

Technical Manual

SPA Nano 112+



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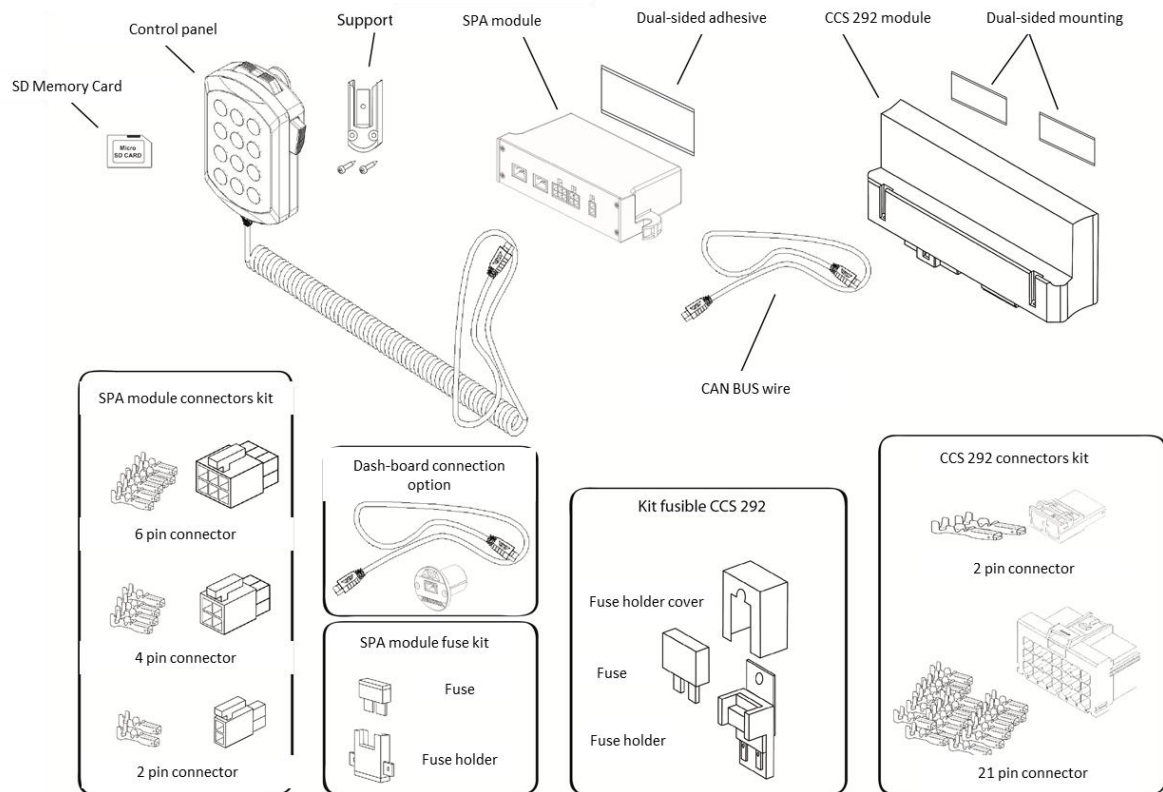
SPA NANO 112 + is a compact Siren & Public Address System for rapid response vehicles. It ensures the blue and amber beacons, projectors, radio power supply, Siren and Public Address functions and enables the broadcasting of 3 pre-recorded messages from the SD memory card, or from an external audio source (Broadcasting Function). SPA NANO 112 + is compatible with Mercura 30W or 150W loudspeakers.

THIS TECHNICAL MANUAL PRESENTS STANDARD PRODUCT. SOME DELIVERED VERSIONS OF THIS PRODUCT MAY SLIGHTLY DIFFER.

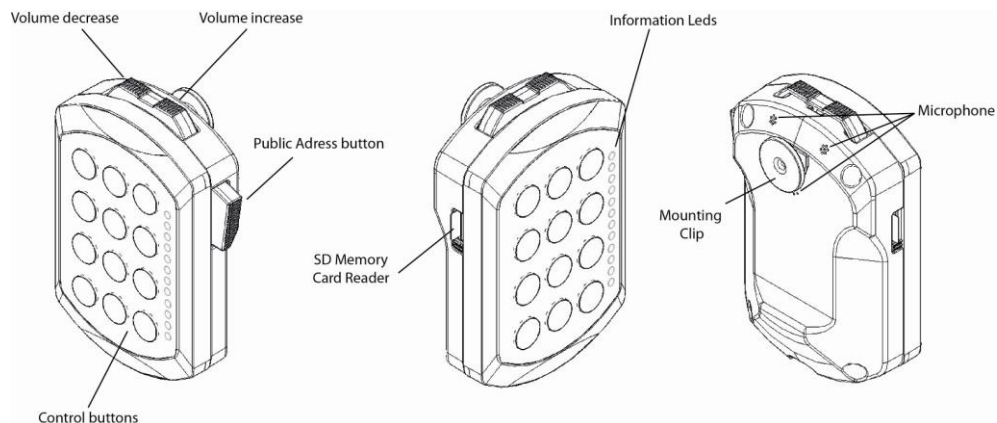
For more information see attached "Connector allocations" file.

