



Controlmaster 1000

FIRE DETECTION SYSTEM

Installation Manual

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INTRODUCTION

Notice

This material and instructions covered in this manual have been carefully checked for accuracy and are presumed to be correct. However, the manufacturer assumes no responsibility for inaccuracies and reserves the right to modify and revise this document without notice.

This instruction covers the installation of the Controlmaster 1000 range of fire detection and alarm control panel. Refer to operating manual (ME A300054) for details how to operate the system and refer to the commissioning manual (MS A300058) for information on commissioning procedures.

The Controlmaster 1000 control panel is compatible with Chubb UK range of addressable devices

Warning and cautions

These instructions contain procedures to follow in order to avoid injury and damage to equipments. It is assumed that the user of this manual is suitably trained installer who is familiar with the relevant regulations

Electro-static-sensitive devices

Take suitable appropriate precautions when installing or removing printed circuit board

The Controlmaster 1000 control panel is CE marked to show its compliance with the following European directives :



- Electromagnetic compatibility directive 89/336/EEC (and the amending directive 92/23/EEC)
- Low voltage directive 72/23/EEC

A Lithium battery is used for data retention.

Replace only with the same or equivalent type. Contact the service organisation for replacement of the main PC board

The Controlmaster 1000 control panel complies with EN 54-2. Where optional functions may contravene the requirements of EN 54-2, a warning is given.

National approval

This panel must be installed in accordance with these instructions and the appropriate national, regional and local fire systems installation regulations specific to the country and location of the installation. Consult with appropriate Authority Having Jurisdiction for confirmation of the requirements.

This equipment must be installed in accordance with these instructions and the appropriate national, regional and local wiring regulations. In the UK the wiring must conform to the requirements of the IEE Wiring Regulations – sixteenth edition.

Functionalities

EN 54

The Controlmaster 1000 comply with EN 54/2 requirements. In addition to the mandatory requirements of this standard, the following optional functions are provided:

EN 54/2 option with requirements (version approved by CEN on December 1996 the 25 th)	EN 54/2 clause
Output to fire alarm device	7.8
Delay to the actioning of outputs to fire alarm devices and fire alarm routing equipment	7.11
Fault signal from points	8.3
Disablement of each addressable points	9.5
Test condition	10

The 40 W and 100 W power master power supply comply with EN 54-4 (version approved by CEN on November 1997 the 20th)

Ancillary functions

Ancillary function	Manual section
Printer option	
Auxiliary outputs	
Repeater output	
Remote panel output	
Remote units	

UNPACKING AND CAPACITIES

Unpacking

Before installing the Controlmaster 1000 control panel, first ensure that all equipment has been received. The packing cabinet should contain the following items

	Controlmaster 1000 M - S	Controlmaster 1000 M - M	Controlmaster 1020 S - no LED	Controlmaster 1020 S - 16 LED	Controlmaster 1020 S - 32 LED	Controlmaster 1020 M - 64 LED	Controlmaster 1010 S - no LED	Controlmaster 1010 S - 16 LED	Controlmaster 1010 S - 32 LED
Control panel in cabinet S	1		1	1	1		1	1	1
Control panel in cabinet M		1				1			
40 W power supply									
100 W power supply	1	1	1	1	1	1	1	1	1
16 zones LED module				1				1	
32 zones LED module					1	2			1
Installation manual	1	1	1	1	1	1	1	1	1
Commissioning manual	1	1	1	1	1	1	1	1	1
Operating manual	1	1	1	1	1	1	1	1	1

Capacities

	Controlmaster 1000 M		Controlmaster 1020		Controlmaster 1010
	Controlmaster 1000 M - S	Controlmaster 1000 M - M	Controlmaster 1020 S	Controlmaster 1020 M	Controlmaster 1010

Detection Zones	240	240	64	64	32
Evacuation zones	65	65	33	33	9
4 alarm zones control and indicating module	16	16	8	8	2
4/8 ways sounders modules	64	64	32	32	8
Fire protection functions	128	128	64	64	16
16 fire protection control and indicating module	4	4	2	2	1
Addresses and devices (for detection, evacuation and fire protection)	1024	1024	256	256	128

Mimic relays	512	512	256	256	128
--------------	-----	-----	-----	-----	-----

Remote panel	64	64	32	32	8
RS repeaters	16	16	16	16	16
Lon repeaters	120	120	64	64	16

Cabinet	1000 cabinet S	1000 cabinet M	1000 cabinet S	1000 cabinet M	1000 cabinet S
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Power supply	100 W Powermaster	100 W Powermaster	100 W Powermaster	100 W Powermaster	100 W Powermaster
Batteries	2x12V / 4Ah 2x12V / 7Ah	2x12V / 4Ah 2x12V / 7Ah 2x12V/12Ah 2x12V/17Ah 2x12V/24Ah	2x12V / 4Ah 2x12V / 7Ah	2x12V / 4Ah 2x12V / 7Ah 2x12V/12Ah 2x12V/17Ah 2x12V/24Ah	2x12V / 4Ah 2x12V / 7Ah 2x12V /12Ah 2x12V /17Ah 2x12V /24Ah

The Controlmaster 1000M can be equipped with additional 2-loops System Sensor modules and / or 2-loops Apollo modules and/or 2-loops Autronica Spectral modules.

IMPLEMENTATION OF THE CONTROLMASTER RESONANCE RANGE MODULES

Identification of different modules

Board	Implementation on (Lon FTT or SPI bus)	Location
Basic module		
Controlmaster 1000 control panel Main board Connection board	/	Control and indication module (CC) Back of the cabinet (CC)
Functional modules		
16 zone LED module	SPI	Control and indication module (CC-RU)
32 zone LED module	SPI	Control and indication module (CC-RU)
2 loop System Sensor module	FTT	Back of the cabinet (CC – RU)
2 loop Apollo module	FTT	Back of the cabinet (CC – RU)
2 loop Autronica Spectral module	FTT	Back of the cabinet (CC – RU)
16 fire protection control and indicating module	FTT	Control and indication module (CC-RU)
4 alarm zone control and indicating module	FTT	Control and indication module (CC-RU)
4 way sounders module	FTT	Back of the cabinet (CC – RU)
8 way sounders module	FTT	Back of the cabinet (CC – RU)
Active end of line	/	Remote hardware with the help of 4 / 8 way sounders module
8 way relay module	FTT	Back of the cabinet (CC – RU)
16 way relay module	FTT	Back of the cabinet (CC – RU)
Communication unit		
2 ways network interface	FTT	On main board
4 ways network interface	FTT	On main board
High integrity Lon isolator	FTT	Back of the cabinet (CC – RU)
Lon isolator	FTT	On FTT bus
Power supply		
40 W power master	/	Back of the cabinet (CC – RU)
100 W power master	/	Back of the cabinet (CC – RU)



CC = Central cabinet

RU = remote unit

Description of the Lon FTT inter modules bus

Definition

The Lon FTT bus is used for:

- internal communication between boards,
- external communication with remote units,
- external communication with remote terminal and Lon repeaters LCD display.

It can be used according to two configurations:

- The FREE topology
- the BUS topology

Free topology

This topology should be used to connect the boards installed in a same cabinet.

This is the free topology.



Figure 1 [SE309311]



The implementation of the type of topology is independent on each of the paths of 2 / 4 ways network interfaces

Board	Configuration of the Lon charge jumpers
2 / 4 ways network interface (Lon connection is ensured on the connection board)	FREE [R1 (Lon bus charge) = 52.5 Ohms]
Other boards	LO (no charge on Lon bus)

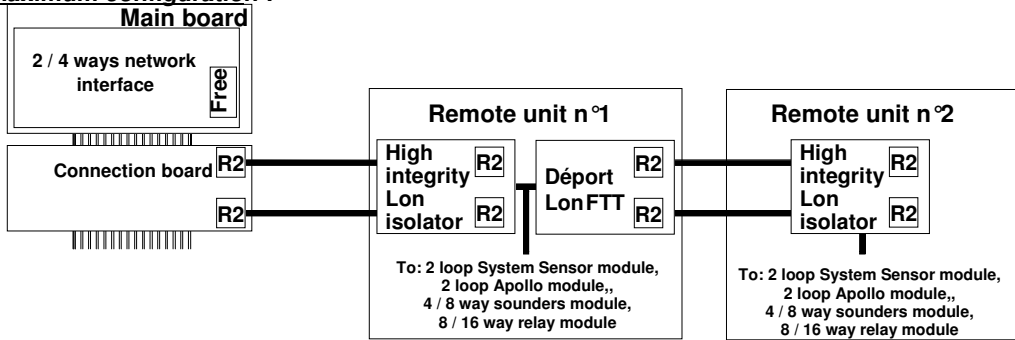
Type and section	2×0.6mm ² minimum
Length	10m maximum

Bus topology

This topology should be used to ensure communication with remote units, remote terminal and Lon repeaters LCD display.

- Communication with modules installed in remote cabinets with redundant bus (sub loop)

Maximum configuration :



R2 (load resistor of Lon FTT bus) = 105 Ω implemented according to the position of the jumpers

Figure 2 [SE309311]

- Communication with modules installed in remote cabinets with single bus

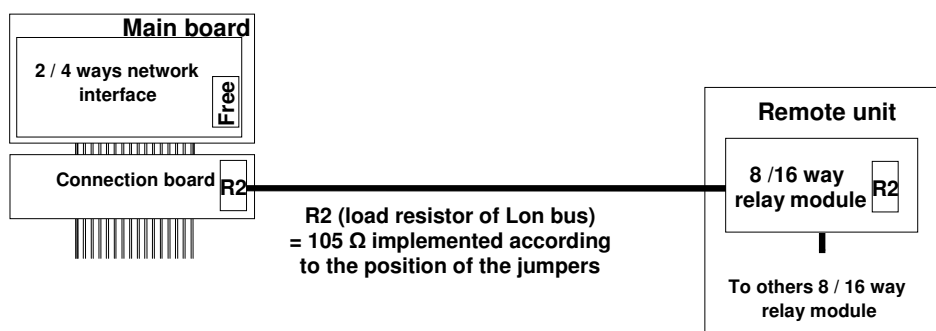
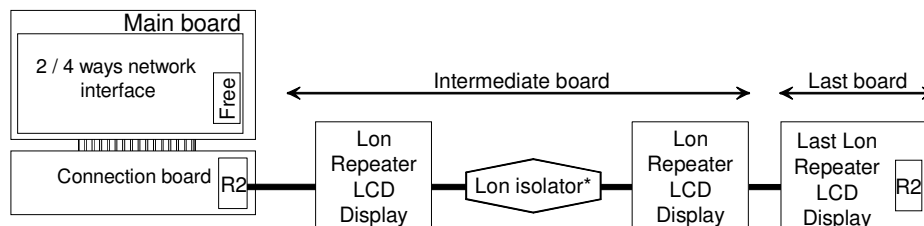


Figure 3 [SE309311]

- Communication with remote terminal and Lon repeaters LCD display.



R2 (load resistance of Lon bus) = 105 Ω implemented according to the position of the jumpers.

(*): 4 Lon isolators maximum in serie on a Lon FTT bus.

Figure 4 [SE309311]

Board	Configuration of the Lon charge jumpers
2 / 4 ways network interface (Lon connection is ensured on the connection board)	BUS [R2 (Lon bus charge) = 105 Ohms]
Intermediate board	LO (no charge on Lon bus)
Last board	BUS [R2 (Lon bus charge) = 105 Ohms]

Communication with remote cabinets	
Type and section	1 8/10 pair with shield
Length	1000m maximum

Communication with remote panel and repeaters	
Type and section	2×1.5mm ² minimum
Length	1000m maximum

Connection of the Lon FTT inter modules bus

Connection of the terminal boards (Lon FTT bus and power supply of the boards)



Follow the rule given below to connect the boards:

	<p>Incoming cable on the board through the top terminal boards</p> <hr/> <p>Outgoing cable from the board through the lower terminal boards</p>
--	---

Board	Lon terminal board	Lon charge jumper	Terminal board for power supply board	Power supply terminal board for fire protection devices
2 loops System Sensor module	J2 Lon NETA – NETB	S4 FREE/BUS	J4 (+24V 0V) Top J4 (+24V 0V) Bottom	Not applicable
2 loops Apollo module	J8 Lon NETA – NETB	S1 FREE/BUS	J9 (+24V 0V) Top J9 (+24V 0V) Bottom	Not applicable
2 loops Autronica Spectral module	J4 Lon NETA-NETB	S4 FREE/BUS	J7 (+24V 0V) Top J7 (+24V 0V) Bottom	Not applicable
4 alarm zone control and indicating module	J3 Lon A/B/A/B	S1 LO/FL Jumper on LO	J4 (+V 0V +V 0V)	Not applicable
16 fire protection control and indicating module	J3 Lon A/B/A/B	S1 LO/FL Jumper on LO	J4 (+V 0V +V 0V)	Not applicable
2 ways network interface	J3 (bus no.1) J4 (bus no.2)	S3 FREE/BUS * S4 FREE/BUS **	Plug-in board on the panel	Not applicable
4 ways network interface	J3 (bus no.1) J4 (bus no.2) J5 (bus no.3) J6 (bus no.4)	S2 FREE/BUS * S3 FREE/BUS ** S4 FREE/BUS ** S5 FREE/BUS **	Plug-in board on the panel	Not applicable
High integrity Lon isolator	J2 Top J2 Bottom	S4 FREE/BUS jumper removed	J7 (24/48V 0V) Top J7 (24/48V 0V) Bottom	Not applicable
4 alarm zone control and indicating module	J3 Lon A/B/A/B	S1 LO/FL Jumper on LO	J4 (+V 0V +V 0V)	Not applicable
8 / 16 ways relay module	J1 Top J1 Bottom	S3 LO/FL Jumper on LO	J18 (+24V 0V) Top J18 (+24V 0V) Bottom	Not applicable
4 ways sounders module	J2 Top J2 Bottom	S4 LO/FL Jumper on LO	J4 (+ -) Top J4 (+ -) Bottom	J9 J3
(*) : Bus no. 1 is used to communicate in the LON format with all the boards in the central cabinet				
(**) : a) Jumper on "FREE" to connect the boards (on this bus) in FREE topology The components connected to the Lon bus should be configured without charging resistor (jumper positioned on LO, jumper removed ...). b) Jumper on "BUS" to connect the boards (on this bus) in BUS topology The last component connected on the Lon bus should be configured with a charging resistor of 105 Ohms (jumper positioned on BUS, FL ...)				

Example of connection of a Lon FTT bus in free topology

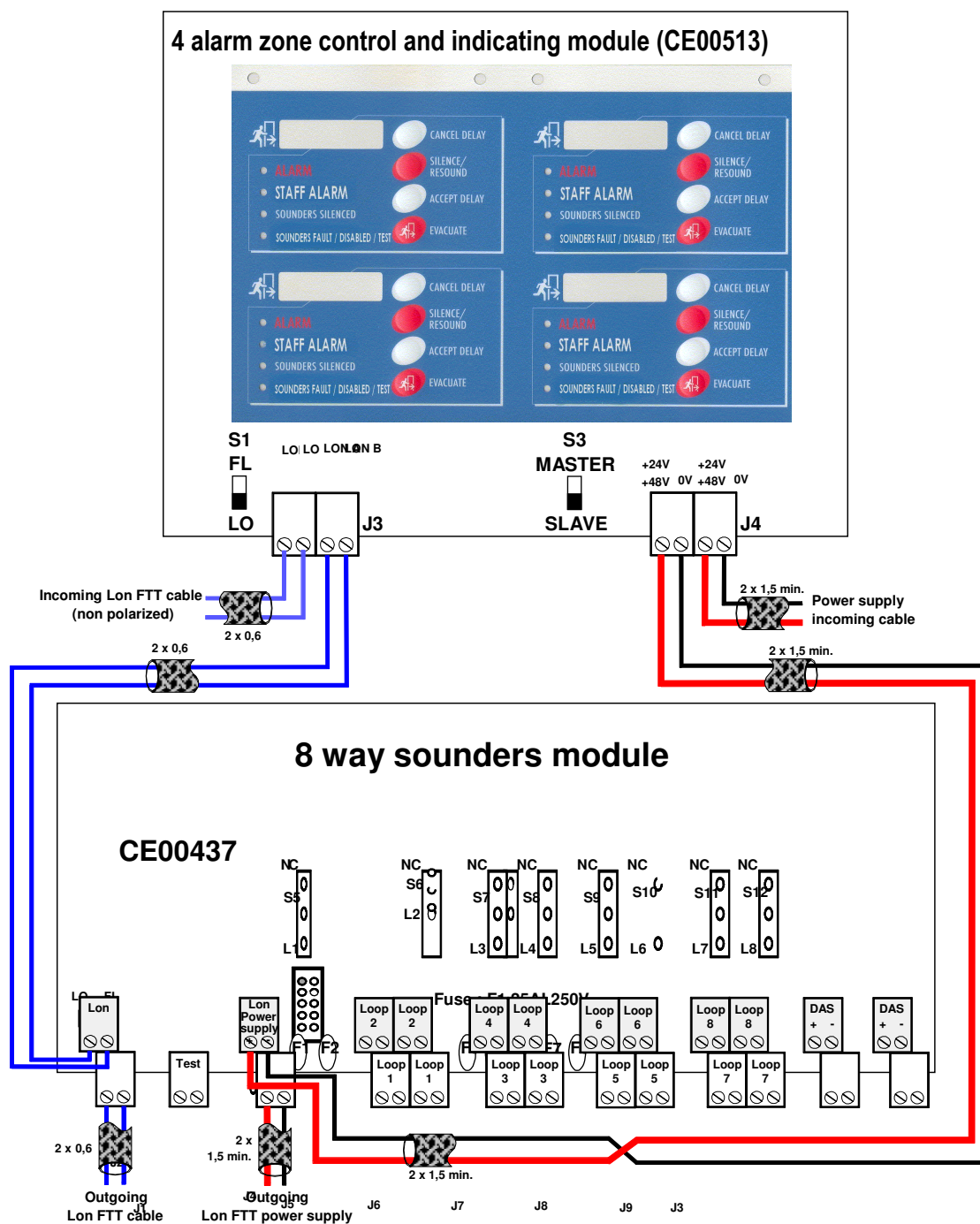


Figure 5 [PC369811]

