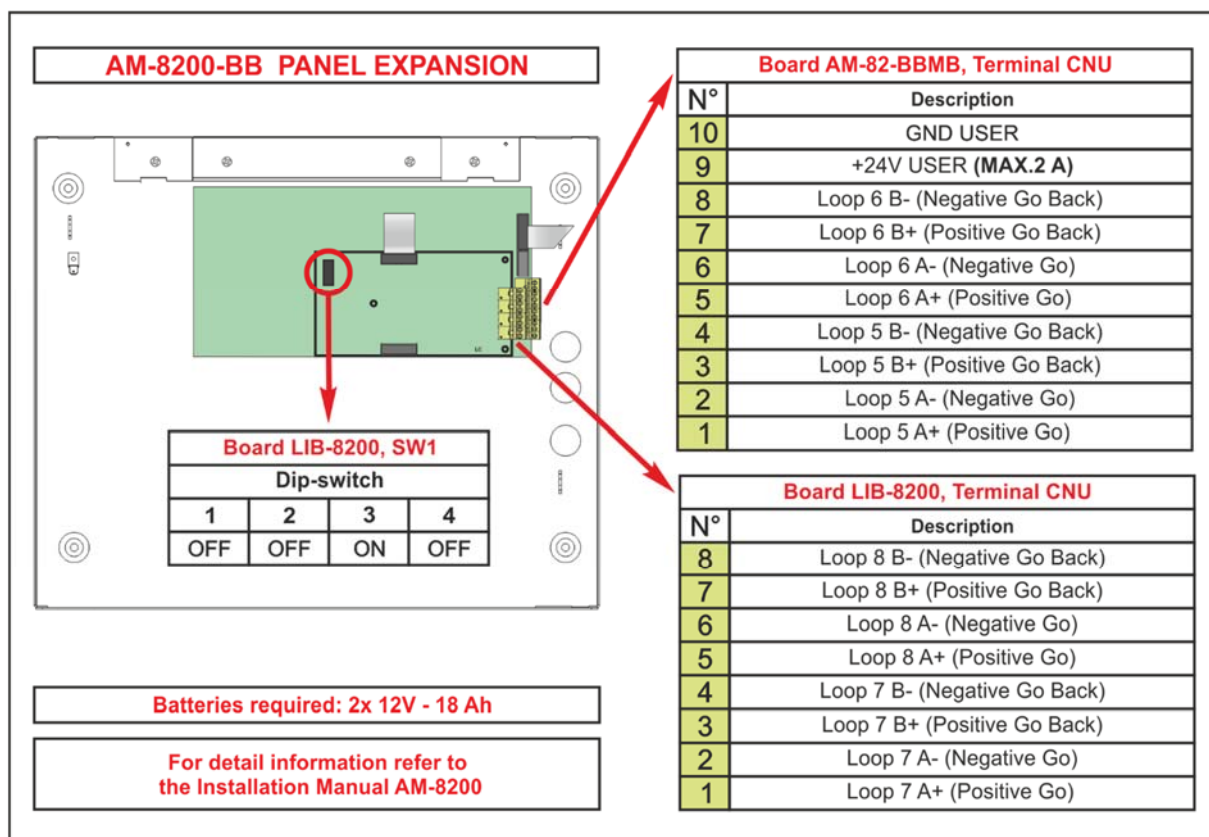
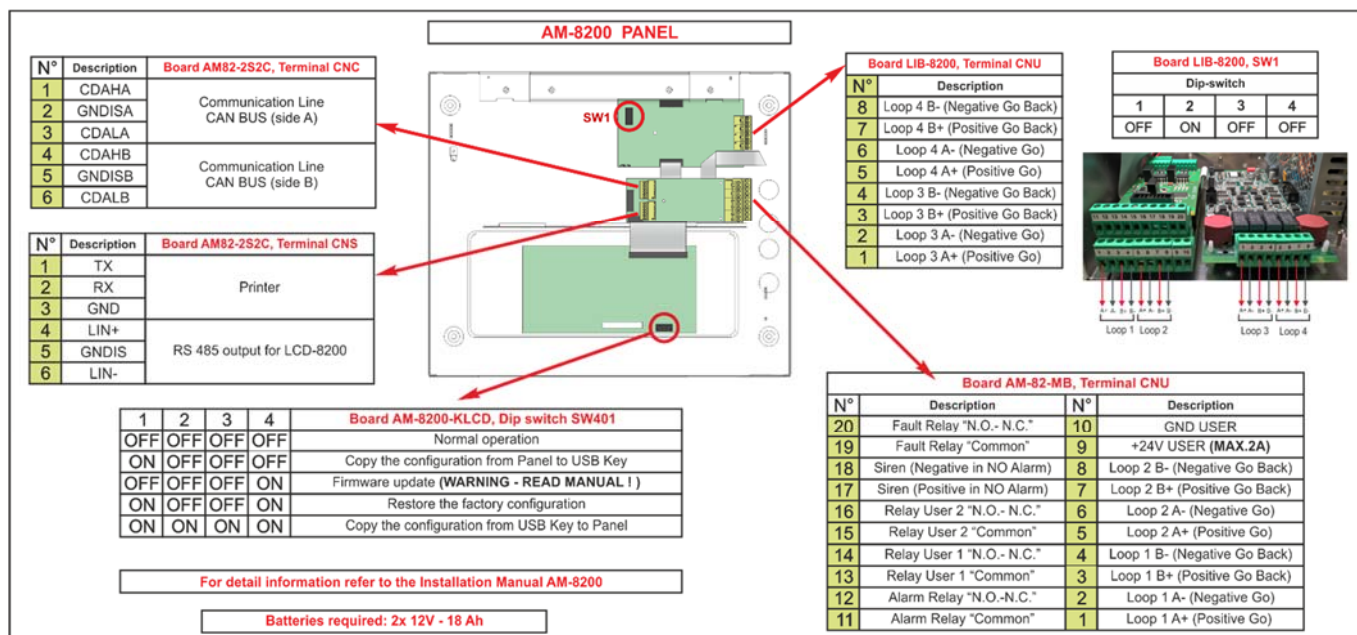
CNC terminal block