1. COMPOSITION

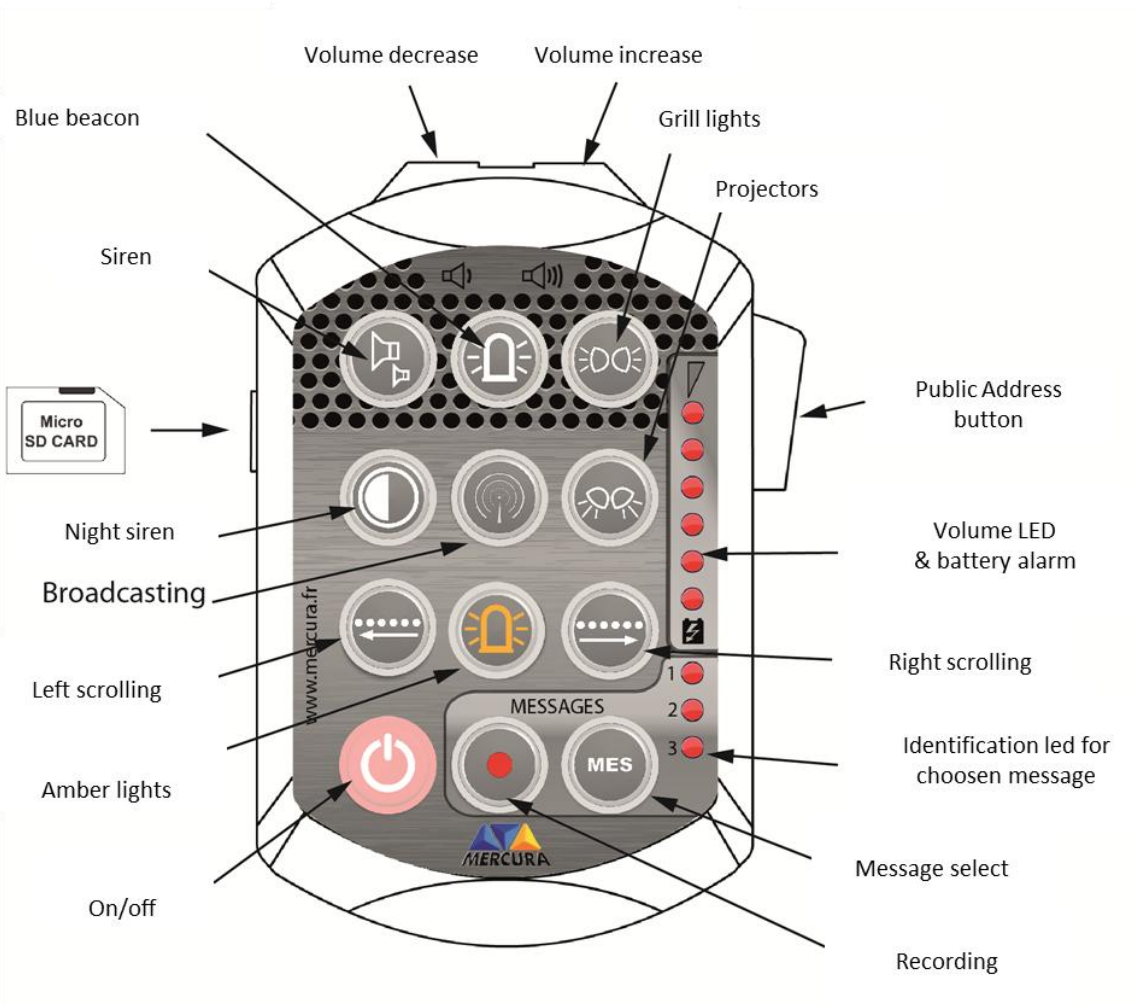
1.1. KIT CONTENTS



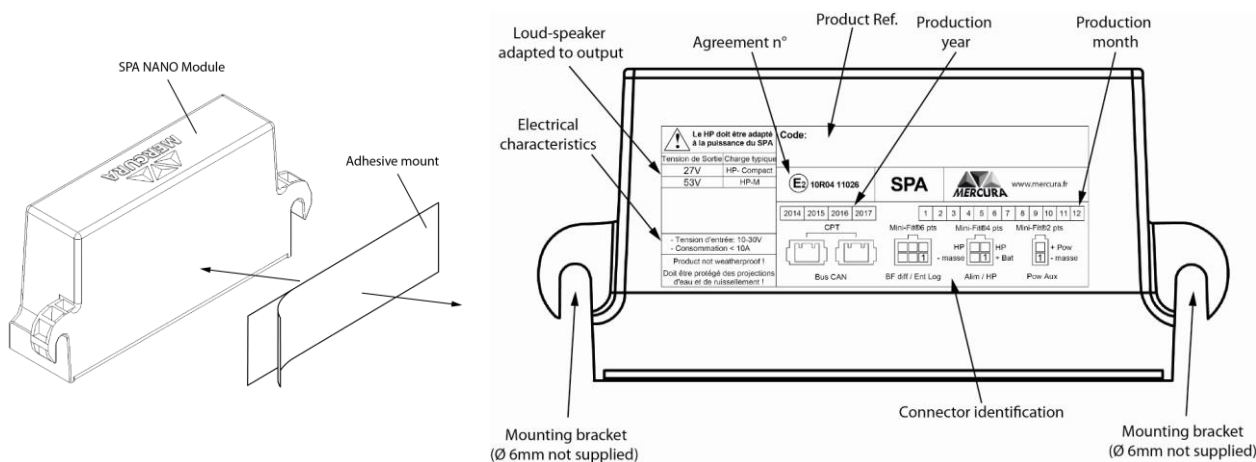
1.2. CONTROL PANEL

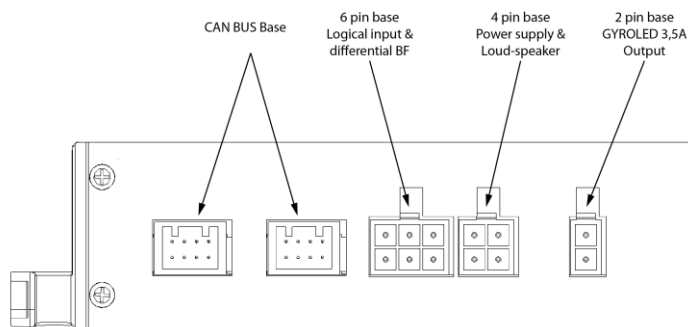


Weight : Handy and cable : 400g	Length x Height x Depth (mm) : 76 x 121 x 37	Power Supply : 12 V via a BUS wiring loom	Consumption minimum 40 mA	Consumption maximum 160 mA	Operating Temperature -40°C to +85°C
<ul style="list-style-type: none"> "E" Marking Regulation R10 n° "E2*10R03*11026 CISPR25 (2008) : class 5 radiating; class 5 conducting 			<ul style="list-style-type: none"> IP42 according to NF EN 60529 IK08 according to NF EN 50102 		
<ul style="list-style-type: none"> Memory Card Reader μSD Class 6 or 10Go up to 8Go Recording of messages in « WAV » format, mono sampled at 16 bits for 20,8 KHz and a size of 40 Ko / sec 					



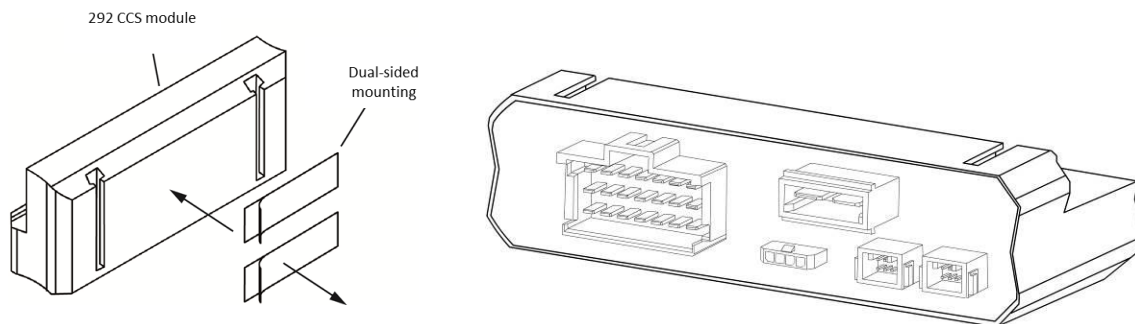
1.3. THE SPA MODULE

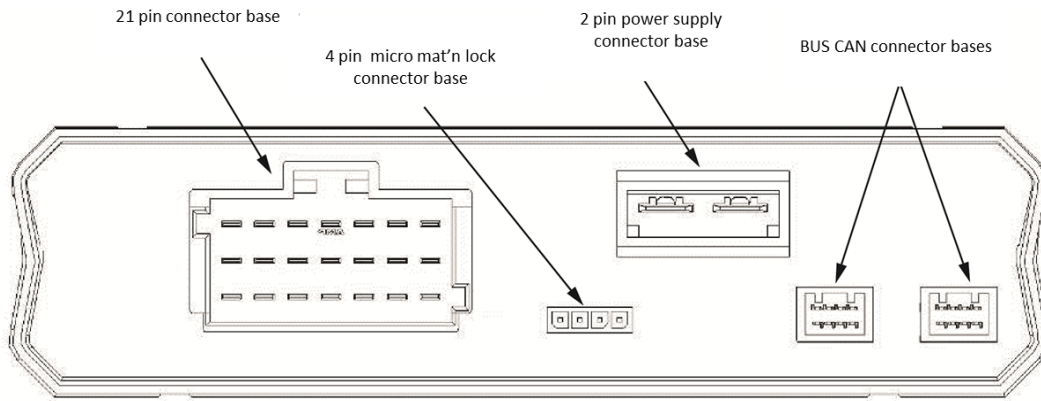




	L x H x W: 140 x 33 x 64	Power Supply 10 V à 30 V	Minimum Consumption: 200 μ A when off at 12 V 900 μ A when off at 24 V	Maximum Consumption 10 A	Operating Temperature -40°C to +85°C
