

TECHNICAL SUPPORT AND WARRANTIES

# How to configure Orion2 with muting in T or X

TECHNICAL NOTE V20190619

The Muting function allows automatic bypassing of the safety function on the whole protected height in order to carry out specific operations without stopping the machine. In this document it is explained how to configure a muting in our light grids Orion2.

## Material needed

In order to configure the muting in an Orion2 the following material is needed:

- Orion2 extended: REF 2TLA022304R0000

The reference of this Orion2 extended is the one used in the examples. It is important to remark that if the Orion is not the extended one, the muting functionality cannot be configured.



**Figure 1.-** Orion 2 Extended

- Mute R2: REF 2TLA022044R0500

Sensors needed to detect the objects that have to activate the muting functionality. The number of sensors needed depend on the type of muting configured.

- T muting: 4 sensors
- X & L muting: 2 sensors



**Figure 2.-** Mute R2

- REFLECT 1: REF 2TLA022044R2000

Used to reflect de signal from the sensor in order to check the presence of any object in front of it



Figure 3.- Reflect 1

- M12-CYMUTE: REF 2TLA022316R0100

M12 Y-cable for connection of muting sensors to Orion2 Extended. One M12-8 pole female connector (#1) for connecting Orion, one M12-8 pole male connector (#2) for connecting Orion to another equipment and one M12-5 pole male connector (#3) for connecting the muting sensors (e.g. using OMC1).



Figure 4.- M12-CYMUTE

- OMC1: REF 2TLA022316R2000

Connection box for muting sensors. Connection to Orion2 Extended using M12-CYMUTE. Four M12-5 pole female connectors for muting sensors (A1, A2, B1, B2).



Figure 5.- OMC1

- Controller (**SSR10**: REF 2TLA010050R0000, **Pluto B20**: REF 2TLA020070R4600)



**Figure 6.-** Sentry SSR10



**Figure 7.-** Pluto B20

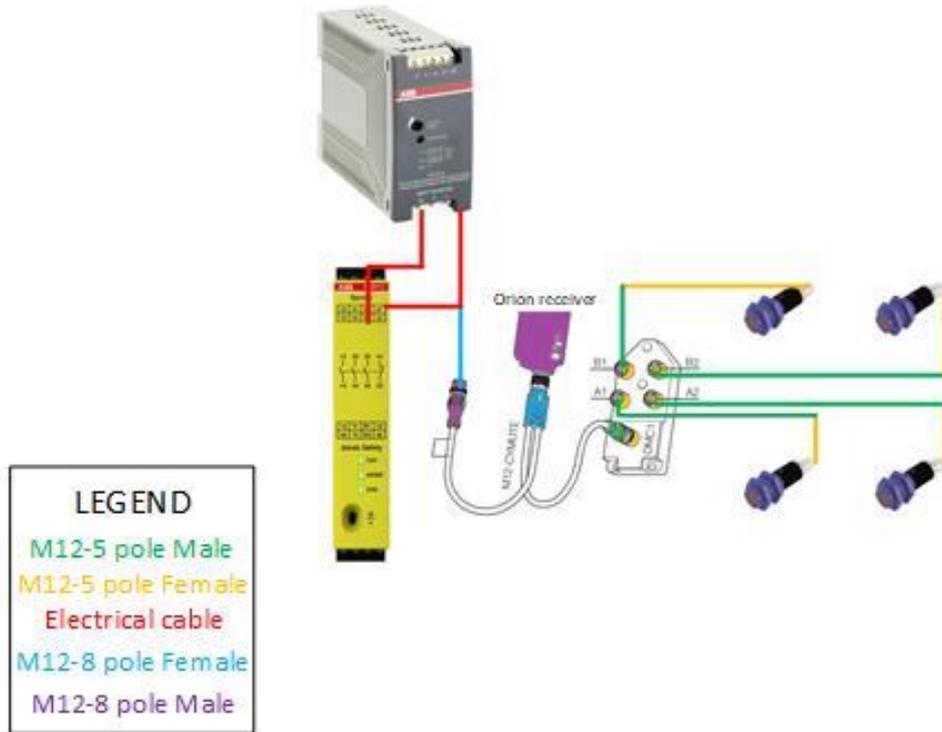
- Power supply 24Vdc (CP-E): REF 1SVR427031R0000  
Power supply + 24 Vdc



**Figure 8.-** Power supply

## Connection diagram

The connection diagram for this example is the next one:



**Figure 9.-** Connection diagram example

In the table 1 there are explained connector by connector de electrical connections needed.

**Table 1.-** Electrical connections

Device 1	Connector 1	Device 2	Connector 2
Orion transmitter	1 - Brown	CP-E	L+
Orion transmitter	3 - Blue	CP-E	L-
Orion receiver	1 - White	CP-E	L+
Orion receiver	2 - Brown	CP-E	L+
Orion receiver	5 - Grey	SSR10	R1
Orion receiver	6 - Pink	SSR10	R2
SSR10	A1	CP-E	L+
SSR10	A2	CP-E	L-
SSR10	X1	SSR10	X4

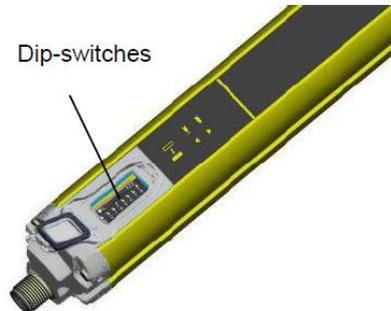
The following points must be considered too:

- In the figure 9 the transmitter does not appear, this is because the only connection on it is the power supply. For this supply, a cable with female connector in one side and free cable on the other one is needed.
- In the figure 9, the M12 cables are painted depending on the connector. For example, for a M12-5 cable with connectors male-female, the cable will be gree-yellow.
- Colors of the connectors (cable) are according to ABB Jokab Safety standard cables
- Between the connection X1-X4 the NC auxiliary contacts of the contactors are needed for an automatic reset.
- The front dip-switch must be in the "automatic reset" position.
- The reset of the Orion2 is automatic too for this configuration.