N°	Description	Characteristics	Note
01	CDAHA	Communication line (side A) for CAN BUS NETWORK	optically isolated with 120 ohm termination resistor installed on board
02	GNDISA		
03	CDALA		
04	CDAHB	Communication line (side B) for CAN BUS NETWORK	optically isolated with 120 ohm termination resistor installed on board
05	GNDISB		
06	CDALB		

Example of printer connection



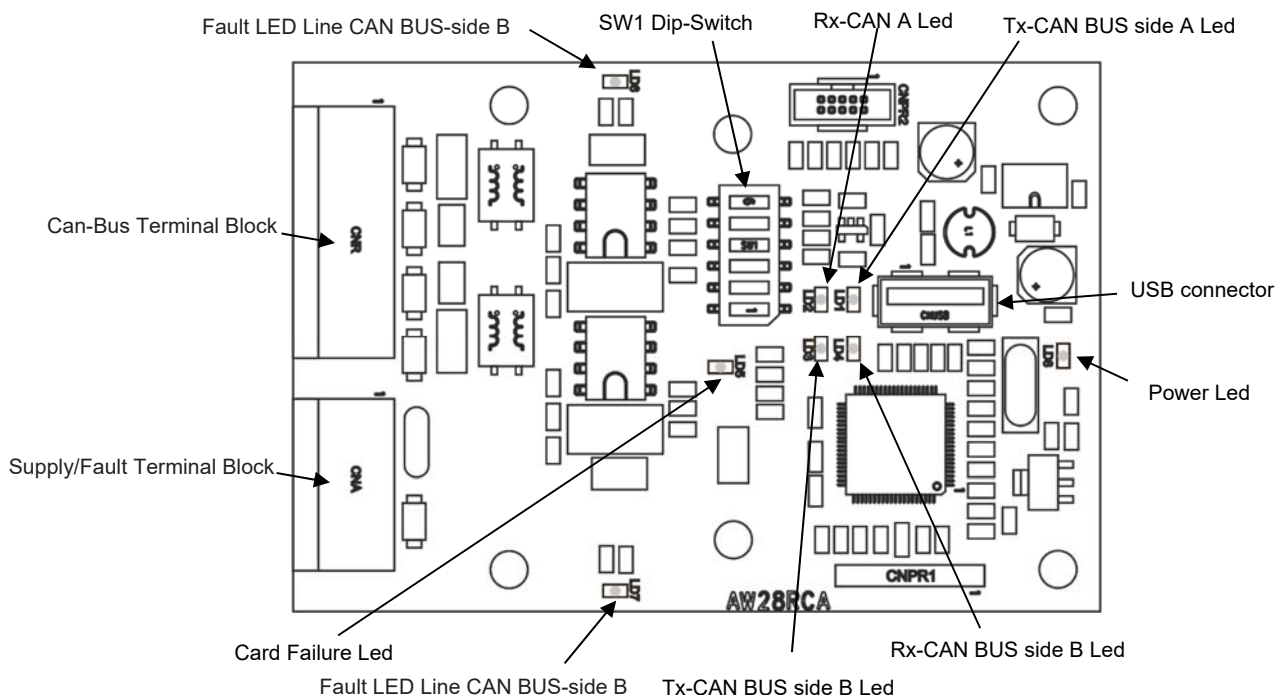
Summary of all Cards Connection



AM82-BST-C (CAN-BUS amplifier card)

This board can be installed inside a remote HLSPS25(Power supply) along the CAN-BUS Network with the aim of doubling the distance Node-to-Node.

On CAN-BUS network you can install up to 8 AM82-BST-C cards.



CNA terminal block

N°	Description	Characteristics	Note
01	+ 24V	Power input	potential-free contact
02	GND		
03	IN GST-NO	Digital input to signalize the power supply fault	
04	IN GST-C	GND	