<ul style="list-style-type: none"> Regulation R10 n° "E2"10R04*11026 CISPR25 (2008): class 5 radiating; classe 4 conducting Tone French Police: TP POL 14017 Tone French Gendarmerie: TP GEN 14019 Tone French Fire Bridage: TP SPO14018 			<ul style="list-style-type: none"> IP42 according to NF EN 60529 IK08 according to NF EN 50102 		
<p>Functions with MERCURA Loud-speakers: For the 150W / 8Ω Loud-speaker: The SPA system is programmed with a Loud-speaker output voltage of 53V For the LS Compact 30W/ 4 Ω: The SPA system is programmed with a Loud-speaker output voltage of 27V</p>					
<p>Mounting system: Adhesive double-sided tape (supplied) or screw fixing system (not supplied) ATTENTION The SPA module and it's wiring is not waterproof, it must therefore be mounted inside the vehicle.</p>					

1.4. THE CCS 292 MODULE





Weight: 460 g	L x H x W: 154 x 41 x 91	Power supply: 10,5 V to 30 V	Minimum Consumption: Less than 200 µA when off	Maximum Consumption: 30A	Operating Temperature -40°C to +85°C
<ul style="list-style-type: none"> "E" Marking Regulation R10 n° "E2*10R03*11026 CISPR25 (2008): class 5 			<ul style="list-style-type: none"> IP54 according to NF EN 60529 IK08 according to NF EN 50102 		

2. OPERATING MODE

2.1. SWITCHING ON

- Automatic system switch on with vehicle start-up (If System wake-up wired to SPA).
- Manual: on pressing any control panel button.

