REER

Installation, use and maintenance

(Copy of the original instructions)

SAFEGATE ////

Type 4 barrier for Access Control
with Muting functions integrated

SUMMARY

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INTRODUCTION

Dear customer, REER congratulates you on purchasing this product.
Refer to this manual before using SAFEGATE; keep this manual (printed or PDF) and the Quick Installation Guide in an accessible place for future consulting when necessary.

PURPOSE OF THIS DOCUMENT

This manual illustrates the operation of the programmable access curtain with Muting integrate SAFEGATE functions. It shows specifically:

- a general description of the SAFEGATE world;
- the characteristics of the muting function;
- the different types of muting and their application;
- the list of SAFEGATE models;
- the mechanical installation;
- the electrical connections;
- the mode of operation;
- the Muting, Override modes and their activation;
- SAFEGATE programming through dedicated software.

PRODUCT DESCRIPTION

The SAFEGATE light curtain is an optoelectronic multi-beam safety system belonging to the category of Type 4 electro-sensitive devices (in accordance with EN 61496-1,2), equipped with the Muting function, for the protection of persons exposed to dangerous machines or plants.
SAFEGATE ensures a perfect integration of the Muting sensors that are connected directly to the connectors on the safety curtain.
In the hardware configuration models (SM and SMO) the Muting logic and the operating parameters are fully defined by the connections of the main connector.
The SMPO programmable models retain all the features of SM and SMO models allowing also the configuration of various parameters and additional features via the SCS software (SAFEGATE Configuration Software).

The main features of SAFEGATE are as follows:

- Resolution: 14, 30 and 40 mm – 2, 3 and 4 beams.
- Integration of the main safety functions, including self-monitoring of static outputs, EDM and Start/Restart Interlock.
- Outline dimensions: 55 x 50 mm.
- Protected height: 300 to 2200 mm.
- Degree of protection: IP65 e IP67.
- Operating temperature: -30 ... +55 °C (no condensation).
- Muting lamp and integrated curtain status indication (SMO/SMPO).

CONTENT OF THE PACKAGE

- SAFEGATE emitter and receiver
- Quick Installation Guide
- Mounting accessories bag
- Sealing caps for unused connectors

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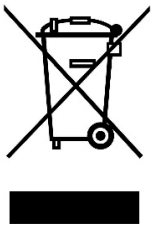
GLOSSARY

DETECTION CAPABILITY	Sensing function parameter limit specified by the supplier that will cause actuation of the electro-sensitive equipment (ESPE)
DETECTION ZONE	Zone within which a specified test piece will be detected by the electro-sensitive equipment (ESPE)
EDM	External Device Monitoring: control of external contactors switching through the feedback input
MUTING	Function of temporary suspension of the safety function: temporary exclusion of the safety curtain, automatically and safely carried out based on the machine cycle
OVERRIDE	Forced activation of OSSD outputs: during the muting cycle for material removal
PROTECTED HEIGHT	A measure that indicates the height controlled by the curtain
RANGE	Maximum operating distance: between emitter and receiver
RESOLUTION	Minimum detectable object size: to ensure the arrest of the dangerous machine
RESPONSE TIME	Time between interruption of the gate and disabling of outputs
START/RESTART INTERLOCK	Interlock function (manual reset required): when starting or restarting the machine
SAFETY DISTANCE	Minimum distance that must exist between the protected gate and the dangerous area
LX	Muting Logic with 2 mono-directional cross-sensors
L2	Muting Logic with 2 mono-directional parallel sensors
TX	Muting Logic with 2 bi-directional cross-sensors
T4	Muting Logic with 4 bi-directional parallel sensors
S	Model without Muting
SM	Model with Muting and Hardware configuration on main connector
SMO	SM model with integrated Muting lamp
SMP	Model with Muting Programmable with SCS software
SMPO	SMP model with integrated Muting lamp

DISPOSAL OF MATERIALS

Dispose of the product in an eco-compatible manner and in accordance with national legislation.



For Countries in the European Union:
Pursuant to the Directive no. 2012/19/EU on waste electrical and electronic equipment (WEEE).
The crossed out wheelie-bin symbol on the equipment or its packaging means that when the product reaches the end of its useful life it must be collected separately from other waste.
Proper separate collection of the discarded equipment for later environment-friendly recycling, processing and disposal, helps to avoid any negative impact on the environment and health and encourages re-use and recycling of the materials the equipment is made of.
In each individual Member State of the European Union this product is required to be disposed of in accordance with Directive **2012/19/EU** as implemented in the Member State where the product is disposed of. For further information please contact REER or your local dealer.

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SAFETY

SIMBOLOGY

This symbol indicates an important warning for personal safety. Failure to comply with this warning may result in high level risk for exposed personnel.

This symbol indicates an important warning for the proper operation of the curtain.

PRECAUTIONS

The operations indicated in this document must only be carried out by qualified personnel. Such personnel must have the necessary requirements to be able to operate on the electronic equipment to be installed in order to avoid any risky situation.
REER declines any liability for malfunctioning of equipment installed by unqualified staff.

Any use other than those indicated in this manual may be considered as potentially dangerous for the installer and the machine operator.

For safety reasons, please contact your country's safety authorities or the relevant industry association if necessary.

For applications in the food industry, consult the manufacturer to verify compatibility between curtain materials and chemical agents used.

The protective function of optoelectronic safety devices is not effective in cases where:

- The machine stopping device cannot be actuated electrically and it is not possible to stop all dangerous machine movements immediately and at any time during the operating cycle.
- The hazardous condition is associated with the falling of objects from above or ejection of these from the machine.
- Anomalous forms of light radiation are present (for example, use of cablelless control devices on cranes, radiation from weld spatter, etc). In this case additional measures may be necessary to ensure that the ESPE does not fail to danger.

The strict and complete observance of all the standards, indications and prohibitions set forth in this manual is a prerequisite for its proper operation.
REER S.p.A. therefore, declines any liability in case of non-respect, even partial, of these indications.

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CAUTIONS BEFORE INSTALLATION

Before installing the SAFEGATE safety system, you must verify all of the conditions listed below:

- ***The protection level (Type4, SIL3, SILCL3, PLe) of the SAFEGATE system must be compatible with the danger level of the system to be controlled.***
- ***The safety system should only be used as a stop device and not as a device for controlling the machine.***
- ***The machine control must be electrically actuated.***
- ***It must be possible to immediately stop any dangerous operation of the machine. In particular, the machine stopping times must be known and, if necessary, measured.***
- ***The machine must not generate hazardous situations due to projection or fall of materials from above; otherwise it is necessary to provide additional mechanical protections.***
- ***The minimum size of any object to be intercepted must be greater than or equal to the resolution of the selected model.***

The knowledge of the shape and size of the hazardous area allows an estimation of the width and the height of its access area:

- ***Compare these dimensions with the maximum working range and the height of the area guarded by the model used.***

Before placing the safety device, it is important to consider the following general guidelines:

- ***Verify that the temperature of the environment where the system is installed is compatible with the temperature operating parameters indicated on the product label and in the technical data.***
- ***Avoid positioning the Emitter and Receiver near intense or flashing high-intensity light sources.***
- ***Specific environmental conditions may affect the level of detection of photoelectric devices. In environments where fog, rain, smoke or dust may be present, it is advisable to use suitable Fc correction factors at the maximum useful values of the working range to ensure the correct operation of the equipment. In these cases:***

$$Pu = Pm \times Fc$$

where Pu and Pm are respectively the working range and maximum range in metres.

Recommended Fc factors are shown in the following table.

ENVIRONMENTAL CONDITION	CORRECTION FACTOR Fc
Fog	0,25
Steam	0,50
Powders	0,50
Dense smoke	0,25

- ***If the device is placed in environments subject to sudden temperature fluctuations, it is imperative to take the appropriate steps to avoid condensation on the lenses, which may impair the detection capability.***

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LIST OF APPLICABLE STANDARDS

SAFEGATE is manufactured in compliance with the following European Directives:

2006/42/EC "Machinery Directive"
2014/30/EU "Electromagnetic Compatibility Directive"

And it complies with the following Standards:

Safety level	**Tipo 4**	➢ EN 61496-1:2013 ➢ EN 61496-2:2013
	SIL 3	➢ IEC 61508-1:(ed.2) ➢ IEC 61508-2:(ed.2) ➢ IEC 61508-3:(ed.2) ➢ IEC 61508-4:(ed.2)
	SILCL 3	➢ IEC 62061:2005/A2:2015
	PL e - Cat. 4	➢ EN ISO 13849-1: 2015

EC DECLARATION OF CONFORMITY

REER

CE

Dichiarazione CE di conformità
EC declaration of conformity

Torino, 14/09/2022

REER SpA
via Carcano 32
10153 – Torino
Italy

dichiara che le barriere fotoelettriche **SAFEGATE** sono Dispositivi Elettrosensibili di Sicurezza (ESPE) di :
- **Tipo 4** *(secondo la Norma **EN 61496-1:2013; EN 61496-2:2013)***
- **SIL 3** *(secondo la Norma **EN 61508-1:2010; EN 61508-2:2010; EN 61508-3:2010; EN 61508-4:2010)***
- **SILCL 3** *(secondo la Norma **EN 62061:2005/A2:2015)***
- **Cat.4 - PL e** *(secondo la Norma **EN ISO 13849-1:2015)***

declares that the **SAFEGATE** photoelectric safety barriers are :
- **Type 4** *(according the Standard **EN 61496-1:2013; EN 61496-2:2013)***
- **SIL 3** *(according the Standard **EN 61508-1:2010; EN 61508-2:2010; EN 61508-3:2010; EN 61508-4:2010)***
- **SILCL 3** *(according the Standard **EN 62061:2005/A2:2015)***
- **Cat.4 - PL e** *(according the Standard **EN ISO 13849-1:2015)***

Electro-sensitive Protective Equipments (ESPE)

realizzati in conformità alle seguenti Direttive Europee:
complying with the following European Directives:

- **2006/42/EC** "Direttiva Macchine"
  "Machine Directive"
- **2011/65/EU** "RoHS – Linea Guida"
  " RoHS – Guideline"
- **2014/30/EU** "Direttiva Compatibilità Elettromagnetica"
  "Electromagnetic Compatibility Directive"

e alle seguenti Norme: /*and to the following Standards*:

- **EN 50178: 1997**
- **EN 55032: 2015**
- **EN 61000-6-2: 2005**

e sono identiche all'esemplare esaminato ed approvato con esame di tipo CE da:
and are identical to the specimen examined and approved with a CE - type approval by:

TÜV SÜD Product Service GmbH – Zertifizierstelle – Ridlerstraße 65 – 80339 – München – Germany
N.B. number: 0123 - Certificate No: Z10 024820 0083 Rev.01

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Direttore Tecnico
Technical Director

Simone Scaravelli
Amministratore Delegato
Managing Director

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UKCA DECLARATION OF CONFORMITY

ReeR declares that SAFEGATE photoelectric safety barriers complies with following UK legislation:

- S.I. 2008 No. 1597 - The Supply of Machinery (Safety) Regulations
- S.I. 2016 No. 1101 - Electrical Equipment (Safety) Regulations
- S.I. 2016 No. 1091 - Electromagnetic Compatibility Regulations
- S.I. 2012 No. 3032 - The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations

➔ ***Please refer to the link: https://www.reersafety.com/certifications/ to download the complete UKCA Declaration of Conformity.***

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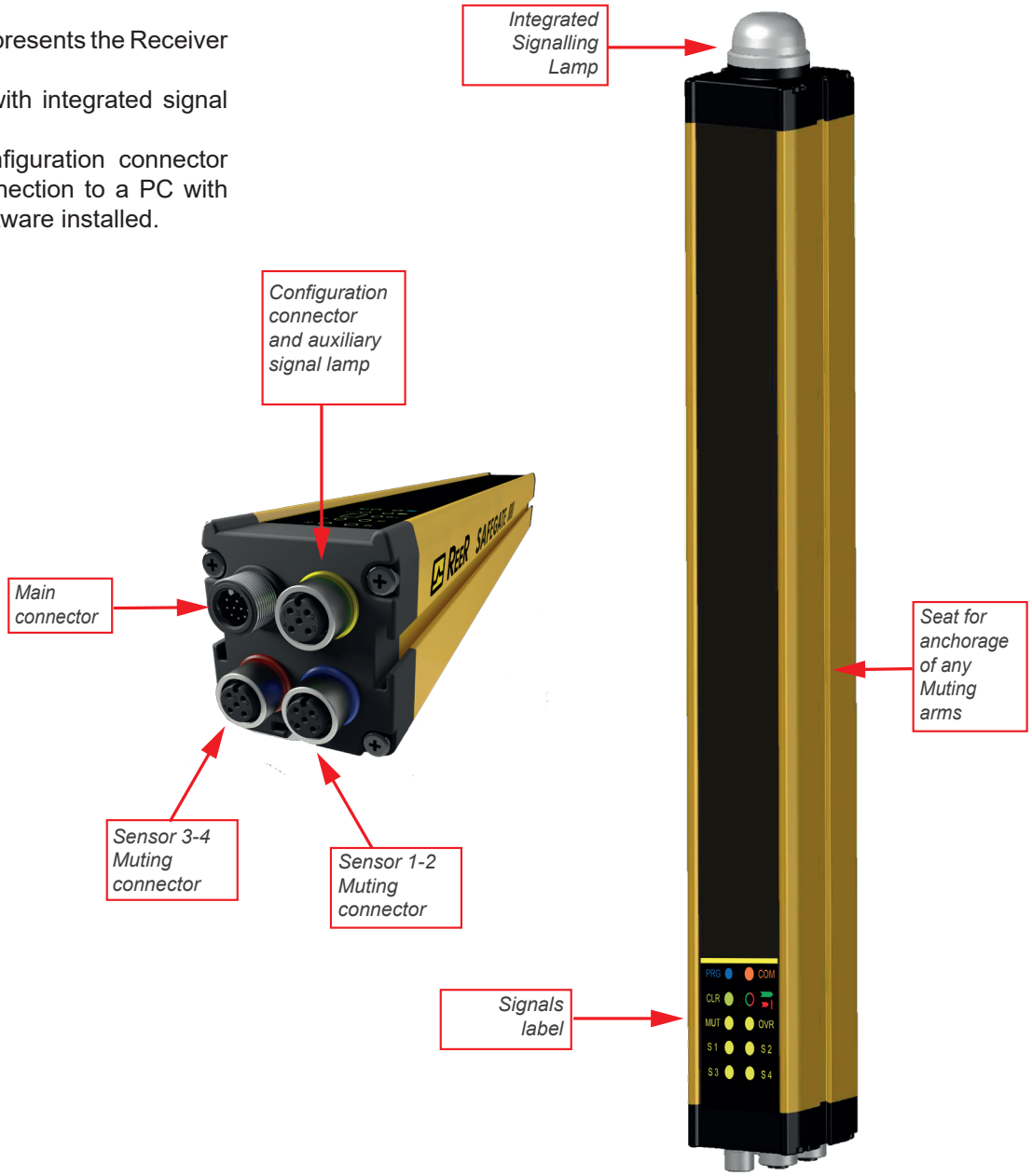
SYSTEM ARCHITECTURE

SAFEGATE is supplied as a pair (Emitter/Receiver) and allows integration with external Muting sensors that are directly connected to the connectors installed on the curtain.

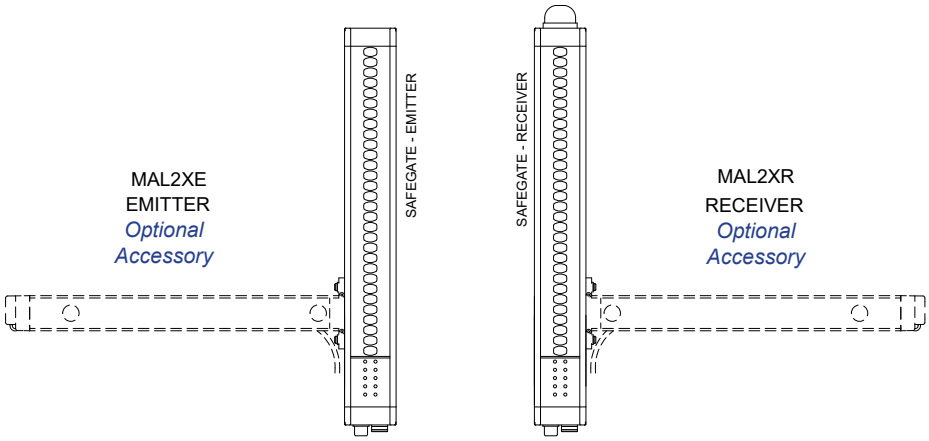
- Each curtain can be configured as LX, L2, TX and T4 (see the different Muting types in the section “MUTING FUNCTION”) through the wiring of the main connector. This configuration can be changed at any time.
- SAFEGATE can be used with (pre-aligned and pre-configured) Muting arms, with M5 multibeam photocells (available as accessories) or any other Muting sensor.
- ***S*** models integrate the functions of “START/RESTART INTERLOCK” and ”EDM” but do not allow the Muting function.
- ***SM*** models allow the Muting function, but have no integrated signal lamp.
- Programmable ***SMP-SMPO*** models allow an ideal use of further configuration options to solve potential problems in complex application scenarios.
- ***SMO-SMPO*** models with Integrated signalling lamp allow the immediate viewing of the curtain status even at a distance.

PLEASE NOTE
The sample figure represents the Receiver of a SMPO model.
This model comes with integrated signal lamp.
Additionally, the configuration connector allows the USB connection to a PC with the configuration software installed.

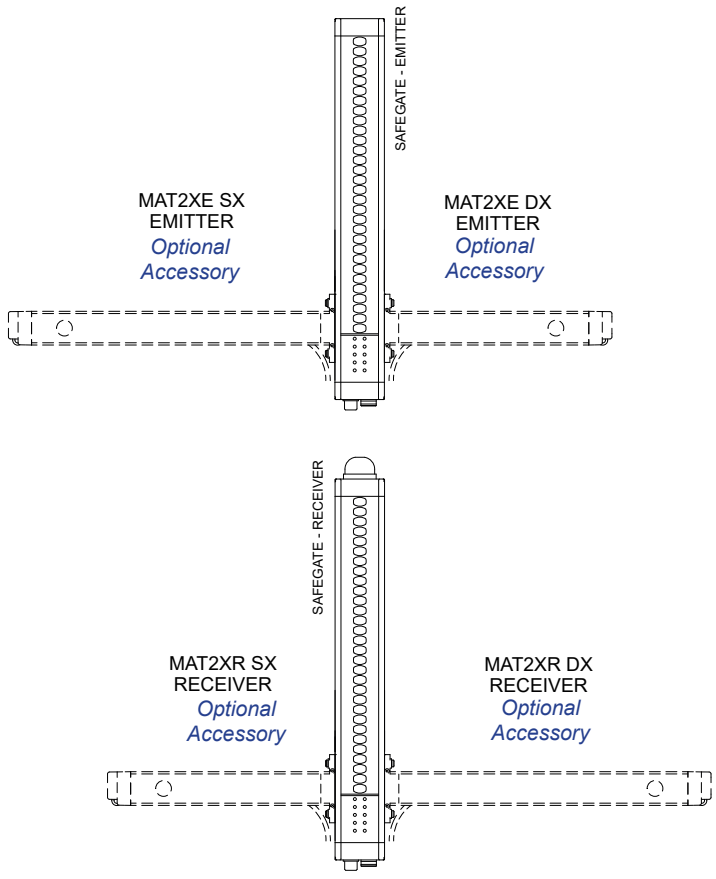


POSSIBLE CONFIGURATIONS (via optional accessories)

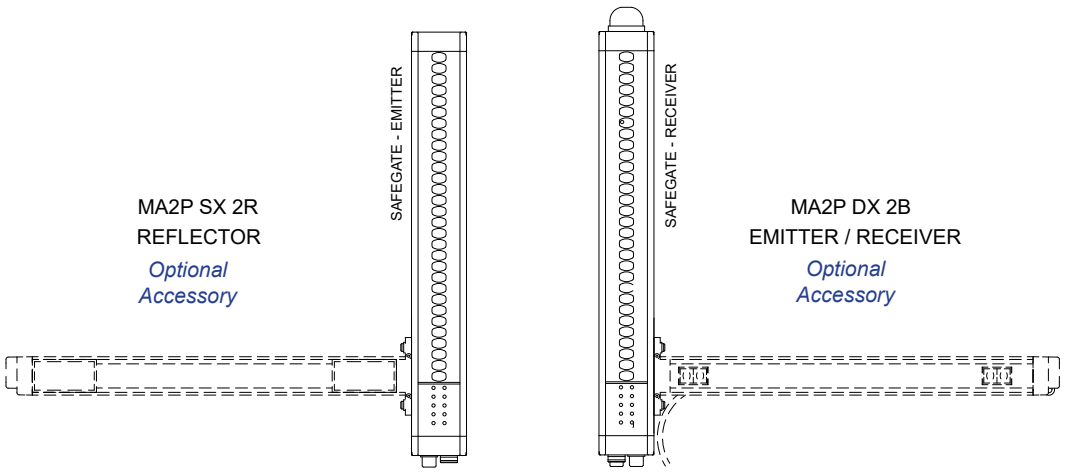
MAL2X - L-arms with 2 crossed TX/RX beams



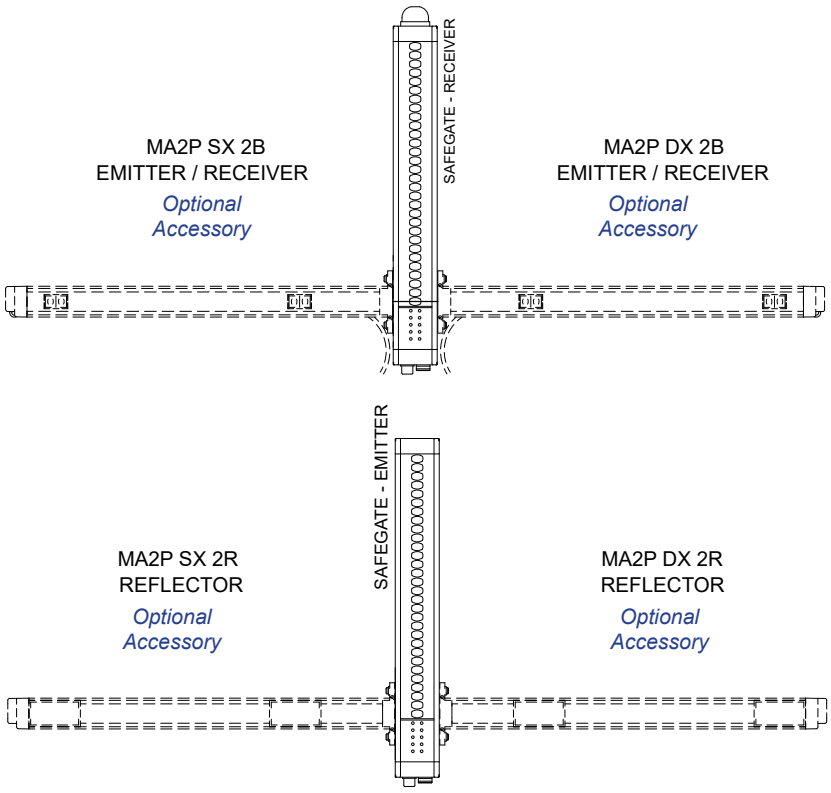
MAT2X - T-arms with 2 crossed TX/RX beams



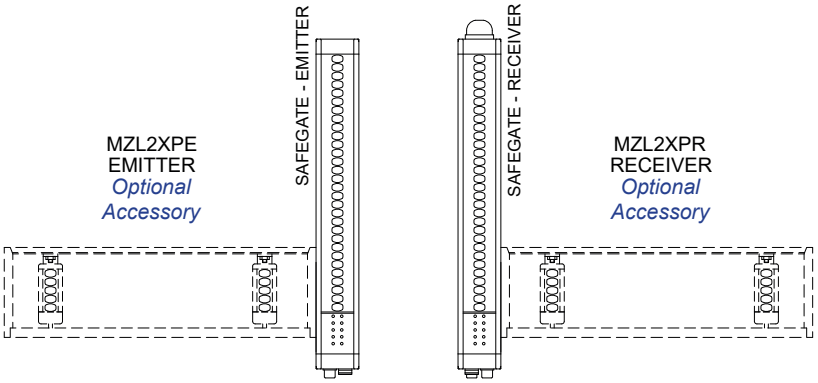
MAL2P TRX - L-arms with 2 parallel beams with reflector



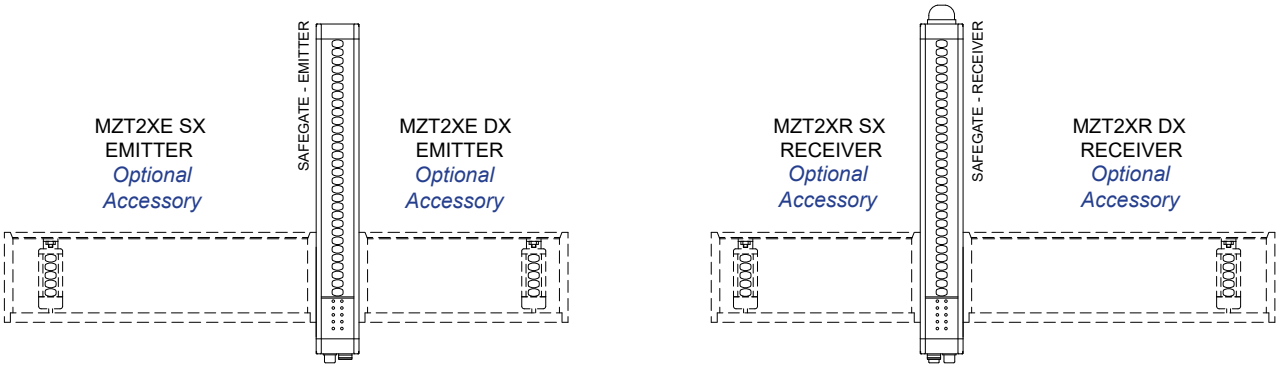
MAT4P TRX - T arms with 4 parallel beams with reflectors



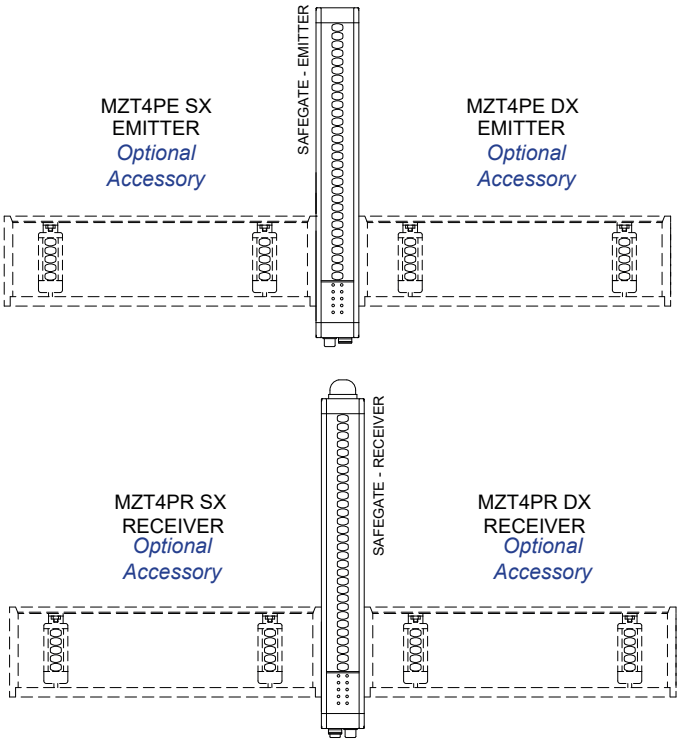
MZL2XP arms with 2 cross-linked/parallel adjustable M5 beams



MZT2X - T-arms with 2 adjustable M5 cross beams



MZT4P - T-arms with 4 adjustable M5 parallel beams



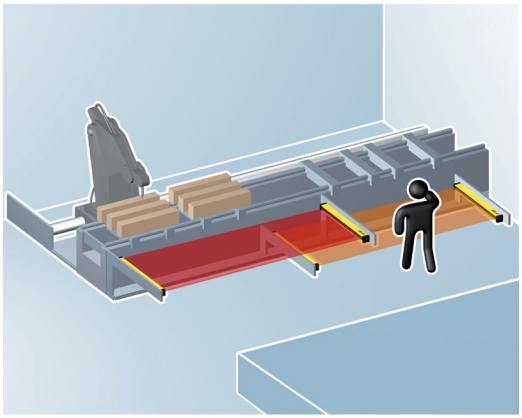
THE MUTING FUNCTION

The Muting function is the temporary exclusion of the safety curtain, automatically and safely carried out based on the machine cycle.