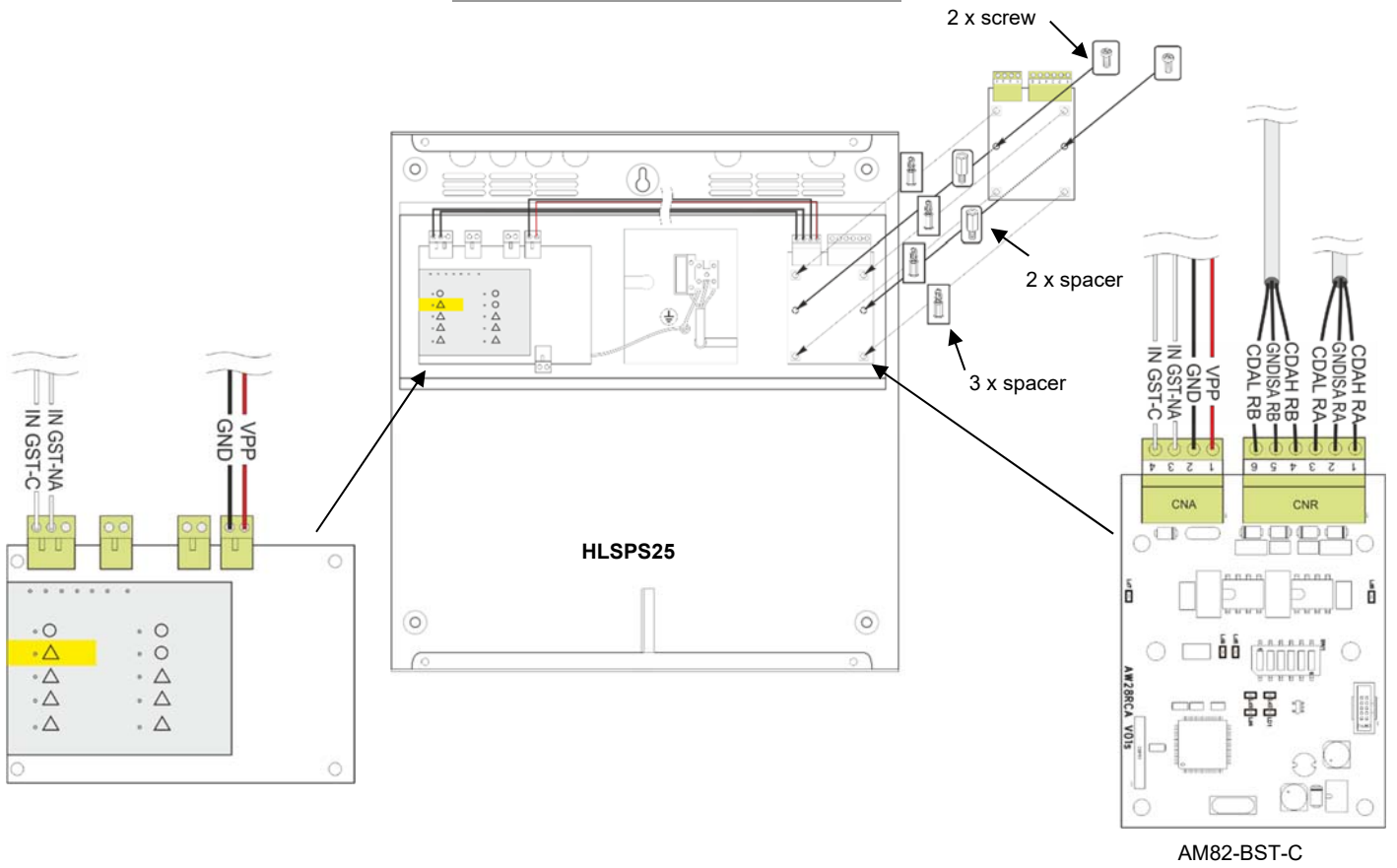
CNR terminal block

N°	Description	Characteristics	Note
01	CDAHRA	Communication line (side A) for CAN BUS NETWORK	optically isolated with 120 ohm termination resistor installed on board
02	GNDISRA		
03	CDALRA		
04	CDAHRB	Communication line (side B) for CAN BUS NETWORK	optically isolated with 120 ohm termination resistor installed on board
05	GNDISRB		
06	CDALRB		

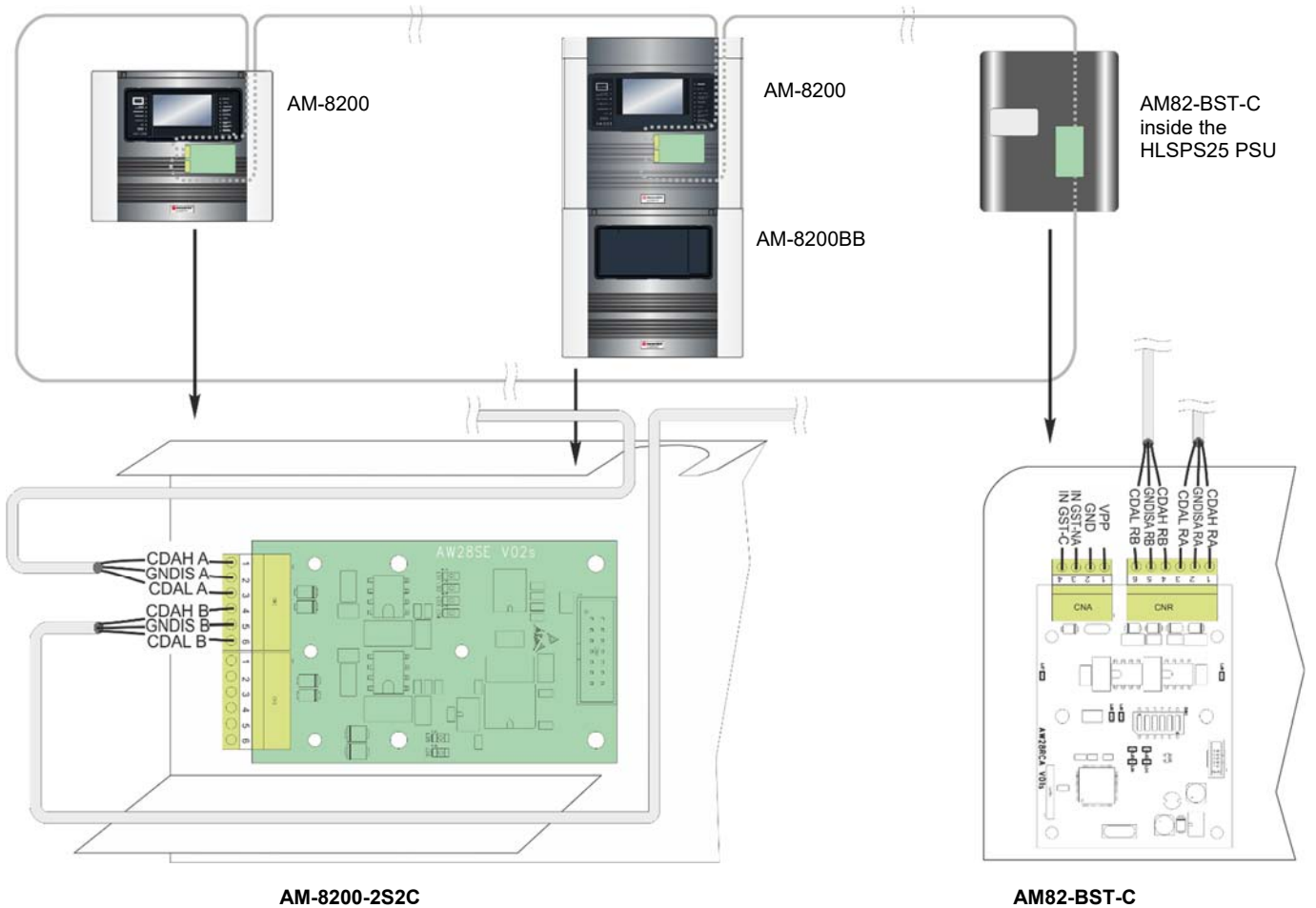
DIP SWITCH SW1 (Address switch)

Dip switch						Address of card
1	2	3	4	5	6	
ON	OFF	OFF	OFF	OFF	OFF	Address n° 1
OFF	ON	OFF	OFF	OFF	OFF	Address n° 2
ON	ON	OFF	OFF	OFF	OFF	Address n° 3
OFF	OFF	ON	OFF	OFF	OFF	Address n° 4
ON	OFF	ON	OFF	OFF	OFF	Address n° 5
OFF	ON	ON	OFF	OFF	OFF	Address n° 6
ON	ON	ON	OFF	OFF	OFF	Address n° 7
OFF	OFF	OFF	ON	OFF	OFF	Address n° 8