2.2. SWITCHING OFF

Automatic system switch off:

- If the voltage drops below 11.5 volts (for 12V vehicles) or 23V (for 24V vehicles).
- After 3 hours when the engine is off.

Manual Switch off:

- On pressing the OFF button on the HANDY control panel.



When the system is off, the OFF button flashes slowly.

2.3. SIREN



- Pressing the corresponding button activates the SIREN and the BLUE BEACON output, pressing the button again deactivates the SIREN function, but maintains the BLUE BEACON output function.
- Deactivating the BLUE BEACON deactivates the SIREN.
- Pressing the Fire Equipment Officer pedal (if wired) activates the SIREN. Releasing this pedal deactivates the siren.
- Pressing the vehicle HORN (if option wired) activates the SIREN if the BLUE BEACON is ON. Pressing it again deactivates the SIREN.
- Putting on the hand-brake switches off the siren, if it is activated and if the Hand-brake option has been wired.

The associated button, however, remains functional in order to control the SIREN.

2.4. SIREN – NIGHT MODE



PLEASE NOTE: This function is available according to the current tones and regulations in force

- Pressing the associated button activates the Night Siren mode (power attenuated); pressing it again deactivates the Night Mode.

2.5. BLUE BEACON



- Pressing the corresponding button activates the BLUE BEACON output; pressing it again, deactivates it and switch also off the SIREN and the GRILL LIGHTS.
- This button also controls the GRILL LIGHTS function.
- Pressing the Fire Equipment Officer pedal activates the BLUE BEACON.

2.6. GRILL LIGHTS



- Pressing the corresponding button activates the GRILL LIGHTS output; pressing it again, deactivates it.
- Putting on the hand-brake switches off the GRILL LIGHTS, if it is activated and if the Hand-brake option has been wired. The associated button, however, remains functional in order to control the GRILL LIGHTS.
- Putting off the hand-brake activates again the GRILL LIGHTS if the BLUE BEACON is activated.
- This function is also controlled by the BLUE BEACON button and the Fire Equipment Officer pedal (if this option has been wired)

2.7. AMBER BEACON / WARNING



According to the option, this button can activate:

- One or several amber beacons (depends of the power delivered by the output)
- A two-signal light system controlled by a flasher unit and connected to the AMBER BEACON output of the CCS 292 module.
- The 6 scrolling lights connected to CCS 292 module and controlled in WARNING flash pattern and AMBER BEACON at the same time.

- Pressing the corresponding button activates the REAR BEACON SCROLLING function and stops the LEFT SCROLLING or RIGHT SCROLLING if it was activated. Pressing again deactivates the function.
- Putting on the hand-brake automatically switches on the REAR BEACON SCROLLING, if the BLUE BEACON is activated and if the Hand-brake option has been wired. The associated button, however, remains functional.

2.8. LEFT SCROLLING



- Pressing the corresponding button activates the LEFT SCROLLING function and stops the REAR BEACON SCROLLING or RIGHT SCROLLING if it was activated. Pressing again deactivates the function. This function allows to switch on and to switch off successively the 6 lights connected to the CCS 292 module going off a scrolling effect to light n°1 to light n°6.
- This button controls also the AMBER BEACON output.

2.9. RIGHT SCROLLING



- Pressing the corresponding button activates the RIGHT SCROLLING function and stops the REAR BEACON SCROLLING or LEFT SCROLLING if it was activated. Pressing again deactivates the function. This function allows to switch on and to switch off successively the 6 lights connected to the CCS 292 module going off a scrolling effect to light n°1 to light n°6.
- This button controls also the AMBER BEACON output.

2.10. PROJECTORS



- Pressing this button activates the PROJECTORS functions; pressing again deactivates it.

2.11. BROADCASTING



- Pressing this button activates the BROADCASTING function. This function enables the broadcasting of an external audio source when it is connected to the BF input of the SPA.

2.12. BROADCASTING A PRE-RECORDED MESSAGE



- The button « MES » enables the selection of 3 voice messages saved in « WAV » format on the SD memory card inserted in the card reader slot on the left side of the HANDY control panel. The initial position is « Stop ». All the message selection LED lights are off.
- Pressing the button once enables the first message to be broadcast, the associated led for message n°1 then lights up and the message is broadcast after about 2 seconds.
- Pressing the button a second time selects message n°2, the associated led for message n°2 then lights up and the message is broadcast after about 2 seconds
- Pressing the button a third time selects message n°3, the associated led for message n°2 then lights up and the message is broadcast after about 2 seconds.
- The message broad-casting is deactivated when pressing the « MES » button a fourth time. The associated LED lights go off.

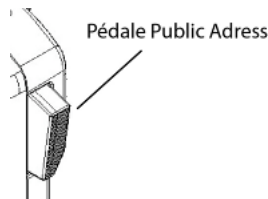
2.13. MESSAGE RECORDING ON THE SPA



- The « RECORDING FUNCTION » is activated by pressing the corresponding « RECORD MESSAGE » button
- Selecting the message to be recorded is done by pressing the « MES » button. The Selected message shows up on one of the 3 led lights.