Connection of a non redundant Lon FTT bus

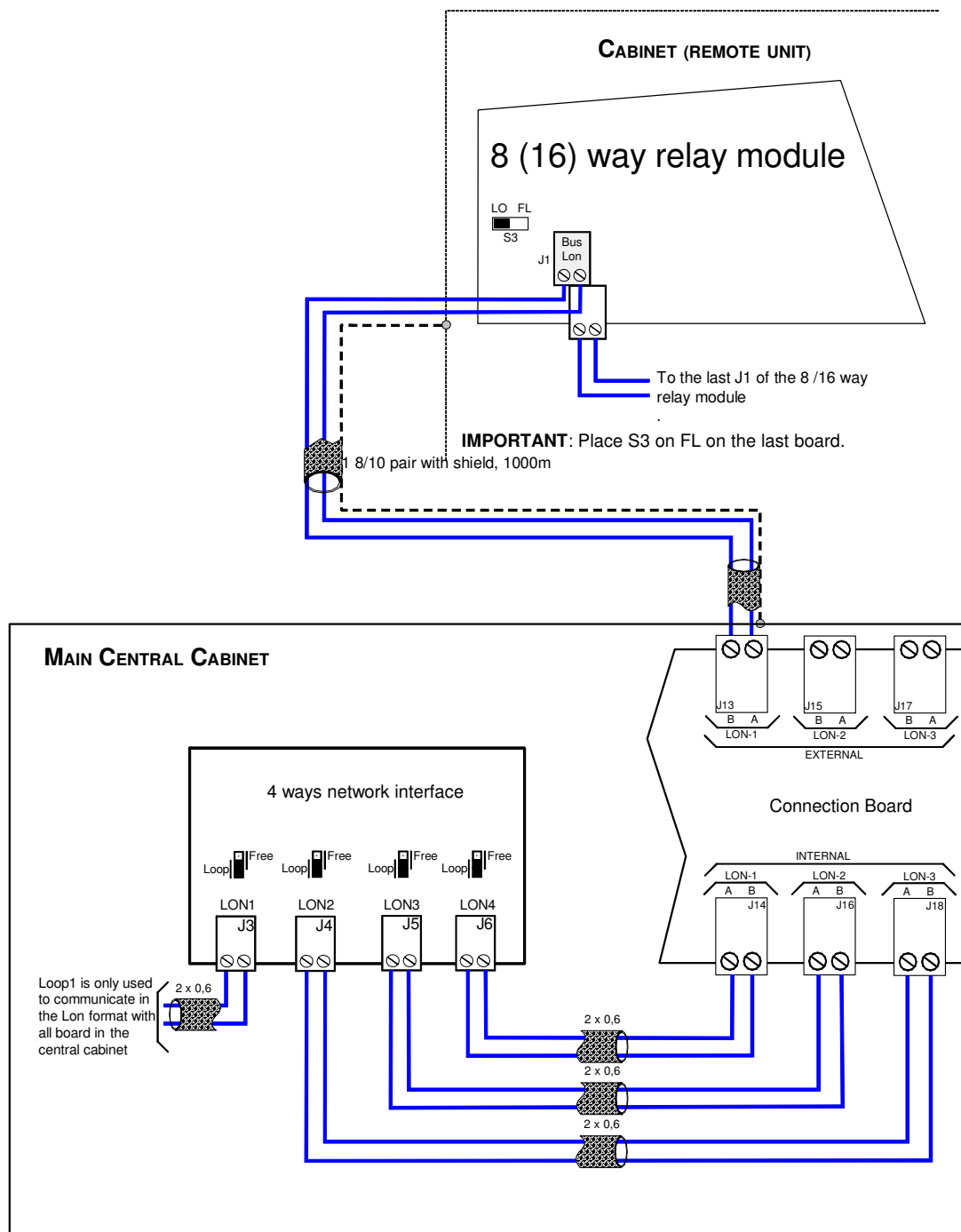


Figure 6 [PC367411]

Connection of a redundant Lon FTT bus

Outgoing cable to a remote unit

Diagrams to be used for connection between:

- The central cabinet and remote unit (4 ways network interface or high integrity Lon isolator), or
- Between 2 remote units (high integrity Lon isolator only).

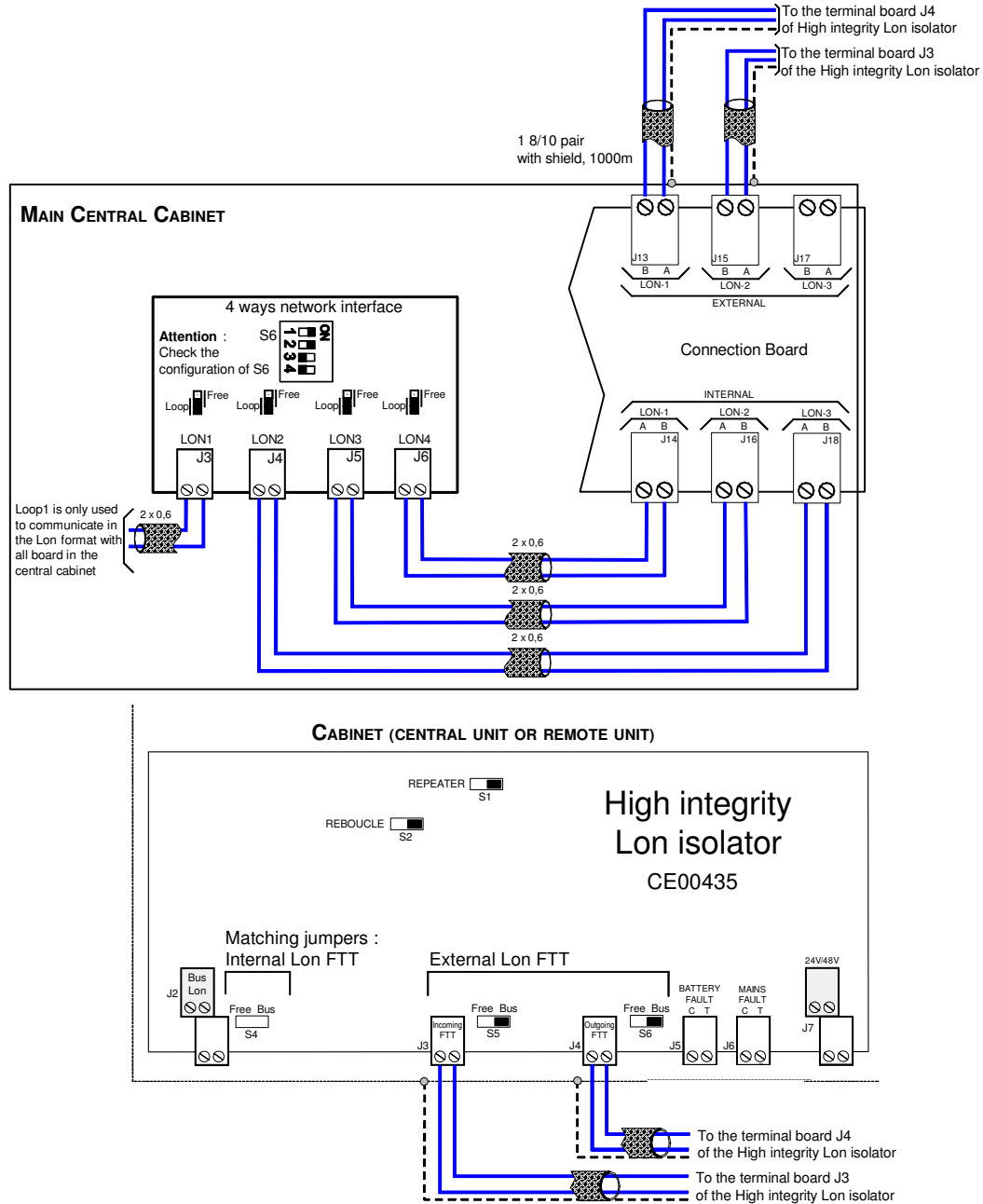


Figure 7 [PC367511]

Incoming cable in a remote unit

Enclosure (Remote unit)

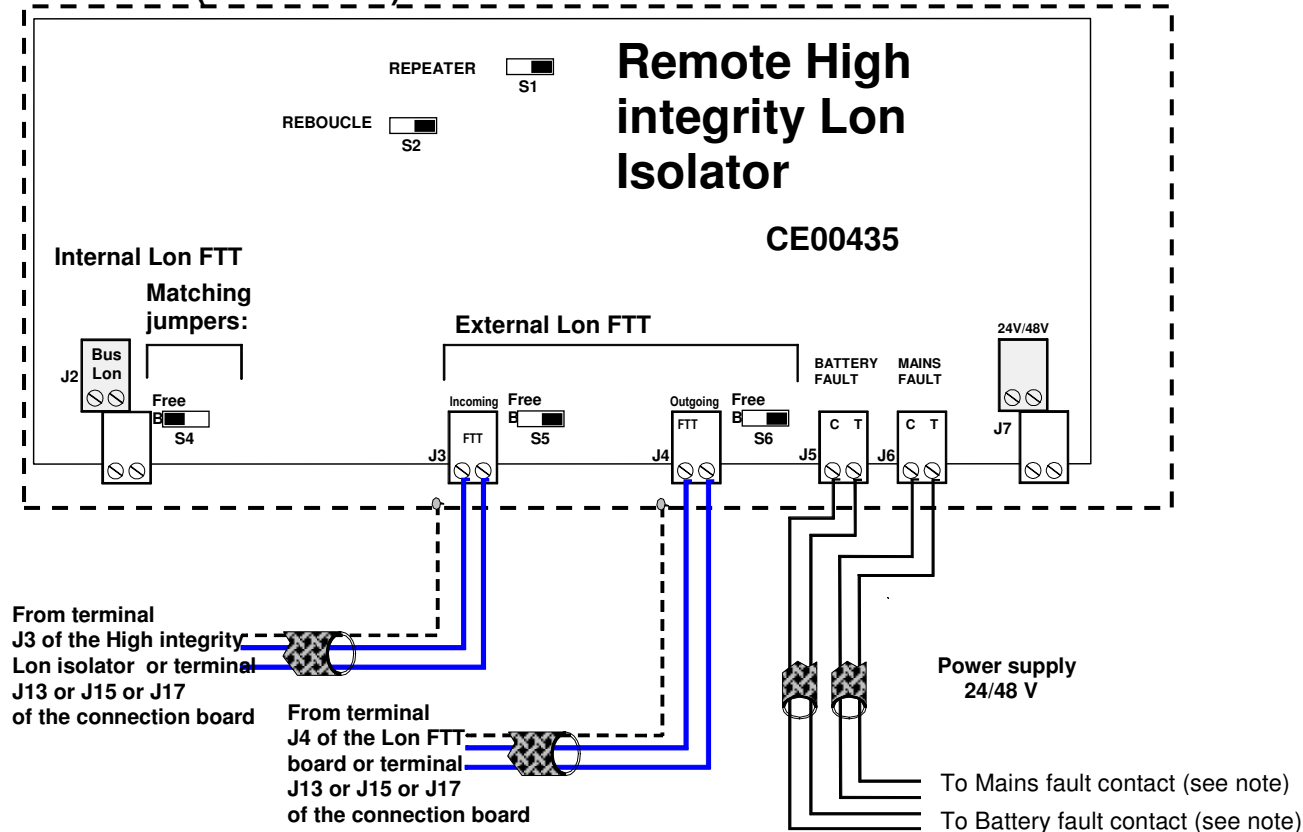


Figure 8 [PC367611]



The mains and battery fault contacts delivered by the power supply are normally open volt free contacts. Alternately, switched negative outputs may be connected on J5's and J6's "T" terminal.

INSTALLATION OF CABINETS

Controlmaster Resonance range cabinets (CAB S / M)

Dimensions

- 1000 cabinet S (LxHxP) : 492 x 355 [8U] x 162 mm
- 1000 cabinet M (LxHxP) : 492 x 533 [12U] x 227 mm

Installation

In addition to the dimensions of the cabinet, it is essential to provide space above and below for passage of cables and servicing,

Handle the chassis by holding the metalwork only. DO NOT lift it by holding any part of printed circuit boards.

1. Drill the middle fixing hole.
2. Position the chassis and level it.
3. Punch and drill the remaining holes.
4. Fix the chassis to the wall.

Use a drill bit diameter 7.0 mm and a suitable 40 mm long expansion plug. Fix the panel to the wall with N° 10 screw length 1 ½ " or M5 screw length 40 mm.


The Controlmaster panel can weigh in excess of 13 Kg cabinet S, of 25 Kg cabinet M.

Once the batteries are fitted. When attaching the enclosure to a surface, use mounting hardware capable of supporting this weight and ensure any reinforcement if necessary.

POWER SUPPLY CONNECTION

Batteries

Implementation of the batteries

 The batteries must be installed after the installation of the cabinet.

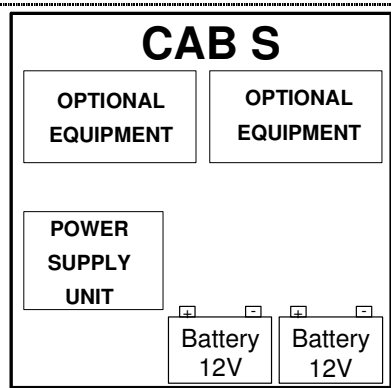


Figure 9 [PC370411]

The 1000 cabinet S can fit:

- A power supply of 40W or 100W
- Two 12V / 4Ah, 7Ah or 12Ah batteries

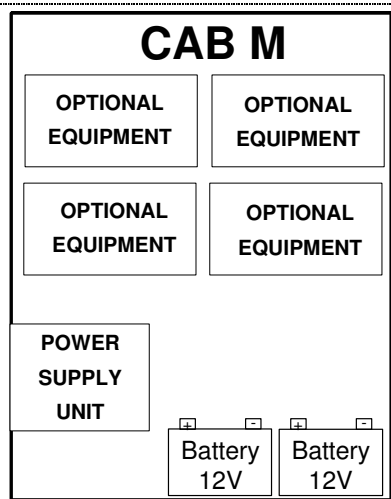


Figure 10 [PC370411]

The 1000 cabinet M can fit:

- A power supply of 40W or 100W
- Two 12V / 4Ah, 7Ah, 12Ah, 17Ah or 24Ah batteries

Connection of batteries



Summary : The batteries must be installed after the installation of the cabinet.

The batteries are fitted in the cabinet

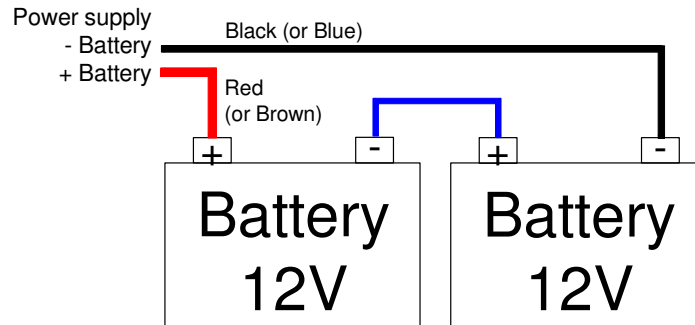


Figure 11 [PC369911]

The batteries are fitted in a battery cabinet (this configuration is not covered in the certification)

- If the panel cabinet and the battery cabinet are mechanically linked.
→ Proceed as described in previous paragraph.
- If the cabinets are not mechanically linked :

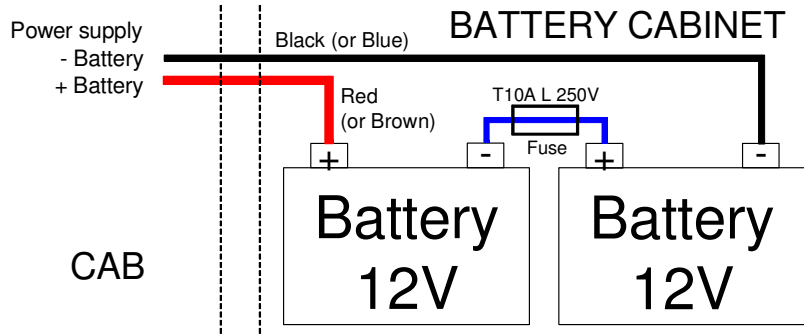


Figure 12 [PC369911]

Connection



Observe respect of the battery polarities and the cable colours.

Connect the wires to the batteries once they are installed

- Disconnect the battery lead from the POWER SUPPLY board (J3)
Connect the cables to the batteries:

BLACK cable	:	– terminal of battery 2
RED cable	:	+ terminal of battery 1
WHITE cable	:	between – terminal of battery 1 and + terminal of battery 2
- Reconnect the battery lead on the POWER SUPPLY board (J3)

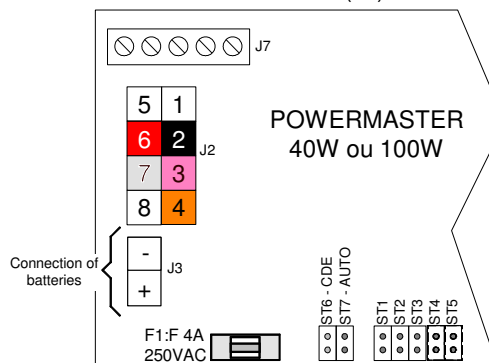


Figure 13 [PC373111]

Connection with the main network



Very important: to be read carefully

The company shall not be held responsible for non-adherence to instructions contained in this chapter.