➔ ***Carefully verify your risk analysis to make sure the Muting function is compatible with your application and what additional measures should be taken.***

There are basically two types of applications:

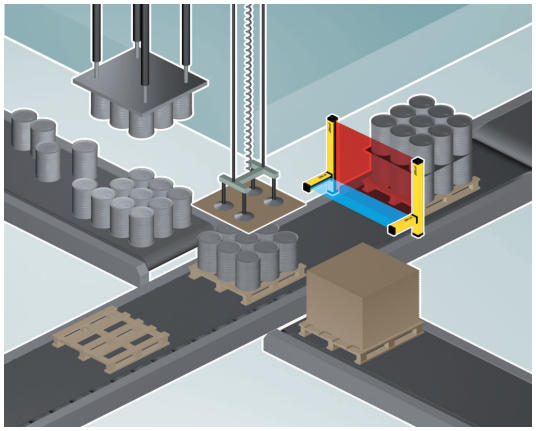
1. Those allowing people to enter the dangerous area during the non-dangerous part of the machine cycle.



Example:
Positioning or Removing the workpiece

Depending on the position of the tool, which is the hazardous element, one of the two curtains (the one facing the tool work area) is active while the other is in Muting condition to allow the operator loading/unloading the workpiece. The Muting condition of the two curtains will then be reversed when the tool is to work on the opposite side of the machine.

2. Those who allow material transit and prevent access to the people.



Example: Pallet exit from the hazardous area

The safety curtain is equipped with Muting sensors able to effectively discriminate between the person and the material allowed to get through the controlled gate. The essential requirements concerning the Muting function are described in the following Standards:

➔ ***IEC TS 62046 - "Application of protection devices for people detection".***

➔ ***EN 415-4 - "Safety on packaging machines – Palletizers and Unpalletizers".***

➔ ***IEC 61496-1 - "Electro-sensitive protective devices".***

General requirements about safety:

- The Muting function is a temporary suspension of the safety function that needs to be activated and deactivated automatically.
- The activation and subsequent deactivation of the Muting function must take place only through the use of two or more wired and independent signals activated by a correct timing or spatial sequence. This means that a stand-alone failure cannot activate the Muting function.
- It should not be possible to activate the Muting function when SAFEGATE has deactivated the safety outputs.
- It should not be possible to start a Muting function by switching off and then restarting the device.
- Muting must be activated at an appropriate point of the machine cycle, i.e. only when there are no risks for the operator.
- Muting sensors must be mechanically protected so that any impact does not modify their alignment.
- If the distance between the muting sensors is lower than required, the SAFEGATE safety function is not guaranteed.
- Make sure that the MUTING/OVERRIDE signal lamp is correctly installed in a visible location by the operator.

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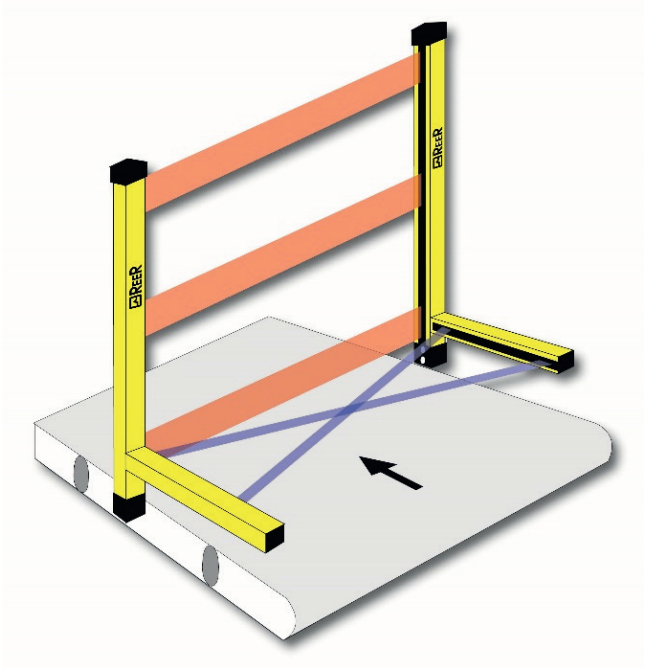
A) 2 INTEGRATED CROSS MUTING SENSORS, ONLY FOR PALLET OUTPUTS (LX)

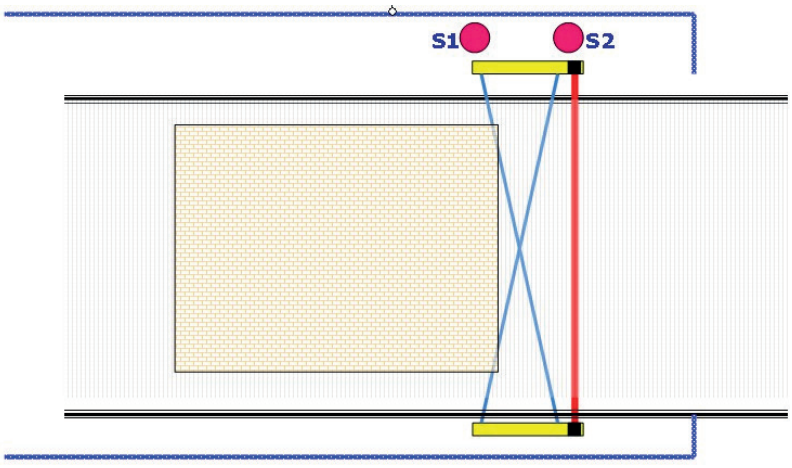
In this way sensors 1 and 2 are on the same side as the vertical curtain and are placed in front of the dangerous gate. This mode is unidirectional and is useful for protecting gates with pallet output.
The activation of the Muting function occurs after the simultaneous interruption (within 4 sec maximum) of S1 and S2 sensors. As long as both sensors remain busy, the Muting function continues. When the first of the 2 sensors is released, the material will still have 4 seconds to leave the protected area limited by the curtain. The Muting condition will be disabled as soon as the protected area is released.
At the end of 4 seconds, if the curtain is still busy, the OSSD outputs are disabled by interrupting the operation of the machine. This allows selecting the maximum duration of the Muting condition (timeout) as 30 seconds or 9 hours.

➔ ***Other timings are available with programmable programs.***

For the safe operation of the LX configuration, it is absolutely essential that the horizontal Muting sensor elements are located within the hazardous area.

The minimum distance between two consecutive pallets must be less than 10 cm or greater than 32cm.





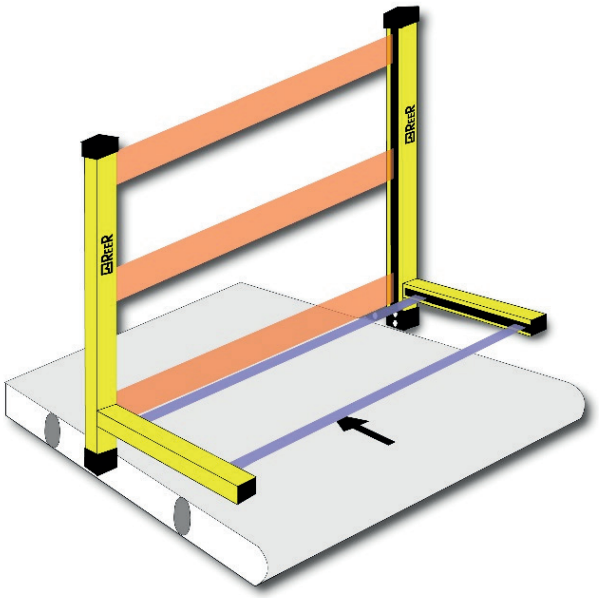
B) 2 INTEGRATED PARALLEL MUTING SENSORS, ONLY FOR PALLET OUTPUTS (L2)

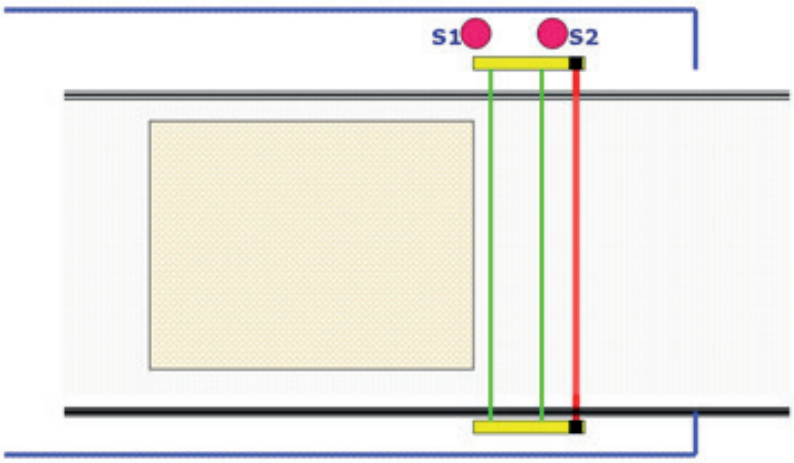
In this way sensors 1 and 2 are on the same side as the vertical curtain and are placed in front of the dangerous gate. This mode is unidirectional and is useful for protecting gates with pallet output.
The activation of the Muting function occurs after the simultaneous interruption (within max 4 sec) of sensors S1 and S2. As long as both sensors remain busy, the Muting function continues. When the first of the 2 sensors is released, the material will still have 4 seconds to leave the protected area limited by the curtain. The Muting condition will be disabled as soon as the protected area is released. At the end of 4 seconds, if the curtain is still busy, the OSSD outputs are disabled by interrupting the operation of the machine.
This allows selecting the maximum duration of the Muting condition (timeout) as 30 seconds or 9 hours.

➔ ***Other timings are available with programmable programs.***

For the safe operation of the L2 configuration, it is imperative that horizontal Muting sensors are located within the hazardous area.

The minimum distance between two consecutive pallets must be greater than 40 cm.





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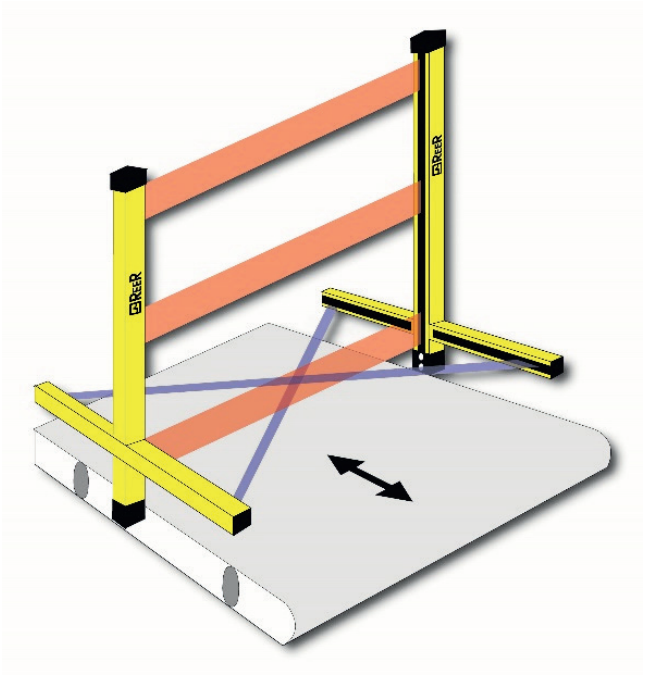
C) 2 INTEGRATED CROSS MUTING SENSORS, FOR BI-DIRECTIONAL GATES (TX)

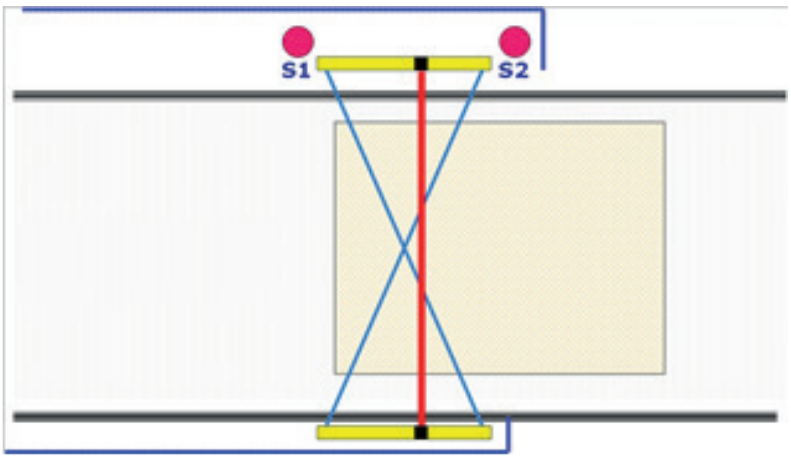
In this way, the two Muting sensors are each first on a different side of the vertical curtain.
This mode is bidirectional and is useful for protecting gates with pallet output.

➔ ***The crossing point of the two Muting sensors must be placed inside the hazardous area to avoid undesirable and dangerous activations of the Muting function.***

The activation of the Muting function occurs after the simultaneous interruption (within max 4 sec) of sensors S1 and S2. As long as both sensors remain busy, the Muting function continues. By releasing the first of the two sensors, the Muting function is disabled.
This mode also allows selecting the maximum duration of the Muting condition (timeout) as 30 seconds or 9 hours.

➔ ***Other timings are available with programmable programs.***





D) 4 INTEGRATED PARALLEL MUTING SENSORS, FOR BI-DIRECTIONAL GATES (T4)

This mode is bidirectional and is useful for protecting gates with pallet output.
Using this mode, two different modes of operation are outlined:

Concurrent

The activation of the Muting function occurs after the sensors S1 and S2 are interrupted (within max 4sec) (or S4 and S3 with material moving in the opposite direction).
The Muting state ends after the release of the gate, and of the S3 sensor (or S2 with material moving in the opposite direction).

➔ ***For the T4 models (concurrent operation), there are two available timeouts: 1) 30 sec; 2) 9 hours.***

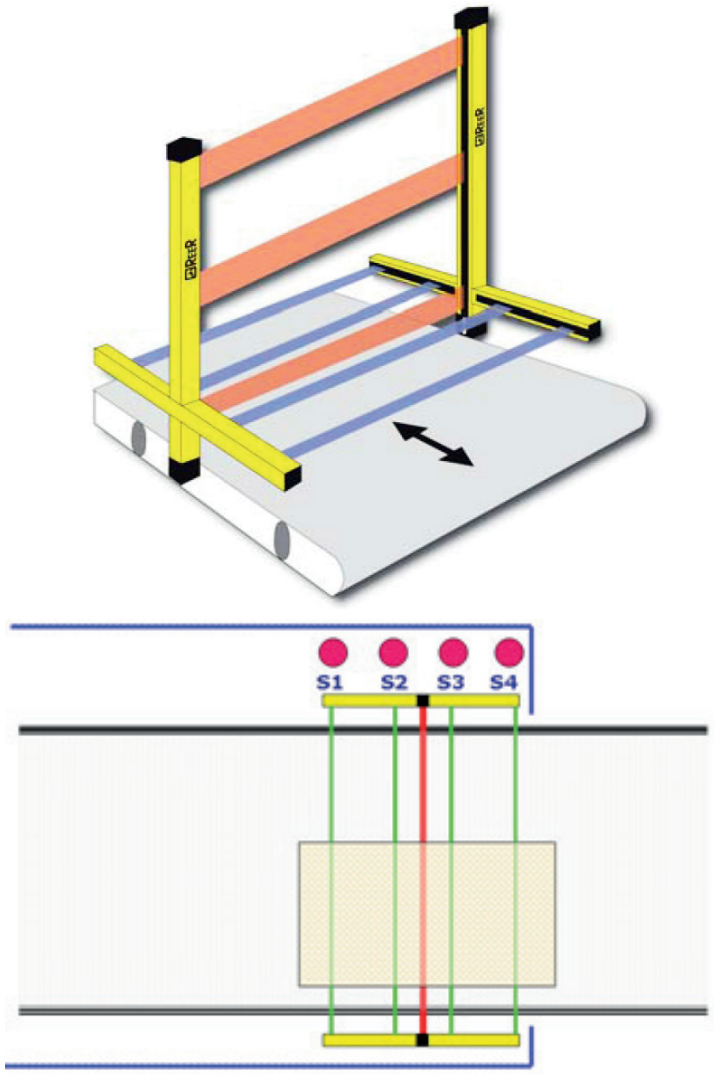
Sequential

The activation of the Muting function occurs after the sequential interruption of sensors S1 and S2 (or S4 and S3 with material moving in the opposite direction) without time limitations.
The Muting state ends after the release of the gate, and of the S3 sensor (or S2 with material moving in the opposite direction).

➔ ***For the T4 models (sequential operation), there are two available timeouts: 1) 30 sec; 2) infinite.***

➔ ***Other timings are available with programmable programs.***

➔ ***In both modes of operation, the minimum pallet length must be 70 cm (to ensure simultaneous occupancy of all four sensors).***



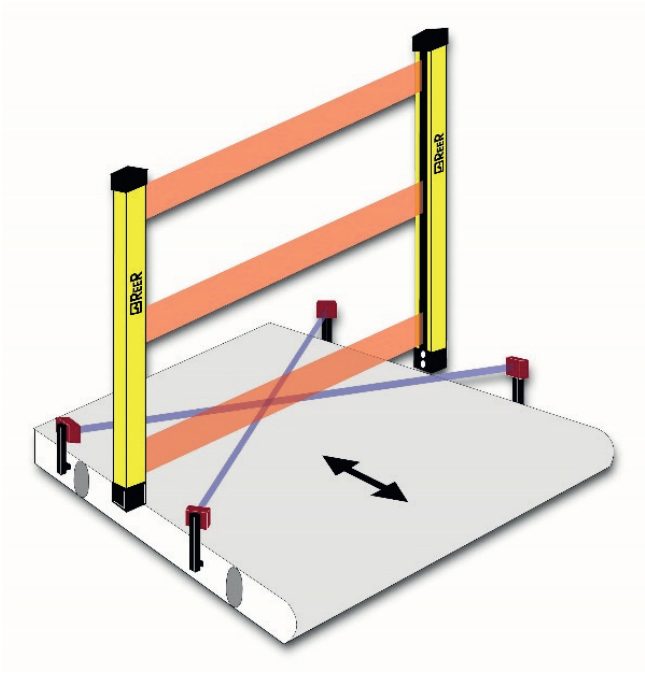
E) 2 EXTERNAL CROSS INTEGRATED MUTING SENSORS, FOR BI-DIRECTIONAL GATES (TX).

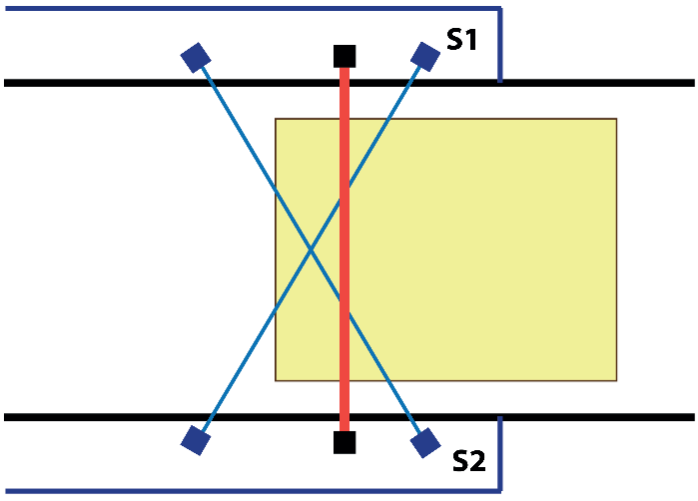
This mode is bidirectional and is useful for protecting gates with pallet output.

➔ ***The crossing point of the two Muting sensors must be placed inside the hazardous area to avoid undesirable and dangerous activations of the Muting function.***

The activation of the Muting function occurs after the simultaneous interruption (within max 4 sec) of sensors S1 and S2. As long as both sensors remain busy, the Muting function continues. When the first of the two sensors is released, the Muting function is disabled. In this mode of operation the maximum duration of the Muting condition (timeout) can be selected in 30 seconds or 9 hours.

➔ ***Other timings are available with programmable programs.***





F) 4 EXTERNAL PARALLEL MUTING SENSORS, FOR BI-DIRECTIONAL GATES (T4).

This mode is bidirectional and is useful for protecting gates with pallet output.
Using this mode, two different modes of operation are outlined:

Concurrent

The activation of the Muting function occurs after the sensors S1 and S2 are interrupted (within max 4 sec) (or S4 and S3 with material moving in the opposite direction).
The Muting state ends after the release of the gate, and of the S3 sensor (or S2 with material moving in the opposite direction).

➔ ***For the T4 models (concurrent operation), there are two available timeouts: 1) 30 sec; 2) 9 hours.***

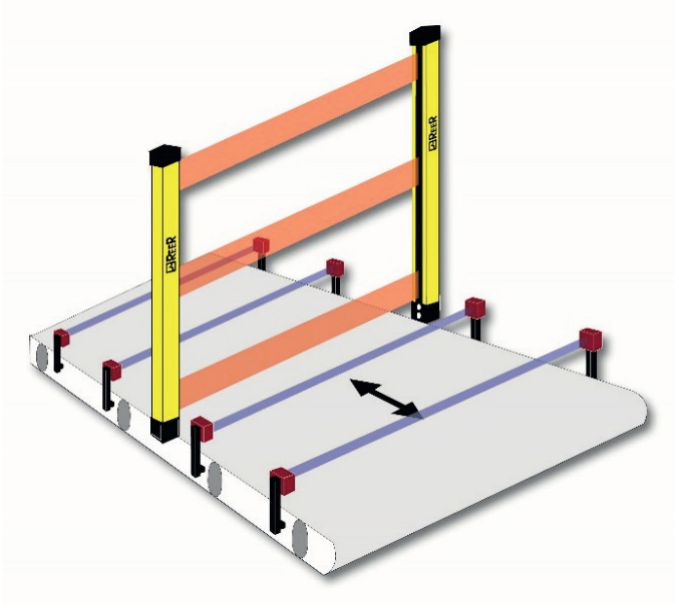
Sequential

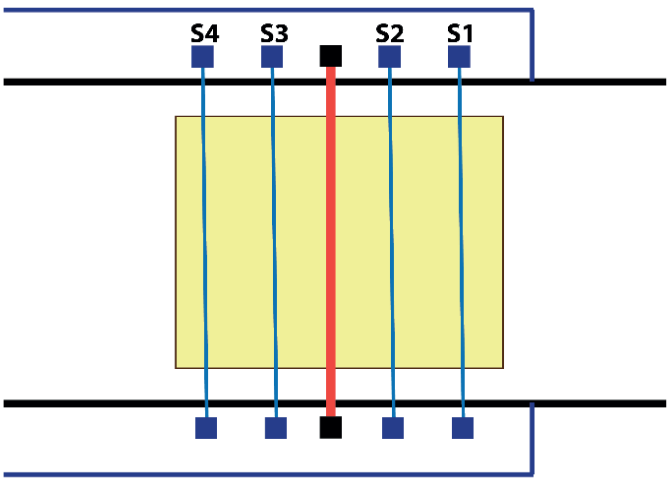
The activation of the Muting function occurs after the sequential interruption of sensors S1 and S2 (or S4 and S3 with material moving in the opposite direction).
The Muting state ends after the release of the gate, and of the S3 sensor (or S2 with material moving in the opposite direction).