- Press and hold in the « PUBLIC ADDRESS BUTTON » to start recording a voice message via the microphone. This vocal message is recorded on the Micro SD memory card.



- Release the «PUBLIC ADDRESS BUTTON » to stop recording ;
- Pressing the « RECORD MESSAGE » button exits the « RECORDING» mode.

2.14. MESSAGE RECORDING FROM A LAPTOP

The messages can be directly recorded onto a Micro SD Card from a Laptop with the adapted type of software, such as Audacity or equivalent. The Software setting must be:

- Mono
- 16 bits
- Sampling Frequency 208333 Hz
- Message size: 40 Ko per second of recording
- The maximum message length should be theoretically: more than 6h30 (1Go maximum / message)

Maximum n° messages: 3

File names to be used for the messages (Capital letters): MESS1.WAV / MESS2.WAV / MESS3.WAV

3. FAULT

The power supply to the accessories and equipment linked to the CCS system are protected against short-circuits

- One Button can control several outputs (siren, beacons):
 - the corresponding flashing button indicates that at least one of the outputs is faulty.
 - Only the faulty output is cut.

3.1. FAULT ON CONTROLLED OUTPUT

When a piece of equipment is faulty, the fault appears on the control panel. The corresponding CCS button for the faulty equipment flashes, followed by 3 warning beeps. Control of the equipment is deactivated in order to protect the material and its wiring loom. To reactivate it, press the button again. If the fault persists, the LED light starts flashing again.



Cyclical flashing of the button corresponding to the faulty equipment (3 flashes + 1 pause)

The faults detected on the Loud-speaker output are:

- Open Load (the loud-speaker is no longer consuming power following deactivation)
- Short

A fault detected on the BLUE BEACON output indicates a short-circuit.

3.2. FAULT ON PERMANENT OUTPUT

Permanent power supplies for radios, computers, video equipment, etc. are protected in the same way as the ordered equipment. Displaying a fault on a permanent output also differs since there is no associated button. **The fault is displayed on the ON / OFF button** of the control panel and is followed by 3 warning beeps.



Fast flashing of the button

To re-set a faulty permanent output, the system must be switched off completely, then switched on via the ON / OFF button.

3.3. ALARMS: ALARM LEVELS ARE AVAILABLE BEFORE SYSTEM SHUT-DOWN

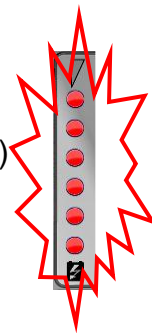
The Battery alarm can be seen when 6 red LED lights on the volume gauge flash according to the levels below :

1st Level: 11.8V / 23.6V

- 3 beeps + battery alarm light flashes (3 short flashes, 1 pause)

2nd Level: 11.5V / 23V

- System shut down 3 minute* count-down starts.
- Battery voltage is always <11.5 after 3minutes: System Shut-down.



***PLEASE NOTE: IF THE VOLTAGE DROPS SUDDENLY UNDER 11 VOLTS, THE SYSTEM SHUTS DOWN AFTER 15 SECONDS (BOTH IN 2 VOLTS AND 24 VOLTS). THIS IS A SIGN OF A FAULTY OR USED BATTERY.**

