INTERCONNECTION MODULES

MXJBOX

GENERAL INFORMATION

The MXJBOX modules are accessory devices designed to make the wiring of VISION MXL light curtains fast and safe, and to provide the main controls necessary for their operation close to the protected gate.

In addition to the guided contacts safety relays piloted and monitored by the light curtain, terminal boards for connecting the cables, jumpers and dip-switch for the configuration of the light curtain itself are also present inside.

DESCRIPTION

Externally both models have:

1. Connectors for connecting with the light curtain *(M23 for RX and M12 for TX)*.
2. Fairlead for passage of cables towards the machine for:
   - power supply;
   - connection with output contacts of the internal safety relays and static outputs of the light curtain;
   - Muting enable signals from the outside;
3. Restart button and output status / weak signal led.
4. Key selector switch for *Override* function.
5. Lamp to signal *Muting/Override* active.

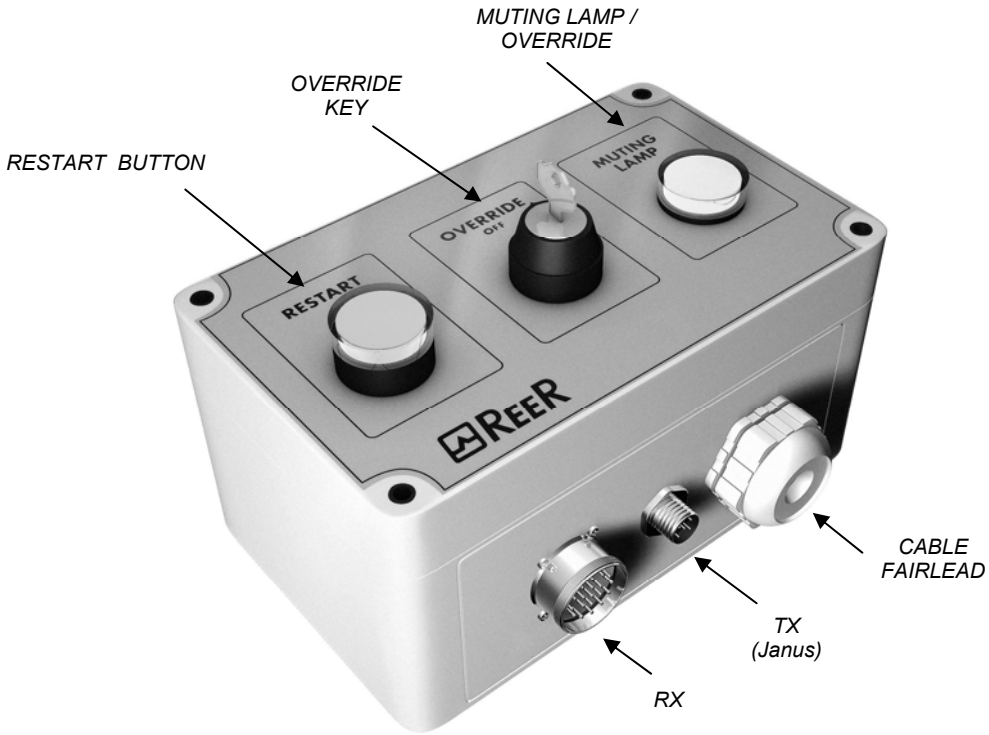


Figure 1 - MXJB1/MXJB3

➔ Where the risk analysis of the application requires it, the light curtain permits connection of an external lamp to signal active Muting (0.5÷5W). Perform a check of the operation of this lamp periodically verifying its turning on during the Muting or Override phase.

CONFIGURATION

With the aid of the figures of the main board of the single models, the configuration of the methods of the operating modes is described below.

This configuration is performed, following the descriptions of the following tables, setting the various jumpers, connectors and dip-switches present on the same card.