➔ ***For the T4 models (sequential operation), there are two available timeouts: 1) 30 sec; 2) infinite.***

➔ ***Other timings are available with programmable programs.***

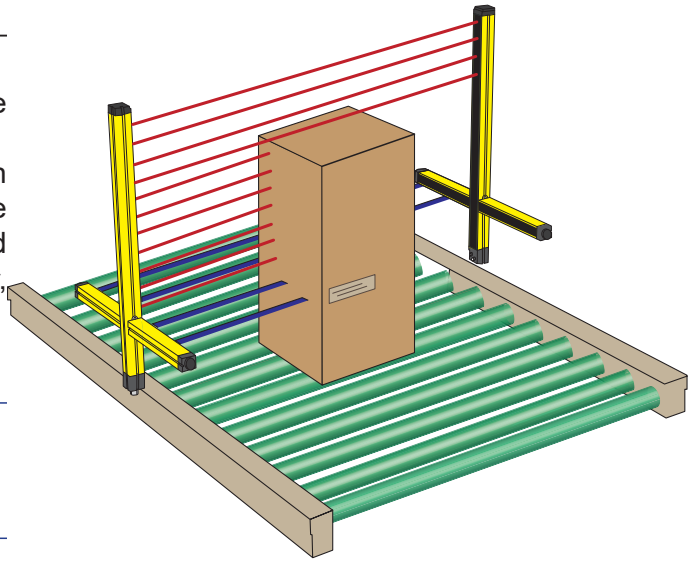
➔ ***In both modes of operation, the minimum pallet length must be 70 cm (to ensure simultaneous occupancy of all four sensors).***





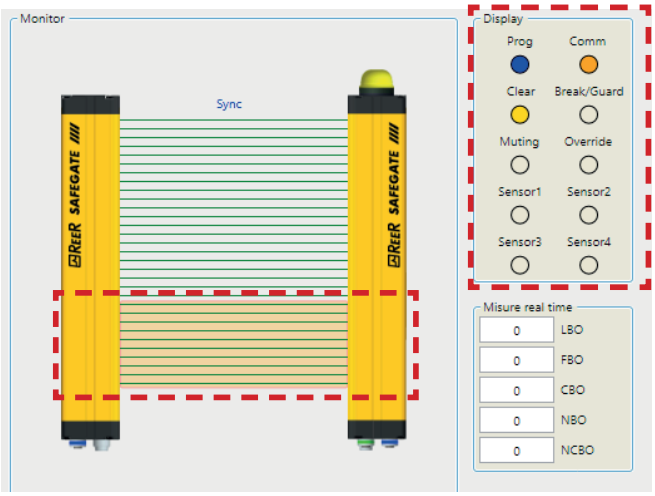
PARTIAL MUTING

The Partial Muting feature allows you to limit the Muting function to a number of well-defined beams. By this function, you can enable the Muting function only for those beams that will be interrupted by the passage of the material (e.g. lower pallets at the end of the product cycle). The remaining beams, however, can be kept active to protect the dangerous gate.



➔ ***This function is only available on SMP/SMPO models (except 2B) and must be managed through the Safegate Configurator software (select "Partial Muting Enabling").***

The software should then select the number of beams affected by Partial Muting, taking into account that the first Partial Muting beam always starts from the bottom (connectors side).



For this operation, it may be useful to verify the Monitor software function (free beams are indicated by different colouring than the busy ones) and the various numerical information on the side (LBO, FBO, etc.).
Only one value can be entered when programming the number of beams affected by this function.
There are two types of partial Muting and, for both, the "Partial Muting" input pin (pin 6 of M12 12-pin connector on the receiver) must be used.

Partial Muting with Enable

With this option, the Partial Muting function is normally deactivated. To activate this function, the input signal (pins 6 and 11 of the receiver) must switch from LO to HI (rising edge) before starting the Muting cycle.

Partial Muting with Disable

With this option the Partial Muting function is normally active. To activate this function, the input signal (pin 6 of the receiver) must switch from LO to HI (rising edge) before starting the Muting cycle.

➔ ***Refer to the "OPERATING MODES" section to correctly set this function.***

MUTING OVERRIDE

The OVERRIDE function becomes necessary when, after incorrect Muting activation sequences, the machine stops leaving the material in the dangerous gate.
In this situation, the OSSD outputs are inactive because the curtain and/or at least one Muting sensor are busy. In this condition, the OVERRIDE request LED flashes.

- ***This operation activates the OSSD outputs to remove the material obstructing the gate.***
- ***During the entire phase in which the OVERRIDE function is active, the Override/Muting lamp flashes. Periodically verify the efficiency of this lamp (during Muting or Override phases).***
- ***The Pulse Override command automatically activates the curtain outputs until both the curtain and the Muting sensors are again free of obstacles. During this period the curtain is not able to protect access to the dangerous gate. It is therefore necessary that all operations be conducted under close supervision of experienced personnel.***

The user will use the type of Override previously configured:

1. Override with Hold-to-run-Control
2. Override with Pulse Control

Override with Hold-to-run-Control

Activation of this function must be done by bringing both receiver pins 9 and 10 to + 24VDC (within a 400ms time window), for example by using a 2-way key switch with spring return.
Override has a maximum duration of 15 minutes; it can end due to two different conditions.

1. When the selector is released or the 15 minutes expire, the override ends, bringing the outputs to OFF, turning off the lamp, and returning the display to normal. However, it is still possible to start a new override, releasing the selector and reactivating it.
2. At the release of the curtain and sensors (clear gate) the override ends and the GUARD condition is reactivated (the curtain is working properly) without additional commands.

Override with Pulse Control

The activation of this function must occur inverting (within a time window of 400 ms) the condition of pins 9 and 10 of the receiver (e.g. through the use of a 2-way switch).

MAXIMUM OVERRIDE TIME (MODELS WITH HARDWARE CONFIGURATION)

The override has a maximum duration of 15 minutes (repeatable).
The function can only restart with a new request complying with the following conditions:

1. Maximum OVERRIDE time (after n consecutive requests) = 60 min
2. Maximum number of consecutive OVERRIDE requests = 30.

MAXIMUM OVERRIDE TIME (MODELS WITH SOFTWARE CONFIGURATION)

The function can only restart with a new request complying with the following conditions:

1. Maximum OVERRIDE time (after n consecutive requests) = ***4 x timeout override***[1]
2. Maximum number of consecutive OVERRIDE requests = 30.

At the release of the curtain and sensors (clear gate) the override ends and the GUARD condition is reactivated (the curtain is working properly) without additional commands.
The timer (point 1) and the counter (point 2) are reset if one of the following conditions occurs:

1. A proper sequence of Muting.
2. A system reset (turning it off and on).

1 *the parameter "timeout override" can be set through the configuration software.*

INSTALLATION

CALCULATION OF THE SAFETY DISTANCE

The effectiveness of the protection heavily depends on the correct positioning of the curtain according to the danger. The curtain must be positioned at a distance greater than or equal to the minimum safety distance S so that reaching the dangerous point can only be achieved after the dangerous operation of the machine has stopped.

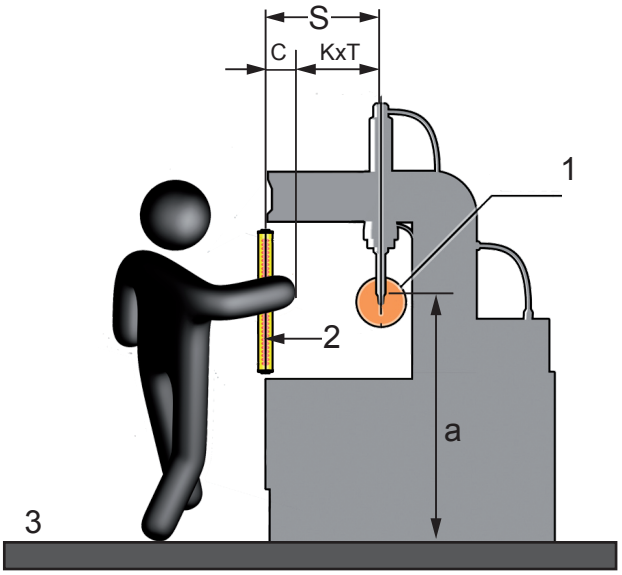
The positioning shall be such that:

- Reaching the dangerous point is avoided without crossing the area controlled by the curtain.
- No person is allowed in the dangerous area without this being detected. For this case, additional safety devices (e.g. horizontal light curtains) may be required.

The ISO 13855 standard provides the elements for calculating the safety distance.

If the machine under consideration is subject to a type C specific standard, reference should be made to this rule.
If the S distance calculated appears to be excessive, it is necessary:

- to reduce the total time the machine is off
- to improve the resolution of the curtain.



1. Dangerous point
2. Protected plane
3. Reference plane
a. Height of dangerous point
S. Safety distance

GENERAL FORMULA FOR CALCULATING THE SAFETY DISTANCE

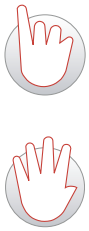
$$S = K \times T + C$$

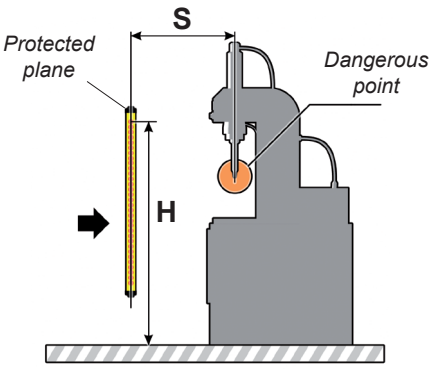
S	minimum safety distance between the protection and the dangerous point, expressed in mm.
K	advance speed of the body or parts of the body, expressed in mm per second. K values can be: K = 2000 mm per second for safety distances up to 500 mm K = 1600 mm per second for safety distances over 500 mm
T	Total machine stopping time including: T1 response time of the protection device in seconds T2 machine reaction time to stop the hazardous operation, in seconds.
C	additional distance expressed in mm.

MODELS WITH RESOLUTION (Detection Capability) 14mm - 30 mm - 40 mm

Curtains with resolution for fingers detection.
Curtain resolution (d) 14 mm

Curtains with resolution for hands detection.
Curtain resolution (d) 30 - 40 mm





Calculating the minimum safety distance (S)

Refer to the general formula for the safety distance calculation.

S = K x T + C
S = 2000xT + 8x(d-14)

If the formula provides as a result: S>500 it's possible to use

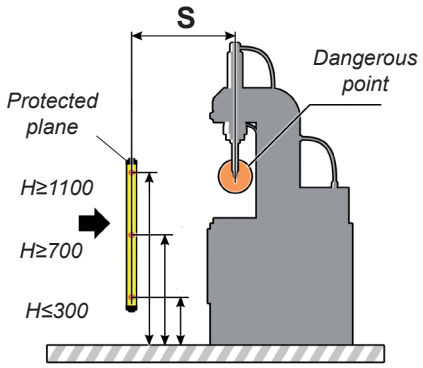
K=1600
S = 1600xT + 8x(d-14)

(with C = 8x(d-14))

- The S distance must not be less than 100mm
- If the resulting distance S is greater than 500 mm, you can recalculate the distance using K = 1600.
- In this case the distance must still not be less than 500 mm.

MODELS WITH 2/3/4 beams

Body detection curtains.
Curtain with 2/3/4 beams



Refer to the general formula for the safety distance calculation.

S = K x T + C
S = 1600xT + 850

Recommended height according to the number of beams

N°	Recommended height
2	400 - 900 mm
3	300 - 700 - 1100 mm
4	300 - 600 - 900 - 1200 mm

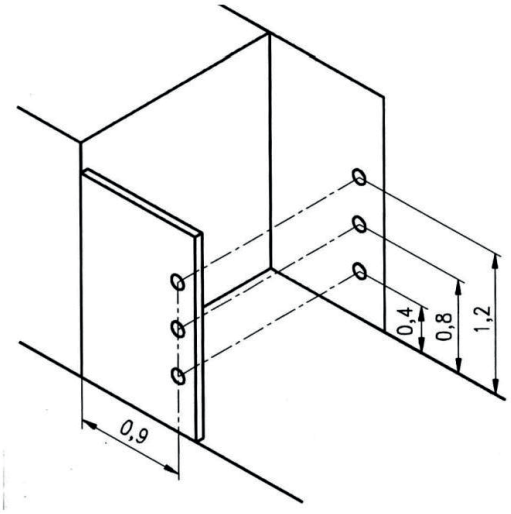
➔ ***The S distance must not be less than 100 mm***

➔ ***If the resulting distance S is greater than 500 mm, it is possible to recalculate the distance using K = 1600 but in this case the distance must still not be less than 500 mm***

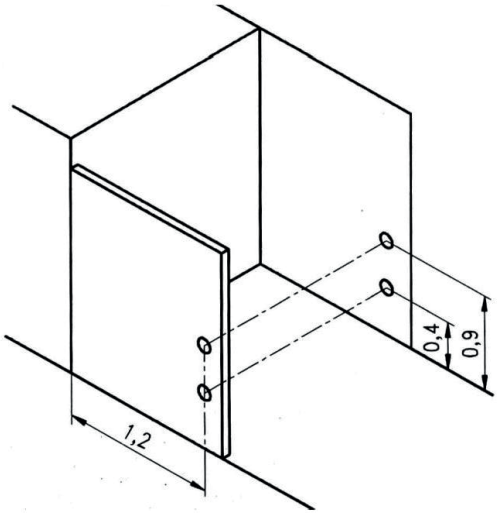
If the distance between the muting sensors is lower than required, the SAFEGATE safety function is not guaranteed.

For applications on packaging machines (palletizers and unpalletizers), follow the instructions in European standard EN 415-4, which are repeated here.

From low level (floor)
Device with 3 beams at least



Above the conveyor (rollers)
Device with 2 beams at least

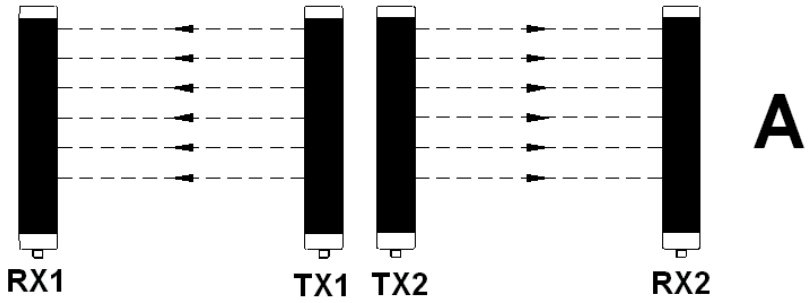


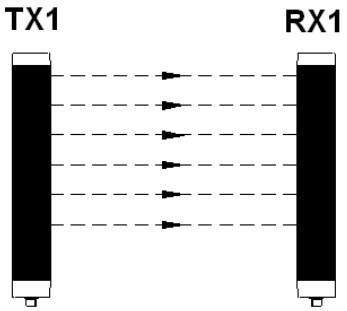
Dimensions in m

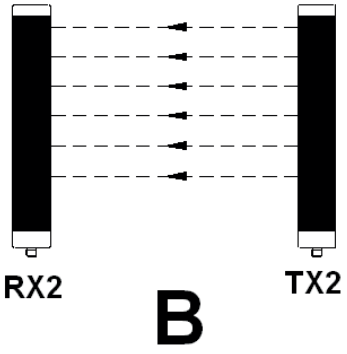
MULTIPLE SYSTEMS

➔ ***When using multiple SAFEGATE systems, it is necessary to avoid them interfering optically with one another: position the elements so that the beam emitted by the system Emitter is received only by the respective Receiver.***

The following figure shows some examples of correct positioning between the two photoelectric systems. An incorrect positioning may cause interference, leading to an abnormal operation.



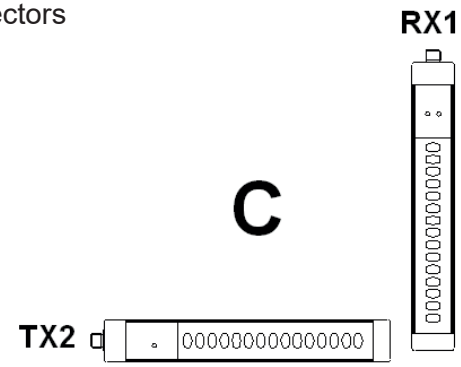




Systems side by side: A
Adjacent positioning of the two projectors

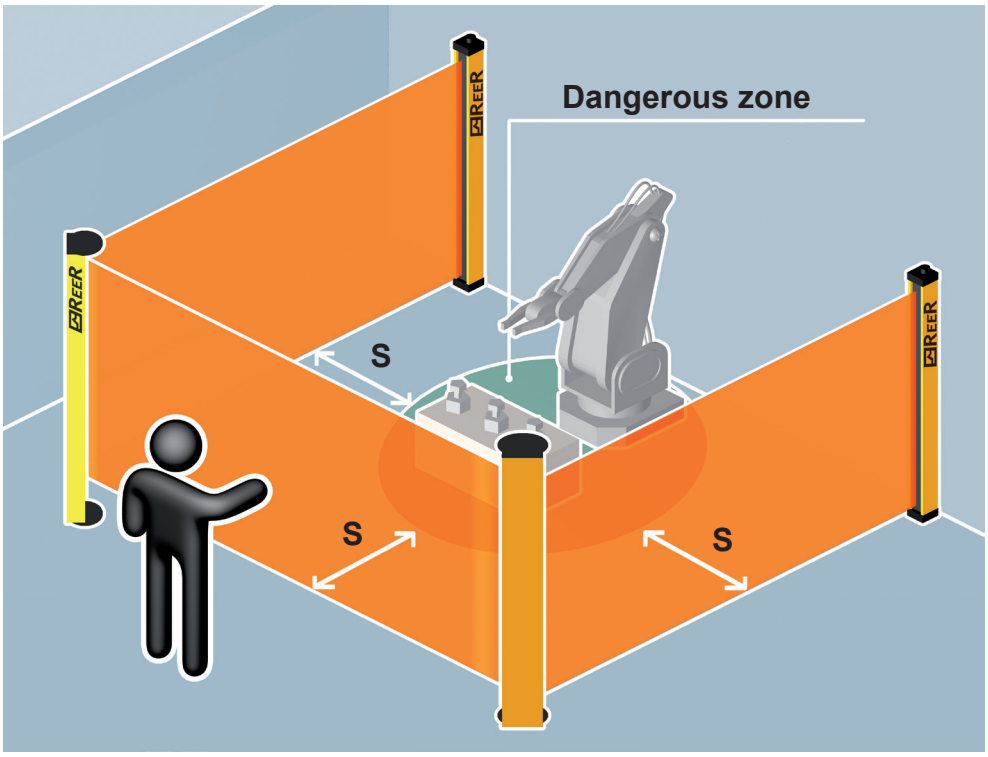
Overlapping systems: B
“L” combination: C

Cross-positioning between
projectors and receivers



USE OF DEFLECTING MIRRORS

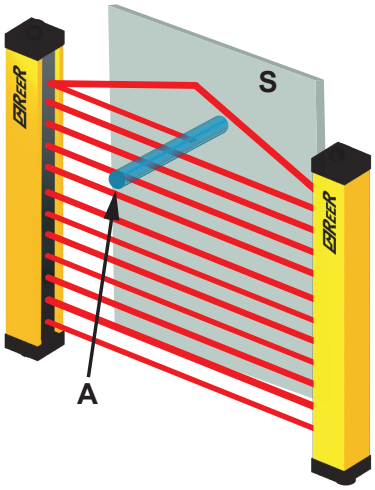
For the protection or control of multiple accessed areas, one or more deflecting mirrors can be used in addition to the Emitter and the Receiver.
The deflecting mirrors allow in fact returning the optical beams generated by the Emitter on multiple sides.
If you want to deflect by 90° the beams emitted by the Emitter, the perpendicular to the surface of the mirror should make a 45° angle with the direction of the beams.
The following figure shows an application in which two deflecting mirrors are used to make a “U” protection.



When making use of deflecting mirrors consider the following rules:

- Position the mirrors so that the minimum safety distance S is kept on each of the sides to access the hazardous area.
- The working distance (range) is the sum of the lengths of all sides accessing the guarded area. (Please note that the maximum working range between Emitter and Receiver is reduced by 15% for each mirror used).
- When installing, pay particular attention to not to twist along the longitudinal axis of the mirror.
- Verify, by positioning near and on the Receiver axis, that in the first mirror you see the whole shape of the Emitter.
- It is recommended that you use no more than three deflecting mirrors.

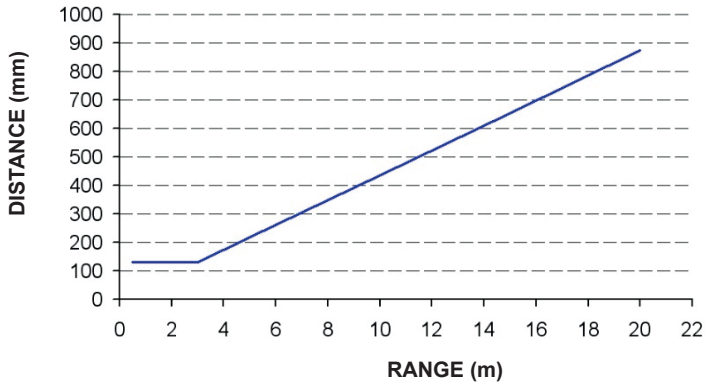
DISTANCE FROM REFLECTING SURFACES



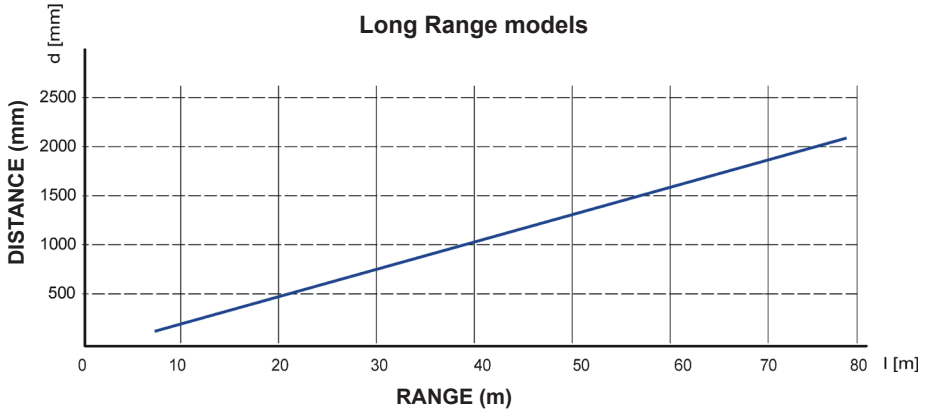
The presence of reflective surfaces located near the light curtain can cause spurious reflections preventing the detection. Referring to the following Figure object A is not detected due to the plane S reflecting the beam and thus closing the optical path between the Emitter and Receiver. It is therefore necessary to keep a minimum distance d between any reflecting surfaces and the protected area. For calculating the minimum distance d, it is recommended to use the values set for Type 4 devices according to IEC/EN 61496-2.

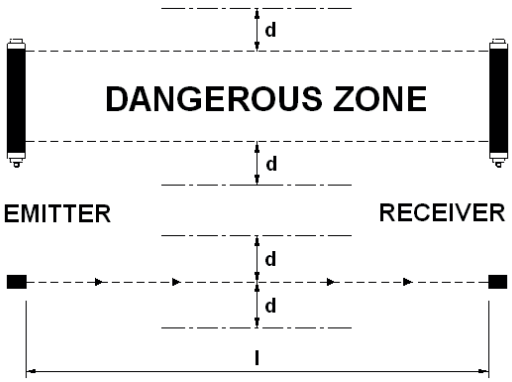
The following figure shows the above-mentioned values of the distance d based on the distance between the Emitter and the Receiver.

Standard models



Long Range models



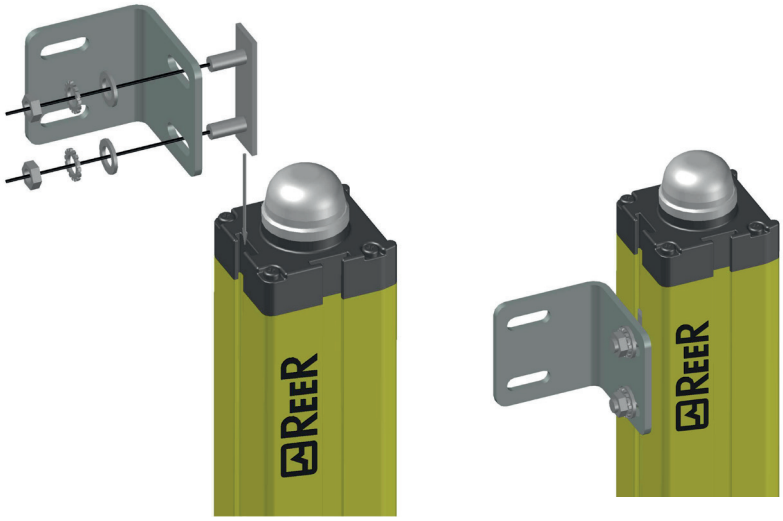


Once the system is installed, verify any reflective surfaces which may intercept the beams, first in the centre and then near the Emitter and Receiver. During this procedure, the red LED on the Receiver must never go off.

MECHANICAL ASSEMBLY AND OPTICAL ALIGNMENT

The following operations must only be carried out by qualified personnel, otherwise you may lose the machine safety function.

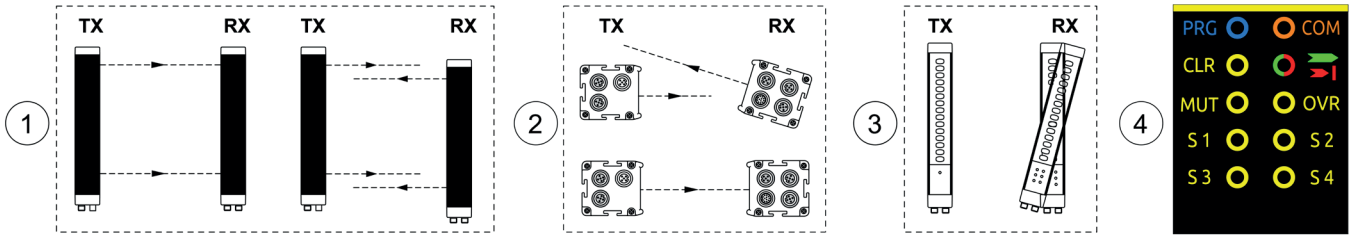
- The Emitter and the Receiver must be mounted one in front of the other at a distance equal to or less than that indicated in the technical data. Using the supplied inserts and brackets, position the Emitter and the Receiver so that they are aligned and parallel to each other and with the connectors facing the same side.



STANDARD MODELS OPTICAL ALIGNMENT

- The perfect alignment between Emitter and Receiver is essential for the smooth operation of the curtain; this operation is facilitated by observing the Emitter and Receiver signalling LEDs.
- Make electrical connections according to the directions of the dedicated chapter.

Pay particular attention to the SAFEGATE model you are connecting. Connections may vary depending on the model.



- Place the optical axis of the first and last beams of the Emitter on the same axis as that of the corresponding beams on the Receiver.
- Move the Emitter to find the area within which the green LED on the Receiver stays on, then place the first transmitter beam (the one near the signal LED) at the centre of this area.
- Using this beam as a pivot, with small lateral displacements of the opposite end, move to the free guarded area condition, which in this situation will be indicated by turning on the green LED on the Receiver.
- Firmly tighten the Emitter and the Receiver.

If the Emitter and the Receiver are mounted in areas subject to strong vibrations, in order not to compromise the operation of the circuits, it is necessary to use anti-vibration dampers.