Rules and recommendations for assembly

1. If the c.i.e. is connected to a 230v network that has an IT-type earthing¹, it is **mandatory to insert an isolation transformer, its secondary windings being connected in TN-S -mode.**
2. The aforementioned isolating transformer must be fitted in a **housing outside the equipment.** This transformer must comply with the corresponding recommendations of the **EN 60950** standard and must be built in such a way that a single insulation fault and its consequences do not cause high voltage on the s.e.l.v. low-voltage windings.
3. A double-pole circuit breaking device should be provided to separate the equipment from its power supply in order to maintain the security system.
This circuit breaking device may be a 230v/50hz double-pole residual current circuit-breaker (10A minimum, 30mA leakage rating).
4. We recommend that **a dedicated earth system** be used for the fire safety equipment.

Connection to the mains cable:

the mains lead should have **double insulation** and must

- be tied firmly by the means of the cable-gland,
- have all three conductors tied together with a **tie-wrap**

The tie-wraps are provided with the hardware (see figure below).

TYPE OF CABLE:

- Stranded with crimped terminals or solid (with double insulation).
- Its insulation should be in synthetic rubber (H05RR-F) or in polyvinylchloride (H05VV-F or H05VVH2-F2).
- section: 1.5mm² to 4mm²

5. The wiring should be performed in accordance with local applicable standards

¹ *IT TYPE EARTHING: Energy distribution system without a direct link to the ground, the, exposed conductive part of the installation being earthed*

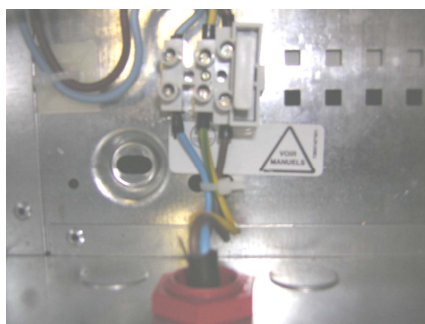
Electrical connections



The mains cable entry stage is low-voltage rated. All other parts of the system are safety extra-low voltage (s.e.l.v).

In order to connect the power network, proceed as follows:

1. Make sure the mains cables are not live.
2. Take the fuse out of the terminal block and check its marking (refer to MI A300203 / 40W power master / 100W power master installation manual).
3. Connect the mains cables to the terminal block:
Brown conductor: Live
Blue (may be other colour) conductor: Neutral
Yellow/Green conductor: Earth
4. Set the fuse back.
5. For EMC compliance, fit the supplied ferrite Absorber (Wurtz 742 700 90 or equivalent). Mains cable shall make a turn.



General information on the addressable loop

- ## Features of the cable

Type and section	8/10mm minimum pair cable shielded											
Maximum length	<p>The maximum length:</p> <ul style="list-style-type: none"> ▪ loop, ▪ distance between the incoming cable of the loop and any address, and ▪ distance between the output from the loop and any address) <p>depends on the cable type</p> <table border="1"> <tr> <th>MAXIMUM CABLE LENGTH (meters)</th><th colspan="3">Cable Type</th></tr> <tr> <td></td><td>1.5mm²</td><td>2.5mm²</td><td>4mm²</td></tr> </table>				MAXIMUM CABLE LENGTH (meters)	Cable Type				1.5mm ²	2.5mm ²	4mm ²
MAXIMUM CABLE LENGTH (meters)	Cable Type											
	1.5mm ²	2.5mm ²	4mm ²									

	2000	3300	3300
The maximum total cable length must never exceed 50 ohm for the 100mA current limit			

Connection of addressable loops

On main connection board (System Sensor only)

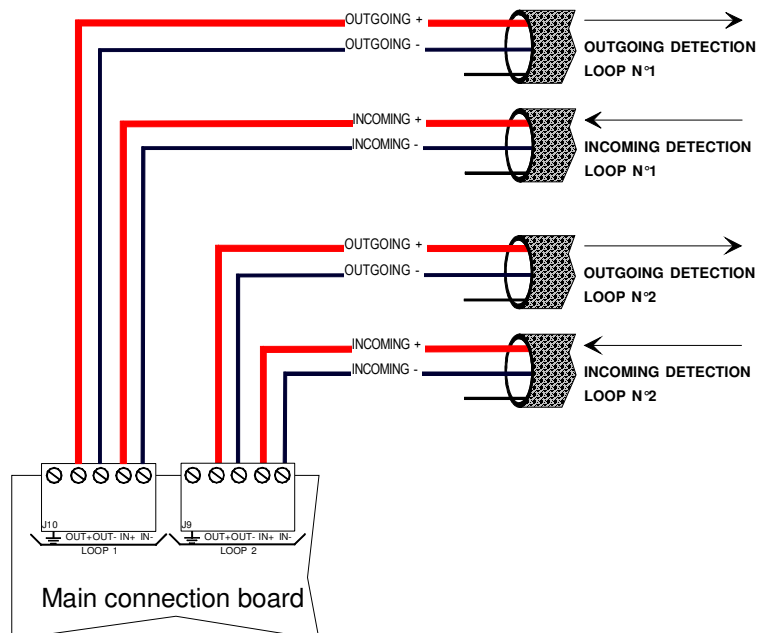


Figure 15 [PC367711]

On 2 loops System Sensor module

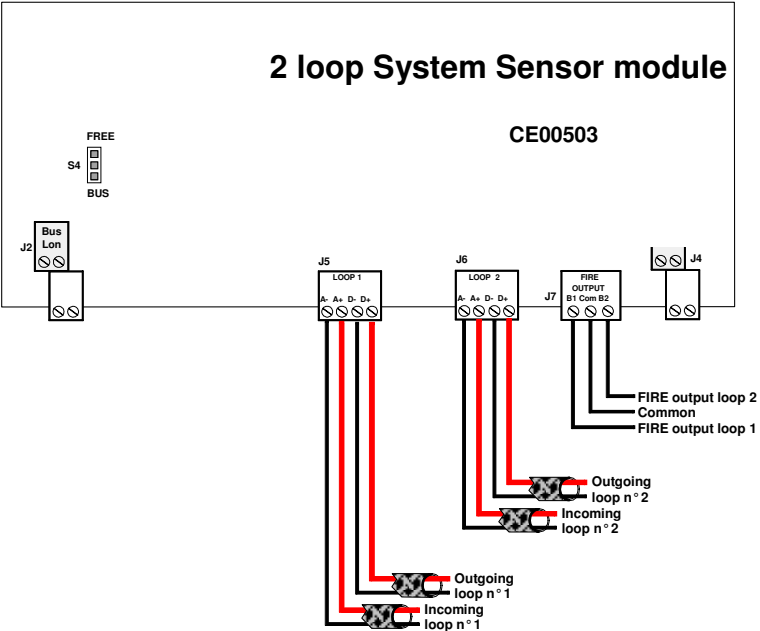
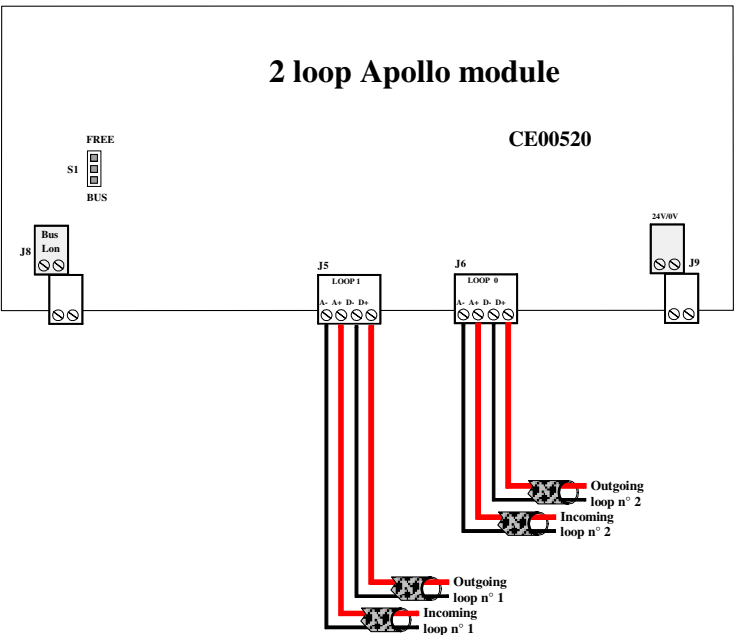
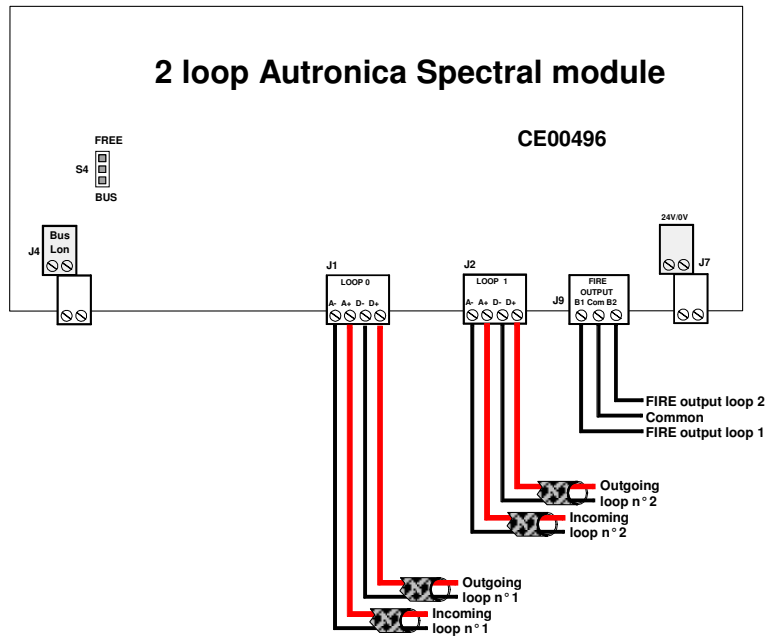


Figure 16 [PC367811]

2 loops Apollo module



2 loops Autronica Spectral module



CONNECTIONS OF DETECTORS/CALL POINTS AND ISOLATORS ON THE ADDRESSABLE LOOP

Connection of addressable detectors (System Sensor)

Connection of standard base and deep base Resonance

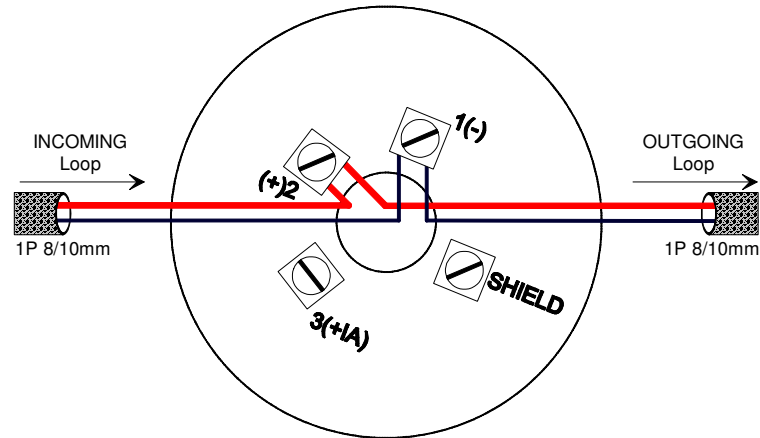


Figure 17 [PC368111]

Connection of standard base and deep base Resonance with a spur

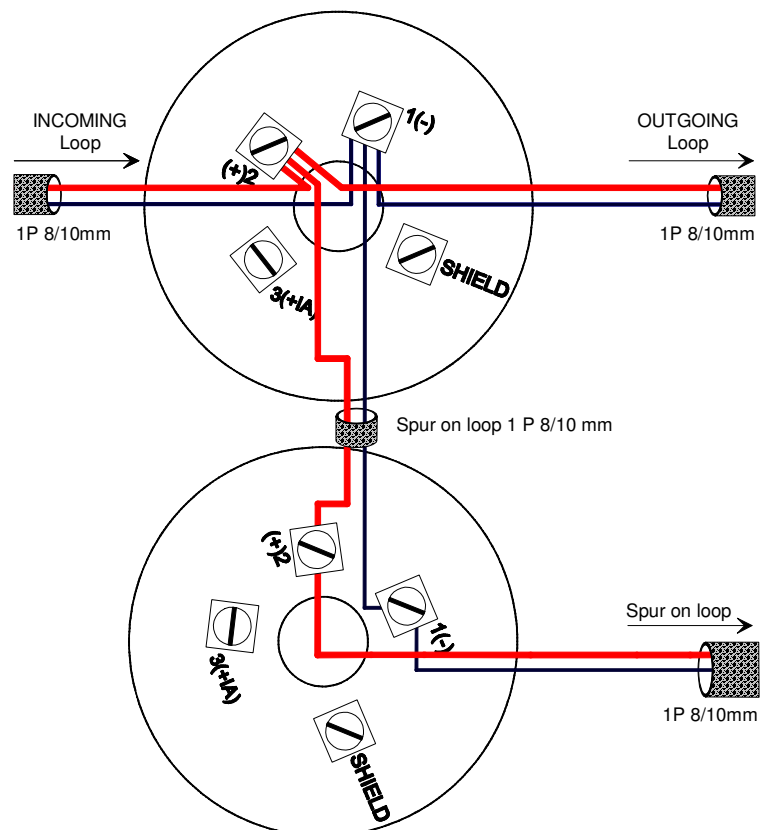


Figure 18 [PC368311]

Connection of standard base and deep base Resonance with remote indicator

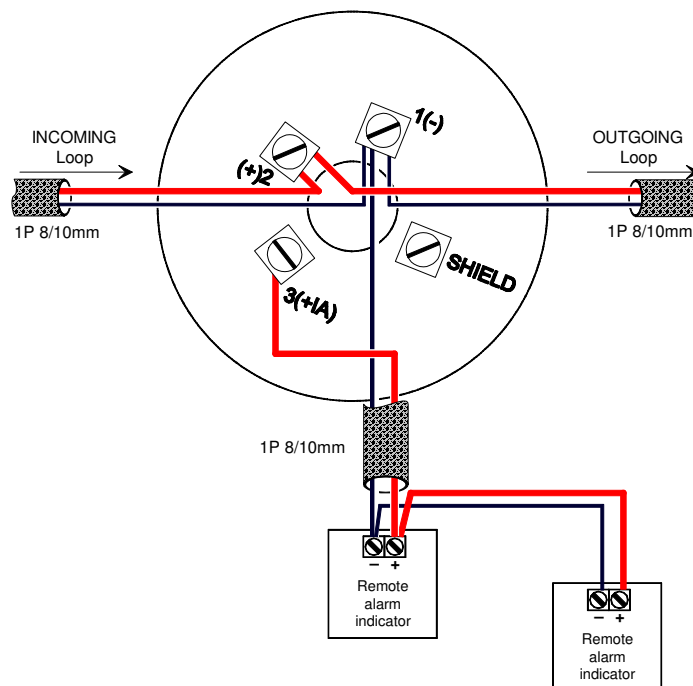


Figure 19 [PC368411]



A maximum of two remote indicators may be connected to a detector.

Connection of standard base and deep base Resonance with common remote indicator

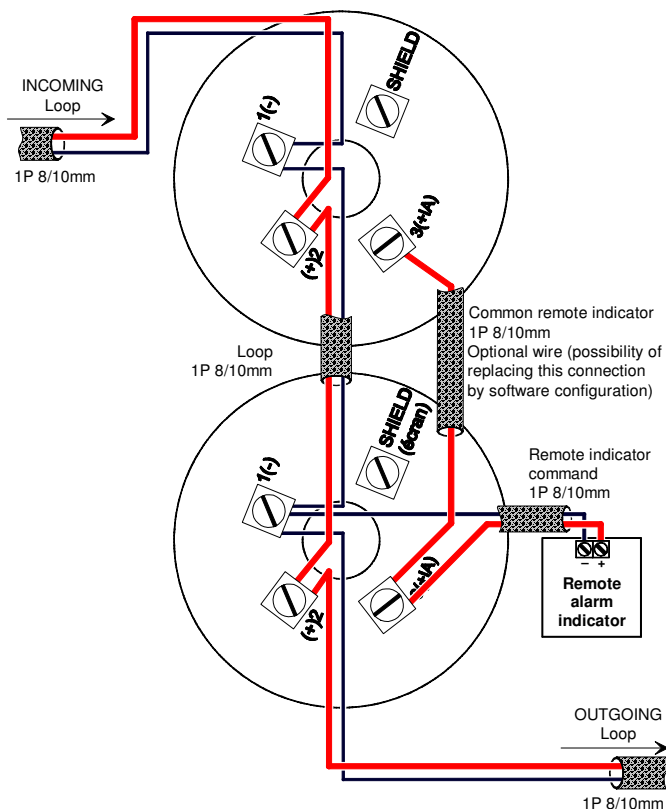


Figure 20 [PC368511]

Connection on Resonance isolator base with remote indicator

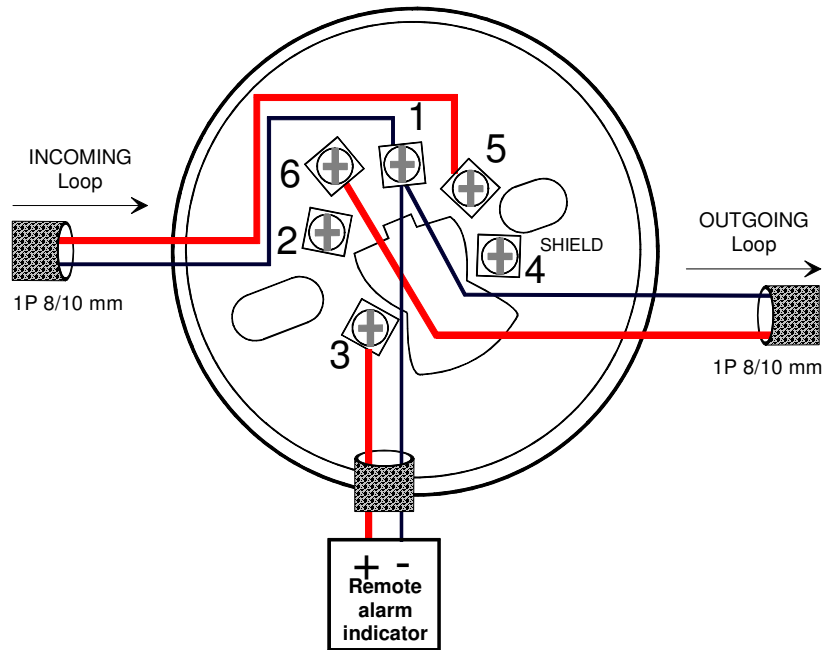


Figure 21 [PC368611]