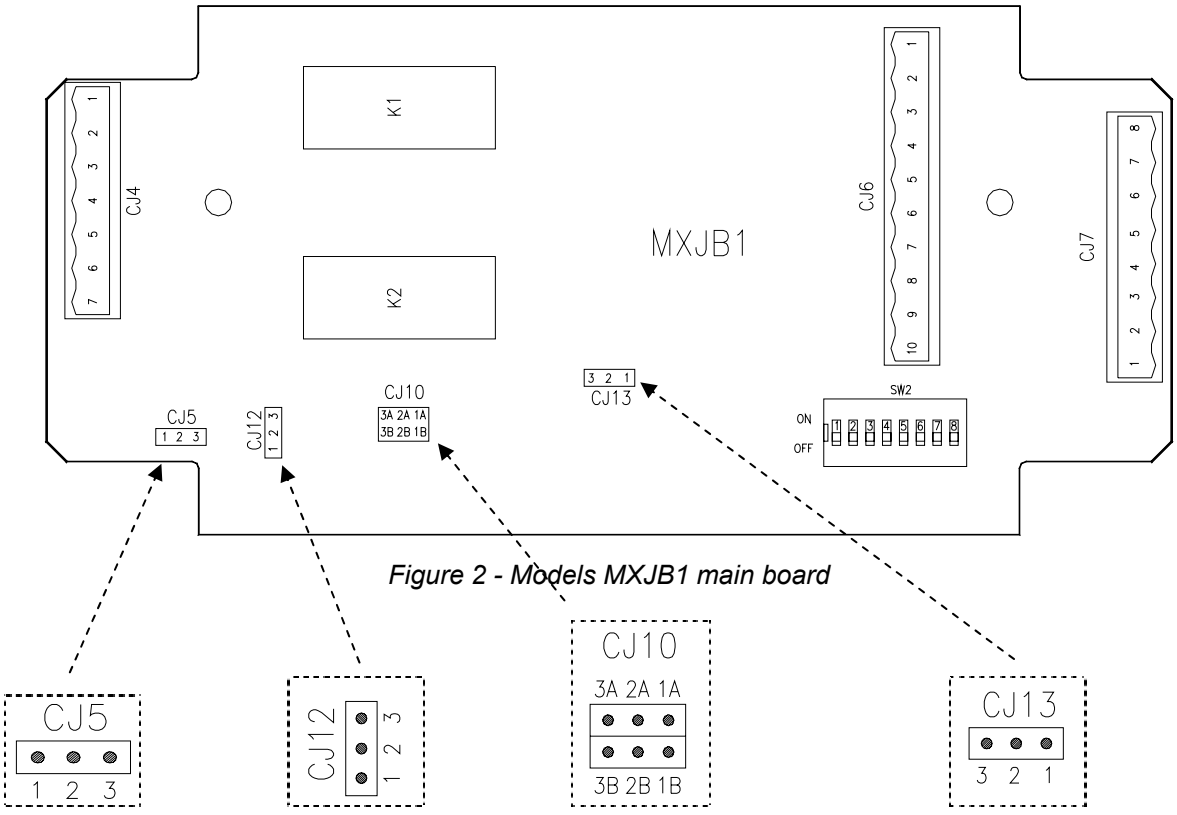


Figure 2 - Models MXJB1 main board

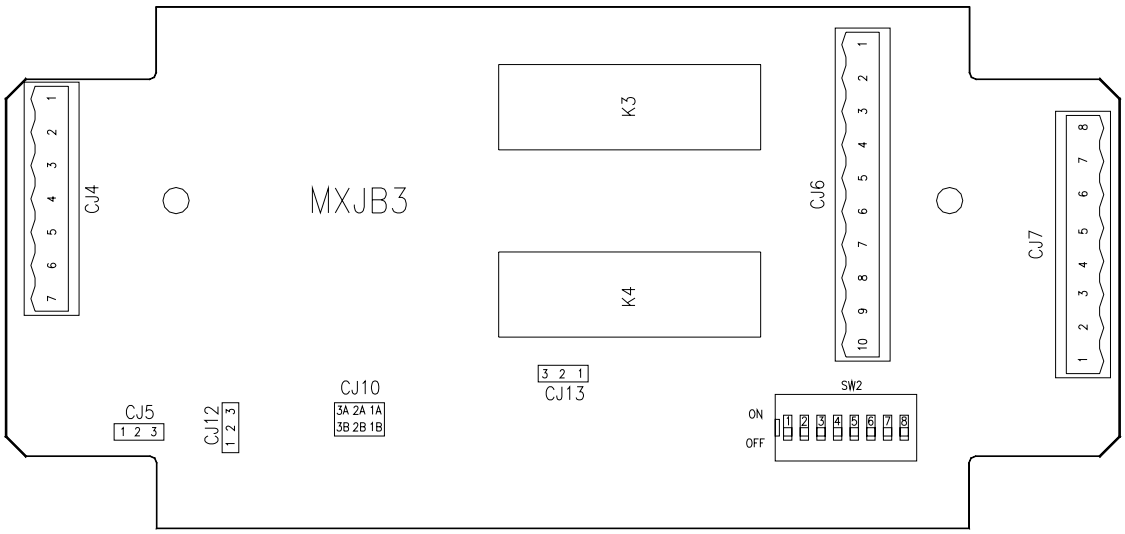


Figure 3 - Models MXJB3 main board

SELECTION OF MUTING TIMEOUT AND OVERRIDE MODE (dip-switch SW2)