ILP MODELS OPTICAL ALIGNMENT

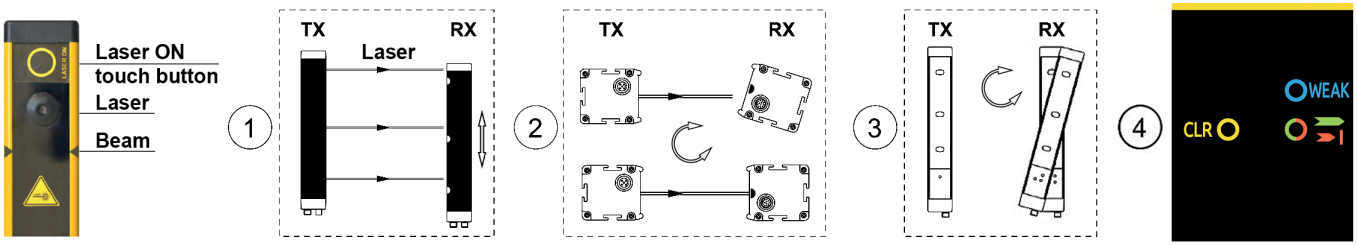
- The perfect alignment between Emitter and Receiver is essential for the smooth operation of the curtain; this operation is facilitated by observing the Emitter and Receiver signalling LEDs.
- Make electrical connections according to the directions of the dedicated chapter.

The following warnings are fundamental for people's safety. Follow all the warnings carefully, to avoid risks of eye injuries.

Never aim the laser source directly at the eyes of others or to your own.

Keep the laser on only for the time which is strictly necessary to its professional use.

- For the initial alignment, use a target that is larger than the width of the Receiver.
- Press the Laser ON touch button on the Emitter.
- Move the Emitter to find the area within which the laser beam hits the target. Repeat the procedure if necessary.



- Place the optical axis of the first and last beams of the Emitter on the same axis as that of the corresponding beams on the Receiver.
- Move the Emitter to find the area within which the green LED on the Receiver stays on, then place the first Emitter beam (the one near the signal LED) at the centre of this area. The blue (weak signal) led must always stay OFF.
- Using this beam as a pivot, with small lateral displacements of the opposite end, move to the free guarded area condition, which in this situation will be indicated by turning on the green LED on the Receiver.
- Firmly tighten the Emitter and the Receiver.

If the Emitter and the Receiver are mounted in areas subject to strong vibrations, in order not to compromise the operation of the circuits, it is necessary to use anti-vibration dampers.

SM - SMO MODELS ELECTRICAL CONNECTIONS

Before proceeding to the electrical connections make sure that the available power supply voltage is in accordance with the data specified in the technical data.

- ***The Emitter and Receiver must be powered at a 24Vdc±20% (PELV, in compliance with the standard EN 60204-1 (Chapter 6.4)).***
- ***Make sure the connectors are screwed down tightly to ensure correct barrier operation!***
- ***In order to ensure the declared Environmental Protection Degree (IP65-IP67), it is mandatory to protect the unused connectors with the provided protection caps.***

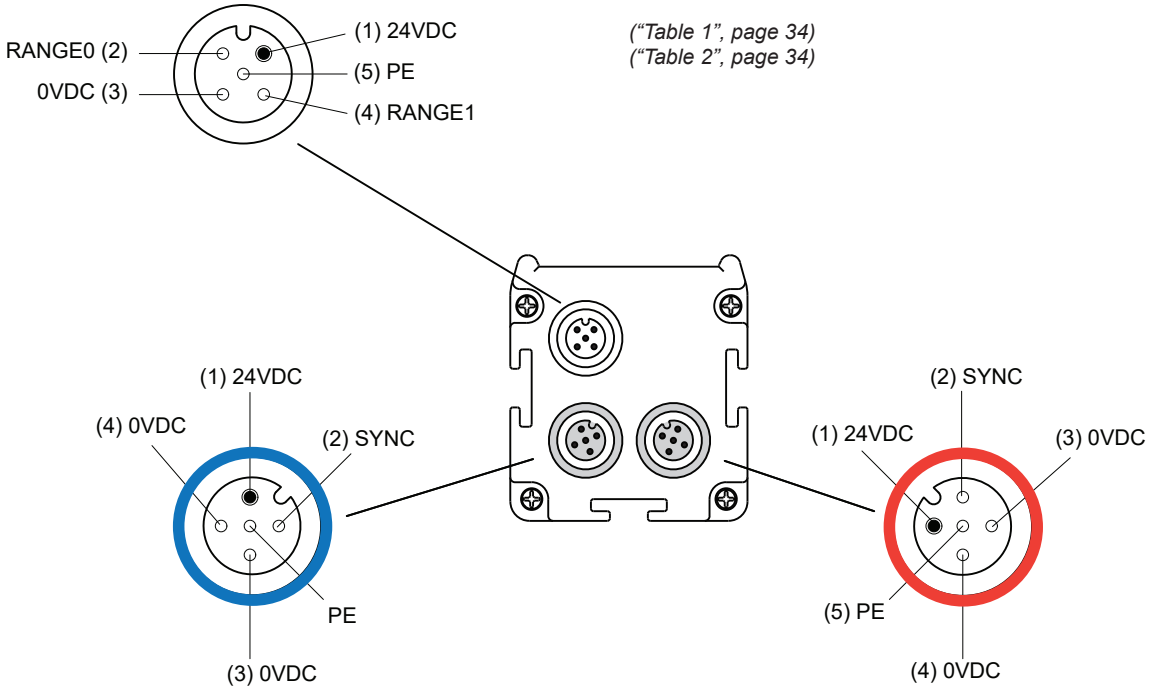
PRECAUTIONS

- Make the connection to earth before making any other connections.
- Perform all connections before energizing Safegate.
- The ground connection (0VDC) must be common to all system components.

WARNINGS ON CONNECTION CABLES

- ***Conductor Size: 0,25÷2,5 mm².***
- ***It is recommended to keep SAFEGATE's power supply separate from that of other electrical power equipment (electric motors, inverters, frequency changers) or other sources of disturbance.***
- ***For connections more than 20 m long, cables with a section of at least 0.5 mm² must be used (AWG16), (1 mm² for lengths over 50 m).***

EMITTER CONNECTIONS



("Table 1", page 34)
("Table 2", page 34)

("Table 3", page 34)

("Table 4", page 34)

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Table 1 *RANGE/TEST SELECTION MALE CONNECTOR - M12 - 5-PIN*					
PIN	**COLOUR**	**SIGNAL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**24VDC**	-	Power supply 24 VDC	24VDC
2	White	**RANGE0**	Input	Range selection	(see table “RANGE AND TEST SELECTION”)
3	Blue	**0VDC**	-	Power supply 0VDC	0VDC
4	Black	**RANGE1**	Input	Range selection	(see table “RANGE AND TEST SELECTION”)
5	Grey	**PE**	-	EARTH CONNECTION	-

Table 2 *RANGE AND TEST SELECTION - M12 - 5-PIN*			
PIN 2	**PIN 4**	**FUNCTION**	
24VDC	**0VDC**	LOW range	*(For range values, refer to the Technical Features table)*
0VDC	**24VDC**	HIGH range	
0VDC	**0VDC**	Curtain under TEST	*(Refer to paragraph “TEST FUNCTION”)*
24VDC	**24VDC**	-	*Condition not allowed*

Table 3 *FEMALE CONNECTOR POWER SUPPLY SENSORS MUTING 1 - 2 - M12 - 5-PIN*					
PIN	**COLOUR**	**SIGNAL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**24VDC**	-	Sensor Power Supply 24VDC	24VDC
2	White	**SYNC**	Output	Synchronization with M5 arms	Proprietary coded signal
3	Blue	**0VDC**	-	Sensor Power Supply 0VDC	0VDC
4	Black	**0VDC**	-	Sensor Power Supply 0VDC	0VDC
5	Grey	**PE**	-	EARTH CONNECTION	-

Table 4 *FEMALE CONNECTOR POWER SUPPLY SENSORS MUTING 3 - 4 - M12 - 5-PIN*					
PIN	**COLOUR**	**SIGNAL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**24VDC**	-	Sensor Power Supply 24VDC	24VDC
2	White	**SYNC**	Output	Synchronization with M5 arms	Proprietary coded signal
3	Blue	**0VDC**	-	Sensor Power Supply 0VDC	0VDC
4	Black	**0VDC**	-	Sensor Power Supply 0VDC	0VDC
5	Grey	**PE**	-	EARTH CONNECTION	-

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RECEIVER CONNECTIONS

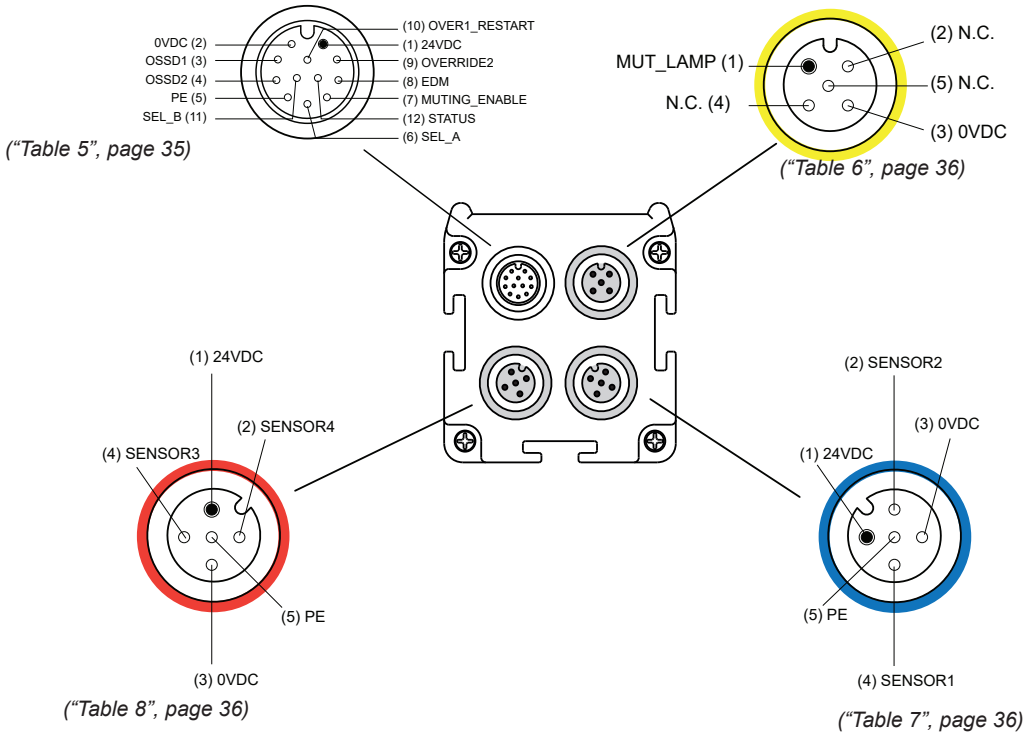

Table 5
MAIN MALE CONNECTOR - M12 - 12 PIN

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
1	Brown	**24VDC**	-	POWER SUPPLY 24 VDC	-
2	Blue	**0VDC**	-	POWER SUPPLY 0VDC	-
3	White	**OSSD1**	Output	STATIC SAFETY OUTPUTS	PNP active high
4	Green	**OSSD2**	Output		
5	Pink	**PE**	-	EARTH CONNECTION	-
6	Yellow	**SEL_A**	Input	MUTING CONFIGURATION	Refer to "SELECTION OF OPERATING MODES", page 37
7	Black	**MUT_ENABLE**	Input	EXTERNAL MUTING ENABLE	Safegate considers the muting cycle correct if it detects a "MUTING ENABLE" signal rising edge before the use of the sensors
8	Grey	**EDM**	Input	FEEDBACK K1/K2	External contactors feedback "EDM", page 38
9	Red	**OVERRIDE2**	Input	OVERRIDE REQUEST	Refer to the section "OVERRIDE", page 39
10	Violet	**OVERRIDE1**	Input	OVERRIDE REQUEST	Refer to the section "OVERRIDE", page 39
		RESTART		RESTART INTERLOCK	Refer to the table "RESTART (MANUAL OPERATION)", page 40
11	Grey/ Pink	**SEL_B**	Input	MUTING CONFIGURATION	Refer to the section "SELECTION OF OPERATING MODES", page 37
12	Red/Blue	**STATUS**	Output	AUXILIARY OUTPUT	PNP active high

➔ ***When connecting high inductive loads to OSSDs, use suitable voltage suppressors on the outputs.***

In free protected area conditions, the Receiver provides a voltage of 24VDC on BOTH outputs. Therefore, the established load must be connected between BOTH output terminals and the 0VDC.

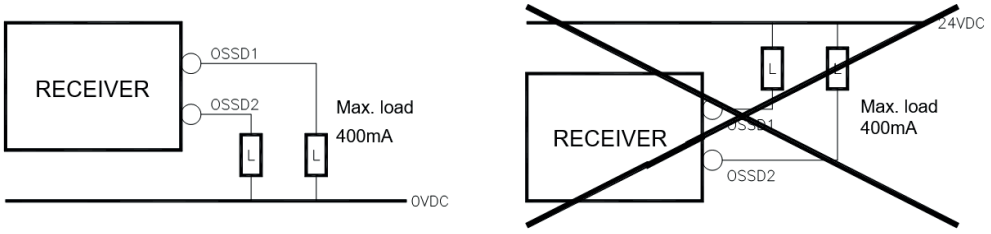

Table 6
MUTING LAMP FEMALE CONNECTOR

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
1	Brown	**MUT_LAMP**	Output	Muting Lamp activation command	Active Muting 24VDC
2	White	**n.c.**	-	-	-
3	Blue	**0VDC**	-	Muting Lamp 0VDC	0VDC
4	Black	**n.c.**	-	-	
5	Grey	**n.c.**	-	-	-

Table 7
FEMALE CONNECTOR POWER SUPPLY SENSORS MUTING 1 - 2 - M12 - 5-PIN

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
1	Brown	**24VDC**	-	Sensor Power Supply 24VDC	Positive
2	White	**SENSOR2**	Input	SENSOR 2 Status	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
3	Blue	**0VDC**	-	Sensor Power Supply 0VDC	Negative
4	Black	**SENSOR1**	Input	SENSOR 1 Status	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
5	Grey	**PE**	-	EARTH CONNECTION	-

Table 8
FEMALE CONNECTOR POWER SUPPLY/SENSORS MUTING 3 - 4 - M12 - 5-PIN

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
1	Brown	**24VDC**	-	Sensor Power Supply 24VDC	Positive
2	White	**SENSOR4**	Input	SENSOR 4 Status	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
3	Blue	**0VDC**	-	Sensor Power Supply 0VDC	Negative
4	Black	**SENSOR3**	Input	SENSOR 3 Status	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
5	Grey	**PE**	-	EARTH CONNECTION	-

➔ ***Using LX or TX configuration with 2 sensors: SENSOR1 wiring is mandatory, while the position of the second muting sensor is free between SENSOR2 and SENSOR3.***
SENSOR2: sensor arms MALX; SENSOR3: sensor arms MATX or external photocells.

TEST FUNCTION

By means of the test function, which simulates occupation of the protected area, it possible to verify the operation of the entire system by means of an external supervisor (e.g. PLC, control module, etc.). The SAFEGATE barrier system features an automatic self-diagnosis function that enables it to detect response time malfunctions (this time is declared for each model).
This fault detection system is always active and does not require any external intervention.
The TEST command is available in the case in which the user wishes to check the devices connected downstream of the light curtain (without physically intervening inside the guarded area). This command interrupts emission of the beams on the emitter and makes it possible to switch the OSSD from ON to OFF status as long as the command is active.

➔ ***The minimum duration of the TEST function must be 40 msec.***

SELECTION OF OPERATING MODES

The SAFEGATE receiver inputs (main male connector - M12 - 12pin) allow the configuration of the various operating modes.
It is therefore necessary, when switching on, to properly connect the SAFEGATE receiver inputs for proper operation, as shown below.
The following tables allow the user to configure the type of Muting to be adopted in terms of: MUTING MODE, TIMEOUT MUTING, OVERRIDE TYPOLOGY.

The incorrect setting of the Muting parameters by the operator compromises the safe operation of the barrier.

	SEL_A (pin 6)	SEL_B (pin 11)	MUTING MODE	MUTING TIMEOUT
MANUAL MODE	24VDC (1)	OSSD1 (3)	4 SENSORS, SEQUENTIAL	30 s
	24VDC (1)	OSSD2 (4)	4 SENSORS, SEQUENTIAL	∞
	OSSD2 (4)	OSSD1 (3)	2 SENSORS, “TX” MODE	30 s
	OSSD1 (3)	OSSD2 (4)	2 SENSORS, “TX” MODE	9 hours
	OSSD1 (3)	24VDC (1)	2 SENSORS, “L” MODE	30 s
	OSSD2 (4)	24VDC (1)	2 SENSORS, “L” MODE	9 hours
	OSSD2 (4)	OSSD2 (4)	4 SENSORS CONCURRENT	30 s
	OSSD1 (3)	OSSD1 (3)	4 SENSORS CONCURRENT	9 hours
	n.c. / 0VDC	n.c. / 0VDC	Configuration error	
	n.c. / 0VDC	n.c. / 0VDC	**SPM/SPMO models: programming needed**	

	SEL_A (pin 6)	SEL_B (pin 11)	MUTING MODE	MUTING TIMEOUT
AUTOMATIC MODE	24VDC (1)	24VDC (1)	4 SENSORS, SEQUENTIAL	30 s
	STATUS (12)	STATUS (12)	4 SENSORS, SEQUENTIAL	∞
	24VDC (1)	STATUS (12)	2 SENSORS, “TX” MODE	30 s
	STATUS (12)	24VDC (1)	2 SENSORS, “TX” MODE	9 hours
	STATUS (12)	OSSD1 (3)	2 SENSORS, “L” MODE	30 s
	OSSD1 (3)	STATUS (12)	2 SENSORS, “L” MODE	9 hours
	STATUS (12)	OSSD2 (4)	4 SENSORS CONCURRENT	30 s
	OSSD2 (4)	STATUS (12)	4 SENSORS CONCURRENT	9 hours
	n.c. / 0VDC	n.c. / 0VDC	Configuration error	
	n.c. / 0VDC	n.c. / 0VDC	**SPM/SPMO models: programming needed**	

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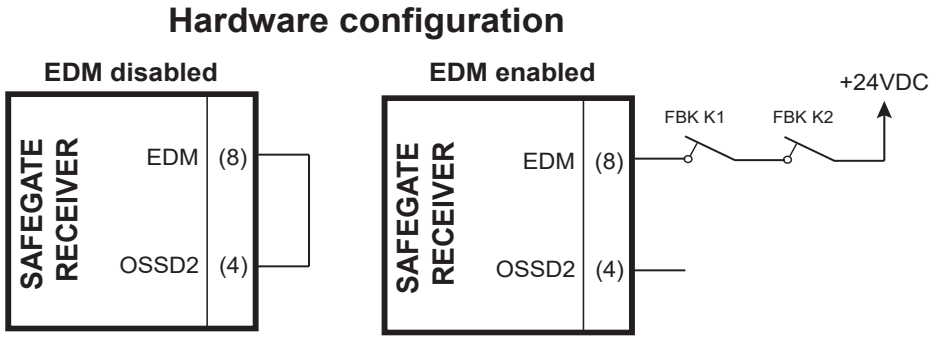
EDM

The EDM function (external K1 / K2 control) can be enabled / disabled via hardware:

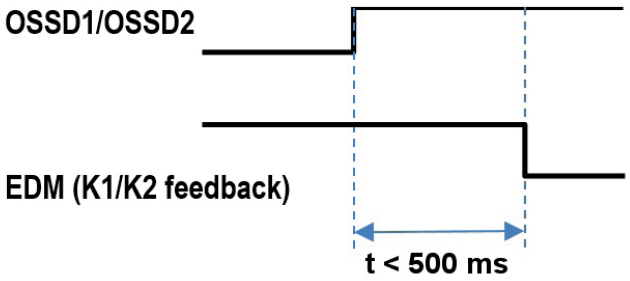


EDM ACTIVATED

SAFEGATE awaits a signal with inverse logic to the condition of the external contactors:

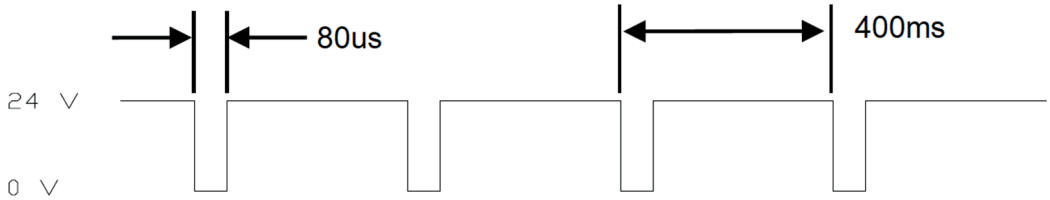
- OSSD1 / OSSD ON: External contacts K1/K2 closed: **EDM = OPEN CIRCUIT**
- OSSD1 / OSSD OFF: External contacts K1/K2 open: **EDM = CLOSED CIRCUIT**

➔ ***The time allowed to elapse from the activation of the OSSD outputs and the opening of the FBK contacts must be t <500ms.***



STATUS

The output STATUS is tested for possible 0V or +24VDC blocks.
The test method chosen to perform this check is the “voltage dip test”: periodically (every 400ms and for a period of 80µs) the STATUS is switched to 0VDC and its behavior is checked, if the test results are not consistent the barrier is brought to a safe state.



OVERRIDE

SAFEGATE allows you to configure two different types of override; (See paragraph "MUTING OVERRIDE", page 23 for the description of the following function).

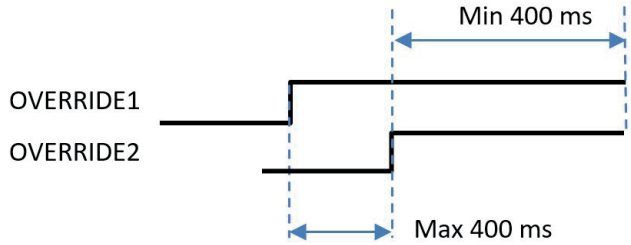
➔ ***The OVERRIDE activation condition for the "L" Muting type requires only the light curtain occupation, while for the "T" Muting type the occupation of light curtain and at least one sensor is required.***

OVERRIDE1 (pin 10)	OVERRIDE2 (pin 9)	SELEZIONE
0	0	Override with Hold-To-Run Control
0	1	Override with Pulse Control
1	0	Wrong configuration
1	1	

OVERRIDE WITH HOLD-TO-RUN CONTROL

The function starts with the simultaneous activation of the two OVERRIDE inputs according to the following table:

OVERRIDE1 (pin 10)	OVERRIDE2 (Pin 9)
0	0
1	1

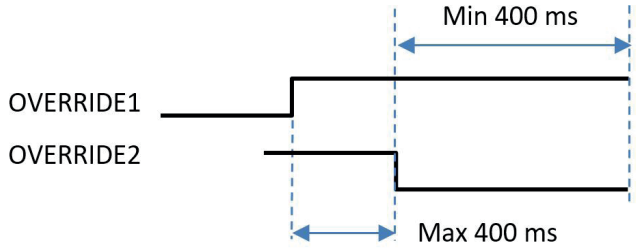


The function starts only if the signals are activated (24VDC) at the same time (within a maximum delay of 400 ms) and the control is kept active for at least 400 ms.

OVERRIDE WITH PULSE CONTROL

The function starts with the simultaneous activation of the two OVERRIDE inputs according to the following table:

OVERRIDE1 (pin 10)	OVERRIDE2 (Pin 9)
0	1
1	0



The function starts only if the signals are activated at the same time (within a maximum delay of 400 ms) and the button is held pressed for at least 400 ms.

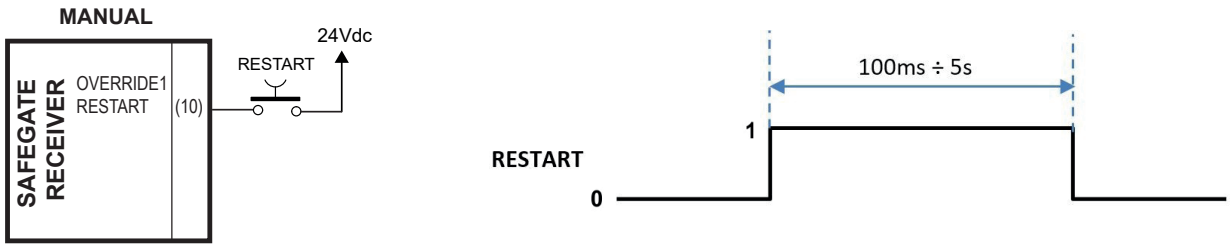
RESTART (MANUAL OPERATION)

➔ *Refer to "APPENDIX A1: SM - SMO MODELS WIRING SAMPLES - MANUAL MODE", page 42*

Pin 10 has RESTART function. As a result of occupation of the protected area, OSSDs outputs will be deactivated (OFF) (Manual mode - start/restart interlock enabled).

➔ ***To reactivate OSSDs it needs to press and release the N.O. RESTART pushbutton connected to 24VDC. Verify the logical sequence: 0 → 1 → 0.***

➢ The high level (24Vdc) must be between 100 ms and 5 s.



Use in manual mode (start/restart interlock enabled) is mandatory in case the safety device controls a gate to protect a dangerous area and a person, once crossed the gate, can stay in the hazardous area without being detected (use as a 'trip device' according to IEC 61496).

The Restart command must be located outside the hazardous area, at a point where the hazardous area and the entire working area concerned are clearly visible.

It must not be possible to reach the command from inside the hazardous area.

AUTOMATIC OPERATION

➔ *Refer to "APPENDIX A2: SM - SMO MODELS WIRING SAMPLES - AUTOMATIC MODE", page 44*

In Automatic operating mode, the OSSD1 and OSSD2 safety outputs follow the status of the light curtain:
- ➢ with guarded area free, the outputs are ON.
- ➢ with guarded area occupied, the outputs are OFF.

If the SAFEGATE light curtain is used in AUTOMATIC mode, it will not be equipped with a start/restart interlock circuit. In most applications, this safety function is mandatory. Carefully evaluate the risks analysis of your own application.