Connection on Resonance isolator base with remote indicator

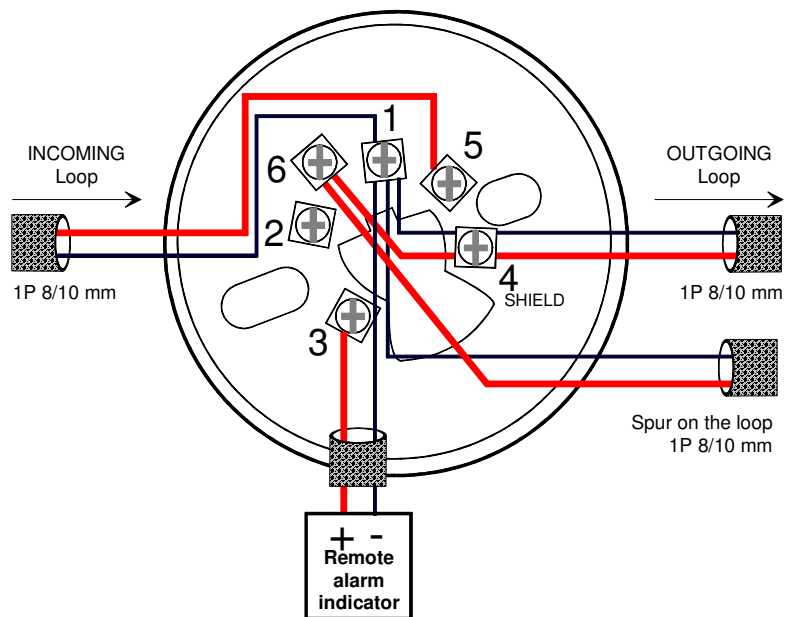
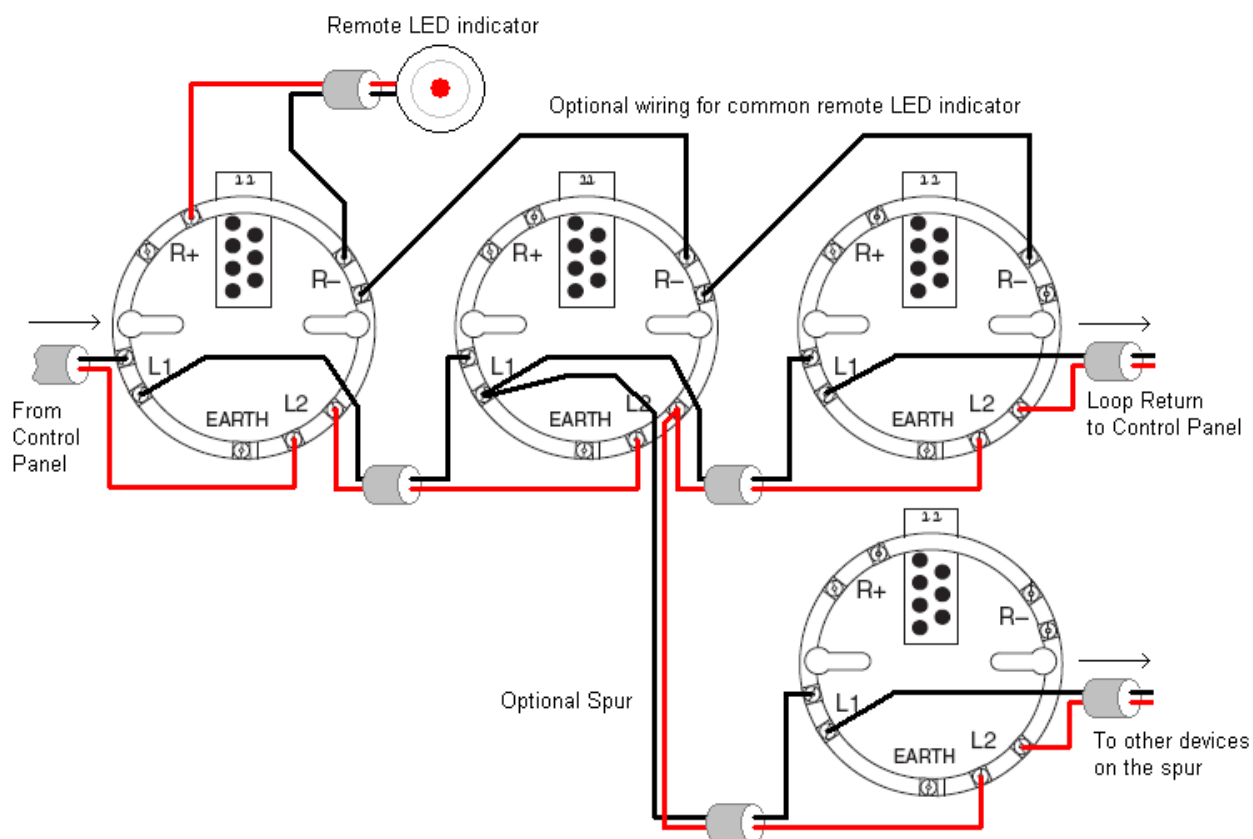


Figure 22 [PC368711]

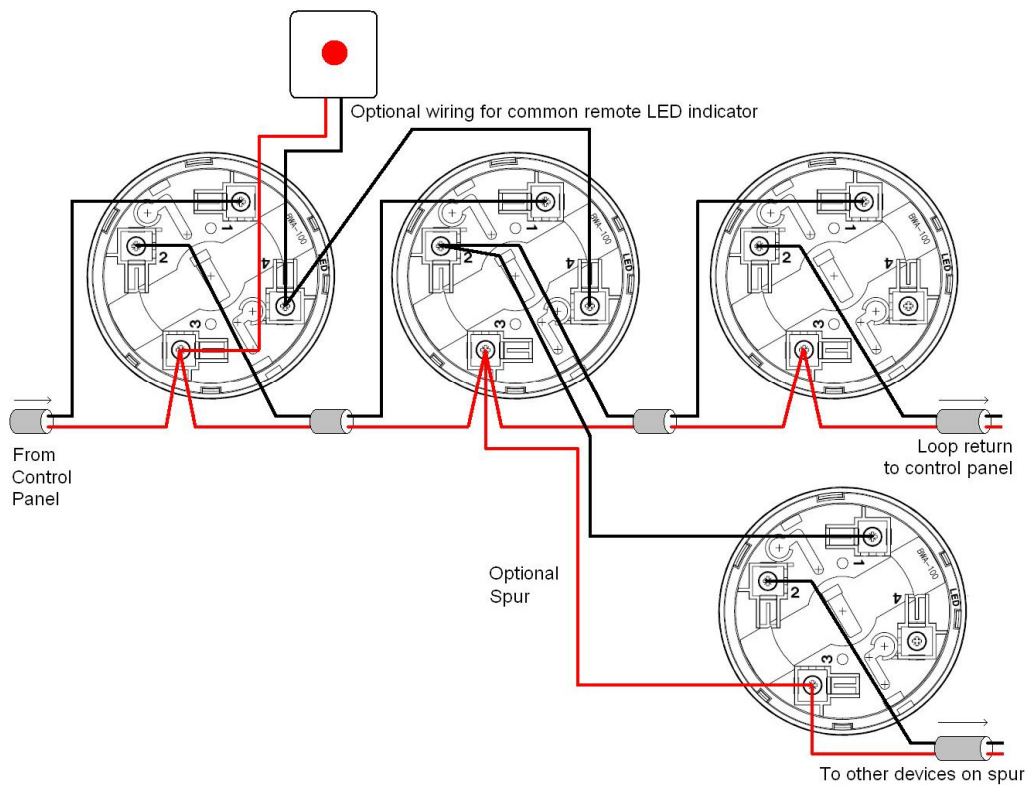
Connection of addressable detectors (Apollo)



built from Apollo documentation

Figure 23 [PC368611]

Connection of addressable detectors (Autronica Spectral)



Connection of manual addressable call points with or without isolators (System Sensor)

Connection of MCP range of call point (System Sensor)

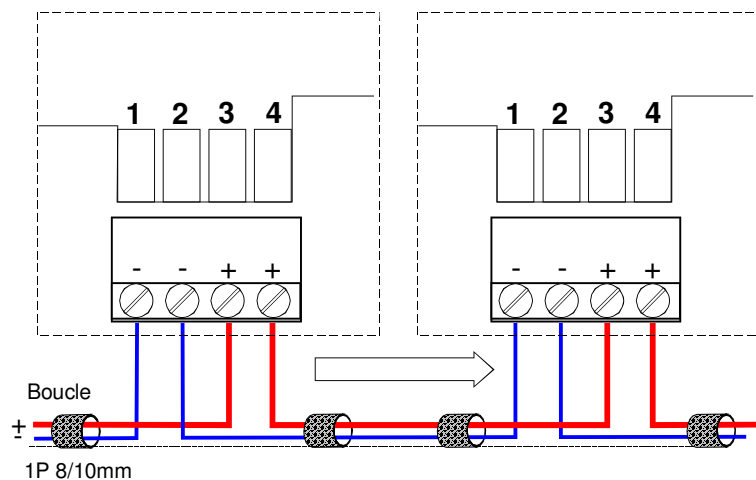


Figure 24 [PC366011]



The connection is identical for versions with or without short-circuits isolators

Connection of MCP call point with a spur (System Sensor)

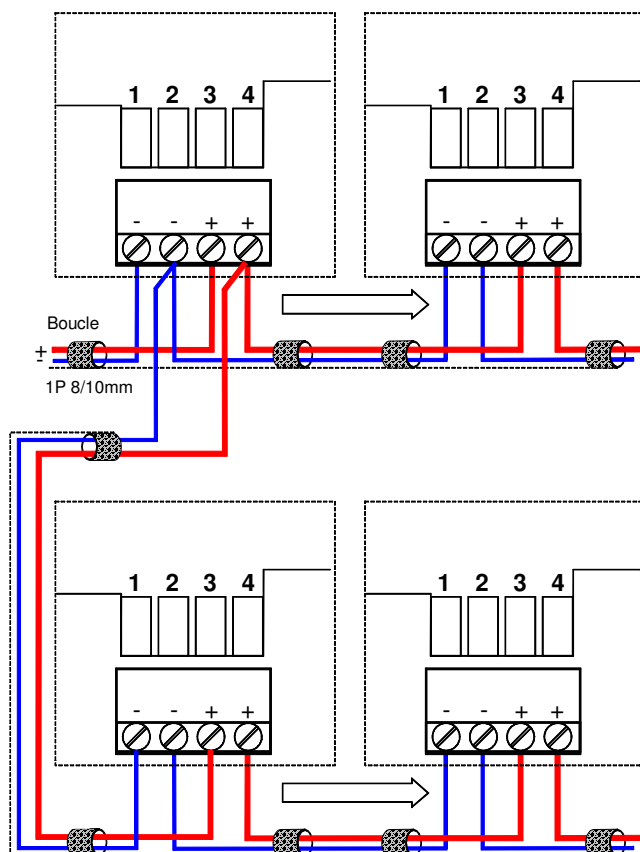


Figure 25 [PC366011]



The connection is identical for versions with or without short-circuits isolators.

Connection of Manual Call Points (Apollo)

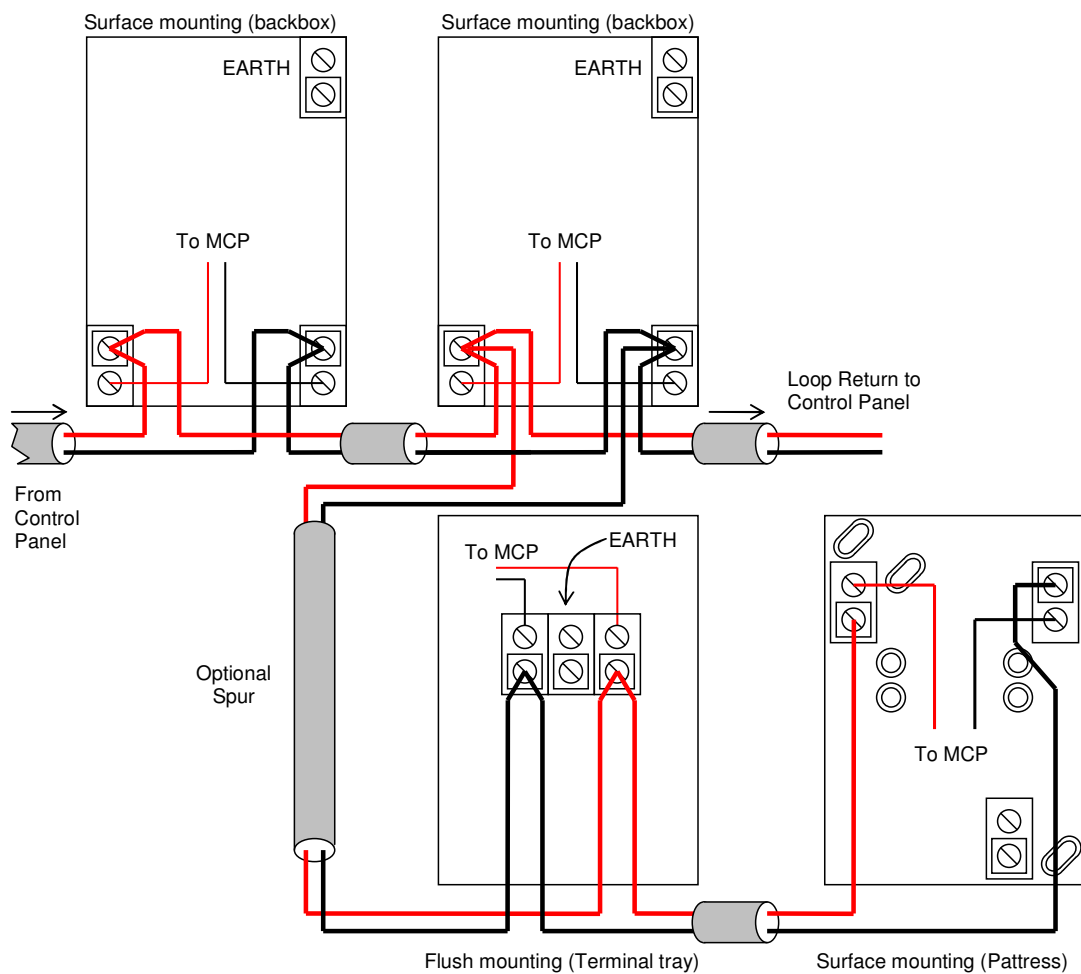
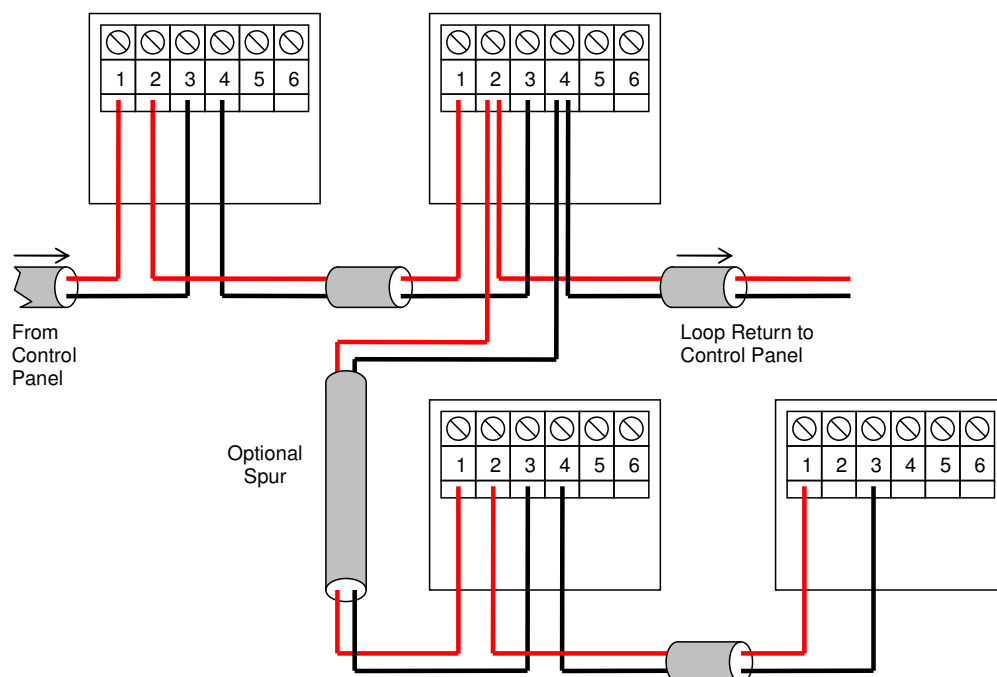


Figure 26 [PC369111]

Connection of Manual Call Points (Autronica Spectral)



Connection of separate short circuit isolators (System Sensor)