## **Example with SSR10**

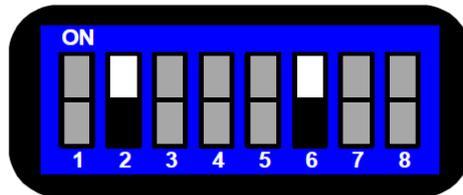
### **Configuration of the Orion2**

In order to configure the Orion2, there are some dip-switches in the bottom front side of the receiver (figure 10).



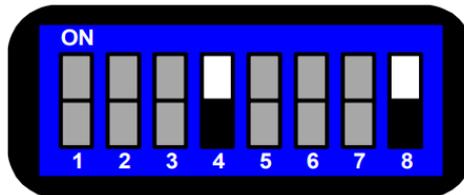
**Figure 10.-** Ubication of the dip-switch

The dip-switches 2 y 6 are the ones related with the muting. In order to configure a T/X muting, the dip-switches 2 and 6 have to be in the ON position (Figure 9).



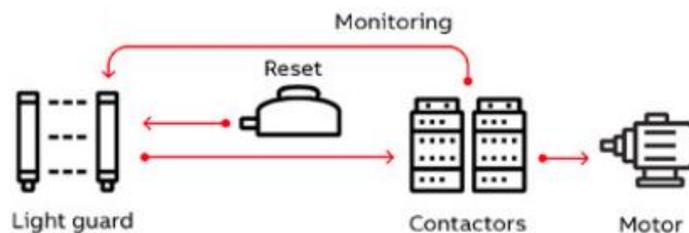
**Figure 11.-** Dip-switches 2 and 6 ON for T / X-muting

To configure the automatic reset, the dip-switches 4 and 8 must be in ON position too.



**Figure 12.-** Dip-switch settings for Automatic Reset function

For this application, the EDM function must be deactivated. This functionality is used when there is no controller between the AOPD and the contactor. Enabling it, the AOPD can activate and monitor the auxiliary contacts of the contactors by itself (figure 13).

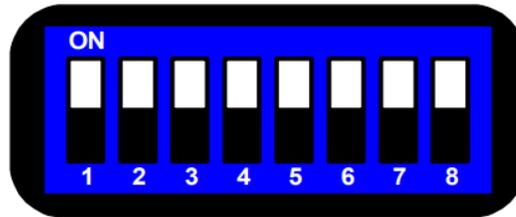


**Figure 13.-** Example of EDM application

Then, the **dip-switches 3 and 7 must be in ON position.**

According to the muting timeout, an infinite muting (timeout =  $\infty$ ) is not compliant with EN 61496-1:2013. Therefore, all possible risks must be considered and related precautions undertaken before selecting the option " $\infty$ ". Then, for this example this time will be set to 10 minutes by **setting ON the dip-switches 1 and 5.**

Applying the configurations explained above, the final configurations of the dip-switches is the next one.



**Figure 14.-** Final configuration of the dip-switches

With this configuration of the dip-switches, after doing the alignment procedure, the Orion2 is ready to work with the muting function enabled.

Note that the device does not accept configuration changes during normal operation. A change is taken into account after the next powering of the device. Therefore, the management and the use of the configuration dip-switches should be performed with great care.

### Configuration of the SSR10

The only configuration that can be done in this relay is the reset mode. As it is explained above, the front dip-switch must be in the automatic reset position.

## **FAQs**

### **Is the muting function always safe?**

It depends on the application. When a muting function is enabled, it has to be considered that while the object is passing through the detection zone (activating the muting function) the AOPD is not activated, so if at the same time something crosses the detection zone, the AOPD will not activate the configured safety function.

## **Useful links:**

Orion2 Extended instructions manual:

<https://search.abb.com/library/Download.aspx?DocumentID=2TLC172291M0201&LanguageCode=en&DocumentPartId=&Action=Launch>

Training videos (ES):

<https://www.youtube.com/playlist?list=PLge96zSySnICY9Qgj8RxBWskZaOORrQXc>

How to install safety light grids and light curtains (ES):

[https://www.youtube.com/watch?v=P7HXNgyv\\_9o&list=PLge96zSySnICY9Qgj8RxBWskZaOORrQXc&index=6&t=0s](https://www.youtube.com/watch?v=P7HXNgyv_9o&list=PLge96zSySnICY9Qgj8RxBWskZaOORrQXc&index=6&t=0s)

ABB Jokab Safety Main Catalog: <http://search.abb.com/library/Download.aspx?DocumentID=2TLC010001C0202&LanguageCode=en&DocumentPartId=&Action=Launch>