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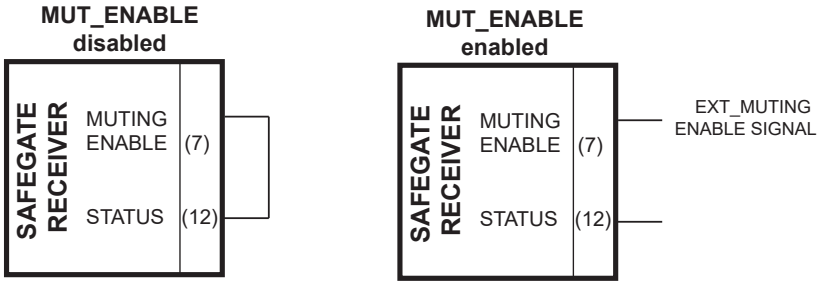
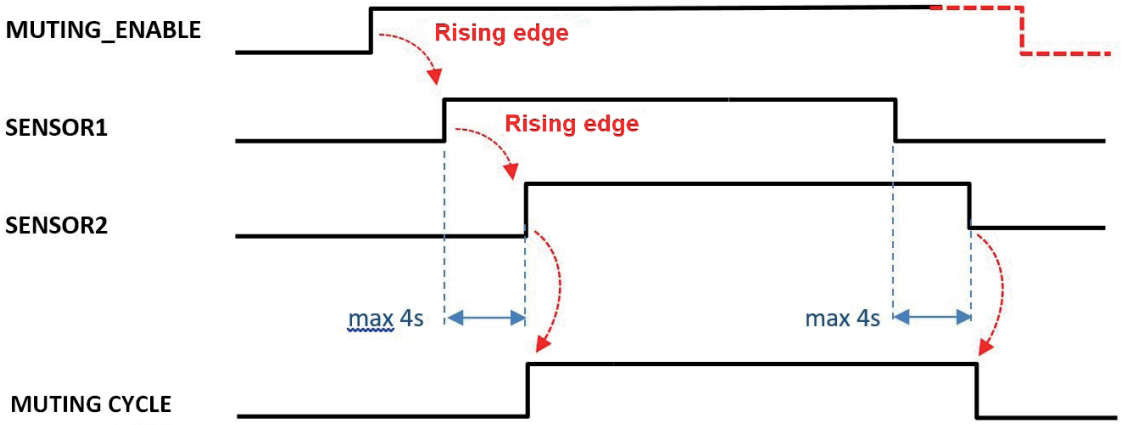
MUTING ENABLE

SAFEGATE can be configured in such a way that the muting cycle only starts after a signal of valid MUTING ENABLE.
Pin 7 (MUTING_ENABLE) and 12 (STATUS) must be connected at power up as indicated:



OPERATION	
Disabled	The Muting cycle is activated **without considering** the MUTING ENABLE signal
Enabled	**The Muting cycle is activated only with the correct transition of the MUTING ENABLE signal (see figure below) and will terminate with the release of the last sensor.**

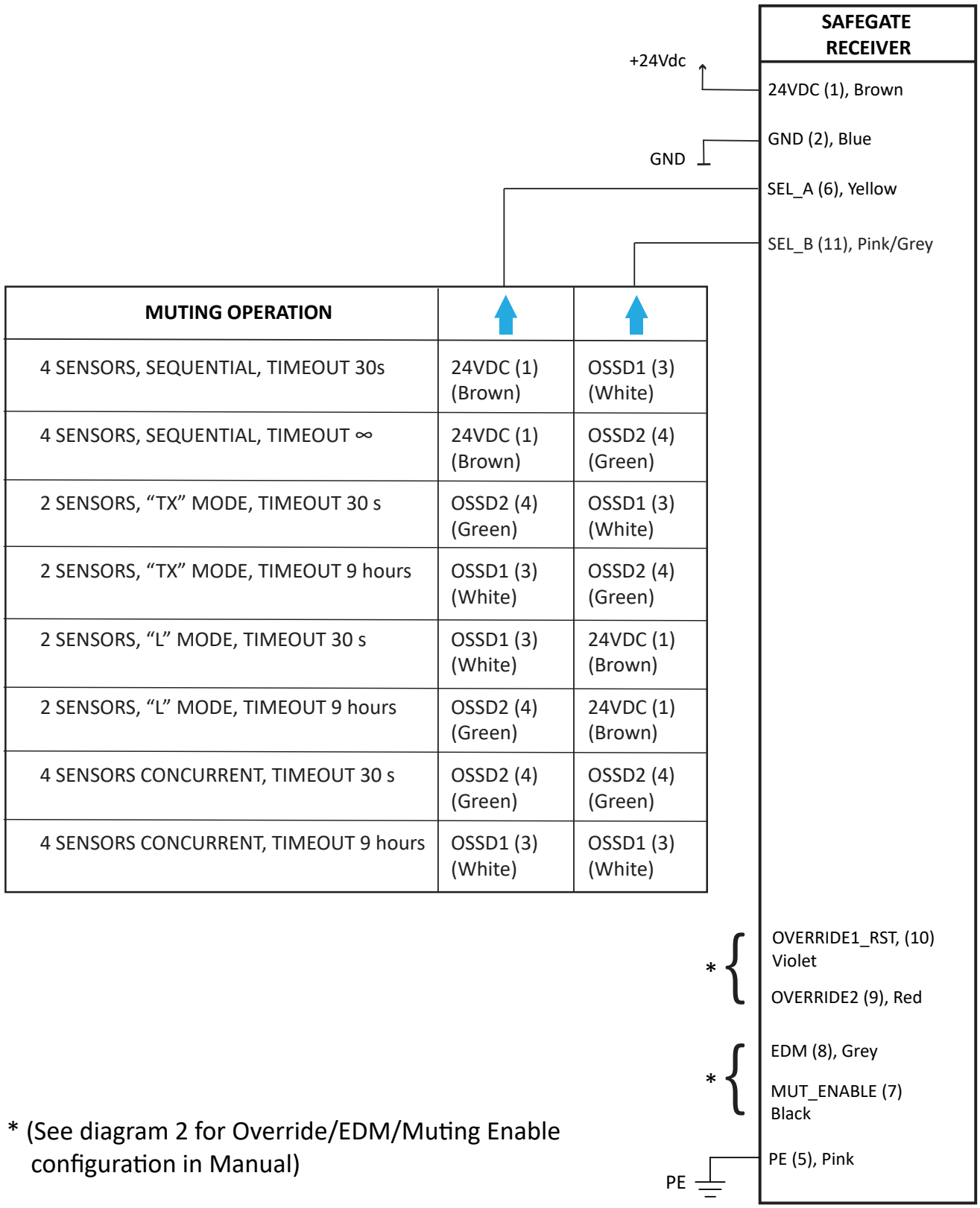
Muting Enable active: correct Muting sequence



APPENDIX A1: SM - SMO MODELS WIRING SAMPLES - MANUAL MODE

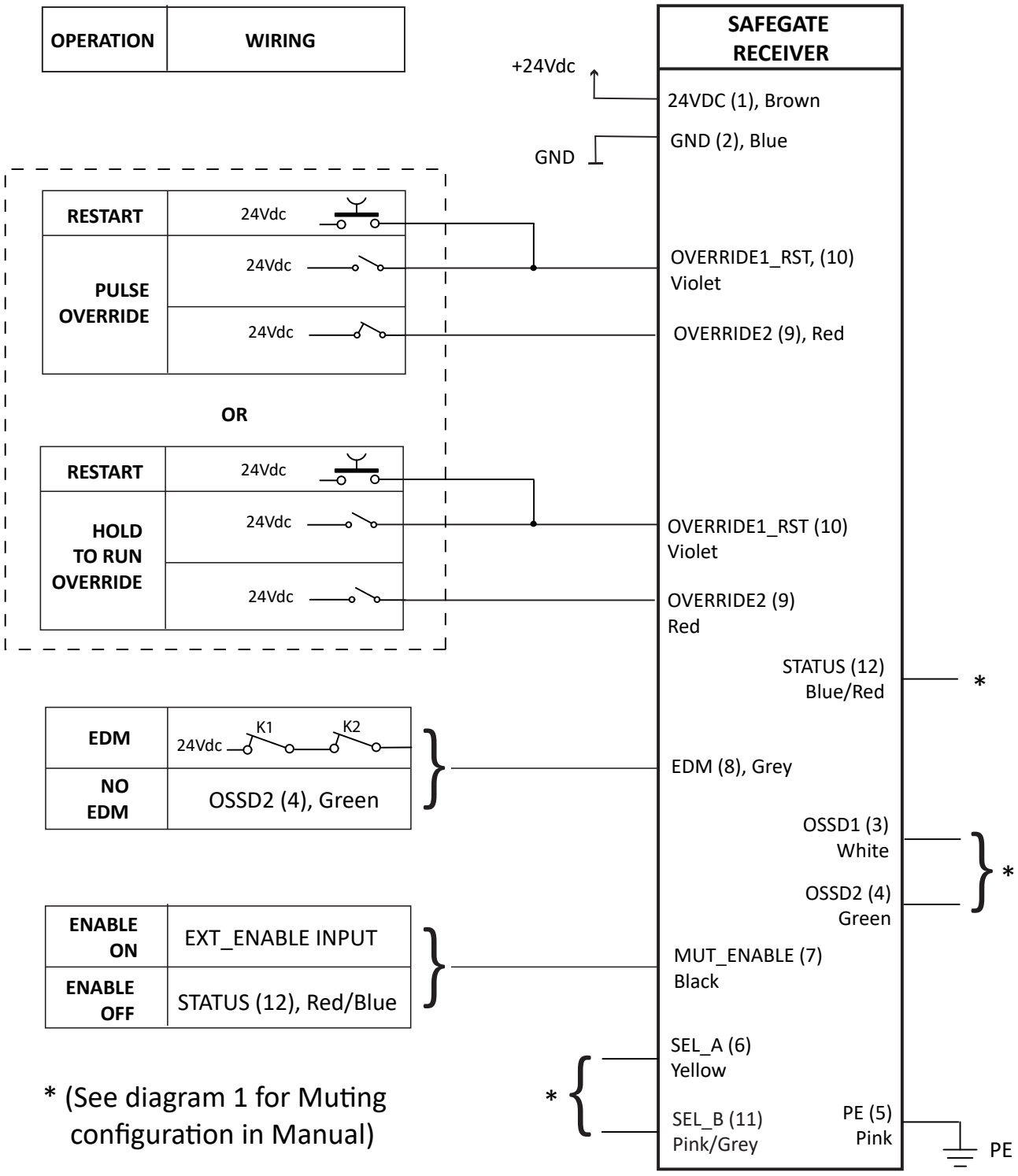
1 - WIRING CONFIGURATION
MUTING MODES OF OPERATION (MANUAL MODE)

MUTING OPERATION	↑	↑
4 SENSORS, SEQUENTIAL, TIMEOUT 30s	24VDC (1) (Brown)	OSSD1 (3) (White)
4 SENSORS, SEQUENTIAL, TIMEOUT ∞	24VDC (1) (Brown)	OSSD2 (4) (Green)
2 SENSORS, “TX” MODE, TIMEOUT 30 s	OSSD2 (4) (Green)	OSSD1 (3) (White)
2 SENSORS, “TX” MODE, TIMEOUT 9 hours	OSSD1 (3) (White)	OSSD2 (4) (Green)
2 SENSORS, “L” MODE, TIMEOUT 30 s	OSSD1 (3) (White)	24VDC (1) (Brown)
2 SENSORS, “L” MODE, TIMEOUT 9 hours	OSSD2 (4) (Green)	24VDC (1) (Brown)
4 SENSORS CONCURRENT, TIMEOUT 30 s	OSSD2 (4) (Green)	OSSD2 (4) (Green)
4 SENSORS CONCURRENT, TIMEOUT 9 hours	OSSD1 (3) (White)	OSSD1 (3) (White)



* (See diagram 2 for Override/EDM/Muting Enable configuration in Manual)

2 - WIRING CONFIGURATION
Override/EDM/Muting Enable (MANUAL MODE)

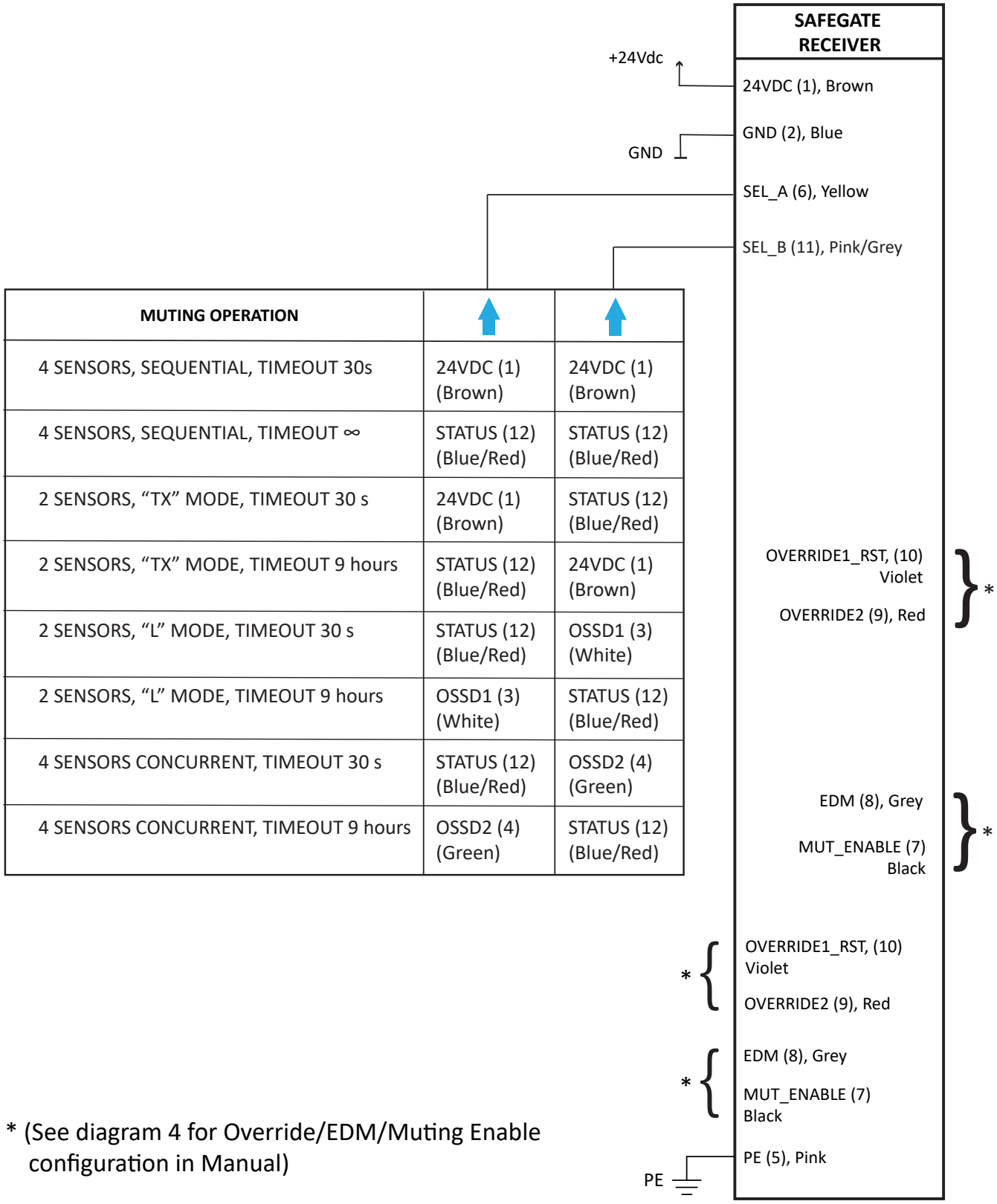


* (See diagram 1 for Muting configuration in Manual)

APPENDIX A2: SM - SMO MODELS WIRING SAMPLES - AUTOMATIC MODE

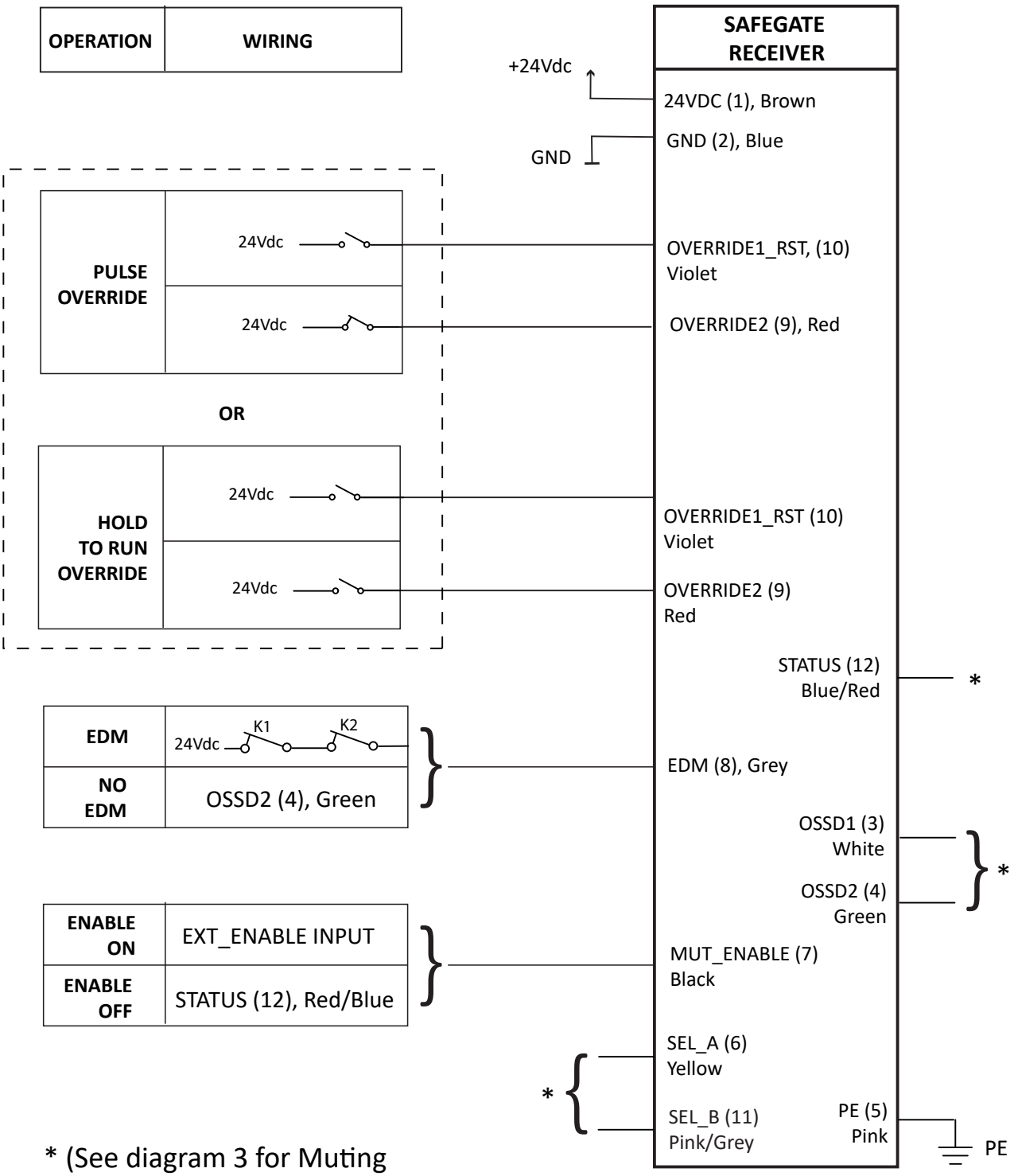
3 - WIRING CONFIGURATION
MUTING MODES OF OPERATION (AUTOMATIC MODE)

MUTING OPERATION	↑	↑
4 SENSORS, SEQUENTIAL, TIMEOUT 30s	24VDC (1) (Brown)	24VDC (1) (Brown)
4 SENSORS, SEQUENTIAL, TIMEOUT ∞	STATUS (12) (Blue/Red)	STATUS (12) (Blue/Red)
2 SENSORS, “TX” MODE, TIMEOUT 30 s	24VDC (1) (Brown)	STATUS (12) (Blue/Red)
2 SENSORS, “TX” MODE, TIMEOUT 9 hours	STATUS (12) (Blue/Red)	24VDC (1) (Brown)
2 SENSORS, “L” MODE, TIMEOUT 30 s	STATUS (12) (Blue/Red)	OSSD1 (3) (White)
2 SENSORS, “L” MODE, TIMEOUT 9 hours	OSSD1 (3) (White)	STATUS (12) (Blue/Red)
4 SENSORS CONCURRENT, TIMEOUT 30 s	STATUS (12) (Blue/Red)	OSSD2 (4) (Green)
4 SENSORS CONCURRENT, TIMEOUT 9 hours	OSSD2 (4) (Green)	STATUS (12) (Blue/Red)



* (See diagram 4 for Override/EDM/Muting Enable configuration in Manual)

4 - WIRING CONFIGURATION
Override/EDM/Muting Enable (AUTOMATIC MODE)



* (See diagram 3 for Muting configuration in Automatic)

SMP - SMPO MODELS ELECTRICAL CONNECTIONS

Before proceeding to the electrical connections make sure that the available power supply voltage is in accordance with the data specified in the technical data.

- ***The Emitter and Receiver must be powered at a 24Vdc±20% (PELV, in compliance with the standard EN 60204-1 (Chapter 6.4)).***
- ***Make sure the connectors are screwed down tightly to ensure correct barrier operation!***
- ***In order to ensure the declared Environmental Protection Degree (IP65-IP67), it is mandatory to protect the unused connectors with the provided protection caps.***

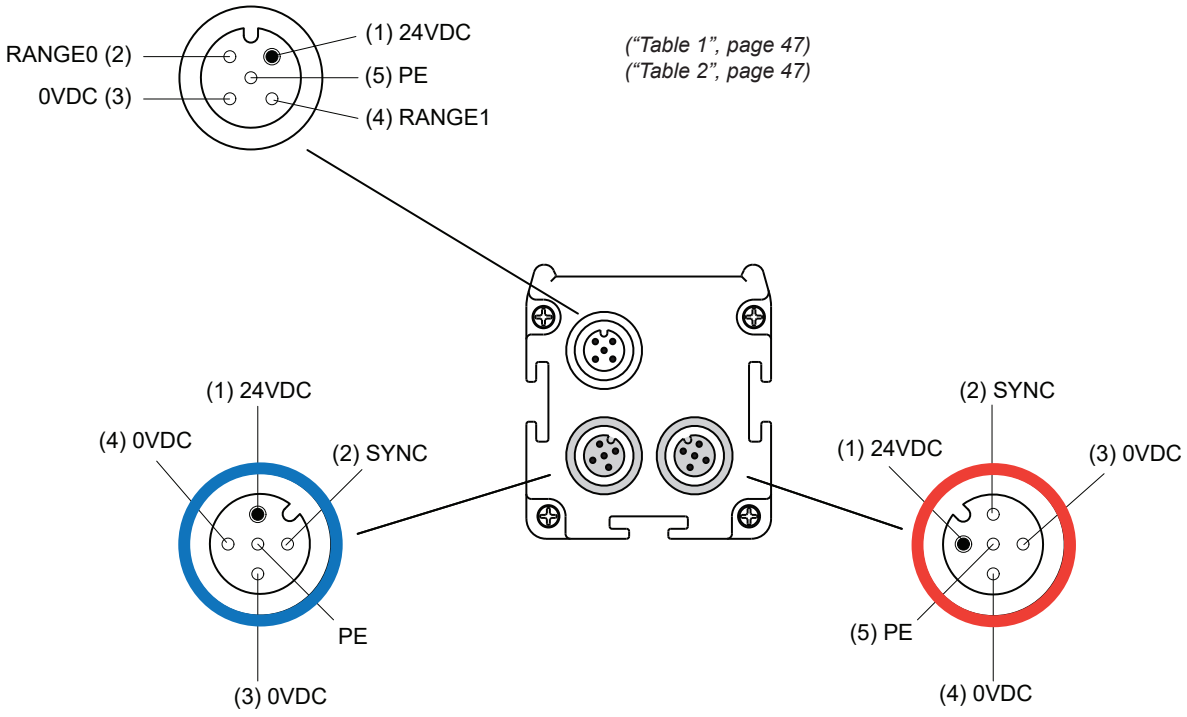
PRECAUTIONS

- Make the connection to earth before making any other connections.
- Perform all connections before energizing Safegate.
- The ground connection (0VDC) must be common to all system components.

WARNINGS ON CONNECTION CABLES

- ***Conductor Size: 0,25÷2,5 mm².***
- ***It is recommended to keep SAFEGATE's power supply separate from that of other electrical power equipment (electric motors, inverters, frequency changers) or other sources of disturbance.***
- ***For connections more than 20 m long, cables with a section of at least 0.5 mm² must be used (AWG16), (1 mm² for lengths over 50 m).***

EMITTER CONNECTIONS



("Table 1", page 47)
("Table 2", page 47)
("Table 3", page 47)
("Table 4", page 47)

Table 1 *RANGE/TEST SELECTION MALE CONNECTOR - M12 - 5-PIN*					
PIN	**COLOUR**	**SIGNAL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**24VDC**	-	Power supply 24 VDC	24VDC
2	White	**RANGE0**	Input	Range selection	(see table “RANGE AND TEST SELECTION”)
3	Blue	**0VDC**	-	Power supply 0VDC	0VDC
4	Black	**RANGE1**	Input	Range selection	(see table “RANGE AND TEST SELECTION”)
5	Grey	**PE**	-	EARTH CONNECTION	-

Table 2 *RANGE AND TEST SELECTION - M12 - 5-PIN*			
PIN 2	**PIN 4**	**FUNCTION**	
24VDC	**0VDC**	LOW range	*(For range values, refer to the “TECHNICAL FEATURES”, page 63)*
0VDC	**24VDC**	HIGH range	
0VDC	**0VDC**	Curtain under TEST	*(Refer to paragraph “TEST FUNCTION”, page 50)*
24VDC	**24VDC**	-	*Condition not allowed*

Table 3 *FEMALE CONNECTOR POWER SUPPLY SENSORS MUTING 1 - 2 - M12 - 5-PIN*					
PIN	**COLOUR**	**SIGNAL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**24VDC**	-	Sensor Power Supply 24VDC	24VDC
2	White	**SYNC**	Output	Synchronization with M5 arms	Proprietary coded signal
3	Blue	**0VDC**	-	Sensor Power Supply 0VDC	0VDC
4	Black	**0VDC**	-	Sensor Power Supply 0VDC	0VDC
5	Grey	**PE**	-	EARTH CONNECTION	-

Table 4 *FEMALE CONNECTOR POWER SUPPLY SENSORS MUTING 3 - 4 - M12 - 5-PIN*					
PIN	**COLOUR**	**SIGNAL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**24VDC**	-	Sensor Power Supply 24VDC	24VDC
2	White	**SYNC**	Output	Synchronization with M5 arms	Proprietary coded signal
3	Blue	**0VDC**	-	Sensor Power Supply 0VDC	0VDC
4	Black	**0VDC**	-	Sensor Power Supply 0VDC	0VDC
5	Grey	**PE**	-	EARTH CONNECTION	-

RECEIVER CONNECTIONS

Available configurations.