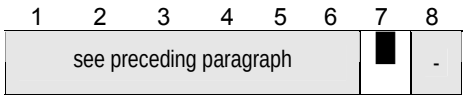
SELECTION PRESET		1 2 3 4 5 6 7 8	
	on	see paragraphs below	*timeout = 30 s OVERRIDE with continuous action*
	off		
	on	see paragraphs below	*timeout = 30 s OVERRIDE with pulse*
	off		
	on	see paragraphs below	*timeout = ∞ OVERRIDE with continuous action*
	off		
	on	see paragraphs below	*timeout = ∞ OVERRIDE with pulse*
	off		
	on	see paragraphs below	*timeout = 90 min OVERRIDE with continuous action*
	off		
	on	see paragraphs below	*timeout = 90 min OVERRIDE with pulse*
	off		

If a time out limit of 90min is a too short time for a particular machine cycle, the configuration without time monitoring (t=∞) can be selected. In this case alternative solutions or additional measures shall be implemented to detected the condition of a muting function permanently active caused by accumulation of faults or by the muting sensors activated all the time. For example for the application of guarding the openings of a conveyor system (palletizers) by monitoring appropriate signals generated by the transport system to determinate if and when a pallet is in the detection zone.

Perform a specific risk analysis of the application if the timeout t = ∞ is selected.

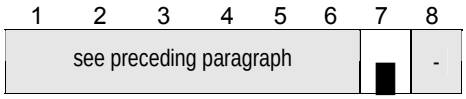
SELECTION MUTING ENABLE (dip-switch SW2)

SELECTION PRESET



on
off

MUTING function permanently active



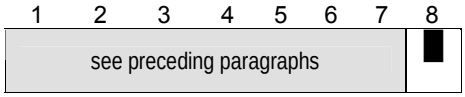
on
off

MUTING function active with signal coming from CJ7-8

IF THE EXTERNAL MUTING ENABLE SIGNAL IS USED THE DIP 7 MUST BE IN OFF POSITION

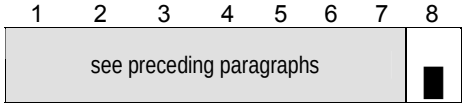
SELECTION MODE OF EMITTER TEST (dip-switch SW2)

SELECTION PRESET



on
off

Normal functioning (emitter active)



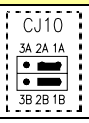
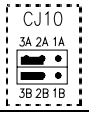
on
off

TEST function active with TEST signal coming from CJ7-1

SELECTION OF INTERNAL /EXTERNAL MUTING LAMP

JUMPER	PIN	DESCRIPTION	*SELECTION PRESET*
	**1 – 2**	**External** lamp enabled	***Internal lamp enabled***
	**2 – 3**	**Internal** lamp enabled	

SELECTION STATIC OUTPUTS/RELAYS

JUMPER	PIN	DESCRIPTION	*SELECTION PRESET*
	**1A – 2A 1B – 2B**	Static outputs	***Relay***
	**2A – 3A 2B – 3B**	Relay	

READ FEEDBACK ENABLE

JUMPER	PIN	DESCRIPTION	*SELECTION PRESET*
	**1 – 2**	Read feedback not enabled	***Read feedback enabled***
	**2 –3**	Read feedback enabled	

SELECTION FEEDBACK INTERNAL/EXTERNAL RELAYS

JUMPER	PIN	DESCRIPTION	*SELECTION PRESET*
	**1 – 2**	Feedback **external** relays	***Feedback internal relays***
	**2 – 3**	Feedback **internal** relays	

INSTALLATION AND ELECTRIC CONNECTIONS

- The MXJBOX modules can be fixed to the wall, using the proper plastic brackets inserted in the holes placed on the box rear side corners. These brackets can easily rotate to reach 90°.
- The light curtain must be connected (using the cables) to the respective connectors M23 and M12 (Fig. 1 and 2).
- The cables coming out from the fairlead (PG21) must be connected - depending on its utilization - to the connectors CJ6 e CJ7.