4. WARNING



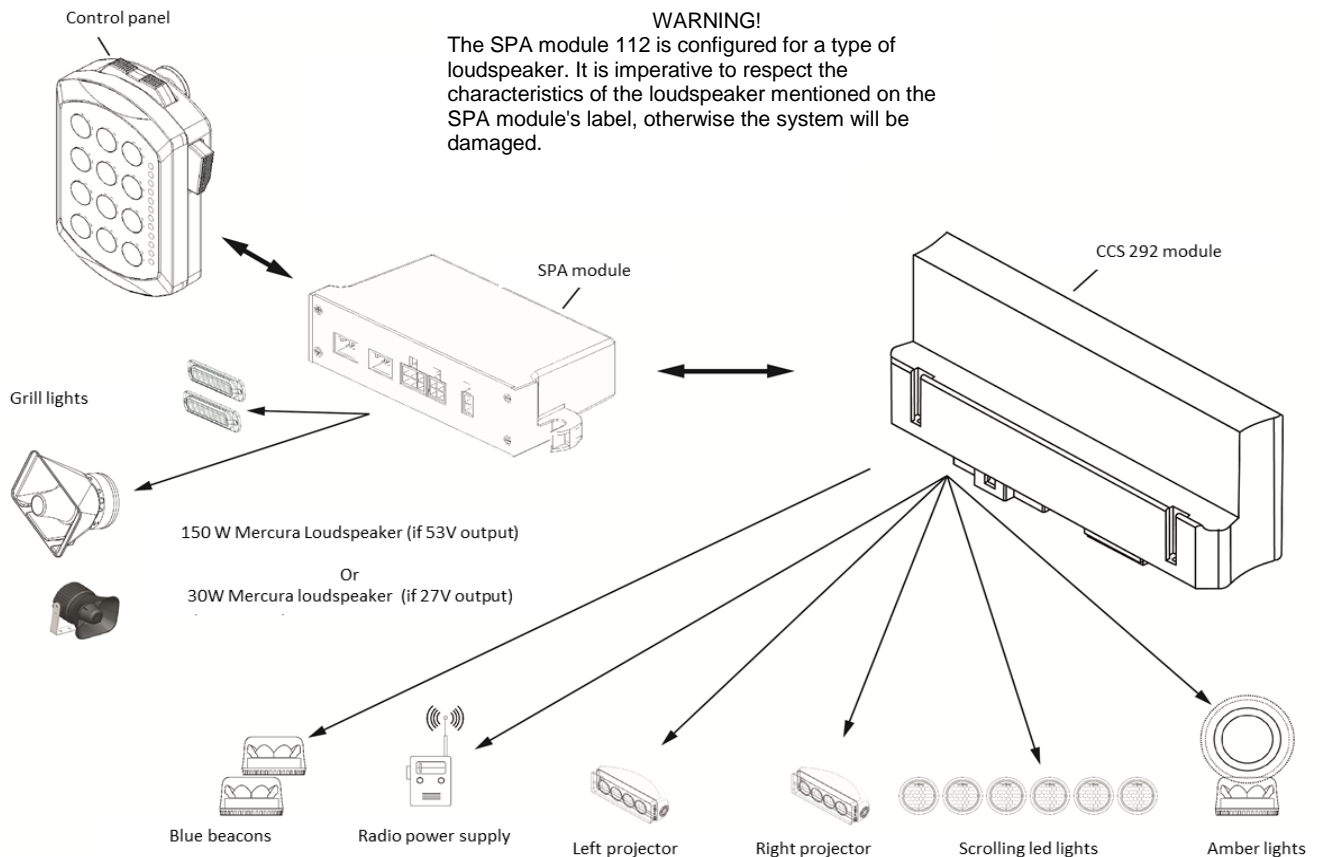
WARNINGS REGARDING THE INSTALLATION OF MERCURA EQUIPMENT

The installer is fully responsible for the mounting of equipment on a vehicle.

The installer must define the means and the material necessary for mounting of equipment in order to deliver the vehicle equipped according to the regulations.

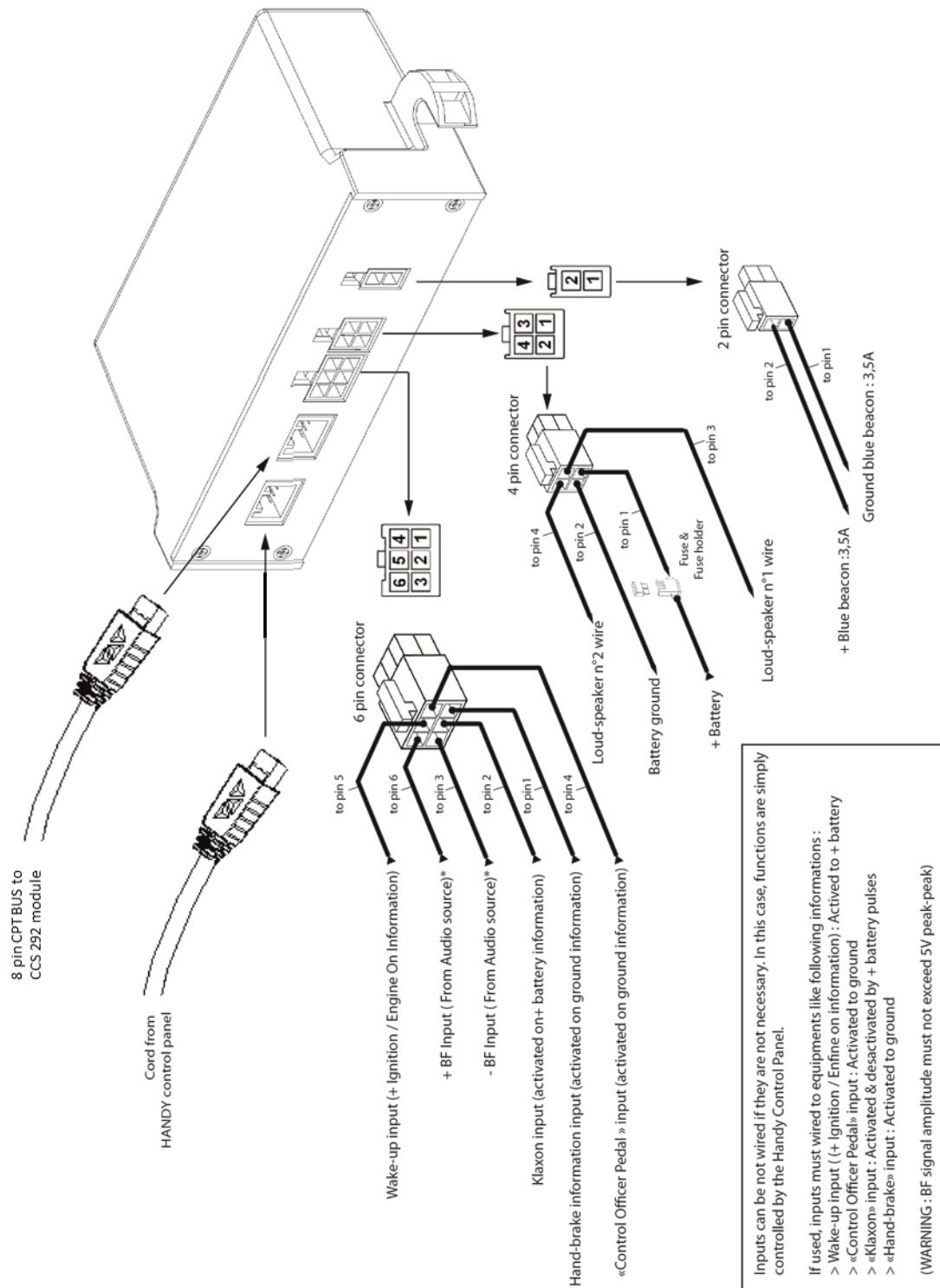
MERCURA is not responsible for failures occurring due to incorrect definition of the type of mounting system, reinforcements, drilling holes in roof panel, state and quality of mounting system, use of vehicle manufacturer anchoring points and the system power supply and protection definition in accordance with the vehicle energy source.