1. Configurations with hardware wiring:

➔ **If the operator wishes to configure SMP/SMPO models using a hardware wiring, it is necessary to refer to the diagrams in paragraphs *"APPENDIX A1: SM - SMO MODELS WIRING SAMPLES - MANUAL MODE", page 40 and "APPENDIX A2: SM - SMO MODELS WIRING SAMPLES - AUTOMATIC MODE", page 42*. The SAFEGATE Factory Settings do not provide any configuration.**

➔ **In case of already programmed Safegate (blue led ON) it is necessary to reset the existing configuration, using the "Safegate Configurator"; use the command "DELETE CONFIGURATION" (please refer to section *"SAFEGATE CONFIGURATOR SOFTWARE", page 71)* coming back at Factory Setting.**

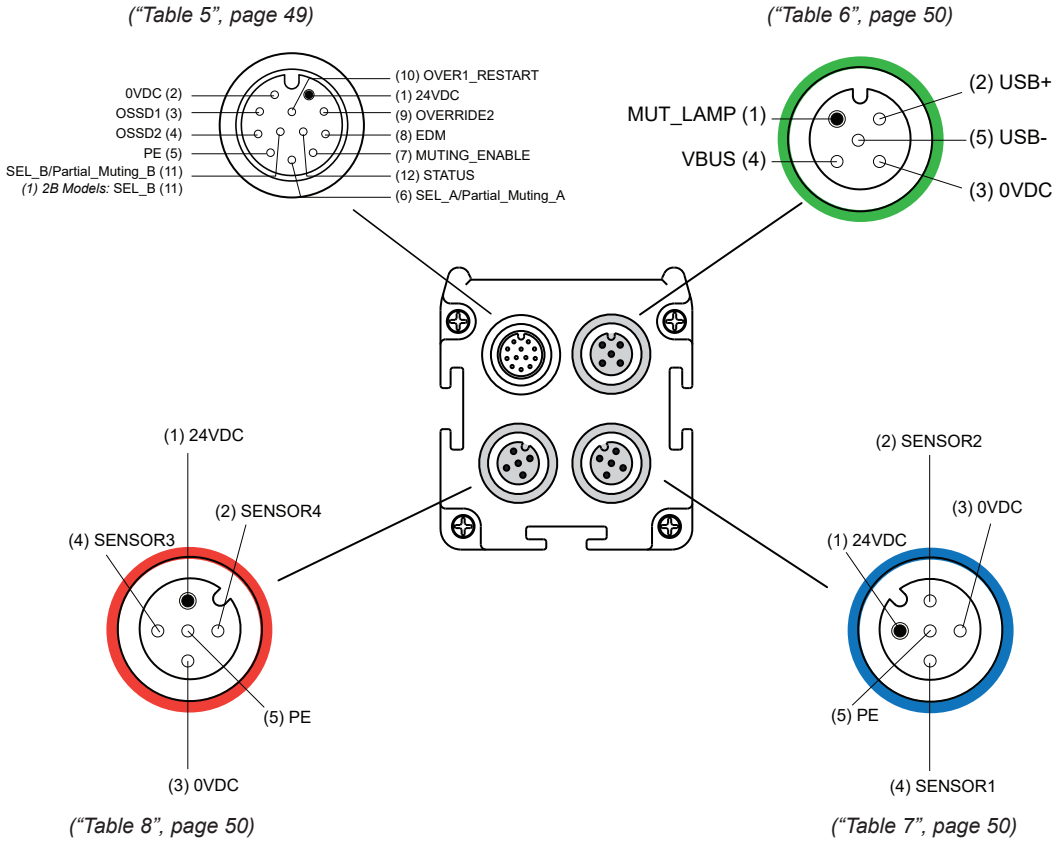
2. Configurations with "Safegate Configurator" software.

➔ ***If the operator wishes to configure the SMP/MPO models using the supplied software must connect pin 1 and 2 of the main connector of the receiver (DO NOT connected all others pin).***

➔ ***If the operator wishes to switch from hardware to software configuration, must respect at power on the indication of the following table (main connector of the receiver):***

SEL_A (pin 6)	SEL_B (pin 11)	MUT_ENABLE (pin 7)	EDM (pin 8)
0VDC (or open circuit)	0VDC (or open circuit)	0VDC (or open circuit)	• 0VDC, if not requested by the Software. • Connected to 24VDC (through series of contatcts N.C. of external relays)

➔ ***To check the SMP/SMPO model wiring with software configuration, refer to the paragraph "APPENDIX B: SMP - SMPO MODELS WIRING SAMPLE", page 57 diagrams.***



➔ ***(1)Partial Muting B is not available for 2B Models.***

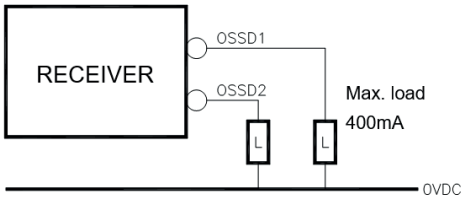
Table 5
MAIN MALE CONNECTOR - M12 - 12 PIN

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
1	Brown	**24VDC**	-	POWER SUPPLY 24 VDC	-
2	Blue	**0VDC**	-	POWER SUPPLY 0VDC	-
3	White	**OSSD1**	Output	STATIC SAFETY OUTPUTS	PNP active high
4	Green	**OSSD2**	Output		
5	Pink	**PE**	-	EARTH CONNECTION	-
6	Yellow	**SEL_A**	Input	MUTING CONFIGURATION	Refer to “SELECTION OF OPERATING MODES”, page 51
		PARTIAL_MUTING_A		CONTROL PARTIAL MUTING	The level of the “PARTIAL MUTING”, page 55 is decided through the configuration software
7	Black	**MUT_ENABLE**	Input	EXTERNAL MUTING ENABLE	Safegate considers the muting cycle correct if it detects a “MUTING ENABLE”, page 54 signal rising edge before the use of the sensors
8	Grey	**EDM**	Input	FEEDBACK K1/K2	External contactors feedback “EDM”, page 51
9	Red	**OVERRIDE2**	Input	OVERRIDE REQUEST	Refer to the section “OVERRIDE (pc programming)”, page 52
10	Violet	**OVERRIDE1**	Input	OVERRIDE REQUEST	Refer to the section “OVERRIDE (pc programming)”, page 52
		RESTART		RESTART INTERLOCK	Refer to the tsection “RESTART (MANUAL OPERATION)”, page 53
11	Grey/ Pink	**SEL_B**	Input	MUTING CONFIGURATION	Refer to “SELECTION OF OPERATING MODES”, page 51
		PARTIAL_MUTING_B[(2)]		CONTROL PARTIAL MUTING	The level of the “PARTIAL MUTING”, page 55 is decided through the configuration software
12	Red/Blue	**STATUS**	Output	AUXILIARY OUTPUT	PNP active high, refer to “SETTING CURTAIN GENERAL PARAMETERS”, page 80

(2)Partial Muting B is not available for 2B Models.

When connecting high inductive loads to OSSDs, use suitable voltage suppressors on the outputs.

In free protected area conditions, the Receiver provides a voltage of 24VDC on BOTH outputs. Therefore, the established load must be connected between BOTH output terminals and the 0VDC.



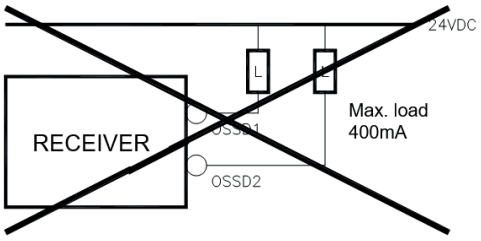


Table 6 *MUTING LAMP FEMALE CONNECTOR, CURTAIN PROGRAMMING*					
PIN	**COLOUR**	**MODEL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**MUT_LAMP**	Output	Muting Lamp activation command	Active Muting 24VDC
2	White	**USB+**	In/Out	USB data	-
3	Blue	**0VDC**	-	Muting Lamp 0VDC	0VDC
4	Black	**VBUS**	Input	USB Power supply	5VDC
5	Grey	**USB-**	In/Out	USB data	-

Table 7 *FEMALE CONNECTOR POWER SUPPLY SENSORS MUTING 1 - 2 - M12 - 5-PIN*					
PIN	**COLOUR**	**SIGNAL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**24VDC**	-	Sensor Power Supply 24VDC	Positive
2	White	**SENSOR2**	Input	SENSOR 2 Status	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
3	Blue	**0VDC**	-	Sensor Power Supply 0VDC	Negative
4	Black	**SENSOR1**	Input	SENSOR 1 Status	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
5	Grey	**PE**	-	EARTH CONNECTION	-

Table 8 *FEMALE CONNECTOR POWER SUPPLY/SENSORS MUTING 3 - 4 - M12 - 5-PIN*					
PIN	**COLOUR**	**SIGNAL**	**IN/OUT**	**DESCRIPTION**	**ELECTRICAL LEVEL**
1	Brown	**24VDC**	-	Sensor Power Supply 24VDC	Positive
2	White	**SENSOR4**	Input	SENSOR 4 Status	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
3	Blue	**0VDC**	-	Sensor Power Supply 0VDC	Negative
4	Black	**SENSOR3**	Input	SENSOR 3 Status	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
5	Grey	**PE**	-	EARTH CONNECTION	-

➔ ***Using LX or TX configuration with 2 sensors: SENSOR1 wiring is mandatory, while the position of the second muting sensor is free between SENSOR2 and SENSOR3.***
SENSOR2: sensor arms MALX; SENSOR3: sensor arms MATX or external photocells.

TEST FUNCTION

By means of the test function, which simulates occupation of the protected area, it possible to verify the operation of the entire system by means of an external supervisor (e.g. PLC, control module, etc.).
The SAFEGATE barrier system features an automatic self-diagnosis function that enables it to detect response time malfunctions (this time is declared for each model).
This fault detection system is always active and does not require any external intervention.
The TEST command is available in the case in which the user wishes to check the devices connected downstream of the light curtain (without physically intervening inside the guarded area). This command interrupts emission of the beams on the emitter and makes it possible to switch the OSSD from ON to OFF status as long as the command is active.

➔ ***The minimum duration of the TEST function must be 40 msec.***

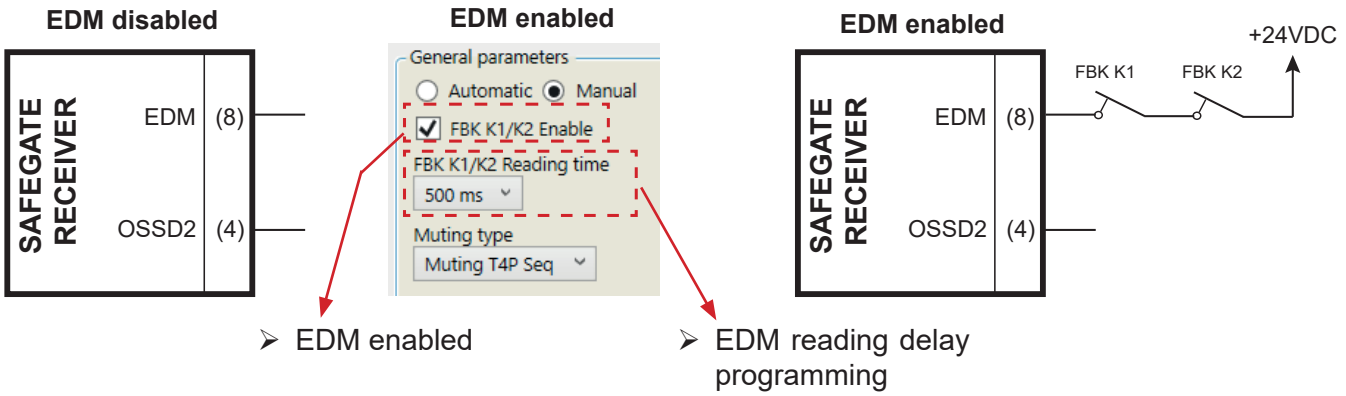
SELECTION OF OPERATING MODES

➔ ***Configuration of the various modes of operation of the SMP/SMPO models is achieved thanks to the SAFEGATE CONFIGURATOR software.***

The incorrect setting of the Muting parameters by the operator compromises the safe operation of the barrier.

EDM

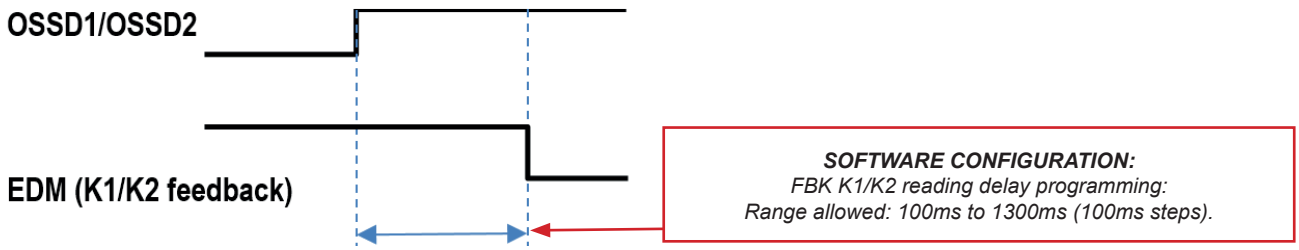
The EDM function (external K1 / K2 control) can be enabled / disabled via software:



EDM ACTIVATED

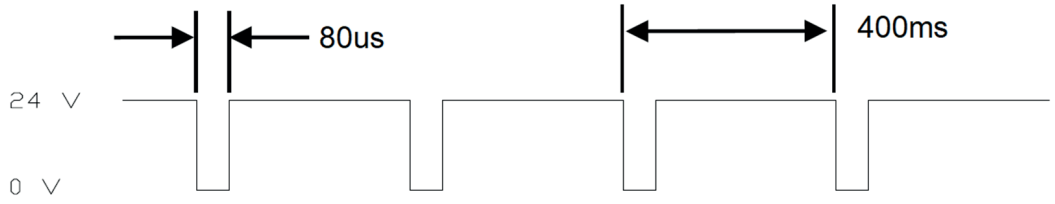
SAFEGATE awaits a signal with inverse logic to the condition of the external contactors:
- ➢ OSSD1 / OSSD ON: External contacts K1/K2 closed: **EDM = OPEN CIRCUIT**
- ➢ OSSD1 / OSSD OFF: External contacts K1/K2 open: **EDM = CLOSED CIRCUIT**

Connect the pin 8 of the 12 pole connector to the Receiver as shown above.
The time allowed to elapse from the activation of the OSSD outputs and the opening of the FBK contacts must be the one indicated in the figure below.



STATUS

The output STATUS is tested for possible 0V or +24VDC blocks.
The test method chosen to perform this check is the “voltage dip test”: periodically (every 400ms and for a period of 80µs) the STATUS is switched to 0VDC and its behavior is checked, if the test results are not consistent the barrier is brought to a safe state.



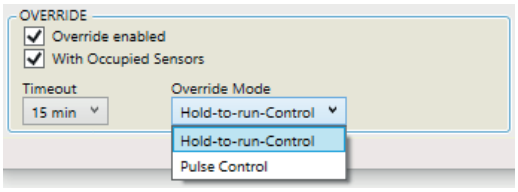
OVERRIDE (PC PROGRAMMING)

SAFEGATE allows the operator to configure two different types of override; (See paragraph “MUTING OVERRIDE”, page 23 for the description of the following function).

OVERRIDE1 (pin 10)	OVERRIDE2 (pin 9)	SELEZIONE
0	0	Override with Hold-To-Run Control
0	1	Override with Pulse Control

OVERRIDE WITH HOLD-TO-RUN CONTROL

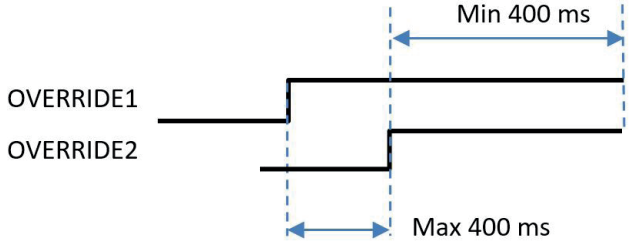
Thanks to the programming software, the operator can choose what kind of OVERRIDE enable (in this case HOLD-TO-RUN CONTROL) and its timeout.



➔ ***With occupied sensors: When selected, the activation of at least one sensor AND the BREAK condition of the light curtain are required to activate the OVERRIDE.***

The function starts with the simultaneous activation of the two OVERRIDE inputs according to the following table:

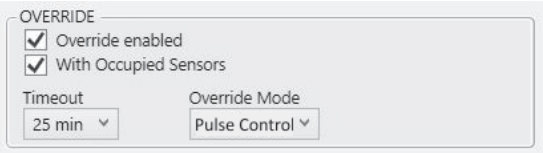
OVERRIDE1 (pin 10)	OVERRIDE2 (Pin 9)
0	0
1	1



The function only starts the signals are activated (24VDC) at the same time (within a maximum delay of 400 ms) and the control is kept active for at least 400 ms.

OVERRIDE WITH PULSE CONTROL

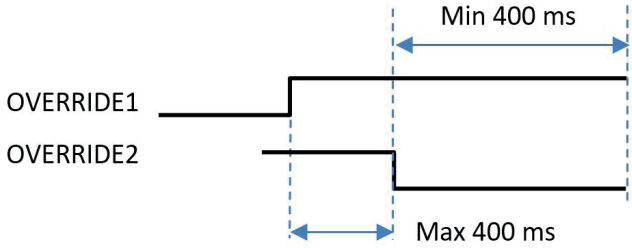
Thanks to the programming software, the operator can choose what kind of OVERRIDE enable (in this case PULSE CONTROL) and its timeout.



➔ ***With occupied sensors: When selected, the activation of at least one sensor and the BREAK condition of the light curtain are required to activate the OVERRIDE.***

The function starts with the simultaneous activation of the two OVERRIDE inputs according to the following table:

OVERRIDE1 (pin 10)	OVERRIDE2 (Pin 9)
0	1
1	0



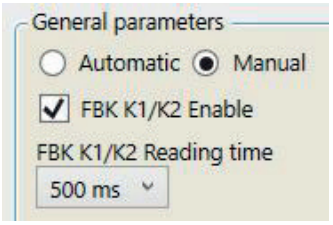
The function starts only if the signals are activated at the same time (within a maximum delay of 400 ms) and the button is held pressed for at least 400 ms.

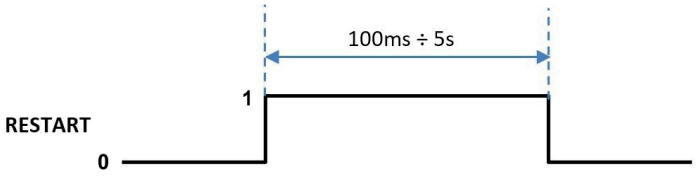
RESTART (MANUAL OPERATION)

The choice between MANUAL or AUTOMATIC mode of operation is possible thanks to the SAFEGATE CONFIGURATOR software. In Manual mode Pin 10 has RESTART function.
As a result of occupation of the protected area, outputs will be deactivated (start/restart interlock enabled).

➔ ***To reactivate OSSDs it needs to press and release the N.O. RESTART pushbutton connected to 24VDC. Verify the logical sequence: 0 → 1 → 0.***

➢ The high level (24Vdc) time must be between 100 ms and 5 s.





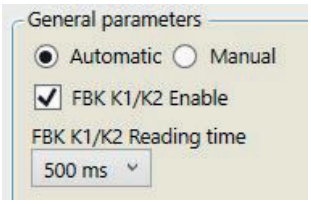
Use in manual mode (start/restart interlock enabled) is mandatory in case the safety device controls a gate to protect a dangerous area and a person, once crossed the gate, can stay in the hazardous area without being detected (use as a 'trip device' according to IEC 61496).

The Restart command must be located outside the hazardous area, at a point where the hazardous area and the entire working area concerned are clearly visible.

It must not be possible to reach the command from inside the hazardous area.

AUTOMATIC OPERATION

The choice between MANUAL or AUTOMATIC mode of operation is achieved thanks to the SAFEGATE CONFIGURATOR software.
In Automatic operating mode, the OSSD1 and OSSD2 safety outputs follow the status of the light curtain:
➢ with guarded area free, the outputs are ON.
➢ with guarded area occupied, the outputs are OFF.



If the SAFEGATE light curtain is used in AUTOMATIC mode, it will not be equipped with a start/restart interlock circuit. In most applications, this safety function is mandatory. Carefully evaluate the risks analysis of your own application.

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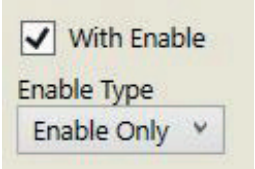
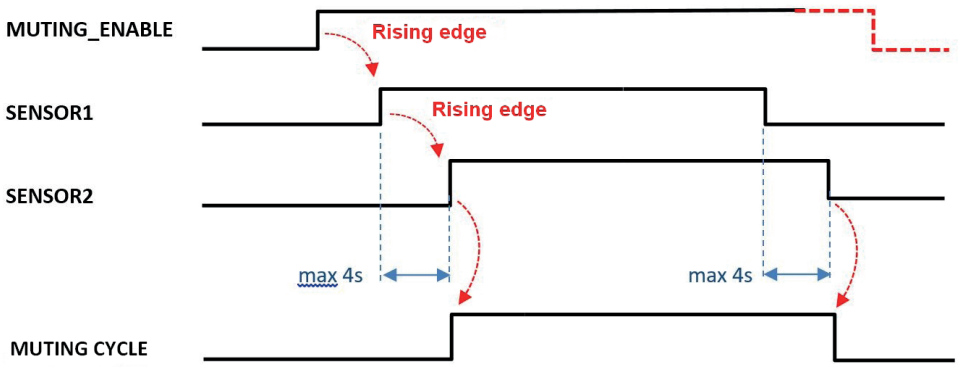
MUTING ENABLE

SAFEGATE can be configured in such a way that the muting cycle only starts after a valid MUTING ENABLE signal. Furthermore is possible to choose if the MUTING ENABLE only enables or also disables the Muting function thanks to the programming software.

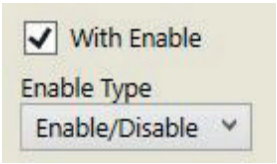


Muting Enable active: correct Muting sequence

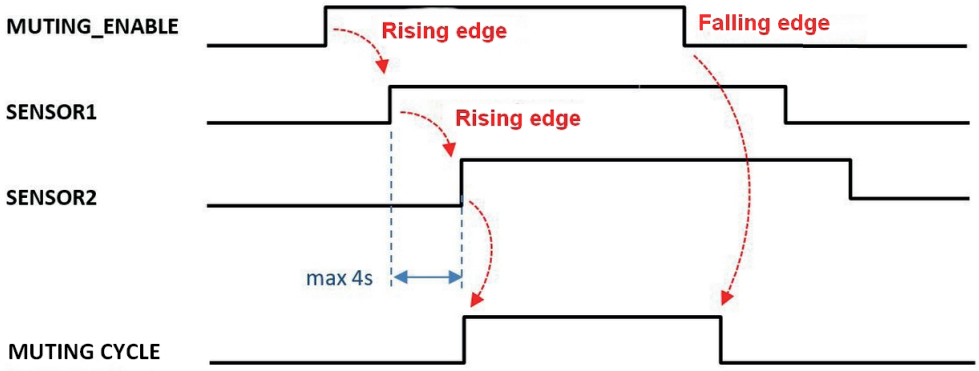


MUTING ENABLE/DISABLE

SAFEGATE can be configured in such a way that the muting cycle only starts after a valid MUTING ENABLE/DISABLE signal. Furthermore is possible to choose if the MUTING ENABLE only enables or also disables the Muting function thanks to the programming software.



Muting Enable/Disable active: Correct Muting sequence



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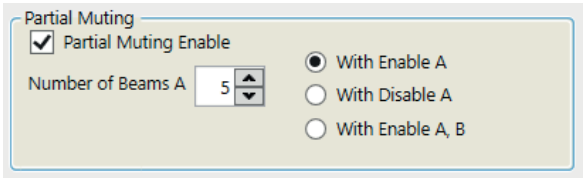
PARTIAL MUTING

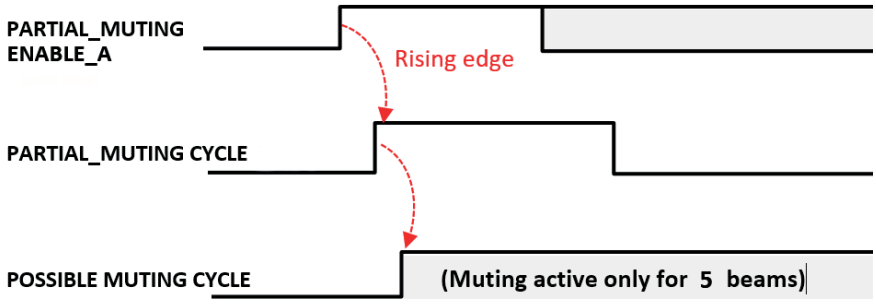
Three types of partial Muting are distinguished and, for all of them, the “Partial Muting” input pins (pin 6, 11 of the M12 connector of the receiver) must be used.

1) Partial Muting with Enable A

With this option, the Partial Muting function is normally deactivated. To activate this function, the input signal **(pin 6 of the receiver)** must switch from LO to HI (rising edge) before starting the Muting cycle.
The variation of this input signal enables the Partial Muting function only for the first n selected beams (e.g. with 5 beams as in figure below).