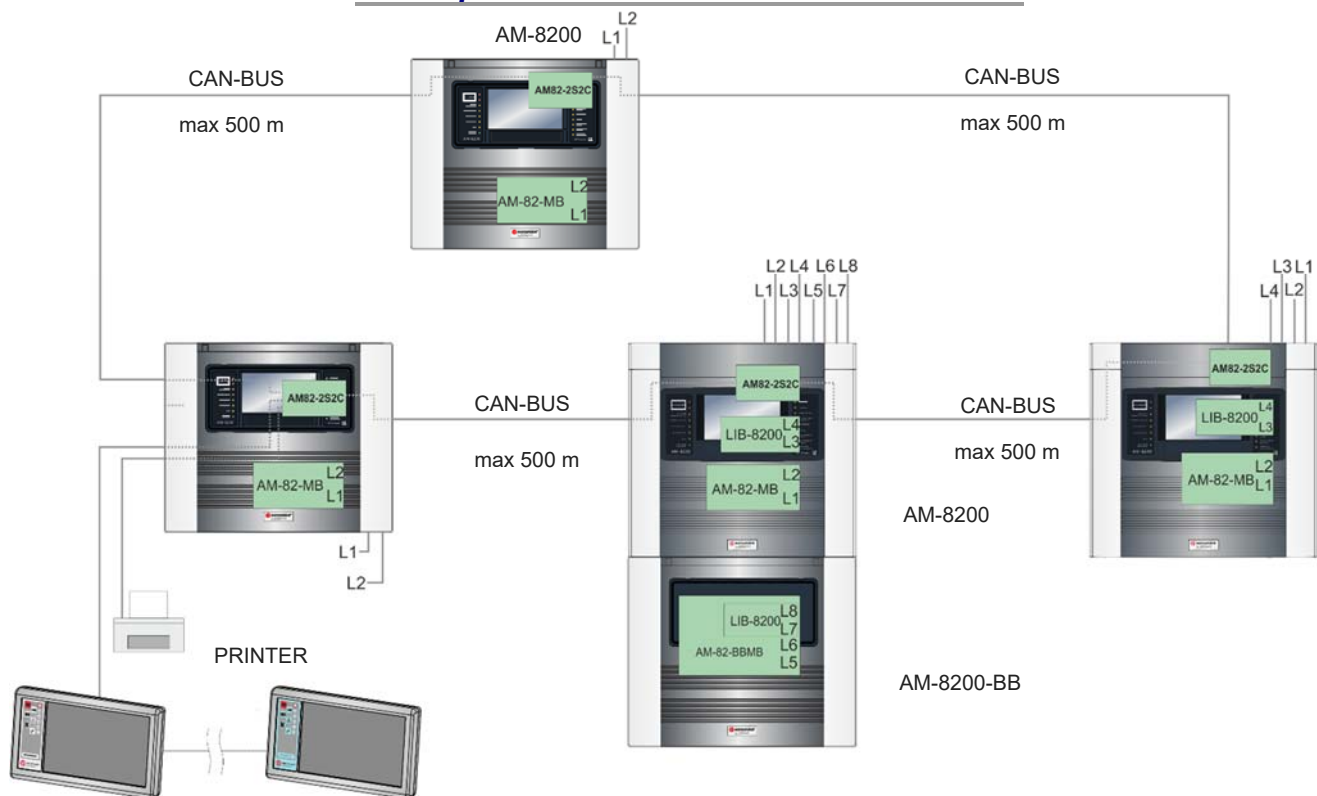
Board Assembly AM82-BST-C



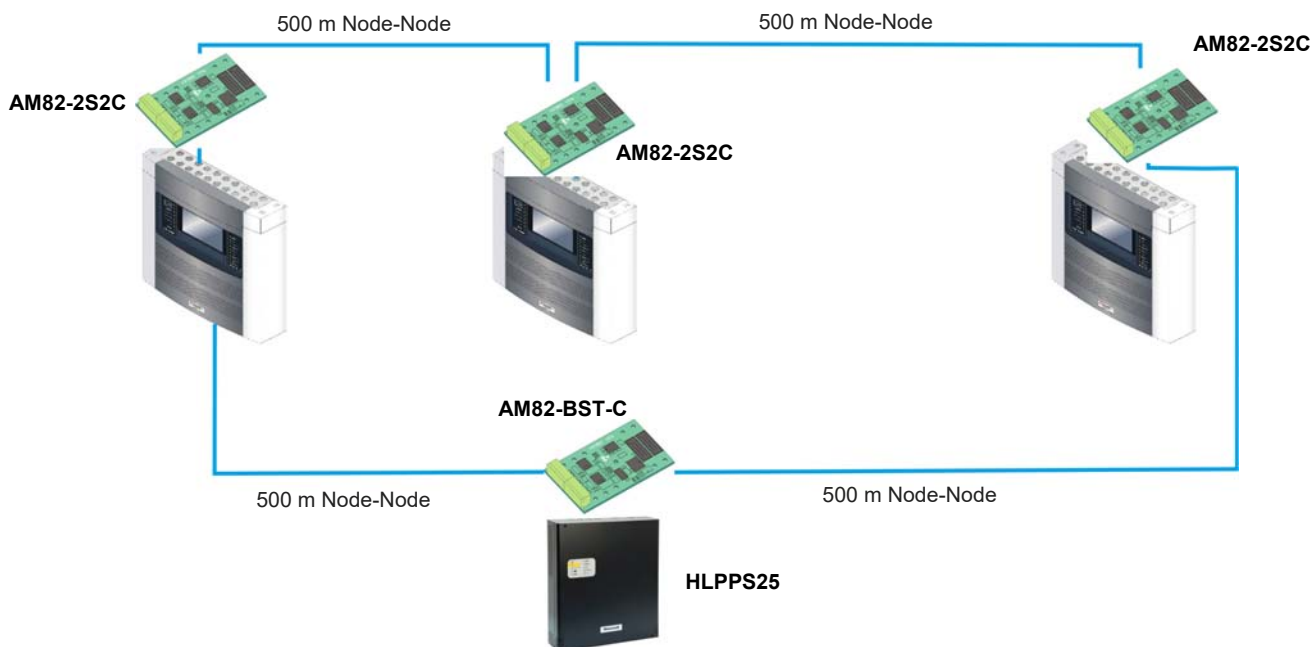
AM-8200 NETWORK System Wiring Example



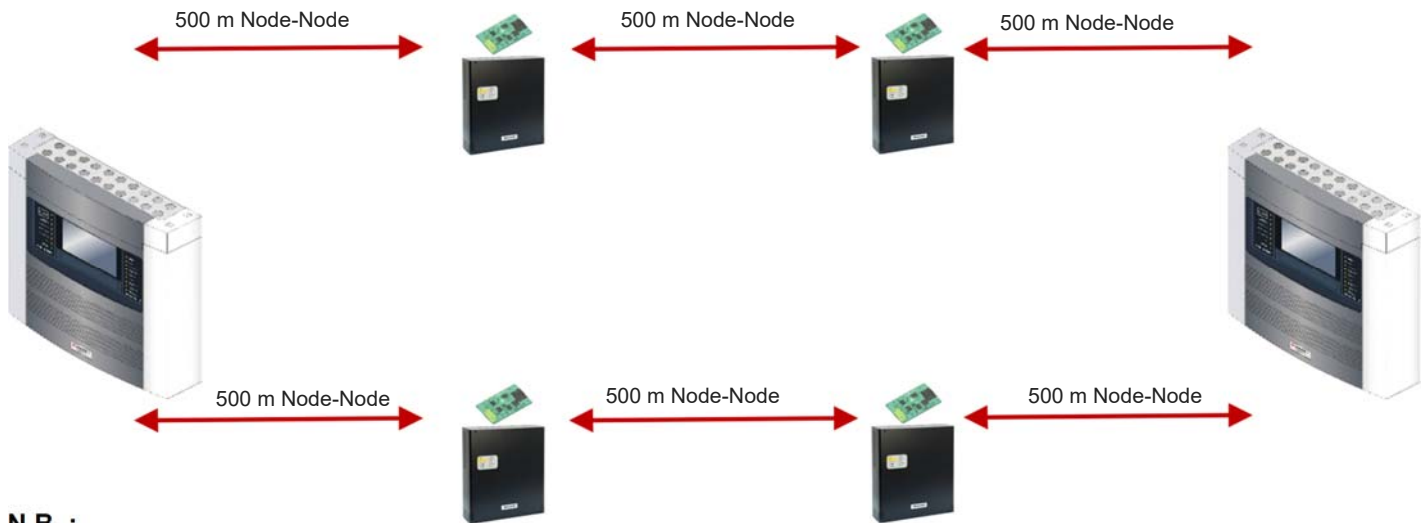
16 Loops Network max 500 m Node-to-Node



Network with AM82-2S2C board installed on the AM-8200 control panel



Network with AM82-BST-C board installed on HLSPS25 EN 54.4 PSU



On the CAN-BUS network, it's possible to install max. 8 of AM82-BST-C cards

CanBus Network Cable

CBUS 218AWG:

CAN-BUS Cable 2x18 AWG 18 Fire Resistant PH60 EN 50200 Color Blue

Core Type :Flexible Cl. 5-Tinned Copper

Total shield: Aluminum /Polyester tape 25/23 μm .

Drain : Tinned copper 7x0,20

Can Bus Typology

Similar to all RS-485 communication line, the CAN Bus is a Point-to-Point sequential connection.
The wire must have a 120 Ohm resistor at each end (on board on all boards)

The typology used is a Class A (closed Loop) .

Note that it's not necessary to follow the sequential series on the peripherals addresses.

T-taps are not permitted.

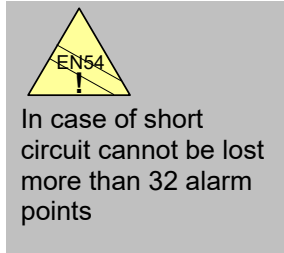
Cable must be wired in conduits separated by the mains power line and anyway wiring must be compliant to laws and rules valid in the country of the installation.

Communication lines with Detectors / Modules

The AM-8200 control unit communicates with intelligent detection and control devices which are addressable through a 2 wire line.

The line can be connected to respect the specifications relevant to the signalling circuit lines of the STYLE 4 (open line) and STYLE 6 (closed line).

The peripheral devices are powered by using the same line which is used to communicate with them.



- **If more than 32 devices (ref. EN54.2) are installed on a line, this must be configured as closed Loop (style 6).**
- **If a connection is performed with a T-branch in a closed loop, not more than 32 devices must be installed on this branch and these devices must be separated by line insulators.**