Connection of M 200XE

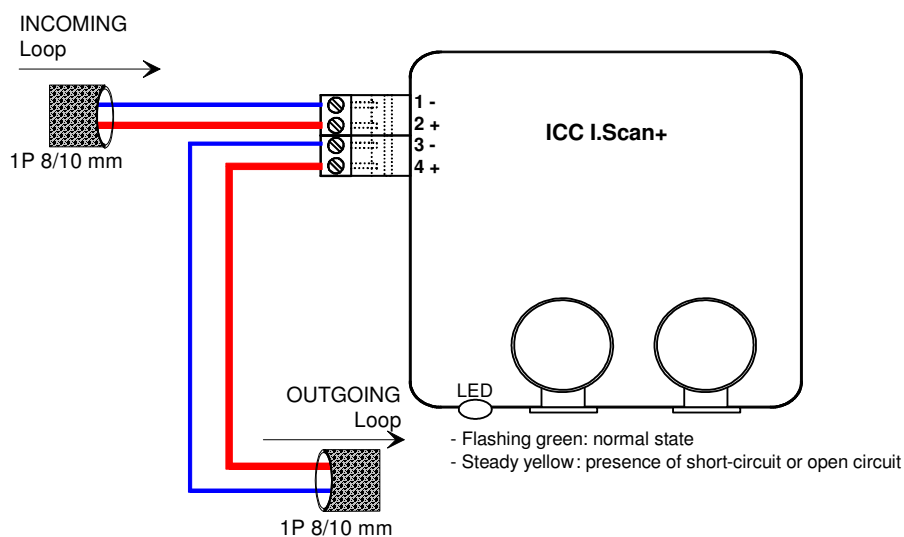


Figure 27 [PC369011]

Connection of M200XE with spur

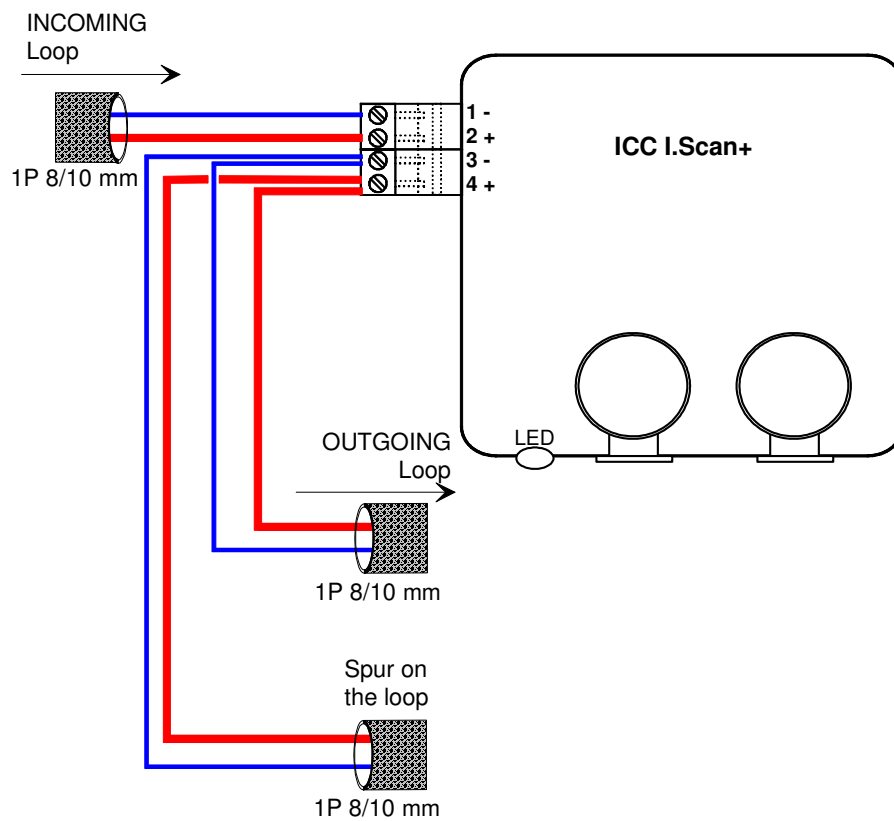


Figure 28 [PC369111]

ISO 524-1 connection

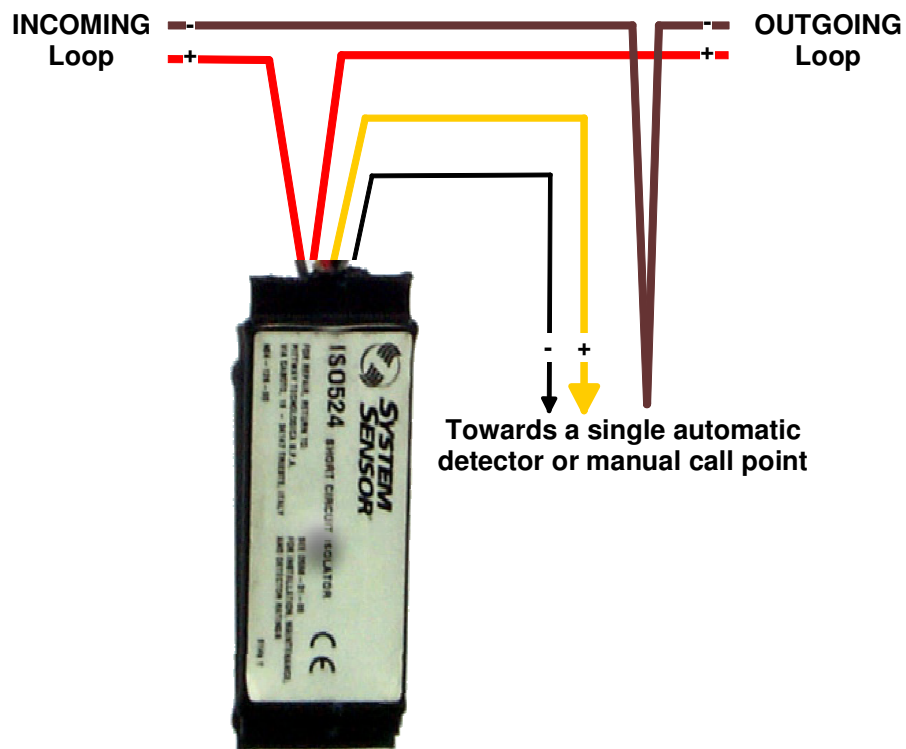


Figure 29 [PC369211]

Connection of separate short circuit isolators (Apollo)

Please refer to Apollo installation manual

CONNECTION OF INPUT/OUTPUT CIRCUITS ON THE ADDRESSABLE LOOP

Nota: for Apollo devices, Please refer to their own installation manual. No Autronica modules are supported at this time

M 210E - CZ (collective interface)

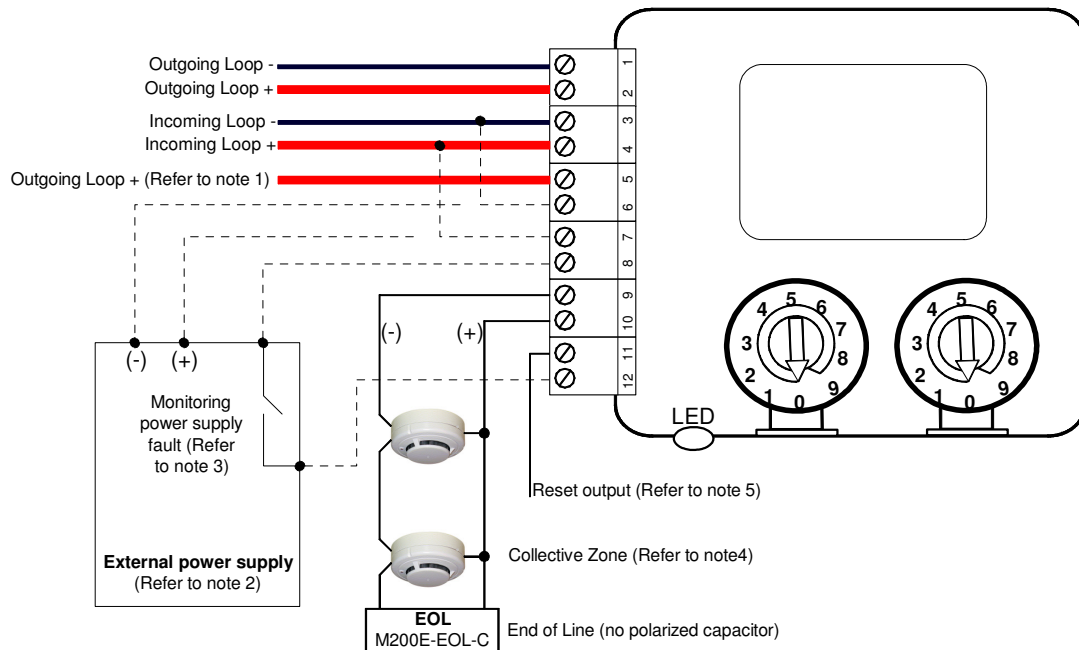


Figure 30 [PC371311]

- In order to prevent the functioning of the short circuit isolators, the I.Scan + Loop output should be connected to terminal 5 and not to terminal 2. Terminals 5 and 4 are linked to the inner part of the module.
- If the collective zone is powered by the loop then the loop should be connected simultaneously to the input terminals of the loop (terminals 3 and 4) and the external power supply input (terminals 6 and 7).
- If external power supply is used, it should be connected to the external supply inputs (terminals 6 and 7) and the input of the loop should be connected only to the input terminals of the loop (terminals 3 and 4)
- The default input enables to monitor an external contact e.g. to check external power supply. The fault is taken into account when negative polarity is applied on this terminal. Terminals 7 and 12 are linked internally directly to the module.
- The module M 210E – CZ end of line is a capacitor
- The output reset can be used to monitor the reset of the zone. It changes to 0V during reset.

M503ME (single input module)

M503Me Configuration 1 (*Chubb Expert : M503 NC*)

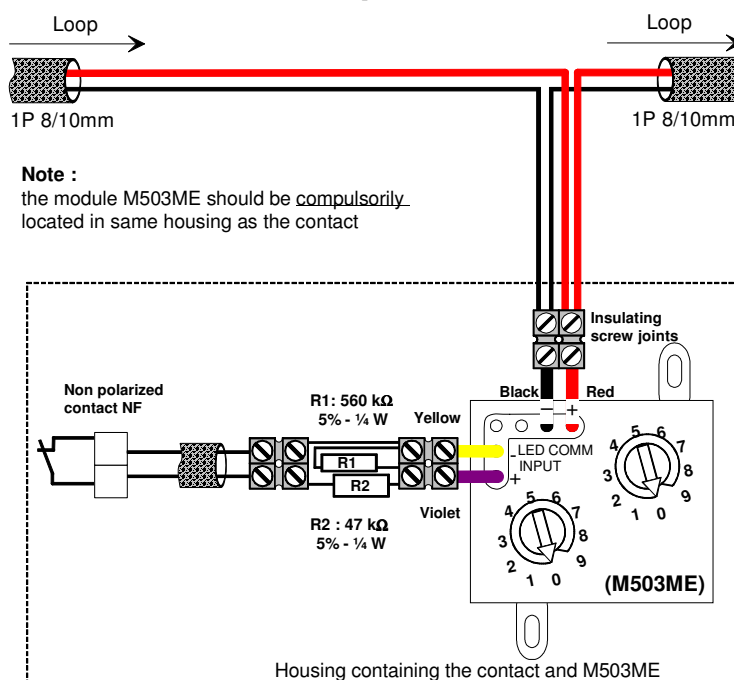


Figure 31 [PC363411]



- The contact is open in case of alarm

M503Me Configuration 2 (*Chubb Expert : M503 NO*)

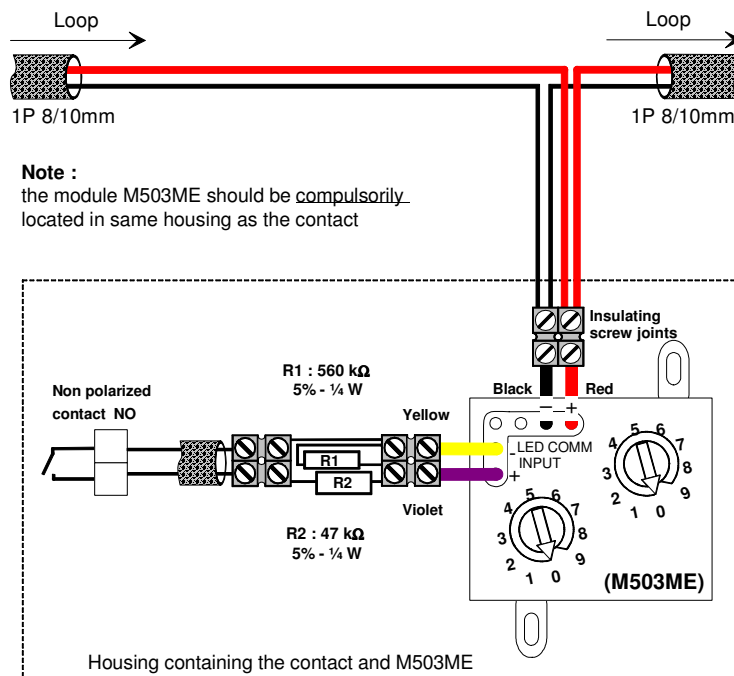


Figure 32 [PC365511]



- The contact is closed in case of alarm

M 503 Me Configuration 3 (*Chubb Expert : M503 NO + Fault*)

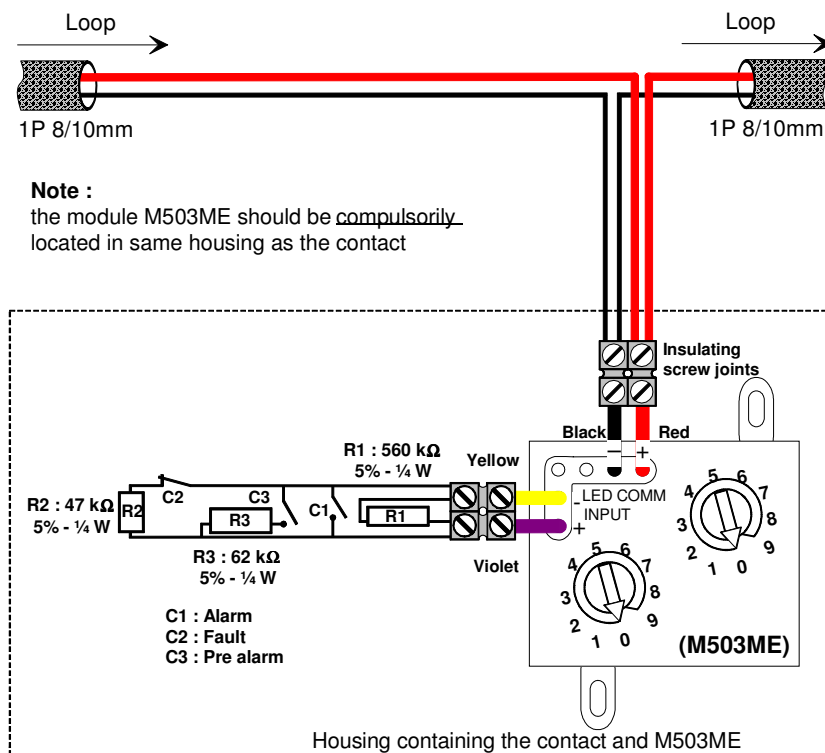


Figure 33 [PC358311]



- The contact C1 is closed in case of alarm
- The contact C2 is open in case of fault
- The contact C3 is closed in case of pre-alarm

M 210 E (single input module) / M 220 E (dual inputs module)

M 210 E / M 220 E configuration 1 (*Chubb Expert : 210NO*)

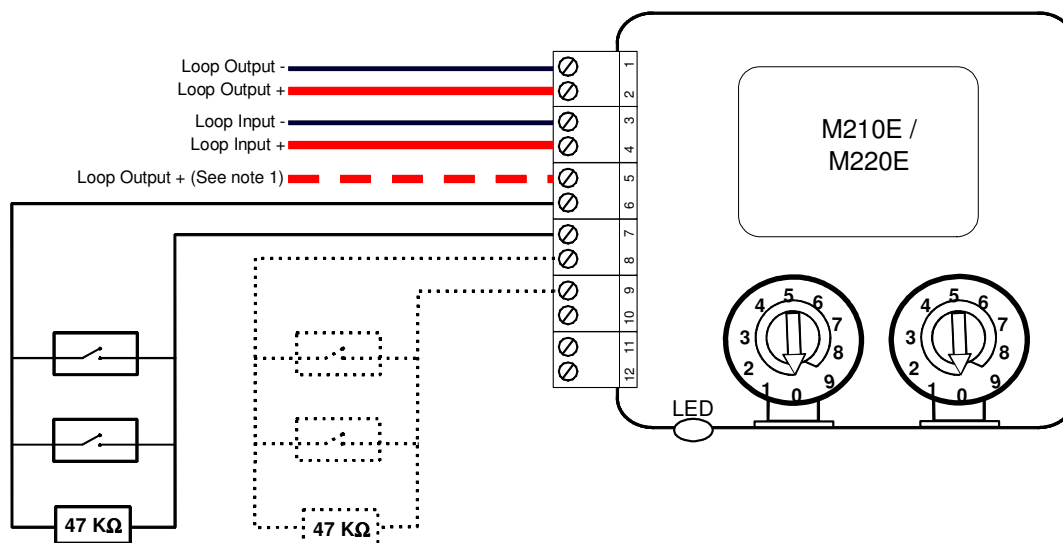


Figure 34 [PC371611]

- If short circuit isolation is not required, then loop output should be wired to terminal5 rather than terminal2.
- The dashed line circuit connected to terminals 8 and 9 should only be used with the M220E. There are no connections to these terminals on the M210E.
- The contact is closed in case of alarm

M 210 E / M 220 E configuration 2 (*Chubb Expert : 210NC*)