5. GENERAL LAYOUT



6. WIRING

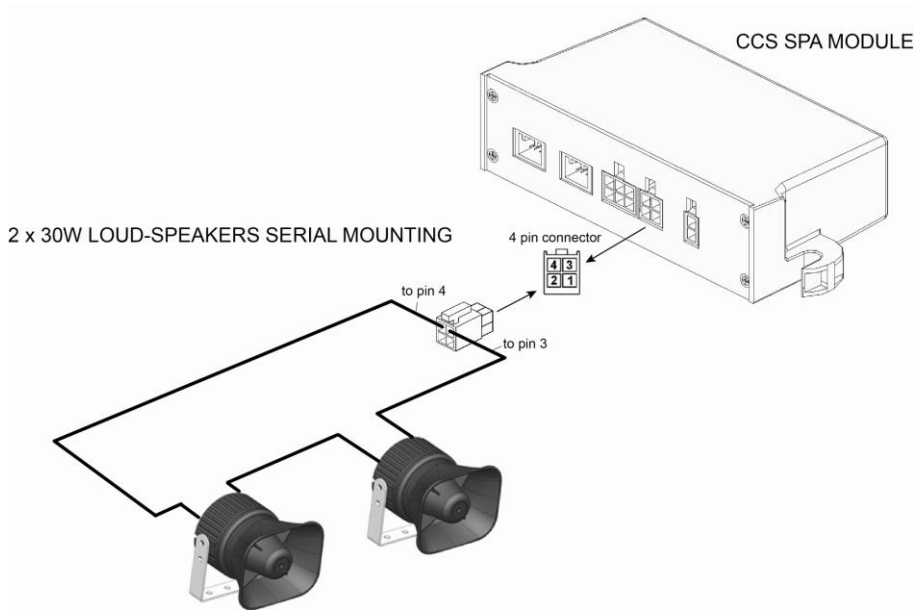
6.1. GENERAL WIRING



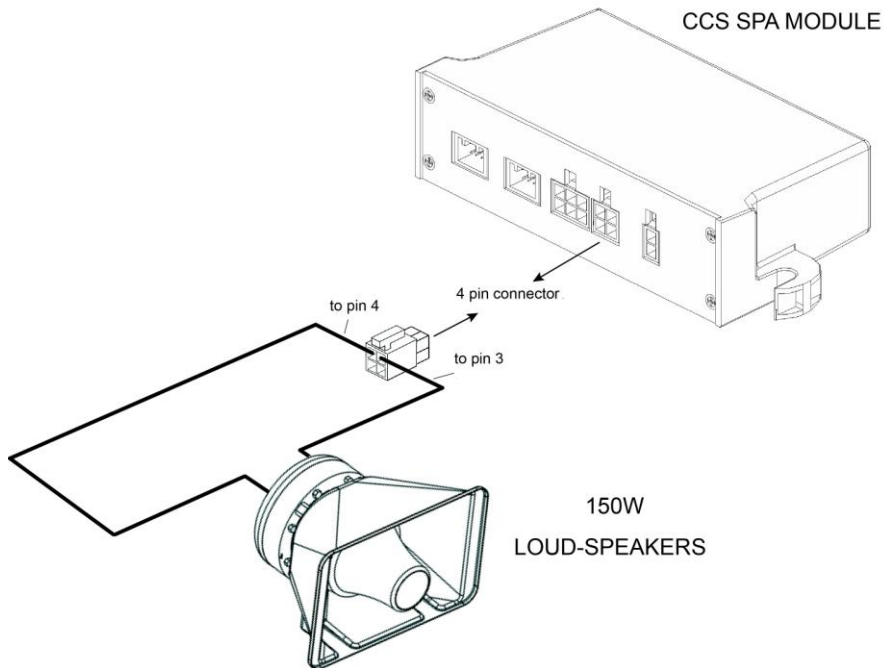
6.2. TYPES OF LOUDSPEAKER CONNECTIONS

SPA configured for HP 150W

Le HP doit être adapté à la puissance du SPA		Code:	
Tension de Sortie	Charge typique		SPA
27V	HP Compact		
53V	HP-M	www.mercura.fr	
		2014 2015 2016 2017	1 2 3 4 5 6 7 8 9 10 11 12
- Tension d'entrée: 10-30V - Consommation < 10A			Mini-Fit@6 pts
Product not weatherproof ! Doit être protégé des projections d'eau et de ruissellement !		Bus CAN 	Mini-Fit@4 pts HP - masse HP + Bat
			Mini-Fit@2 pts + Pow - masse
			Alim / HP
			Pow Aux