- **If the line is in Style 6 (Loop) an appropriate number of insulators devices must be provided, in such way to don't lost more than 32 points in case of short circuit.**



The detection circuit must be separated by other cables to minimize the risk of interferences

Use twisted cable according to the specifications.

The detection Loop circuit is supervised and current-limited

The connection cables fitted with detectors, the auxiliary devices and the power mains, can be introduced into the control unit by making some appropriate holes, by running cables along the side walls of the box, and appropriately providing for those which are located near the terminal block.

Technical specifications of detection line connection cables

Type of cable: 2 conductors (for their section refer to the table below)

- Twisted narrow pitch (5 /10 cm.)
- Shielded pair cable
- Max. admitted capacity : 0,5 uF

Cable section

The sections are referred to the total length of the line (in case of "STYLE 6" loop and therefore when the loop is closed, it is considered the loop length) which, however, must not be longer than 3000 meters and the total resistance of the line must be lower than 40 Ohm.

Minimum Cable Section

Up to 500 mt.	cable 2 x 0,5 mm ²
Up to 1.000 mt.	cable 2 x 1 mm ²
Up to 1.500 mt.	cable 2 x 1,5 mm ²
Up to 3.000 mt.	cable 2 x 2,5 mm ²

Number of installed devices for line

The maximum number of devices that can be installed for each of the four detection lines is the following:

- 159 Detectors using Advanced Protocol
- 159 input and/or output modules

Isolator modules

The insulator modules allow to electrically insulate on the loop a series of devices from the remaining ones, allowing loop critical components to continue operating even in case of the communication line short circuit.

Input Modules

The addressable inputs modules allow the AM-8200 system to monitor contacts, manual alarm call points, 4 wires conventional detectors, and several other devices with alarm contact outputs.