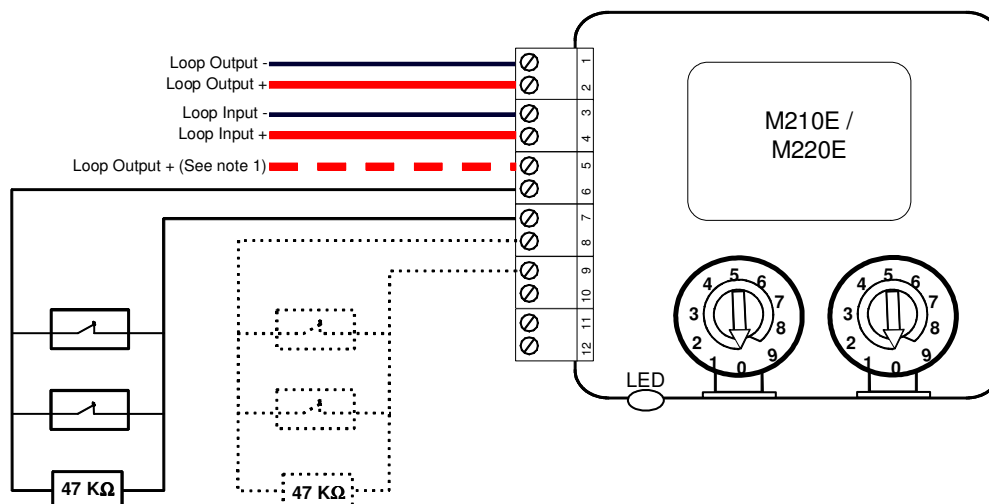


Figure 35 [PC373811]

- If short circuit isolation is not required, then loop output should be wired to terminal5 rather than terminal2.
- The dashed line circuit connected to terminals 8 and 9 should only be used with the M220E. There are no connections to these terminals on the M210E.
- The contact is open in case of alarm

M 210 E / M 220 E configuration 3 (*Chubb Expert : M210E NO + Fault*)

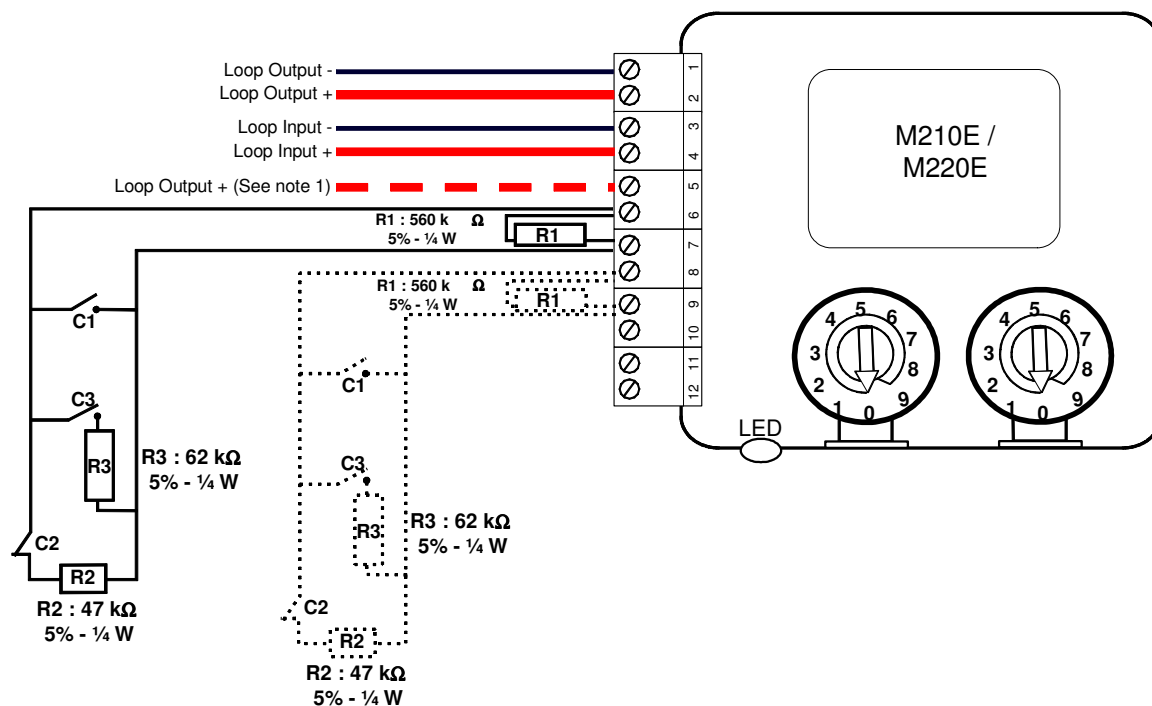


Figure 36 [PC37xx11]

- If short circuit isolation is not required, then loop output should be wired to terminal5 rather than terminal2.
- The dashed line circuit connected to terminals 8 and 9 should only be used with the M220E. There are no connections to these terminals on the M210E.
- The contact C1 is closed in case of alarm
- The contact C2 is open in case of fault
- The contact C3 is closed in case of pre-alarm

Connection of M 201 E output circuits

With supervised output

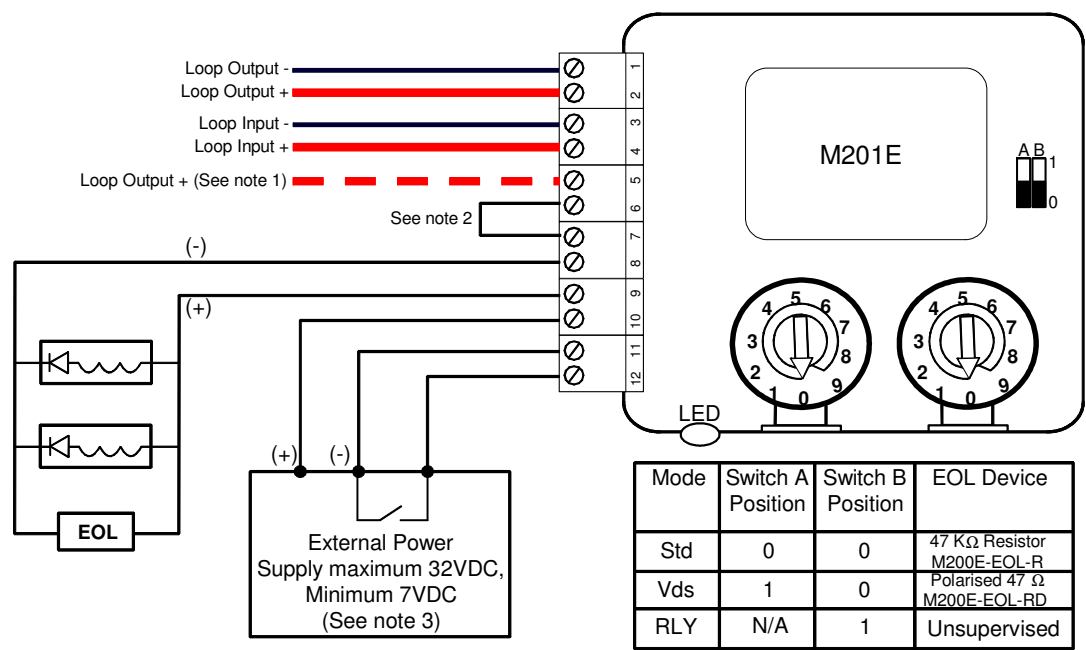


Figure 37 [PC371511]



- If short circuit isolation is not required, then loop output should be wired to terminal 5 rather than terminal 2. Terminal 5 is connected internally direct to terminal 4.
- To enable output circuit supervision, the link supplied must be fitted across terminals 11 and 12.
- In supervised mode, the module monitors the power supply voltage across terminals 6 and 7 to ensure it does not drop below 5, and also monitors for a switched negative fault signal from the power supply. If a fault is seen the yellow LED will blink, and a fault may be indicated at the panel.
- An alternative end of line monitoring option is available for VdS requirements - see table 1.

With unsupervised output

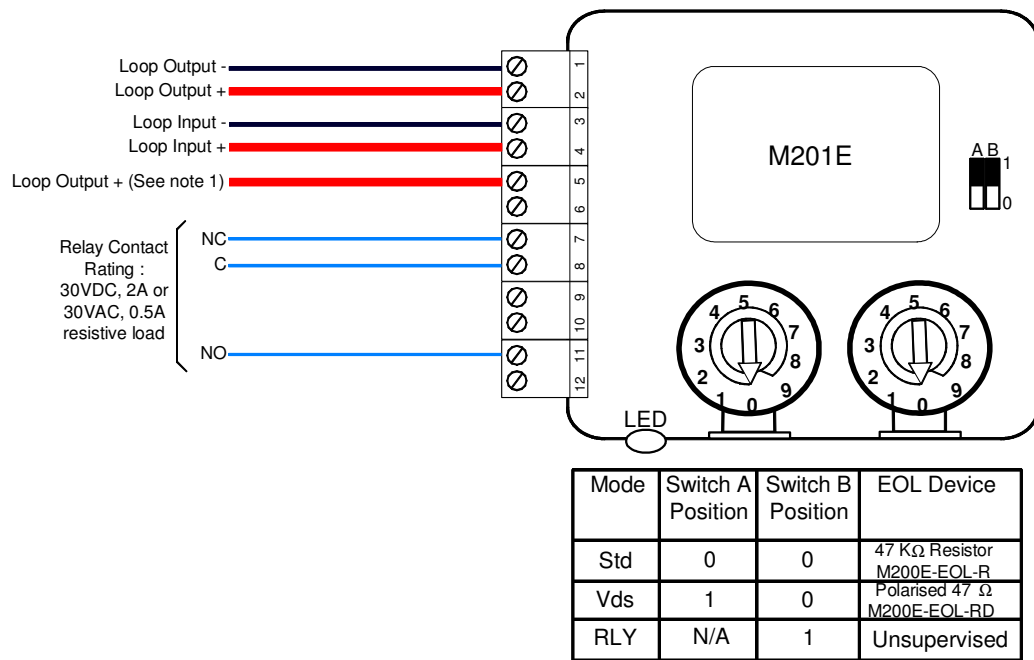


Figure 38 [PC371511]



If short circuit isolation is not required, then loop output should be wired to terminal 5 rather than terminal 2. Terminal 5 is connected internally direct to terminal 4.

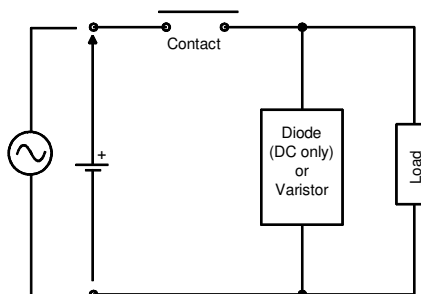


Figure 39 [PC371511]



- When switching inductive loads, in order to protect the module from surges caused by back emf as the load is switched, it is important to protect the relay contacts.
- A diode with a reverse breakdown voltage of at least ten times the circuit voltage (dc applications only), or a varistor (ac or dc applications) should be connected as close as possible to the load

Connection of output circuits M 201 E – 240 / M 201 E – 240 KO / M 240 – DIN

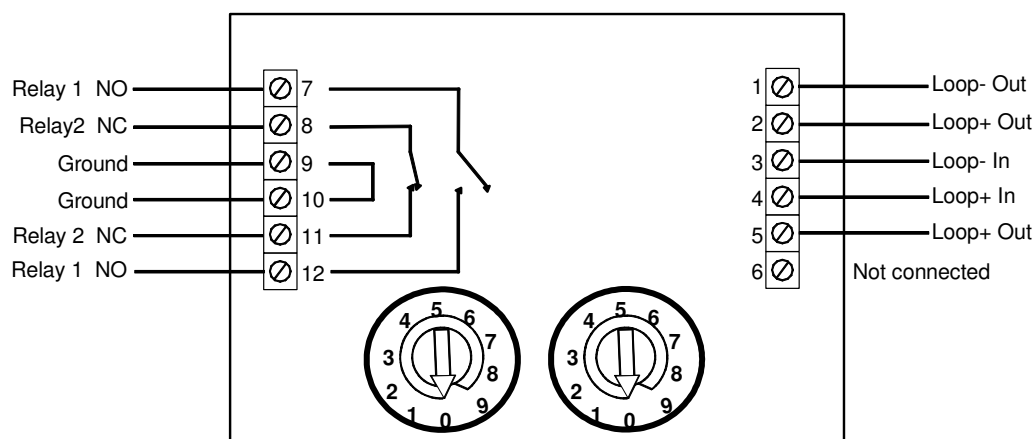


Figure 40 [PC371811]



- If short circuit isolation is not required, then loop output should be wired to terminal 5 rather than terminal 2. Terminal 5 is connected internally direct to terminal 4.
- In order to meet the requirements of European Safety Standards, ensure that all cables carrying voltages in excess of 48V are suitably fused.

Connection of input / output circuit M 221 E

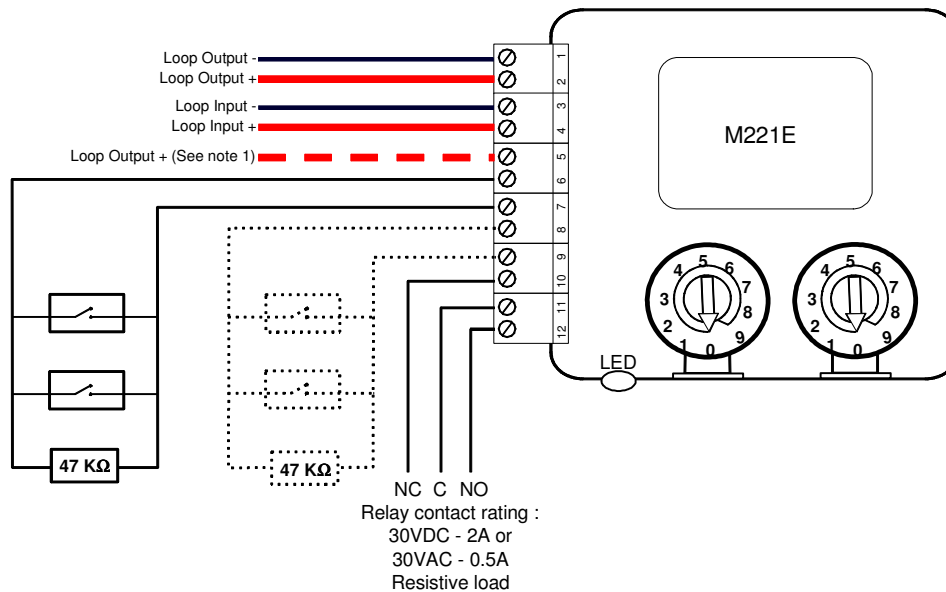


Figure 41 [PC371711]

- If short circuit isolation is not required, then loop output should be wired to terminal 5 rather than terminal 2.
Terminal 5 is connected internally direct to terminal 4.
- Provided the control panel is compatible, short circuit monitoring of the input circuit may be possible. An 18K Ω resistor should be wired in series with each device switch being monitored.

Refer to connection on M 210 E and M220E modules for connection

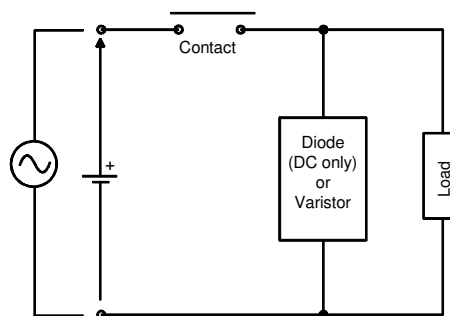


Figure 42 [PC371511]



- When switching inductive loads, in order to protect the module from surges caused by back emf as the load is switched, it is important to protect the relay contacts.
- A diode with a reverse breakdown voltage of at least ten times the circuit voltage (dc applications only), or a varistor (ac or dc applications) should be connected across the load.

CONNECTION OF SOUNDERS AND STROBES

In this chapter, sounder is used for both sounder and strobes

On integrated outputs A and B

Connection FEATURES

- The integrated outputs are fitted on connection board
- Maximum distance between a sounder and the panel, a power module and the panel or a sounder and a power module:
 - 400 meters max. in 2 x 1.5 mm²
 - 650 meters max in 2 x 2.5 mm²
 - 1050 meters max in 2 x 4 mm²
- Loop monitoring:
 - Resistance at the end of the line on each of the two direct outputs: 3.9 K Ohms – 5% - ½W
 - Resistance at the end of the line on each power module:
 - ◆ On the power module / panel : 3.9 K Ohms – 5% - ½W
 - ◆ On the siren / power module : 10 K Ohms – 5% - ½W

Direct connection

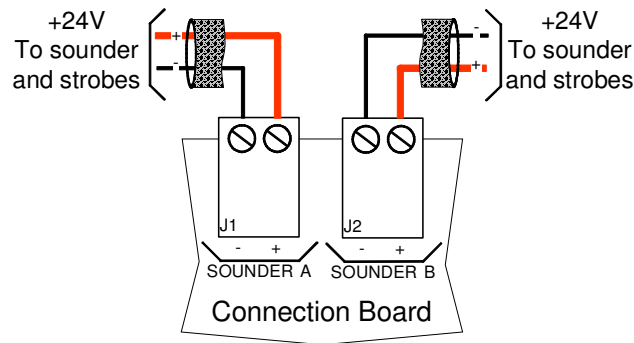


Figure 43 [PC368211]

Multi end of line connection

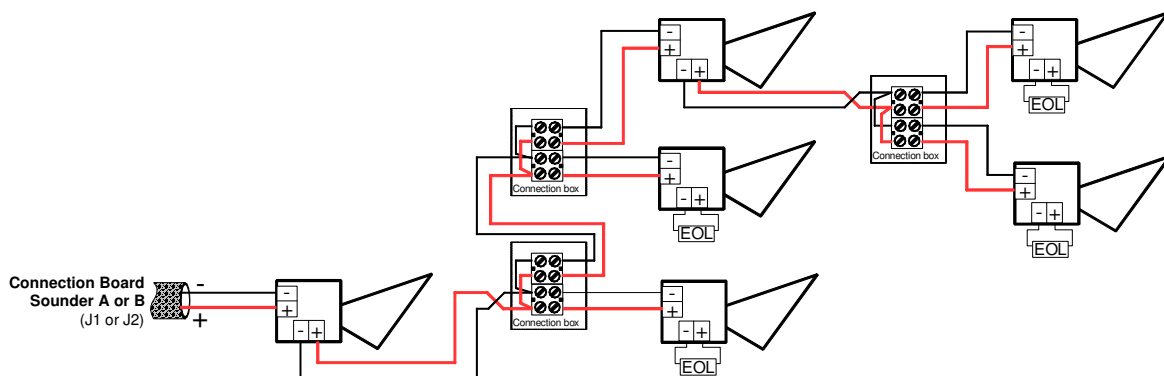


Figure 44 [PC368811]



- 4 End Of Line maximum for both outputs

With power module connection

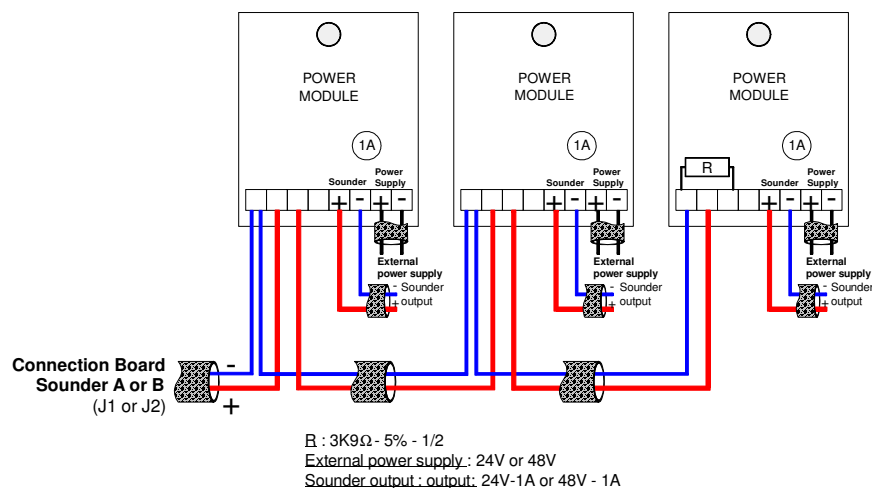


Figure 45 [PC369311]

On addressable loop

Nota: for Apollo Devices, Please refer to their own installation manual. No Autronica loop sounders are supported at this time.