Terminal board CJ6		
CLAMP	**NAME**	**DESCRIPTION**
1	**+24Vdc**	24 ± 20%
2	**0V**	0 Vdc
3	**PE**	Earth clamp
4	**-**	-
5	**NA2_B**	Ends of the contact normally open n. 2
6	**NA2_A**	
7	**NA1_B**	Ends of the contact normally open n. 1
8	**NA1_A**	
9	**NCB**	Ends of contacts normally closed, in parallel **(present only in models MXJB3)**
10	**NCA**	

Terminal board CJ7		
CLAMP	**NAME**	**DESCRIPTION**
1	**TEST**	Possible external TEST command
2	**EXT LAMP**	Output of External MUTING lamp (24V; max 5W)
3	**OSSD1**	Safety static output 1
4	**OSSD2**	Safety static output 2
5	**K1_K2**	Input Feedback external relays K1/K2
6	**SENS1**	Muting sensor n.1
7	**SENS2**	Muting sensor n.2
8	**MUTING_ENABLE**	Input of Muting enable

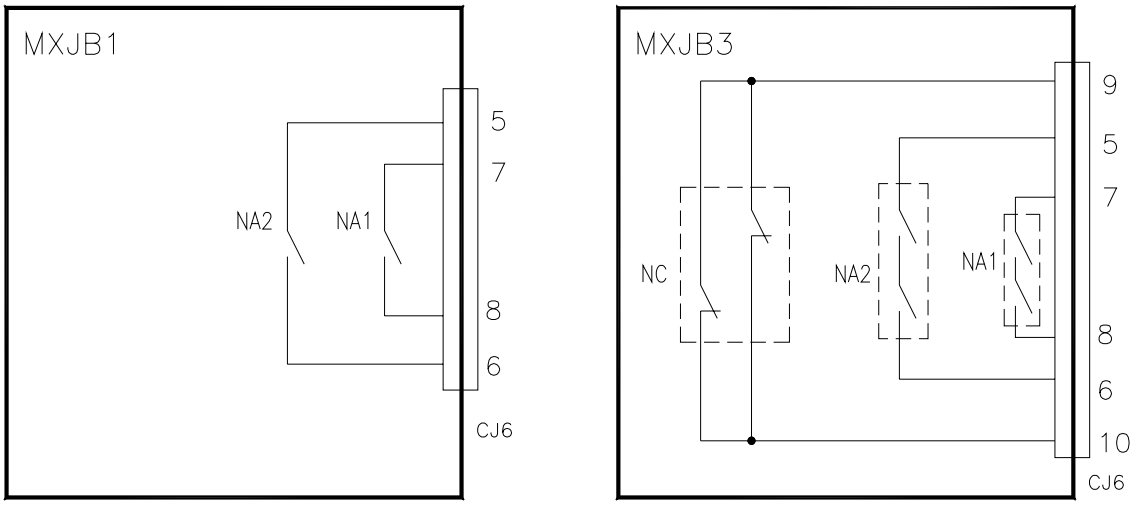


Figure 4 - Internal scheme of contacts available on safety relays of MXJB1and MXJB3

SIGNALS

SIGNAL	MXJB1/MXJB3	
	CONDITION	MEANING
MUTING OVERRIDE	*ON*	*Muting function (or Override) active*
(Yellow)	*OFF*	*Normal functioning*

CHARACTERISTICS OF OUTPUT RELAYS

The modules use two guided contacts safety relays *(pin 5-6 and 7-8 of CJ6 on **MXJB1**)*, *(pin 5-6, 7-8 and 9-10 of CJ6 on **MXJB3**)*, for the output circuit.

These relays are specified by the manufacturer for voltages and currents greater than what is indicated in the technical data; nevertheless to guarantee correct insulation and avoid damage or premature aging, protect each output line with a **3.15 A delayed fuse** and verify that the features of the load conform to the indications on the following table.

	MXJB1	MXJB3	
Relay category (according to EN60947-5-1)	AC15 / DC13	AC15 / DC13	
Number of contacts	2 N.A.	2N.A. - 1N.C.	
Max commutable voltage	250Vac	250Vac, 30Vdc	
Min commutable voltage	10Vac/10Vdc	10Vac/10Vdc	
Max commutable current	2A	2A	
Min commutable current	15mA@24Vdc	15mA@24Vdc	
Number of commutations (life)	$\geq 50*10^6$	$\geq 10^5$ (el)	$\geq 10^7$ (mech)