Output modules

Through addressable output modules, the AM-8200 system, by means of the programmable CBE equations, can activate the indication circuits or output relays through voltage free contacts or supervised class A controls.

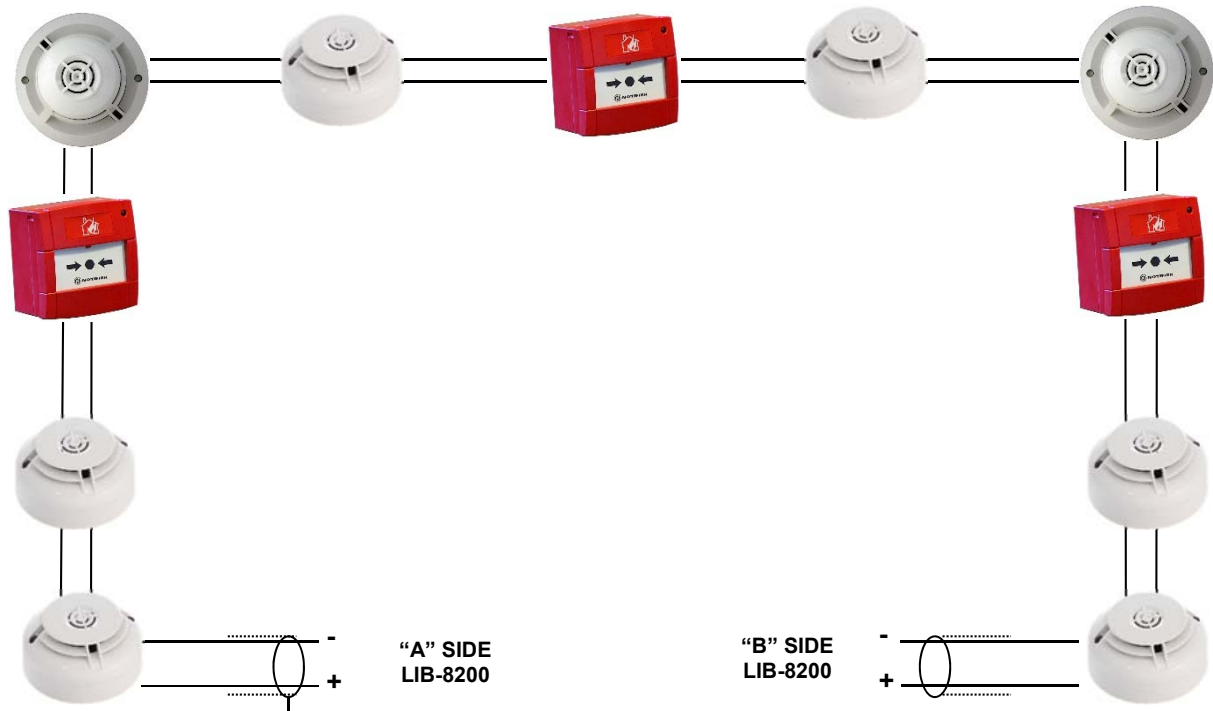
Intelligent detectors

The AM-8200 control unit can communicate only with analogue detectors declared as compatible by NOTIFIER. In particular, all Advanced protocols devices of the NFX series will enable to use the maximum address capability of 159 detectors each line.

Modules and Detectors connection

For the specific field device connections , please refer to :
“Analogue system device installation manual”
document : M-199.1-SCH-ITA or M-199.1-SCH-ENG
by Notifier Italia.

Example of closed line (style 6 Loop)



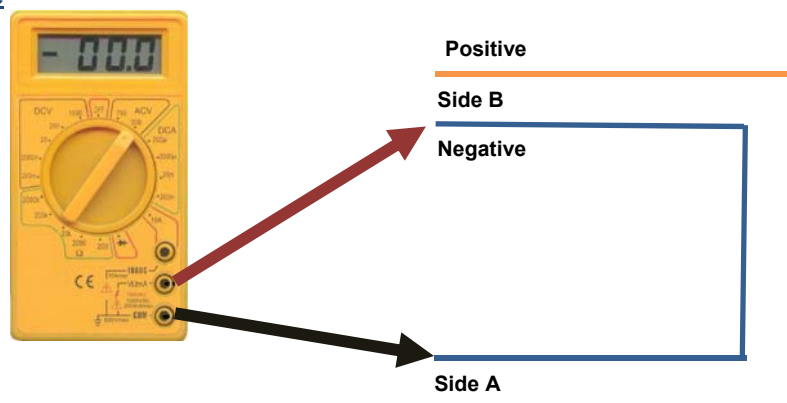
The total length of the loop (from the Panel Loop output and input) SHALL NOT exceed 3.000 mt.

Test procedure for detection lines

Before powering the control unit lines, check the following values:

NOTE: A DIGITAL MULTI METER IS REQUIRED

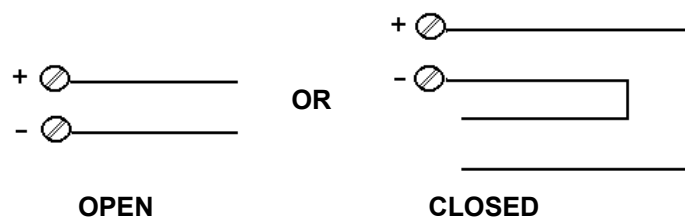
Line resistance



The direct current resistance of the negative wire of the loop SHALL NOT exceed 20 Ohm. The measurement must be performed by disconnecting the channels "A" and "B" from the LIB Multi meter points are to be connected to the Negative wire terminals. To have the total loop wire resistance, multiply by 2 the value read on the Negative side.

Line insulation

Place between (+) and (-) of line through a tester, with sensors or modules installed and check the following:



Test 1:

Connect : Tester (+) / Line (+) and Tester (-) / Line (-)

Check : Resistance: 1 - 1.3 MOhm

Test 2:

Connect : Tester (+) / Line (-) and Tester (-) / Line(+)

Check : Resistance: 0.7 - 0.9 MOhm

Screen shield insulation from the cable/line

Place a test prod of the tester on the line cable screen and the other test prod on the positive cable (+) of the same line. The resistance measured must be higher than 15-20 MOhm, better if "infinite".