Connection of addressable sounders and strobes (System Sensor)

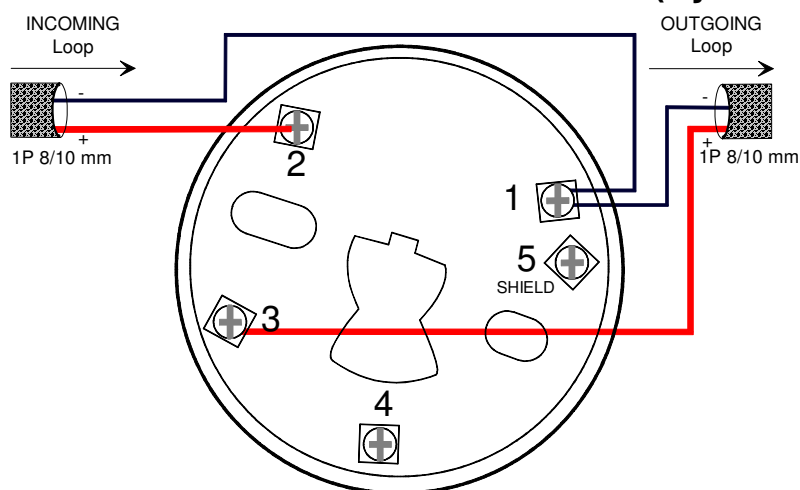


Figure 46 [PC370811]

Connection of conventional sounders and strobe on M 201 E output module (System Sensor)

See chapter "Connection of M201E output circuits"

Connections on 4 / 8 ways sounders module

NOTA: "4 ways sounders module" and "8 ways sounders module" are not included in certification of Controlmaster 1020 and Controlmaster 1000M

Connection features

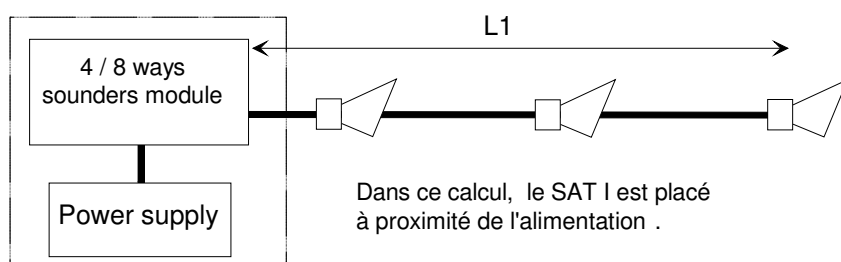


Figure 47 [SE307811]

Total consumption on L1	External power supply (adjusted at 28,9VDC)			External power supply 48V (57,8VDC)		
	1,5 ²	2,5 ²	4 ²	1,5 ²	2,5 ²	4 ²
100mA	1600m	1600m	1600m	1600m	1600m	1600m
200mA	1600m	1600m	1600m	1600m	1600m	1600m
300mA	1340m	1600m	1600m	1600m	1600m	1600m
400mA	1010m	1600m	1600m	1600m	1600m	1600m
500mA	800m	1600m	1600m	1600m	1600m	1600m
600mA	670m	1250m	1600m	1600m	1600m	1600m
700mA	570m	1070m	1600m	1600m	1600m	1600m
800mA	500m	930m	1320m	1600m	1600m	1600m
900mA	440m	830m	1170m	1600m	1600m	1600m

- Total maximum current available on each 4 / 8 ways sounders module: 3 A and 72 W
- Supply voltage (via converter): 26 to 29.2VDC
- Max. current available per output: 900 mA
- Protection of each output per fuse: F 1.25 AT 250V

Connection of power supplies

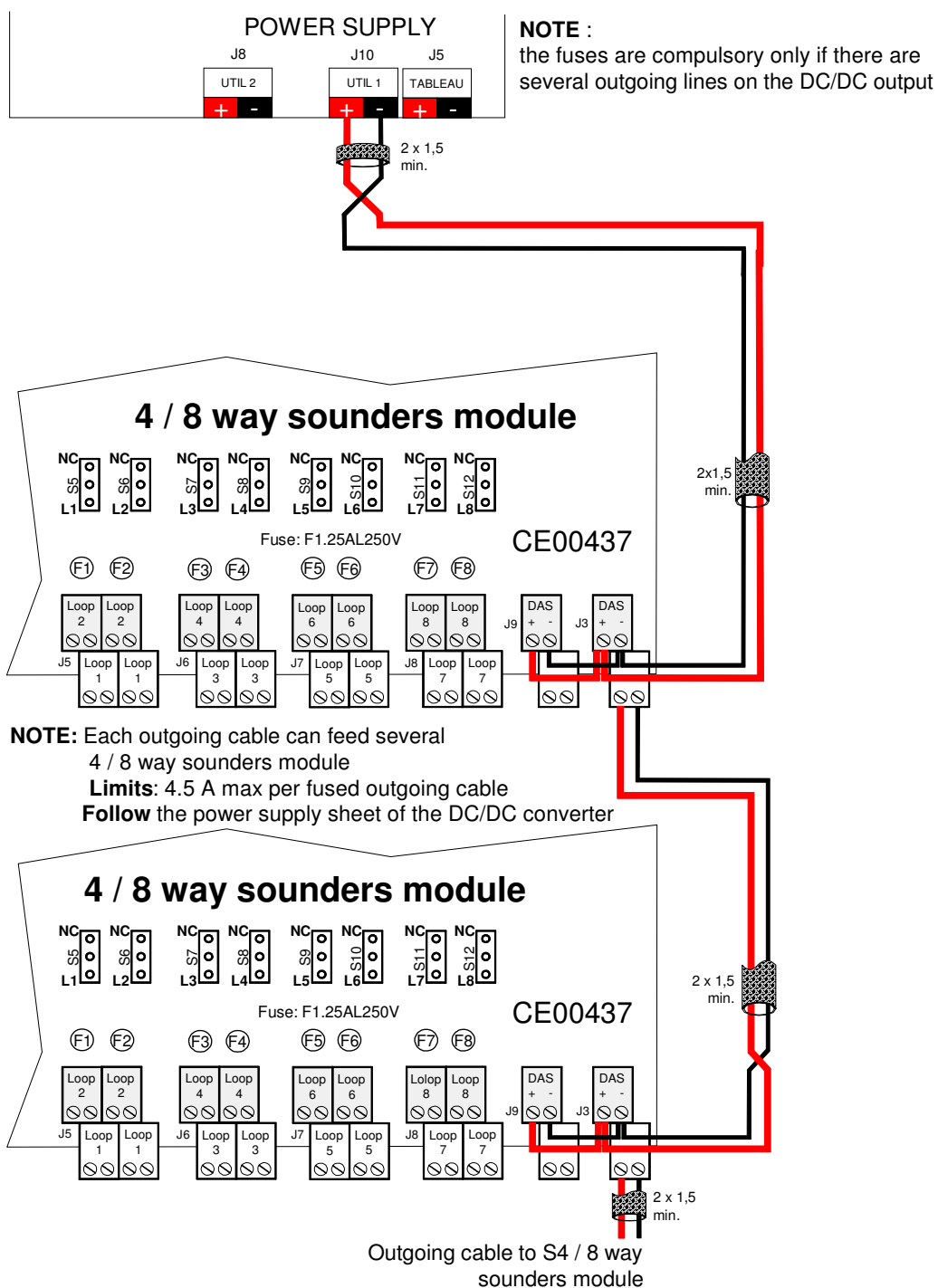


Figure 48 [PC369411]

Connection of sounders

The active end of the line will be placed in the last sounder. If this is not possible, the active end of line module installed in an adapted housing will be placed near the last sounder.

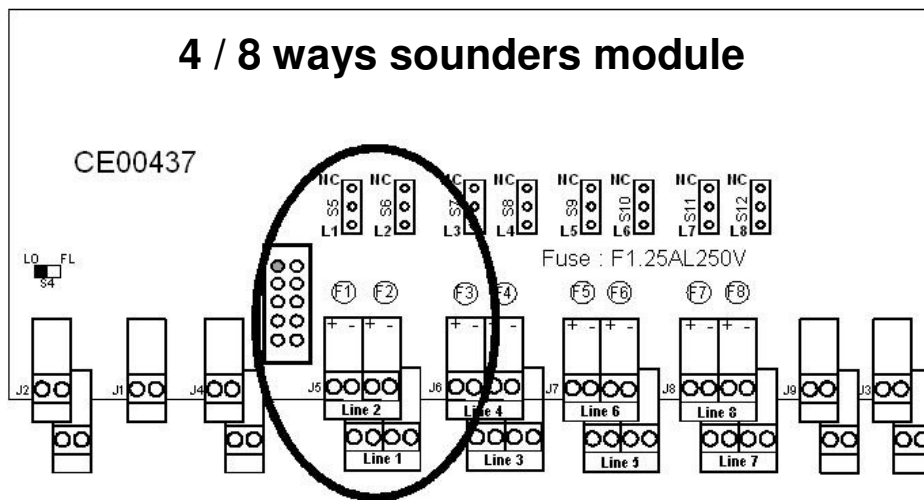
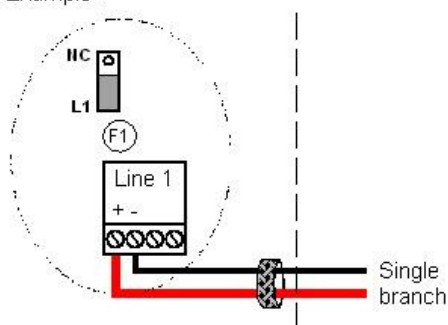


Figure 49 [PC3102911]

Conventional mode (or single branch)

Example :



Spur mode

Example :

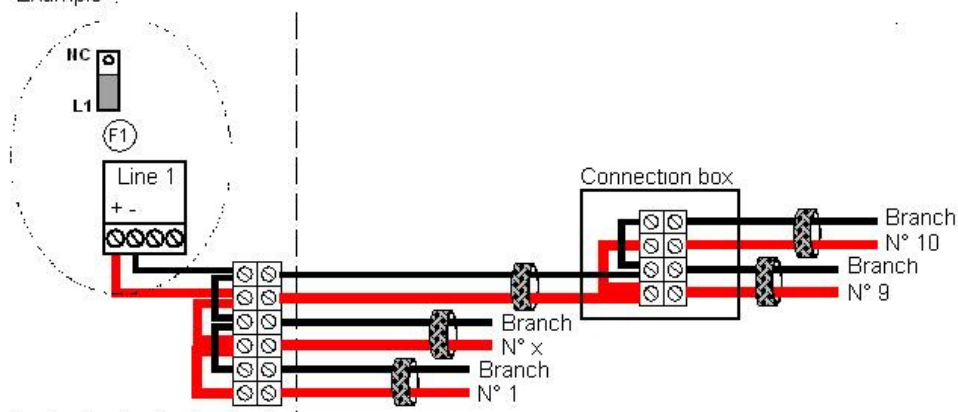


Figure 50 [PC3103011]



The sub-transmission terminal board and its implementation should satisfy the domestic requirements

Active end of line connection – Module MAP

The sounder status can be tested by short-circuiting the TEST jumper. The information is then given by the LED:

- 1 flash = Security position
- 4 flashes = intermediate position
- 3 flashes = waiting position
- 2 flashes = wiring issue

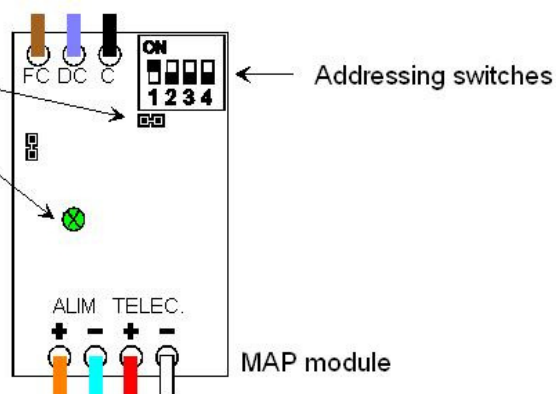


Figure 51[PC3102811]

Addressing of the active end of line

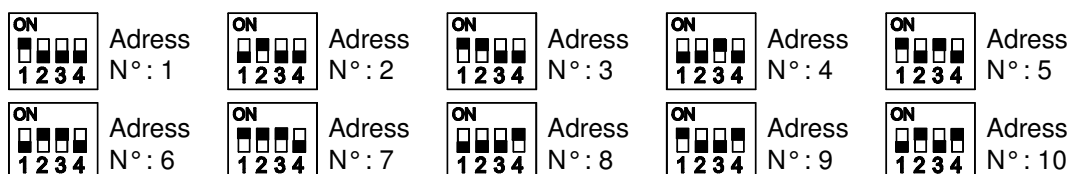
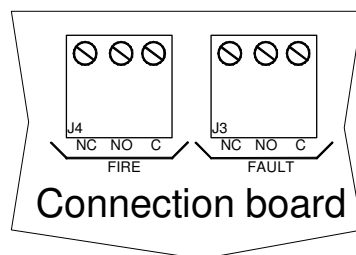


Figure 52 [PC369611]

CONNECTION OF NON POLARISED CONTACT

General fire and fault relays



General fire relay
(J4 connector) :
Non polarised contact output
NC - NO - COM

General fault relay
(J3 connector) :
Non polarised contact output
NC - NO - COM

Figure 53 [PC367911]

Connection of non polarised contact outputs on 8 / 16 ways relay modules

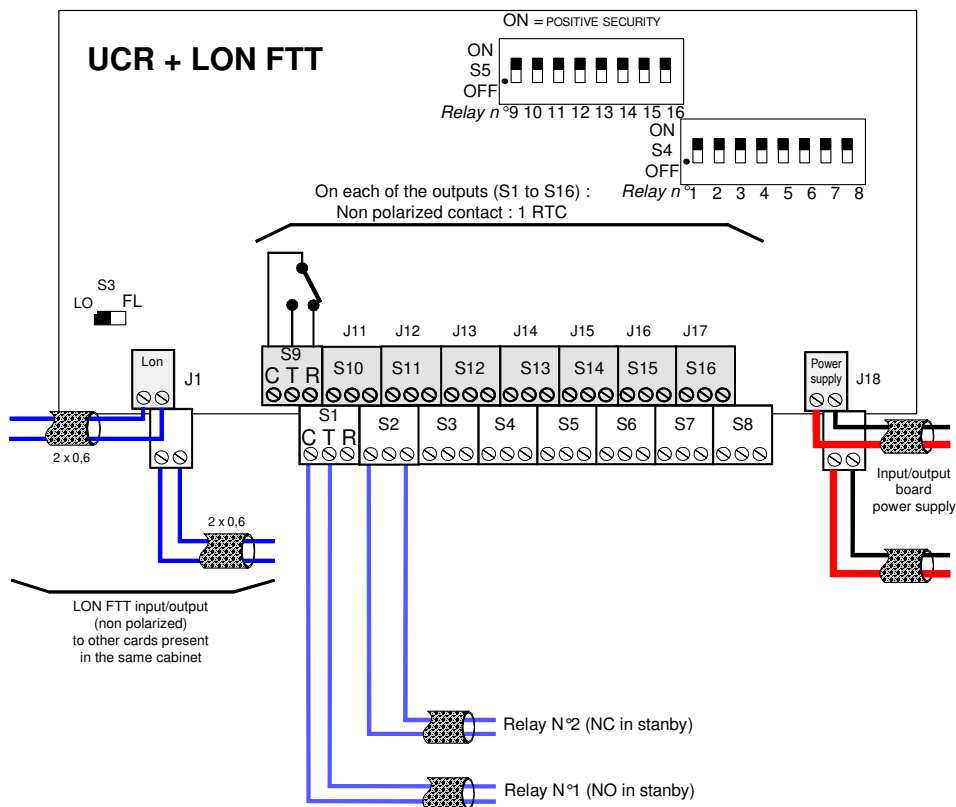


Figure 54 [PC370111]



Each relay is of the 1 NO-NC / 2A /48V type.