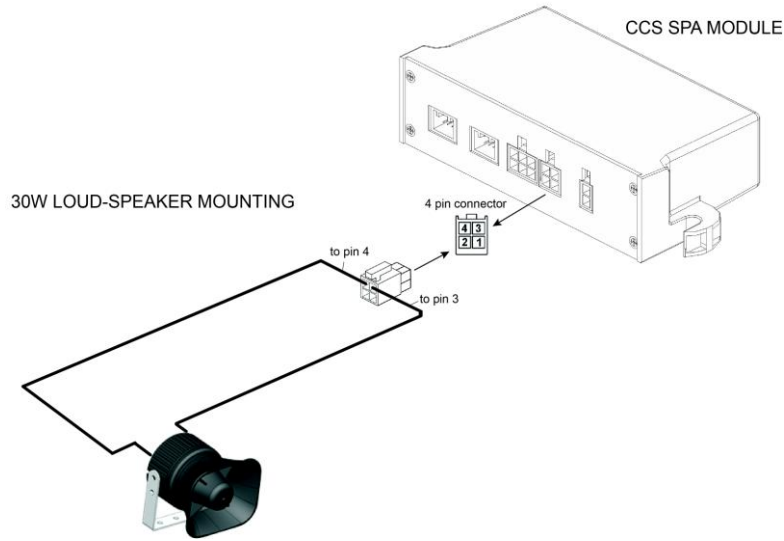


OR

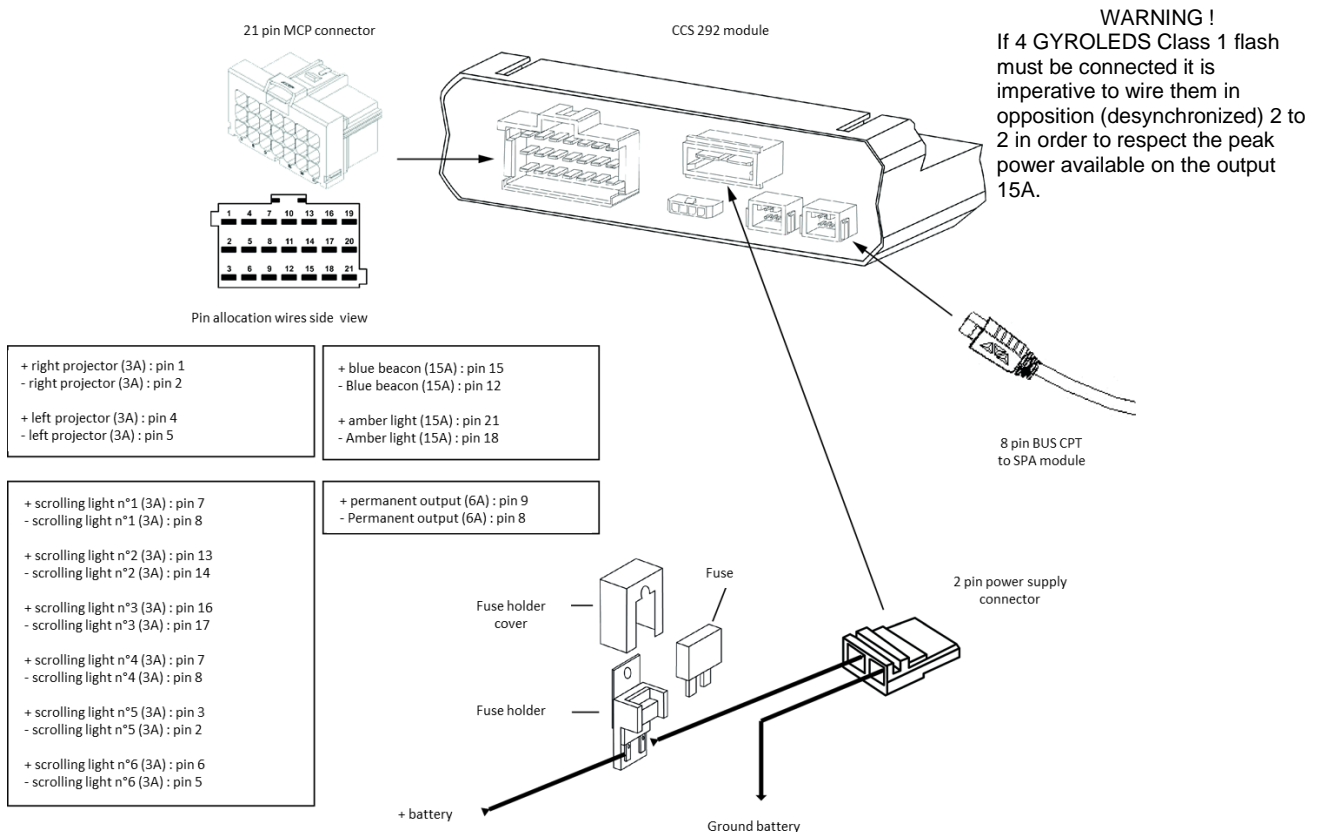


SPA configured for Compact Loudspeaker

Le HP doit être adapté à la puissance du SPA		Code:	
Tension de Sortie	Charge typique	10R04 11026	SPA
27V	HP- Compact		
50V HP M		www.mercura.fr	
		2014 2015 2016 2017	1 2 3 4 5 6 7 8 9 10 11 12
- Tension d'entrée: 10-30V - Consommation < 10A			Mini-Fit@6 pts Mini-Fit@4 pts Mini-Fit@2 pts
Product not weatherproof ! Doit être protégé des projections d'eau et de ruissellement !			HP - masse HP + Bat + Pow - masse
		Bus CAN	BF diff / Ent Log Alim / HP Pow Aux



6.3. THE CCS 292 MODULE CONNECTIONS



6.4. WIRING FOR THE DASH-BOARD INTERCONNECTION OPTION