Perform the same operation between the line screen and negative cable (-). Check that also in this case the resistance is higher than 15-20 MOhm.

Earthing /lines insulation

Place a test prod of the tester on the system earthing and the other test prod on the positive cable (+) of the line; the resistance measured must be higher than 15-20 MOhm, better if "infinite".

Perform the same operation between the earthing and negative cable (-) of the line. Check that also in this case the resistance is higher than 15-20 MOhm.

Earthing /cable screen insulation

Place a test prod of the tester on the system earthing and the other test prod on the cable braid; the resistance measured must be higher than 15-20 MOhm, better if it is "infinite".

Line voltage

With the sensors/modules line connected, the line output voltage must be 24 Vcc without the device query (no programmed Point). A voltage much lower than 14 Vcc indicates a connection inversion of sensors or modules.

System Test and Commissioning

The Control unit installation must be performed after having carefully read the instructions contained in the installation manual and the programming manual.

Once mechanical installation of the control unit has been completed, perform the following operations:

- Check the correct detection line wiring through a multi-meter (refer to chapter Test Procedure for the analogue system lines in this manual).
- Connect the detection lines to the control unit.
- Connect the main alarm siren (fitted with 47 KW ¼ W balance resistance) on the CNU-18 and 17 terminals (refer to basic board topography)
- To correctly dimension the batteries to be used, check the autonomy that the system must guarantee in case of 230 Vac. mains breakdown.

Connect the control unit to the 230 Vca mains by means of a three-pole cables: phase, earth, neuter (the earth cable must be longer than the phase and neuter ones) on the CN1 terminal block (the earthing connection is compulsory) and must be fixed to the cabinet by means of a cable fixing device so that it cannot be accidentally stripped off.

The power supply connection must be performed through the following phases

(refer to basic board topography):

- Turn off the main switch of the 230 Vca mains which powers the control unit;
- Disconnect the CN1 terminal block from the control unit
- Connect the 230 Vca mains to the CN1 terminal block;
- Connect the CN1 terminal block to the control unit ;
- Turn on the main switch of the 230 Vac mains
- Install and connect the batteries as indicated in this manual

When the control unit is powered check the following conditions on the front panel:

- Green led "POWER OK" = on
- Yellow led " FAULTS" = flashing;
- Buzzer = continuous sound

By pressing the Buzzer Silencing key, the buzzer is switched off and the "POWER UP" fault indication is displayed

By Pressing the "RESET" key the request to enter the level 2 password is displayed (default = 22222) .

Enter the password and check the following conditions:

- green led "POWER OK" = on
- yellow led "FAULTS" = off
- no faults signalling on the display

To program the control unit consult the chapter "RECOMMENDED SEQUENCE TO PERFORM THE CONTROL UNIT PROGRAMMING" in the Operator and Programming manual.

SYSTEM PERIODICAL MAINTENANCE

Check that the green led "POWER OK" is on
Check that all other control unit leds are off

Press the function TEST key on the LCD and enter the level 2 password to access the "TEST" menu.

Use the arrow keys ▲ ▼ to select the item "Led" (lamp test function), press the enter key to perform the test, check that all light indications are on for some seconds.

1. Disconnect the 230 Vca mains supply from the AM-8200 control unit and check the following conditions:

- The indication of "MAINS LOSS" on the display
- Yellow led "FAULTS" flashing.
- Yellow led "POWER OK" on
- Yellow led "MAINS" on
- General Fault relay active
- After at least 15 minutes, check the battery voltage.
If the sum of the two battery voltages is lower than 20.5 V replace them.

2. Connect the 230 Vca mains power supply to the control unit, press the "SILENCE ALARM/FAULT" key and check the following conditions:

- There is no indication of Alarm in progress on the display
- Yellow led "FAULTS" off
- Yellow led "POWER OK" on.
- Yellow led "MAINS" off
- General Fault relay deactivated

3. Disconnect both batteries; wait (not more than 2-3 minutes) for the control unit to signal:

- The indication of "BATTERIES NOT CONNECTED" on the display
- Yellow led "FAULTS" flashing.
- Yellow led "POWER OK" on.
- Yellow led "MAINS" on
- General Fault relay active

Re-connect the batteries and press the "SILENCE ALARM/FAULT" key and check:

- No breakdown signalling on the display
- Yellow led "FAULT" off
- Yellow led "POWER OK" off
- Yellow led "MAINS" off
- General Fault relay deactivated

4. Alarm a line 1 device and check the following conditions:

- Red led "ALARM" flashing.
- Siren output active.
- Alarm display

Press the "SILENCE ALARM/FAULT" key and subsequently the "SILENCE / RESOUND SIREN" key; the request to enter the level 2 password is displayed (default = 22222).

Enter this password and check the following conditions:

- yellow led SILENCE SOUNDER off
- red led "ALARM" on.
- Siren output deactivated

By pressing the "RESET" key, the request to enter the level 2 password is displayed (default = 22222).

Enter the password and check the following conditions:

- yellow led SILENCE SOUNDER off
- red led "ALARM" off
- Siren output deactivated
- No alarm signalling on the display

At the end of the maintenance leave the control unit in the idle condition (without alarm and breakdown signalling) and check that the led "POWER OK" is on.

POWER SUPPLY – Current calculation

The power supply must be able to continuously power all the internal system devices (and all external devices) during the stand-by period, that is in NON-alarm conditions.