CONNECTION OF REPEATERS

Connection of RS repeaters

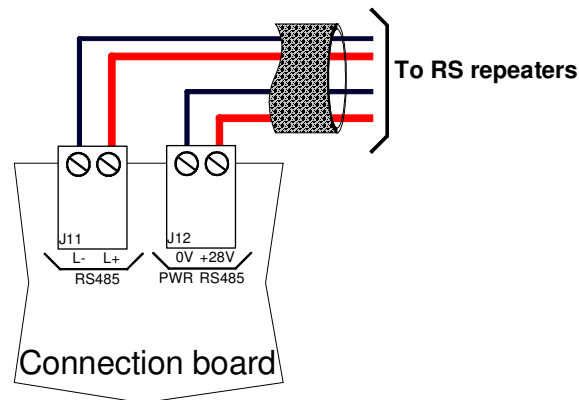


Figure 55 [PC368011]



For all connection features, refer to the documentation on RS repeaters

Connection of Lon repeaters

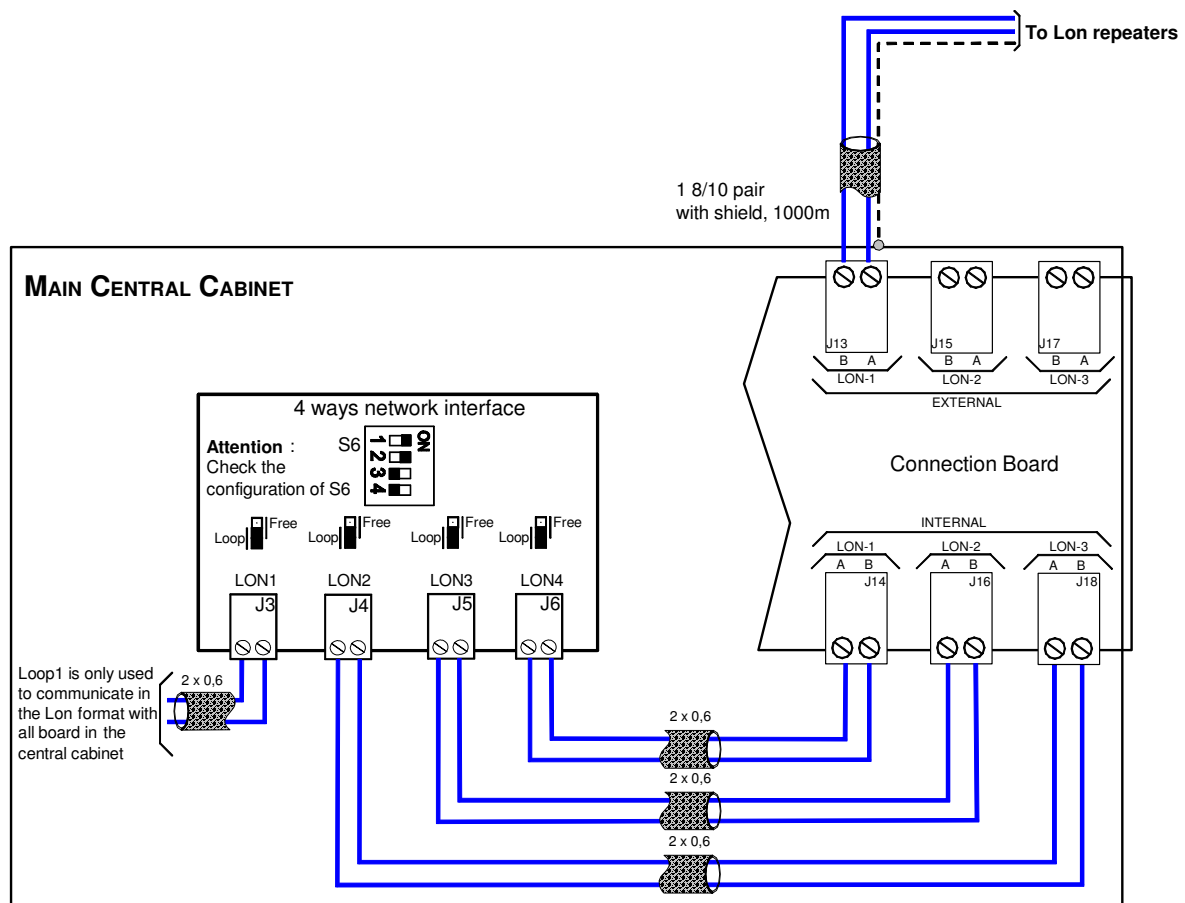


Figure 56 [PC368911]



For all connection features, refer to the note on repeaters.

USER DOCUMENTATION

Panel

Optional functions with requirements of EN54-2

7.8 Output to fire alarm devices

7.11 delay to actioning of outputs to fire alarm devices and fire alarm routine equipments

8.3 Fault signals from points

9.5 Disabling of each addressable points

10 Test condition

Technical specifications

- Panel is to be powered either by 40W Power Master or 100W Powermaster power supply

- General data

Maximum number of zones per detection circuit: 127

Maximum number of point per detection circuit: 256

Maximum number of addressable point per detection circuit: 127

Controlmaster general characteristics	Control master 1000 M		Control master 1020		Controlmaster 1010
	Controlmaster 1000 M S	Controlmaster 1000 M M	Controlmaster 1020 S	Controlmaster 1020 M	Controlmaster 1010
Detection zones	240	240	64	64	32
Evacuation zones	65	65	33	33	9
4/8 ways sounders boards	64	64	32	32	8
Control and indicating module for alarm	16	16	8	8	2
Fire protection zones	64	64	32	32	16
Control and indicating module for fire protection	4	4	2	2	1
Detection devices (for all functions)	1024	1024	256	256	128
Mimic relays	512	512	256	256	128
Remote panel	64	64	32	32	8
RS repeaters	16	16	16	16	16
Lon repeaters	120	120	64	64	16
Cabinet	1000 cabinet S	1000 cabinet M	1000 cabinet S	1000 cabinet M	1000 cabinet S

- Loop protocol
System Sensor specific for Chubb, sequentially polled addresses
- General inputs / outputs
General fire relay: 1 NO/NC/C, 2A, 48V
General fault relay: 1 NO/NC/C, 2A, 48V (normally energised)
- RS Repeaters output
RS485: for up to 16 RS repeaters
Power output: for up to 4 repeaters (if more an external power supply is needed)
- Printer output :
9600 Bauds, 8 bits without parity
- Addressable bus
1 loop System Sensor (Controlmaster 1010) or 2 loops System Sensor (Controlmaster 1020 and 1000M) are always integrated in the panel equipment.

Depending on model, it is possible to have up to a total of 30 additional 2 loops System Sensor modules and/or 2 loops Apollo modules and/or Autronica Spectral modules in the Controlmaster 1000M.

Electrical characteristics
Voltage range: 27,6 +/- 0,3 V without load,
Permanent maximum current: 570 +/- 30 mA
Maximum available current: 700 +/- 40 mA

■ Inputs

System Sensor	Apollo	Autronica
<p>M 210-CZ: input for conventional zone</p> <p>Voltage range: between 24V and 29V</p> <p>Optional external power supply voltage range: between 18V and 30V</p> <p>Standby current: < 3 mA with detectors</p> <p>Me 503: addressable module having one input for monitoring of contacts</p> <p>Voltage range: between 24V and 29V</p> <p>Standby current: < 0,55 mA</p> <p>M 210 E: addressable module having one input for monitoring of contacts</p> <p>Voltage range: between 24V and 30V</p> <p>Standby current: < 0,55 mA</p> <p>M220 E: equivalent to M 210 E but with two equivalent inputs</p> <p>M 221E: addressable module having two inputs (as M 220 E) and one relay output</p> <p>Voltage range: between 24V and 30V</p>	<p>XP95 Switch Monitor without isolator: 1 input</p> <p>Voltage range : between 17V and 28V</p> <p>Max consumption : 5.6mA</p> <p>XP95 Switch Monitor with isolator: 1 input</p> <p>Voltage range : between 17V and 28V</p> <p>Max consumption : 3.6mA</p> <p>XP95 Mini Switch Monitor without isolator: 1 input + 1 LED output</p> <p>Voltage range : between 17V and 28V</p> <p>Max consumption : 3.5mA</p> <p>XP95 Mini Switch Monitor Interrupt without isolator: 1 Input + 1 LED output</p> <p>Voltage range : between 17V and 28V</p> <p>Max consumption : 4mA</p> <p>XP95 Switch Monitor Plus without isolator: 1 input + 1 opto output</p> <p>Voltage range : between 17V and 28V</p> <p>Max consumption : 6mA</p>	<p>No modules are supported at this time</p>

Standby current: < 0,7 mA Relay characteristics: 1 NO/NC/C, 2A, 30VDC	XP95 Switch Monitor Plus with isolator: 1 input + 1 opto output Voltage range : between 17V and 28V Max consumption : 4.2mA	
	XP95 Zone Monitor without isolator: 1 input for conventional zone detectors Voltage range : between 17V and 28V Max consumption : 19mA	
	XP95 Zone Monitor with isolator: 1 input for conventional zone detectors Voltage range : between 17V and 28V Max consumption : 5.6mA	
	XP95 Input Output Unit without isolator: 1 Input + 1 Voltage Mon Input + 1 Relay Output Voltage range : between 17V and 28V Max consumption : 4.5mA	
	XP95 Input Output Unit with Isolator : 1 Input + 1 Voltage Mon Input + 2 Relay Outputs Voltage range : between 17V and 28V Max consumption : 3.5mA	
	XP95 Mains Switching Input Output Unit : 1 Input (NO) + 1 Relay Output (240V) Voltage range : between 17V and 28V Max consumption : 3.5mA	

■ Sounders circuits for conventional sounders

Two main sounders circuits are always integrated on the panel. For the two sounders circuits:

Voltage range: between 26V and 29V

Maximum current: < 1 A

Up to 16 "4 ways sounders module" (4 sounders circuits monitored) and / or "8 ways sounders circuit" (8 sounders circuits monitored) are connected on the Lon bus.

Voltage range (external power supply): between 26V and 29V

0,9 A maximum for each sounders circuit output of the module, and 3A maximum for all the sounders circuits outputs of the module.

Conventional sounders may be connected on addressable module

System Sensor	Apollo	Autronica
Up to 99 M 201E module could be connected on an addressable bus.	XP95 Sounder Control Unit : addressable module, 1 Sounder	No modules are supported at this time

<p>In supervised mode of operation, each M 201E allows connection of one sounder circuit:</p> <p>Voltage range: between 24V and 29V</p> <p>1,5 A maximum for the monitored output.</p> <p>external power supply: between 16V and 32 V</p>	<p>Output, External Pwr Supply Input, 1 Fault Input</p> <p>Voltage range: between 17V and 28V</p> <p>Consumption on loop : 4.5mA maximum</p> <p>9-50V local power supply input for load (9-32V for model with isolator)</p> <p>Consumption on local power : 47mA maximum for unit, 1 A maximum for load</p> <p>XP95 Sounder Control Unit with Isolator : addressable module, 1 Sounder Output, External Pwr Supply Input, 1 Fault Input</p> <p>Voltage range: between 17V and 28V</p> <p>Consumption on loop : 4.5mA maximum</p> <p>9-50V local power supply input for load (9-32V for model with isolator)</p> <p>Consumption on local power : 47mA maximum for unit, 1 A maximum for load</p>	

■ Addressable sounders

addressable sounders / strobes may be connected directly on the addressable loop (0,5 A maximum for all addresses on a loop),

■ Ancillary outputs

8 ways relay module (connected on the Lon bus): activation of 8 independent relays

External power supply: between 20V and 56V

Standby current: < 12 mA (15mA for each activated relay)

Relay characteristics: 1NO/NC/C, 1A / 48VDC

16 ways relay module (connected on the Lon bus): activation of 16 independent relays

External power supply: between 20V and 56V

Standby current: < 34 mA (15mA for each activated relay)

Relay characteristics: 1NO/NC/C, 1A / 48VDC

Outputs are available on the addressable module

System Sensor	Apollo	Autronica
<p>M 221E: addressable module having two inputs and one relay output</p> <p>Voltage range: between 24V and 30V</p> <p>Standby current: < 0,7 mA</p> <p>Relay characteristics: 1</p>	<p>XP95 Output Unit without isolator: addressable module, 1 Relay Output</p> <p>Voltage range: between 17V and 28V</p> <p>Max current consumption : 3 mA</p> <p>Relay : One NC/COM/NO</p>	<p>No modules are supported at this time</p>

<p>NO/NC/C, 2A, 30VDC</p> <p>M 201E: addressable relay or monitored output for sounders or any protection device (connectable on detection circuit)</p> <p>Voltage range: between 24V and 29V</p> <p>1,5 A maximum for the monitored output.</p> <p>external power supply: between 16V and 32 V</p> <p>Relay characteristics: 1 NO/NC/C, 2A / 30VDC</p> <p>M 201E-240: addressable relay for sounders or any protection device (connectable on detection circuit)</p> <p>Voltage range: between 24V and 30V</p> <p>Standby current: < 0,5 mA</p> <p>Relay characteristics: 1 NO/NC/C, 5A / 250VDC</p> <p>M 201E-240-KO: addressable relay for sounders or any protection device (connectable on detection circuit)</p> <p>Voltage range: between 24V and 30V</p> <p>Standby current: < 0,5 mA</p> <p>Relay characteristics: 1 NO/NC/C, 5A / 250VDC</p> <p>M 201E-240-DIN: addressable relay for sounders or any protection device (connectable on detection circuit)</p> <p>Voltage range: between 24V and 30V</p> <p>Standby current: < 0,5 mA</p> <p>Relay characteristics: 1 NO/NC/C, 5A / 250VDC</p>	<p>1A@30VAC or DC</p> <p>XP95 Output Unit with Isolator : addressable module, 2 Relay Outputs</p> <p>Voltage range: between 17V and 28V</p> <p>Max current consumption : 3 mA</p> <p>Relay : Two NC/COM/NO 1A@30VAC or DC</p> <p>XP95 Switch Monitor Plus with isolator : addressable module, 1 input + 1 optocoupled output</p> <p>Voltage range: between 17V and 28V</p> <p>Max current: 4.2 mA</p> <p>XP95 Input/Output Unit without isolator: addressable module, 1 Input + 1 Voltage Mon Input + 1 Relay Output</p> <p>Voltage range: between 17V and 28V</p> <p>Max current: 4.5 mA</p> <p>Optional monitoring of an external voltage</p> <p>XP95 Input/Output Unit with Isolator : addressable module, 1 Input + 1 Voltage Mon Input + 2 Relay Outputs</p> <p>Voltage range: between 17V and 28V</p> <p>Max current: 3.5 mA</p> <p>Optional monitoring of an external voltage</p> <p>XP95 Mains Switching Input Output Unit : addressable module, 1 Input (NO) + 1 Relay Output (240V)</p> <p>Voltage range: between 17V and 28V</p> <p>Max current consumption : 3.5 mA</p> <p>One NC/COM/NO Relay, 5A@250VAC, 2A@48VDC</p> <p>XP95 Sounder Control Unit : addressable module, 1 Sounder Output, External Pwr Supply Input, 1 Fault Input</p> <p>Voltage range: between 17V and 28V</p> <p>Consumption on loop : 4.5mA maximum</p> <p>9-50V local power supply input for load (9-32V for model with isolator)</p> <p>Consumption on local power : 47mA maximum for unit, 1 A</p>	
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	<p>maximum for load</p> <p>XP95 Sounder Control Unit with Isolator : addressable module, 1 Sounder Output, External Pwr Supply Input, 1 Fault Input</p> <p>Voltage range: between 17V and 28V</p> <p>Consumption on loop : 4.5mA maximum</p> <p>9-50V local power supply input for load (9-32V for model with isolator)</p> <p>Consumption on local power : 47mA maximum for unit, 1 A maximum for load</p>	

- Recommended cable parameter for all transmission path
Standard: Firetuf (Draka), firesure (Doncaster), FP 200 (Pirelli) or equivalent
Enhanced: FP plus (Pirelli), Mineral Insulated Cable (Wrexham) or equivalent
- Fuse rating
See power supply

Installation information

- Controlmaster panel are applicable on indoor application only.
If more than 32 detectors / and / or manual call points are configured in a detection circuit, it is mandatory to use isolator in order to ensure that any short circuit or interruption in this detection circuit prevent the indication of a fire alarm for more than 32 detectors / and / or manual call points. The following isolator can be used:

System Sensor	Apollo	Autronica
<p>Isolator base</p> <p>ISO524-1 (isolator with flying leads)</p> <p>M 200 XE</p> <p>Up to 62 isolators can be used on an addressable loop</p>	<p>Dual isolator</p> <p>XP 95 isolator base</p> <p>XP 95 20D isolator base</p>	<p>There is no need to add any isolator on the Autronica bus. All devices on the loop have built-in isolators</p>

Power supply

Available voltage

- Power master 40W: between 21,6V and 29V
- Power master 100: between 21,6V and 29V

Fuse rating

- Powermaster 40W
Mains fuse: 5x20, 2A slow (T2 HPC 250)

Cie output: 5x20, 2A fast (F2L 250V)

Batteries: 5x20, 2A fast (F2L 250V)

■ Powermaster 100W

Mains fuse: 5x20, 3,15A slow (T3,15 HPC 250)

Cie output: 5x20, 6,3A fast (F6,3L 250V)

Batteries: 5x20, 5A fast (F6,3L 250V)

Batteries

■ 40W power master

12V/4Ah (Yucel Y 4-12 FR)

12V/7Ah (Yucel Y 7-12 FR)

■ 100W power master

12V/7Ah (Yucel Y 7-12 FR)

12V/12Ah (Yucel Y 12-12 FR)

12V/17Ah (Yucel Y 17-12 IFR)

12V/24Ah (Yucel Y 24-12 IFR)

Maximum available current when main power source is disconnected

■ Power master 40W: 1,4 A

■ Power master 100: 3,5 A

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