➔ ***This activation only applies to a STAND-ALONE MUTING CYCLE; It is therefore necessary to reconfirm Partial Muting activation before any new Muting function request (refer to the timing below).***

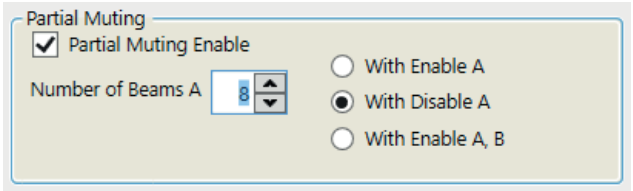


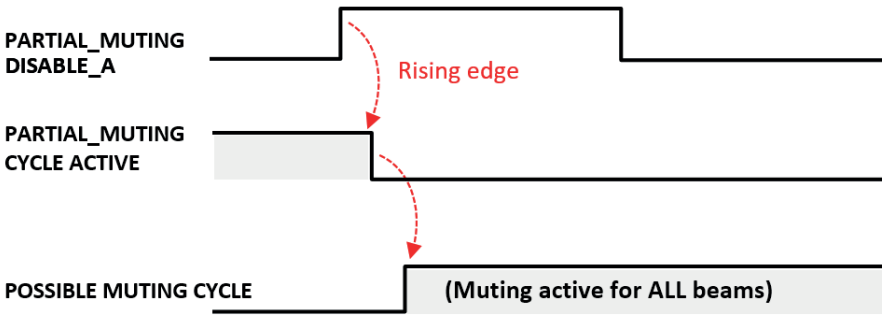


2) Partial Muting with Disable A

With this option the Partial Muting function is normally active (e.g. with 8 beams as in figure below).
To activate this function, the input signal **(pin 6 of the receiver)** must switch from LO to HI (rising edge) before starting the Muting cycle. The changing of that input signal therefore disables the Partial Muting function.

➔ ***This activation only applies to a STAND-ALONE MUTING CYCLE; it is therefore necessary to reconfirm the partial Muting deactivation before any new Muting function request (refer to the timing below).***





3) Partial Muting with Enable A,B (option not available for 2B Models)

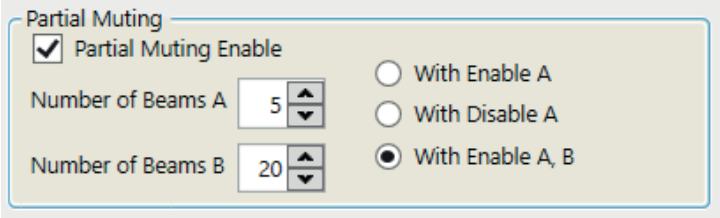
With this option, the Partial Muting function is normally deactivated. To activate this function, the input signals **(pin 6 of the receiver for SEL_A/Partial_Muting_A or pin 11 for SEL_B/Partial_Muting_B)** must switch from LO to HI (rising edge) before starting the Muting cycle following the table:

	SEL_A/Partial_Muting_A (pin 6)	SEL_B/Partial_Muting_B (pin 11)	THRESHOLD
ELECTRICAL LEVEL		0VDC	A
	0VDC		B

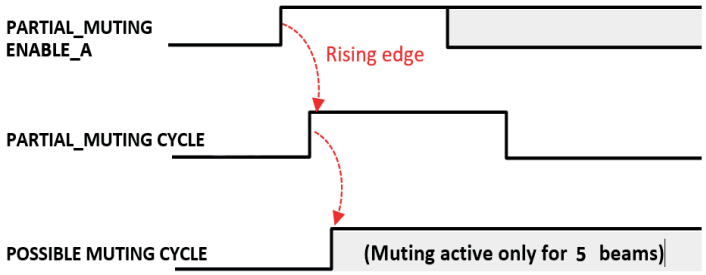
The variation of these input signal enables the Partial Muting function only for the first n selected beams (e.g. THRESHOLD_A = 5 / THRESHOLD_B = 20 beams as in figure below).

➔ ***In Enable A, B mode of operation ONLY ONE THRESHOLD CAN BE ACTIVATED; the operator can only specify the number of beams for theshold A and theshold B.***

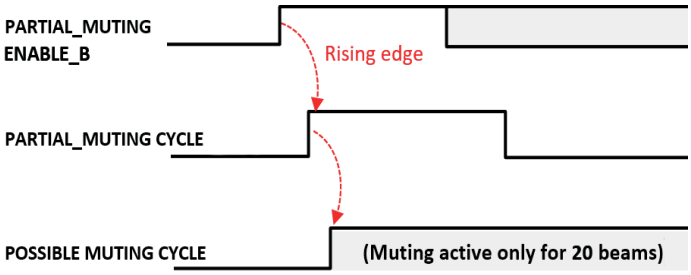
➔ ***This activation only applies to a STAND-ALONE MUTING CYCLE; It is therefore necessary to reconfirm Partial Muting activation before any new Muting function request (refer to the timing below).***



THRESHOLD A



THRESHOLD B



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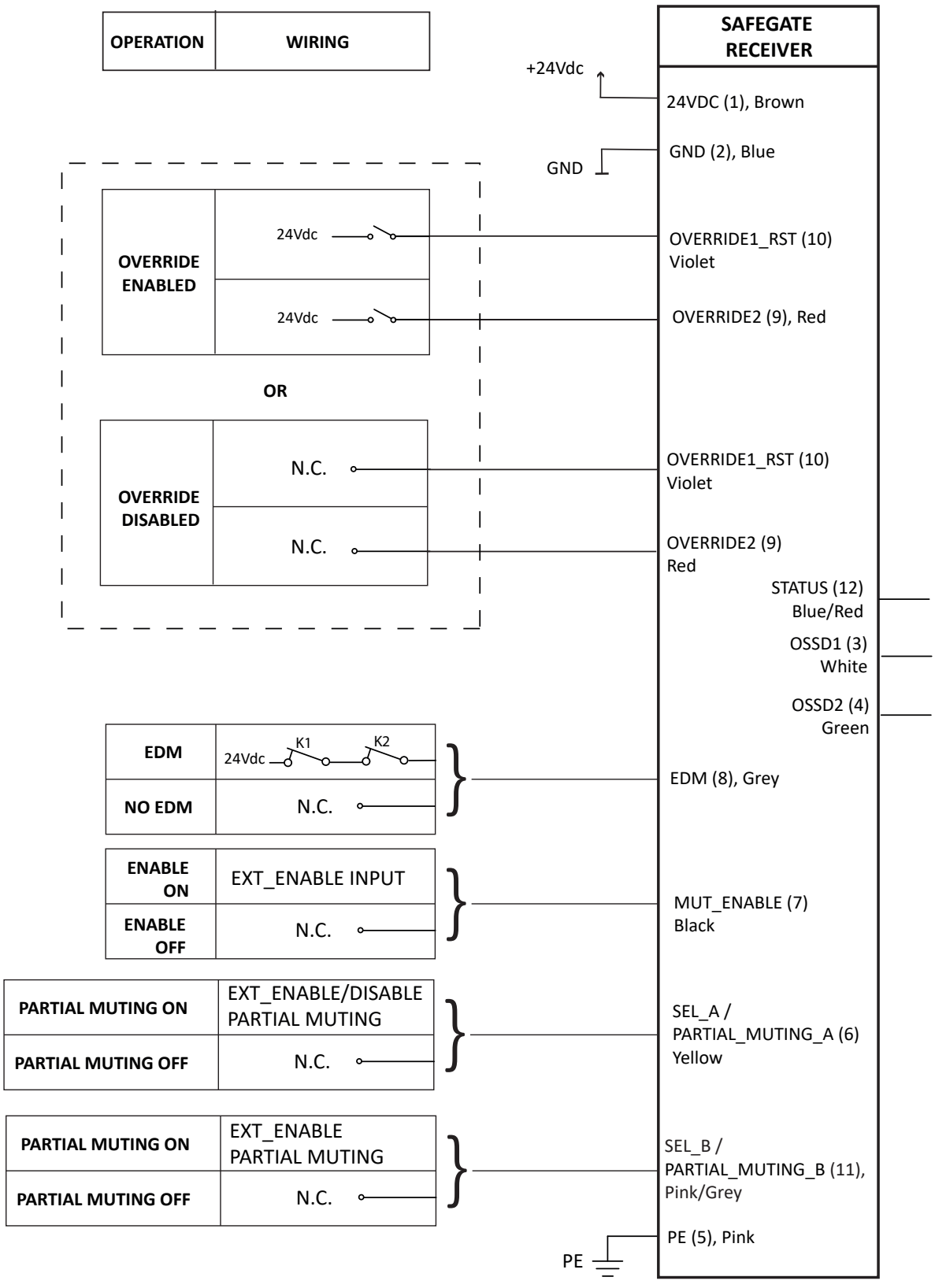
APPENDIX B: SMP - SMPO MODELS WIRING SAMPLE

5 - SOFTWARE CONFIGURATION



S MODELS ELECTRICAL CONNECTIONS

Before proceeding to the electrical connections make sure that the available power supply voltage is in accordance with the data specified in the technical data.

- ***The Emitter and Receiver must be powered at a 24Vdc±20% (PELV, in compliance with the standard EN 60204-1 (Chapter 6.4)).***
- ***Make sure the connectors are screwed down tightly to ensure correct barrier operation!***
- ***In order to ensure the declared Environmental Protection Degree (IP65-IP67), it is mandatory to protect the unused connectors with the provided protection caps.***

PRECAUTIONS

- Make the connection to earth before making any other connections.
- Perform all connections before energizing Safegate.
- The ground connection (0VDC) must be common to all system components.

WARNINGS ON CONNECTION CABLES

- ***Conductor Size: 0,25÷2,5 mm².***
- ***It is recommended to keep SAFEGATE's power supply separate from that of other electrical power equipment (electric motors, inverters, frequency changers) or other sources of disturbance.***
- ***For connections more than 20 m long, cables with a section of at least 0.5 mm² must be used (AWG16), (1 mm² for lengths over 50 m).***

("Table 1", page 58)
("Table 2", page 58)

EMITTER CONNECTIONS

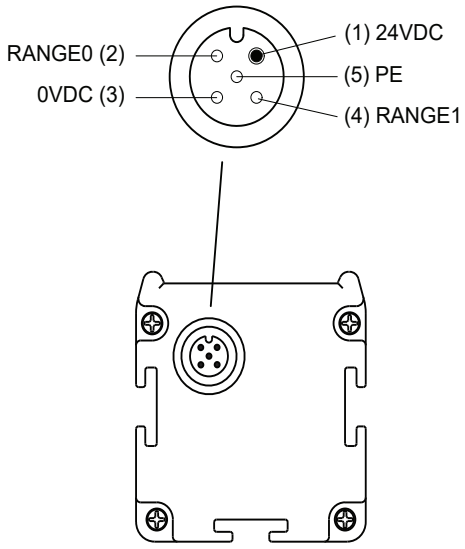


Table 1
MALE CONNECTOR - M12 - 5 PIN

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
1	Brown	**24VDC**	-	Power supply 24 VDC	Positivo
2	White	**RANGE0**	Input	Range selection	(see table "RANGE AND TEST SELECTION")
3	Blue	**0VDC**	-	Power supply 0VDC	Negativo
4	Black	**RANGE1**	Input	Range selection	(see table "RANGE AND TEST SELECTION")
5	Grey	**PE**	-	EARTH CONNECTION	-

Table 2
RANGE AND TEST SELECTION

PIN 2	PIN 4	FUNCTION	
24VDC	**0VDC**	LOW range	*(For range values, refer to the Technical Features table)*
0VDC	**24VDC**	HIGH range	
0VDC	**0VDC**	Curtain under TEST	*(Refer to paragraph "TEST FUNCTION", page 60)*
24VDC	**24VDC**	-	*Condition not allowed*

RECEIVER CONNECTIONS

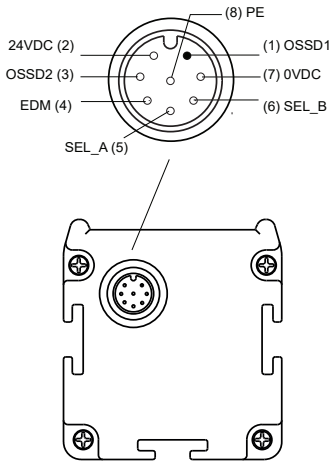
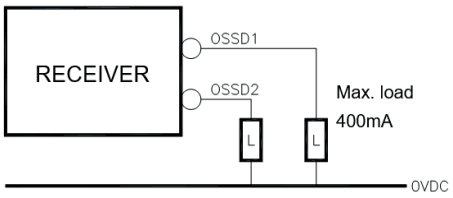


Table 3
MAIN MALE CONNECTOR – M12- 8-PIN

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
2	Brown	**24VDC**	-	POWER SUPPLY 24VDC	-
7	Blue	**0VDC**	-	POWER SUPPLY 0VDC	-
1	White	**OSSD1**	Output	STATIC SAFETY OUTPUTS	PNP active high
3	Green	**OSSD2**	Output		
8	Red	**PE**	-	EARTH CONNECTION	
4	Yellow	**EDM**	Input	K1/K2 FEEDBACK	Feedback from external counters
5	Grey	**SEL_A**	Input	OPERATING MODE CONFIGURATION	Refer to the table "SELECTION OF OPERATING MODES", page 59
6	Pink	**SEL_B**	Input	OPERATING MODE CONFIGURATION	Refer to the table "SELECTION OF OPERATING MODES", page 59

When connecting high inductive loads to OSSDs, use suitable voltage suppressors on the outputs.

In free protected area conditions, the Receiver provides a voltage of 24VDC on BOTH outputs. Therefore, the established load must be connected between BOTH output terminals and the 0VDC.



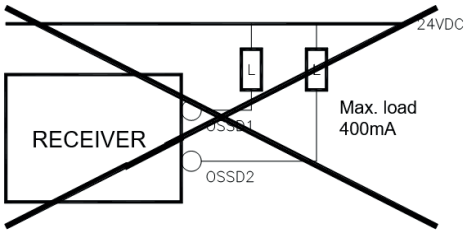


Table 4
SELECTION OF OPERATING MODES

CONNECTIONS			OPERATION
EXT_SEL_A (PIN 5) connected to : ext_OSSD1 (PIN 1)	EXT_SEL_B (PIN 6) connected to : ext_OSSD2 (PIN 3)	EXT_K1_K2 (PIN 4) connected to : 0VDC	**AUTOMATIC no EDM**
EXT_SEL_A (PIN 5) connected to : ext_OSSD2 (PIN 3)	EXT_SEL_B (PIN 6) connected to : ext_OSSD1 (PIN 1)	EXT_K1_K2 (PIN 4) connected to : 24VDC (through series of contatcts N.C. of external relays)	**AUTOMATIC with EDM**
EXT_SEL_A (PIN 5) connected to : 24VDC (PIN 2)	EXT_SEL_B (PIN 6) connected to : 24VDC (PIN 2) (through the RESTART pushbutton)	EXT_K1_K2 (PIN 4) connected to : 0VDC	**MANUAL no EDM**
EXT_SEL_A (PIN 5) connected to : 24VDC (PIN 2) (through the RESTART pushbutton)	EXT_SEL_B (PIN 6) connected to : 24VDC (PIN 2)	EXT_K1_K2 (PIN 4) connected to : 24VDC (through series of contatcts N.C. of external relays)	**MANUAL with EDM**

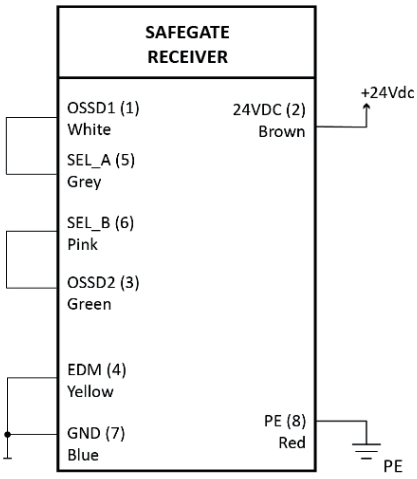
TEST FUNCTION

By means of the test function, which simulates occupation of the protected area, it possible to verify the operation of the entire system by means of an external supervisor (e.g. PLC, control module, etc.).
The SAFEGATE barrier system features an automatic self-diagnosis function that enables it to detect response time malfunctions (this time is declared for each model).
This fault detection system is always active and does not require any external intervention.
The TEST command is available in the case in which the user wishes to check the devices connected downstream of the light curtain (without physically intervening inside the guarded area). This command interrupts emission of the beams on the emitter and makes it possible to switch the OSSD from ON to OFF status as long as the command is active.

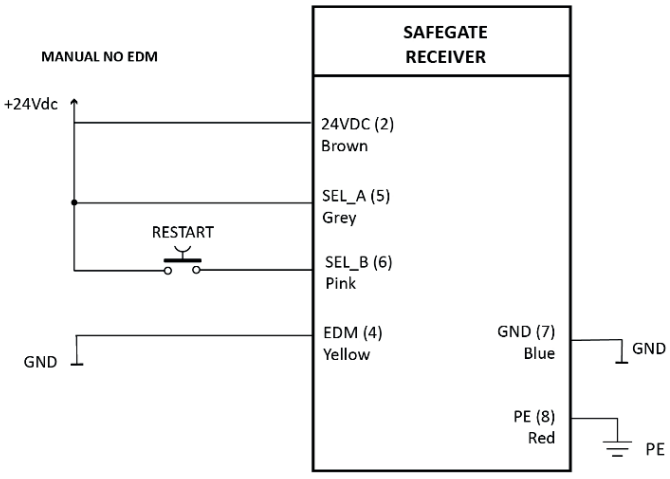
➔ ***The minimum duration of the TEST function must be 40 msec.***

APPENDIX C: S MODELS WIRING SAMPLES

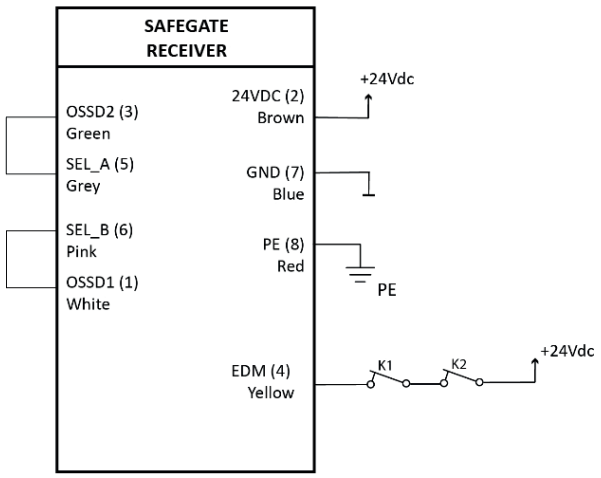
MODE OF OPERATION: AUTOMATIC NO EDM



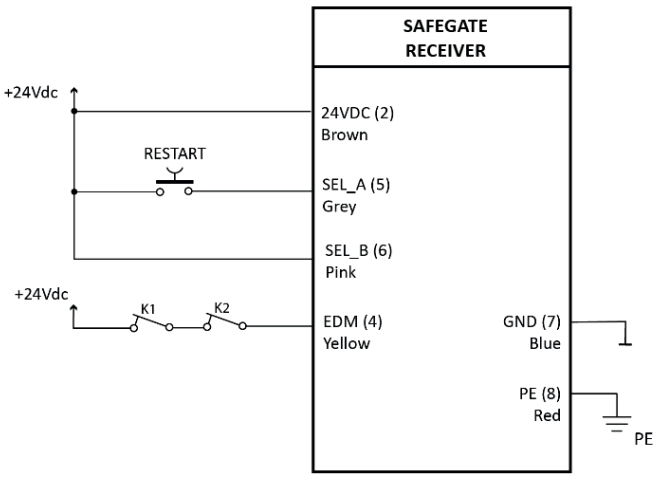
MODE OF OPERATION: MANUAL NO EDM



MODE OF OPERATION: AUTOMATIC WITH EDM



MODE OF OPERATION: MANUAL WITH EDM



S-A MODELS ELECTRICAL CONNECTIONS

Before proceeding to the electrical connections make sure that the available power supply voltage is in accordance with the data specified in the technical data.

The Emitter and Receiver must be powered at a 24Vdc±20% (PELV, in compliance with the standard EN 60204-1 (Chapter 6.4)).

Make sure the connectors are screwed down tightly to ensure correct barrier operation!

In order to ensure the declared Environmental Protection Degree (IP65-IP67), it is mandatory to protect the unused connectors with the provided protection caps.

PRECAUTIONS

- Make the connection to earth before making any other connections.
- Perform all connections before energizing Safegate.
- The ground connection (0VDC) must be common to all system components.

WARNINGS ON CONNECTION CABLES

Conductor Size: 0,25÷2,5 mm².

It is recommended to keep SAFEGATE's power supply separate from that of other electrical power equipment (electric motors, inverters, frequency changers) or other sources of disturbance.

For connections more than 20 m long, cables with a section of at least 0.5 mm² must be used (AWG16), (1 mm² for lengths over 50 m).

("Table 1", page 61)
("Table 2", page 61)

EMITTER CONNECTIONS

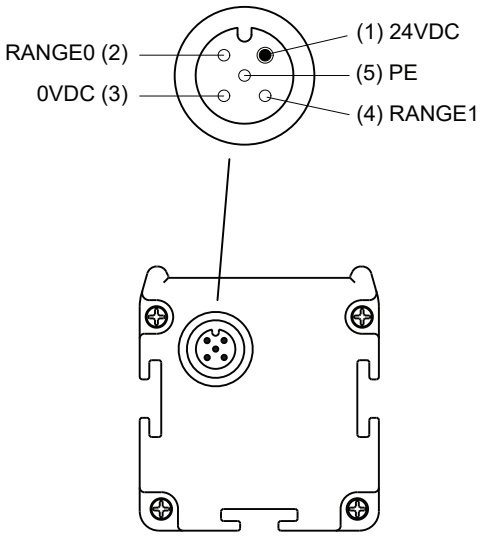


Table 1
MALE CONNECTOR - M12 - 5 PIN

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
1	Brown	**24VDC**	-	Power supply 24 VDC	Positive
2	White	**RANGE0**	Input	Range selection	(see table "RANGE AND TEST SELECTION")
3	Blue	**0VDC**	-	Power supply 0VDC	Negative
4	Black	**RANGE1**	Input	Range selection	(see table "RANGE AND TEST SELECTION")
5	Grey	**PE**	-	EARTH CONNECTION	-

Table 2
RANGE AND TEST SELECTION

PIN 2	PIN 4	FUNCTION	
24VDC	**0VDC**	LOW range	*(For range values, refer to the Technical Features table)*
0VDC	**24VDC**	HIGH range	
0VDC	**0VDC**	Curtain under TEST	*(Refer to paragraph "TEST FUNCTION", page 63)*
24VDC	**24VDC**	-	*Condition not allowed*

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RECEIVER CONNECTIONS

("Table 3", page 62)

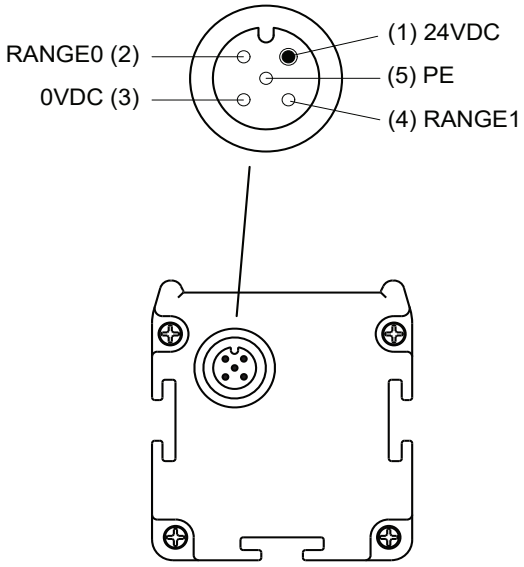
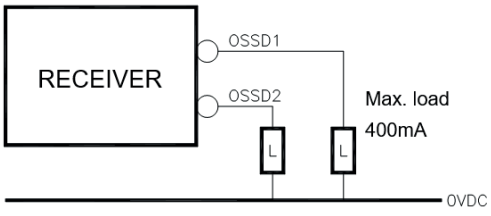


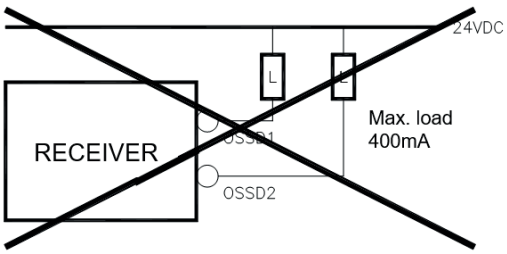
Table 3
MAIN MALE CONNECTOR - M12 - 5 PIN

PIN	COLOUR	SIGNAL	IN/OUT	DESCRIPTION	ELECTRICAL LEVEL
1	Brown	**24VDC**	-	Power supply 24VDC	-
2	White	**OSSD1**	Output	Static Safety Output	PNP active high
3	Blue	**0VDC**	-	Power supply 0VDC	-
4	Black	**OSSD2**	Output	Static Safety Output	PNP active high
5	Grey	**PE**	-	Earth connection	-

When connecting high inductive loads to OSSDs, use suitable voltage suppressors on the outputs.

In free protected area conditions, the Receiver provides a voltage of 24VDC on both outputs. Therefore, the established load must be connected between both output terminals and the 0VDC.





AUTOMATIC OPERATION

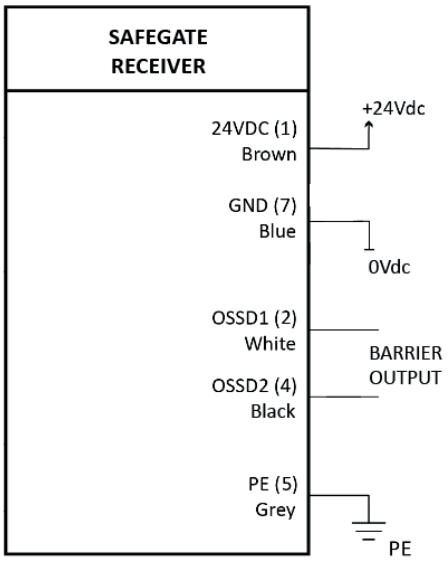
In Automatic operating mode, the OSSD1 and OSSD2 safety outputs follow the status of the light curtain:
- with guarded area free, the outputs are ON.
- with guarded area occupied, the outputs are OFF.

If the SAFEGATE light curtain is used in AUTOMATIC mode, it will not be equipped with a start/restart interlock circuit. In most applications, this safety function is mandatory. Carefully evaluate the risks analysis of your own application.

TEST FUNCTION

The SAFEGATE barrier system features an automatic self-diagnosis function that enables it to detect response time malfunctions (this time is declared for each model).
This fault detection system is always active and does not require any external intervention.