- Use the table A to calculate the load in stand-by conditions.
- Use the table B to calculate the additional current which is necessary in Alarm conditions

A 24 Vcc internal power supply for a total of 4 Ampere is available on the power supply for the system operation

Table 1

Item	Q	NORMAL condition		ALARM condition	
		A		B	
		Current each	Total Current (dev x Q)	Current each	Total Current (dev x Q)
AM-8200					
AM-8200 CPU(AM8200-KLCD)		179 mA		345 mA	
LIB-8200		50 mA		92 mA	
AM82-2S2C		28 mA		28 mA	
AM82-BST-C		39 mA		39 mA	
SIB-8200		62 mA		62 mA	
Devices connected to Sounder Output 1		0	0		
Loops² Current Refer to Table 3					
Loop 1					
Loop 2					
Loop 3					
Loop 4					
User Output current³		(Max 2A)		(Max 2A)	
LCD-8200					
Bells		0	0		
Sounders		0	0		
Strobes		0	0		
Other devices					
Total⁴ =				Total =	
			(x24h) or (x72h) =		x 0.5 h =
Stand-by (A)			Ah	Alarm (B)	Ah
Ah Battery = (A + B) x 1.2⁵ =					Ah

Table 2

Item	Q	NORMALcondition		ALARM condition	
		A		B	
		Current each	Total Current (dev x Q)	Current each	Total Current (dev x Q)
AM-8200BB					
AM-8200BB		135 mA		177 mA	
LIB-8200		50 mA		92 mA	
AM82-2S2C		28 mA		28 mA	
AM82-BST-C		39 mA		39 mA	
SIB-8200		62 mA		62 mA	
Devices connected to Sounder Output ²		0	0		
Loops ² Current Refer to Table 3					
Loop 1					
Loop 2					
Loop 3					
Loop 4					
User Output current ³		(Max 2A)		(Max 2A)	
LCD-8200					
Bells		0	0		
Sounders		0	0		
Strobes		0	0		
Other devices					
Total ⁴ =				Total =	
			(x24h) or (x72h) =		x 0.5 h =
Stand-by (A)		Ah		Alarm (B)	Ah
Ah Battery = (A + B) x 1.2 ⁵ =					Ah

1 Check the load for each output is within admitted limits

2 **Current from loops:** Refer to the device manufacturer data sheet for the current necessary in normal mode.

Calculate the total current required for each loop by using the **table 2 (refer to the following)**.

Alarm current: Refer to the devices manufacturer' data sheet for the current necessary in alarm mode.

Calculate the total current required for each loop by using the **table 2 (refer to the following)** taking into account that the control unit controls the activation **only of the first 6** sensor and input module LED in alarm

Check that the **total current for each loop is lower than 750 mA**.

3 Refer to the device manufacturer data sheet for the current necessary in normal and alarm mode. Check that **the total current is lower than 2 Ampere**.

4 The current request for the stand-by or alarm conditions cannot, in any case, exceed the power supply capacity. If the calculated current exceeds the value of **3,5 Ampere**, available at the power supply, the exceeding current, necessary during the Alarm condition, is drawn from the batteries.

5 The sum of currents obtained must be multiplied by a 1,2 factor to take account of the battery manufacturing tolerances.

Table 3

PERIPHERALS POWERD BY LOOPS			
<i>Device type</i>	<i>Quantity</i>	<i>Current Total in normal condition</i>	<i>Current Total in Alarm condition</i>
Detectors serie NFX			
Detectors serie 700			
MCP			
Single Modules serie 700			
Double Modules serie 700			
Modules serie MA			
MMX-10 N			
CMX-10 R			
Isolation modules			
Addressable Sounders (Power from loop)			
Other devices			
N.B. Total must be less than 0,75 A		Total (loop N.1) :	Total (loop N.1) :
Detectors serie NFX			
Detectors serie 700			
MCP			
Single Modules serie 700			
Double Modules serie 700			
Modules serie MA			
MMX-10ME			
CMX-10RME			
MCX-55ME			
Isolation modules			
Addressable Sounders (Power from loop)			
Other devices			
N.B. Total must be less than 0,75 A		Total (loop N.2) :	Total (loop N.2) :
Detectors serie NFX			
Detectors serie 700			
MCP			
Single Modules serie 700			
Double Modules serie 700			
Modules serie MA			
MMX-10ME			
CMX-10RME			
MCX-55ME			
Isolation modules			
Addressable Sounders (Power from loop)			
Other devices			
N.B. Total must be less than 0,75 A		Total (loop N.3) :	Total (loop N.3) :
Detectors serie NFX			
Detectors serie 700			
MCP			
Single Modules serie 700			
Double Modules serie 700			
Modules serie MA			
MMX-10ME			
CMX-10RME			
MCX-55ME			
Isolation modules			
Addressable Sounders (Power from loop)			
Other devices			
N.B. Total must be less than 0,75 A		Total (loop N.4) :	Total (loop N.4) :

Summary of Current consumption of Loop devices

ADVANCED PROTOCOL DEVICES

Device	Current		NOTE
	Normal	Alarm	
NFXI-OPT	300 µA	4 mA	
NFXI-TDIFF	300 µA	4 mA	
NFXI-TFIX 58/78	300 µA	4 mA	
NFXI-SMT2	300 µA	4 mA	
SMART 3	200 µA	7mA	
SMART 4	200 µA	7mA	
PINNACLE	330 µA	6,5 mA	
NFXI-BEAM	2 mA	8,5mA	Loop Power
NFXI-BEAM-T	2 mA	8,5mA	24 Vcc external
NFX-MM1M			
M701-240	275 µA	8,8 mA	
M701-240-DIN	275 µA	8,8 mA	
M701	310 µA	5 mA	
M710	310 µA	5 mA	
M710-CZ	288 µA	8.8mA	External Power
M710-CZ	1.5 mA	8.8mA	Loop Power
M710-CZR	500 µA	8.8 mA	External Power
M710-CZR	6,5 mA	8.8 mA	Loop Power
M720	340 µA	5 mA	
M721	340 µA	5 mA	
M700X			
CMA-11E	340 µA	6 mA	
CMA22	700 µA.	7 mA	
MCX-55ME	2.7 mA	30mA	
MMX-10ME	2,7 mA	30mA	
CMX-10RE	4mA	30mA	
M700KACI-SG	660 uA	6 mA	
M700WCP-R//SG	660 uA	6 mA	
P700	390 µA	5 mA	
NFXI-WSF-WC	450 uA	9.09 mA	Maximum Volume
NFXI-WSF-RR	450 uA	9.09 mA	Maximum Volume
NFXI-WF-WC	450 uA	4.13 mA	Maximum Volume
NFXI-WCF-WC	450 uA	40 mA	
NFXI-WF-RR	450 uA	4.13 mA	Maximum Volume
NFXI-WS-R	450 uA	5.14 mA	Maximum Volume
NFXI-BS-W	450 uA	10 mA	Maximum Volume
NFXI-BSF-WC	450 uA	10 mA	Maximum Volume
DNRE	300 µA	4 mA	Depends from Detector installed
INDICATOR	0.1 mA	9 mA	

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