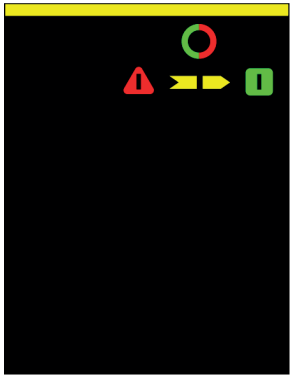
APPENDIX D: S-A MODELS WIRING SAMPLE



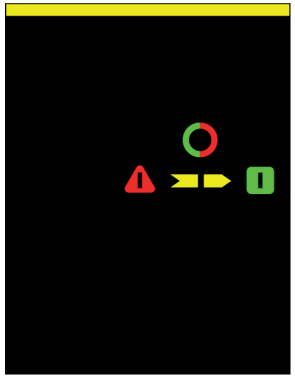
LIGHT SIGNALS

SAFEGATE is equipped with LED Emitter and Receiver labels with leds to signal its operating condition in real time.
In addition, the receiver (SMO - SMPO models) is equipped with a LED signal lamp integrated in the upper cap.
Refer to the following tables to recognize active alarms.

EMITTER SIGNALS



TX Label



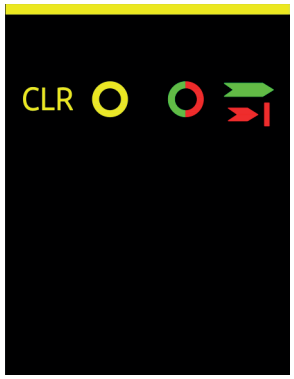
TX Long Range Label

TRI-COLOUR LED			
RED 	**YELLOW** 	**GREEN** 	**MEANING**
On	-	-	Power on - Initial Test
Flashing	-	-	Fail condition
-	On	-	Curtain under test
-	-	On	Normal operation

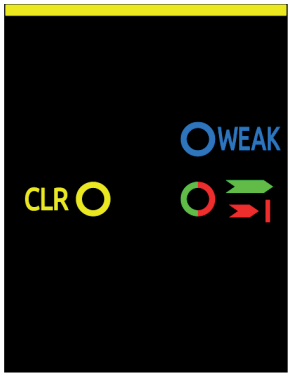
RECEIVER SIGNALS

RX muting Label

RX muting 14 mm Label



RX no muting Label



RX Long Range Label

LED									MEANING
PRG	COM	COM/WEAK	WEAK	CLR		MUT	OVR	S1 S2 S3 S4	
Blue									Curtain programmed via USB
	Orange	**Orange**							Communication with active PC
		Blue	**Blue**						Weak signal
				Yellow					Curtain awaiting RESTART (clear gate)
					Green				Normal operation (clear gate)
					Red				Occupied gate
					Red Flashing				Detected failure (see “TROUBLESHOOTING”)
						Yellow			Muting active
							Yellow		Override active
							Yellow Flashing		Override request
								Yellow	Sensor interrupted
Blue Flashing	**Orange Flashing**								No barrier programmation
Blue Flashing	**Orange Flashing**				**Red Flashing**				Detected double programmation (hardware and software)

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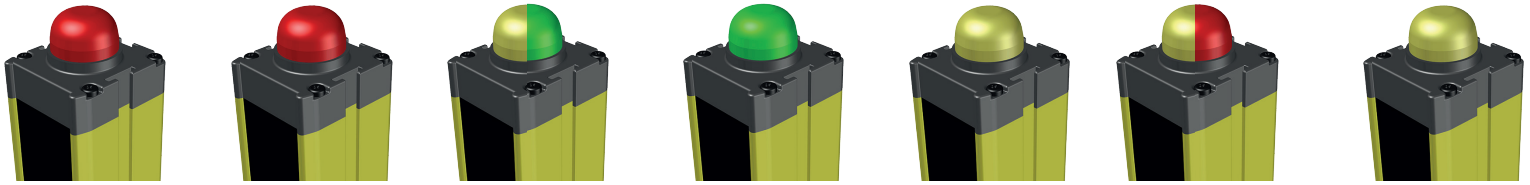
RECEIVER SIGNALS (INTEGRATED LAMP)

INTEGRATED LAMP



	Blinking				Yellow/red blinking	Blinking
BREAK *Occupied curtain with at least one occupied beam*	***FAIL*** *Curtain in error condition*	***CLEAR*** *Curtain awaiting RESTART*	***GUARD*** *Normal operation condition*	***MUTING*** *Muting underway*	***OVERRIDE*** *(Request)*	***OVERRIDE*** *(In progress)*

LIGHT	MEANING
Yellow/Green	Curtain awaiting RESTART (clear gate)
Green	Normal operation (clear gate)
Red	Occupied gate
Red Flashing	Detected failure (-> DIAGNOSTICS)
Yellow	Muting active
Yellow Flashing	Override active
Yellow/Red	Override request

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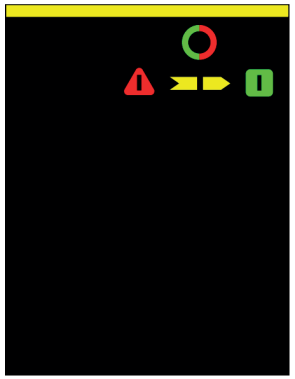
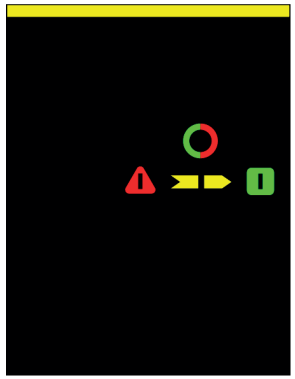
FAULT DIAGNOSIS - EMITTER



TX Label



TX Long Range Label

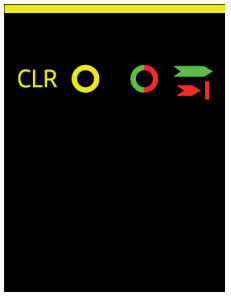
NUMBER OF FLASHINGS RED	ERROR	POSSIBLE CAUSE
2	RANGE0 / RANGE1 wrong wiring	Check pin 2 and 4 connections on the main connector
3/4	Internal error	Contact ReeR after sales service
5	SYNC wrong wiring	Check pin 2 connection on the sensors connectors

FAULT DIAGNOSIS - RECEIVER

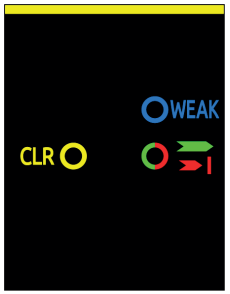
➔ ***In SMP, SMPO models in addition to the corresponding led, when the operator connects SAFEGATE to Computer via USB, a POP-UP window with the error code appears on the monitor.***

RX muting Label

RX muting 14 mm Label



RX no muting Label



RX Long Range Label

NUMBER OF FLASHINGS					ERROR	POSSIBLE CAUSE
	CLR	MUT	OVR	S1 S2 S3 S4		
2					Configuration error SEL_A/SEL_B/EDM	Pin 6-8-11 connections on the RX male connector
2				2 (S1/S2)	Inconsistency between red and blue connector selection for S2 wiring and the physical wiring of S2	Wire S2 in consistency with the selected wiring option (red or blue connector)
2		2			STATUS input failure	Pin 12 connections on the RX male connector
2			2		OVERRIDE_1 / OVERRIDE_1 input failure	Pin connections 9-10 on the male connector on the RX
2		2	2		External/Internal MUTING LAMP failure	Connections on the auxiliary lamp connector
3					Wrong EDM configuration	Pin 8 connections on the RX male connector
3	3				EDM feedback failure	Contact connectors EDM Power Contactors
3				3	SENSOR input failure	Pin connections 2-4 on the sensor connectors
4					OSSD1 / OSSD2 error	Pin connections 3-4 on the male connector on the RX
5					MAIN CARD ERROR	Contact ReeR after sales service
5	5				BASE SHEET (EEPROM) error	Contact ReeR after sales service
5			5		MAIN CARD ERROR	Contact ReeR after sales service
6					MAIN CARD (Microcontroller) error	Contact ReeR after sales service
6	6				GENERIC DEFAULT BOARD ERROR	6-7-8-9-10-11 pin connections on the male connector on the RX
6		6			Beam error	Contact ReeR after sales service
6			6		24VDC power supply overload	Eventual short-circuit on OSSD outputs
6		6	6		GENERIC DEFAULT BOARD ERROR	Contact ReeR after sales service
7					Receiving beams failure	Contact ReeR after sales service
8					Interfering Emitter Detected	Verify the presence of another curtain not correctly positioned (see section "Multiple Systems")

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TECHNICAL SPECIFICATIONS

Safety	**Type 4**	EN 61496-1:2013 EN 61496-2:2013	
	SIL 3	IEC 61508-1: (ed.2) IEC 61508-2: (ed.2) IEC 61508-3: (ed.2) IEC 61508-4: (ed.2)	
	SILCL 3	IEC 62061:2005/A2:2015	
	PL e	EN ISO 13849-1:2015	
	Cat. 4	EN ISO 13849-1:2015	
Resolutions (Detection Capabilities)	14mm - 30 mm - 40 mm		
Range	14 mm		0...3 m (Low) / 1...6 m (High)
	30mm / 40mm / Multibeam		0...4 m (Low) / 0...12 m (High)
	Multibeam Long Range		6...40 m (Low) / 8...80 m (High)
	Multibeam Long Range - Integrated Laser Pointer (ILP)		
Protected height (Detection Zone)	310 / 460 /610 / 760 / 910 / 1060 / 1210 / 1510 /1660 / 1810 / 1960 / 2110 / 2260 (m)		
Multibeam	2 / 3 / 4 beams		
Power supply	24VDC ± 20%		
Power consumption	1W (Emitter) / 2W (Receiver)		
Connections	Power supply connector on TX: M12 - 5 pin male Power supply connector on RX: M12 - 12 Pin Male Muting sensor connectors / Muting lamp / Configuration: M12 – 5-pin Female		
Configuration	Hardware on RX connector S, SM, SMO models Hardware or software with USB connection <-> PC on SMP, SMPO models		
Conductor dimensions	0,25 ÷ 2.5 mm^2 (0,5 mm^2 with length > 20 m / 1 mm^2 with length > 50 m)		
Max link length	100 m		
Safety Outputs (OSSDs)	2 PNP – 400mA @ 24VDC		
STATUS Output	PNP – 100mA @ 24VDC (shows the condition of the OSSD outputs)		
EDM input	Available on RX, selectable		
Restart Auto/Manual	Available on RX, selectable		
Response time	5,5 ms...28 ms (see model tables)		
Test input	Available on TX, selectable		
Signals and diagnostics	LED Signals on Emitter and Receiver Labels Models SMO, SMPO: Indication of MUTING / OVERRIDE / CURTAIN STATUS with integrated lamp in the upper RX cap, LED technology		
Operating temperature	-30°C ÷ +55°C		
Degree of protection	IP 65 and IP 67		
Section Size (l x h)	50mm x 55mm		

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MUTING FUNCTION	
Current rating available for Muting sensors	50 mA
Muting lamp output	24VDC / 0.5 ÷ 5 W
Muting Signal Response Time (Sensors)	100 ms
Muting Signal Logical Levels (Sensors)	< 5VDC : CLEAR SENSOR 11÷30 VDC : ACTUATED SENSOR
Time-out Muting (SM/SMO models)	30 sec, ∞ (MT4P only) / 30 sec, 9 hours (all other models)
Time-out Muting (SMP/SMPO models)	Configurable via software
Override max time-out time	15 minutes (renewable) Configurable via software (SMP/SMPO models only)
Max number of consecutive OVERRIDE	30
Logic muting	Crossed beams (LX / TX logic) and sequential
Logic muting (SMP / SMPO)	Fully configurable logic with REER software
Partial Muting (SMP/SMPO)	Possibility to interrupt only a selected number of beams (only on programmable models)
Tolerance time between sensor 1 and sensor 2	4 sec. Configurable via software (SMP/SMPO models only)
Muting lamp (internal)	Integrated lamp in the upper RX cap, LED technology
Muting enable	Pin on main connector, disabled if not required and monitored

MODELS S, SM, SMO, SMP, SMPO														
14 mm models	**301**	**451**	**601**	**751**	**901**	**1051**	**1201**	**1351**	**1501**	**1651**	**1801**	**1951**		
BEAMS	30	45	60	75	90	105	120	135	150	165	180	195		
Response time (ms)	5	6,4	7,7	9,1	10,4	11,8	13,1	14,5	15,8	17,2	18,5	19,9		
Protected heigt	310	460	610	760	910	1060	1210	1360	1510	1660	1810	1960		
PFH_d	1,21E-08	1,57E-08	1,7E-08	2,06E-08	2,19E-08	2,55E-08	2,68E-08	3,04E-08	3,16E-08	3,52E-08	3,65E-08	4,01E-08		
$MTTF_d$	302,2	284,8	267,6	253,9	240,2	229,0	217,8	208,6	199,3	191,5	183,6	177,0		
DC_{avg}	97,3%	96,6%	96,5%	95,9%	95,8%	95,3%	95,3%	94,8%	94,8%	94,4%	94,4%	94,1%		
CCF	80%													
30 mm models	**303**	**453**	**603**	**753**	**903**	**1053**	**1203**	**1353**	**1503**	**1653**	**1803**	**1953**	**2103**	**2253**
BEAMS	16	23	31	38	46	53	61	68	76	83	91	98	106	113
Response time (ms)	8	9,5	11	12,5	14,5	16	17,6	19	20,5	22	23,5	25	26,5	28
Protected heigt	310	460	610	760	910	1060	1210	1360	1510	1660	1810	1960	2110	2260
PFH_d	1,78E-08	1,91E-08	2,02E-08	2,15E-08	2,26E-08	2,39E-08	2,50E-08	2,63E-08	2,74E-08	2,87E-08	2,98E-08	3,11E-08	3,22E-08	3,35E-08
$MTTF_d$	223,2	198,2	179,0	162,5	149,4	137,8	128,2	119,5	112,3	105,6	99,9	94,5	89,9	85,6
DC_{avg}	97,1%	97,2%	97,3%	97,4%	97,4%	97,5%	97,5%	97,6%	97,6%	97,6%	97,7%	97,7%	97,7%	97,7%
CCF	80%													
40 mm models	**304**	**454**	**604**	**754**	**904**	**1054**	**1204**	**1354**	**1504**	**1654**	**1804**	**1954**	**2104**	**2254**
BEAMS	11	16	21	26	31	36	41	46	51	56	61	66	71	76
Response time (ms)	7	8	9	10	11	12,5	13,5	14,5	15,5	16,5	17,5	18,5	19,5	20,5
Protected heigt	310	460	610	760	910	1060	1210	1360	1510	1660	1810	1960	2110	2260
PFH_d	1,42E-08	1,50E-08	1,60E-08	1,68E-08	1,77E-08	1,85E-08	1,95E-08	2,03E-08	2,12E-08	2,21E-08	2,30E-08	2,38E-08	2,47E-08	2,56E-08
$MTTF_d$	238,7	218,1	200,4	185,7	172,7	161,6	151,7	143,1	135,2	128,4	122,0	116,4	111,1	106,5
DC_{avg}	97,7%	97,7%	97,7%	97,8%	97,8%	97,8%	97,8%	97,8%	97,9%	97,9%	97,9%	97,9%	97,9%	97,9%
CCF	80%													

S, SM, SMO, SMP, SMPO Multibeam / Long Range / ILP MODELS			
Beams	2	3	4
Response time (ms)	5,5	5,5	5,5
PFH_d	8,97E-09	9,63E-09	1,03E-08
$MTTF_d$	272,2	262,4	253,3
DC_{avg}	98,6%	98,5%	98,4%
CCF	80%		

Laser technical data - ILP MODELS (Integrated Laser Pointer)	
Laser ON/OFF	Touch button located on the barrier upper side (TX)
Laser ON time (min)	12
Wavelength (nm)	635
Beam divergence (mrd)	< 0.5
Max power (mW)	<1 (class 2 according to EN 60825-2)

Muting Arms MA L2P - Logic L 2 parallel beams (TX + RX)	
Muting Arms MA T4P - Logic T 4 parallel beams (TX + RX)	
Beams	2 (MA L2P) / 4 (MA T4P)
Response time (ms)	100
Working range (m)	0...3,5

Muting Arms MA L2X - Logic L 2 crossed beams (TX + RX)	
Muting Arms MA T2X - Logic T 2 crossed beams (TX + RX)	
Beams	2
Response time (ms)	100
Working range (m)	1...2,5

Muting Arms MA L2P TRX (TRX V) (TRX G) - Logic L 2 parallel beams (TX/RX + reflector)	
Muting Arms MA T4P TRX (TRX V) (TRX G) - Logic T 4 parallel beams (TX/RX + reflector)	
Beams	2 (MA L2P TRX) / 4 (MA T4P TRX)
Response time (ms)	100
Working range (m)	0...3,5 (MA L2P TRX-TRX V) / (MA T4P TRX-TRX V)
Working range (m)	0...2 (MA L2P TRX G) / (MA T4P TRX G)

Muting Arms MZ L2X / MZ L2P - Logic L With 2 M5 (TX + RX) crossed/parallel photocells	
Number of single photocell beams	5
Response time (ms)	100
Working range (m)	0...3,5 (MZ L2P) / 1...3,5 (MZ L2X)
Sensor beams coding	SYNCHRO signal on TX
PFH_d (single M5)	2,73E-07

Muting Arms MZ T2X - Logic T With 2 M5 (TX + RX) crossed photocells	
Number of single photocell beams	5
Response time (ms)	100
Working range (m)	1...3,5
Sensor beams coding	SYNCHRO signal on TX
PFH_d (single M5)	2,73E-07

Muting Arms MZ T4P With 4 M5 (TX + RX) parallel photocells	
Number of single photocell beams	5
Response time (ms)	100
Working range (m)	0...3,5
Sensor beams coding	SYNCHRO signal on TX
PFH_d (single M5)	2,73E-07

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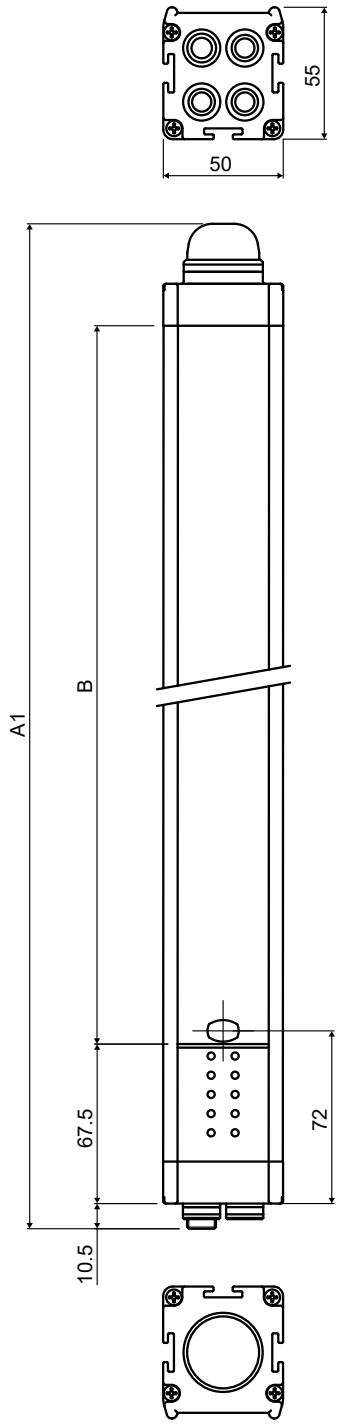
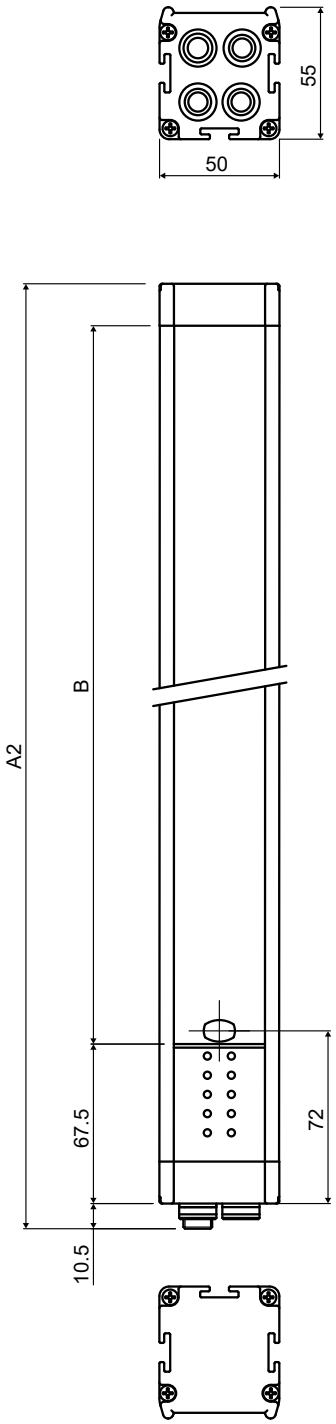
MECHANICAL DIMENSIONS

CURTAIN DIMENSIONS

Models 14, 30, 40mm with Lamp

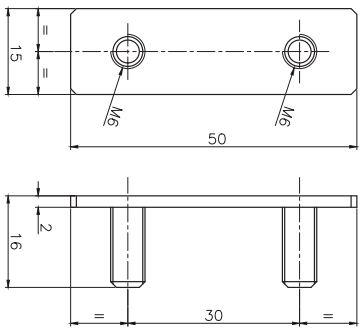


Models 14, 30, 40mm without lamp



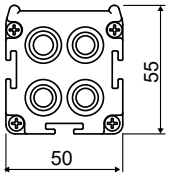
MODEL	A1 (mm)	A2 (mm)	B (mm)
300	420	395	300
450	570	545	450
600	720	695	600
750	870	845	750
900	1020	995	900
1050	1170	1145	1050
1200	1320	1295	1200
1350	1470	1445	1350
1500	1620	1595	1500
1650	1770	1745	1650
1800	1920	1895	1800
1950	2070	2045	1950
2100	2220	2195	2100
2250	2370	2345	2250

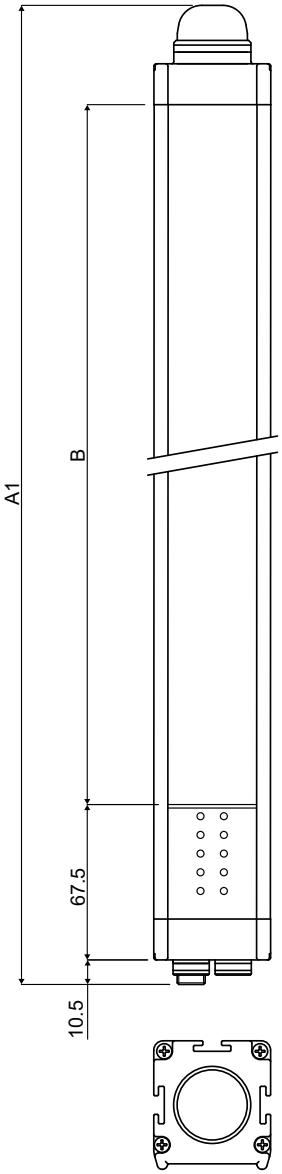
Fastening inserts with 2 M6x16 pins



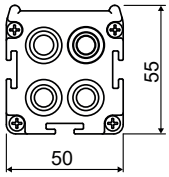
➔ ***In order to check the exact number and position of the connectors, refer to the individual sections of the electrical connections.***

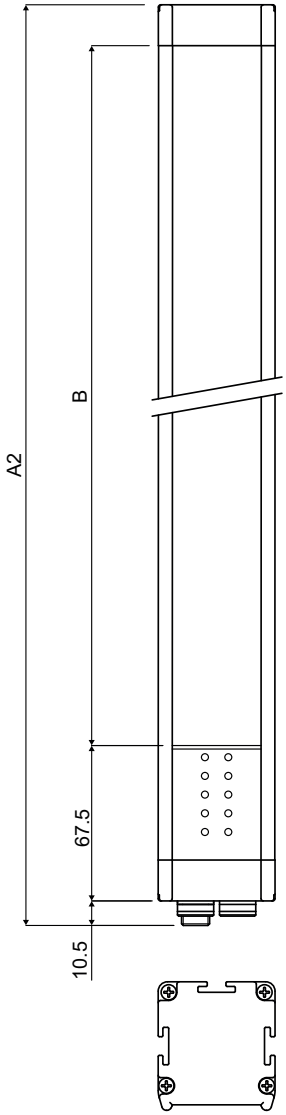
Models
Multibeam / LR / LR ILP
with Lamp





Models
Multibeam / LR / LR ILP
without Lamp



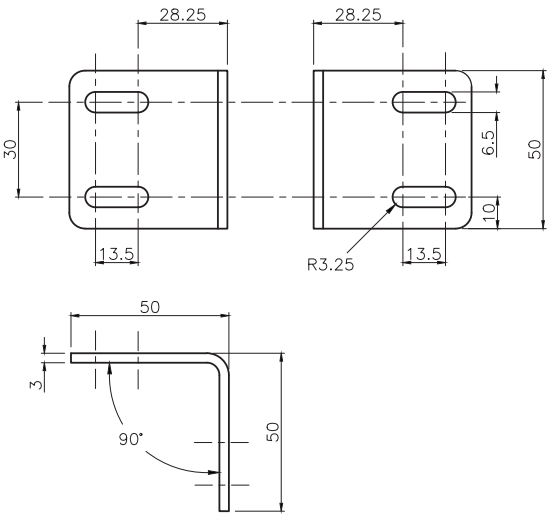


MODEL	A1 (mm)	A2 (mm)	B (mm)
2B	710	685	590
3B	1010	985	890
4B	1110	1085	990

MODEL	A1 (mm)	A2 (mm)	B (mm)
2B LR	673	648	553
3B LR	973	948	853
4B LR	1073	1048	953

MODEL	A1 (mm)	A2 (mm)	B (mm)
2B LR ILP	698	673	579
3B LR ILP	998	973	879
4B LR ILP	1098	1073	979

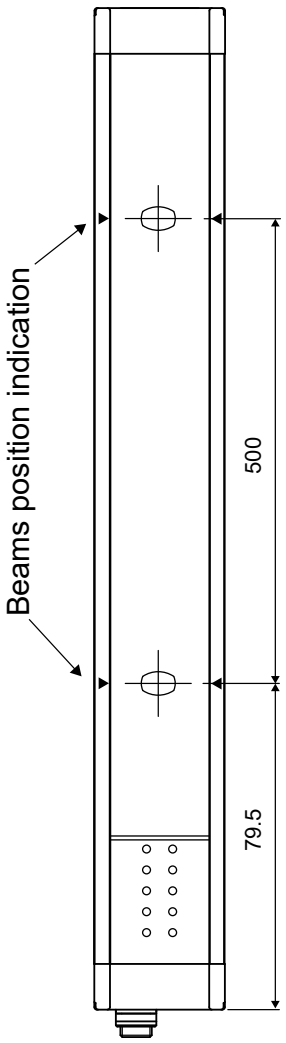
LL fixing brackets



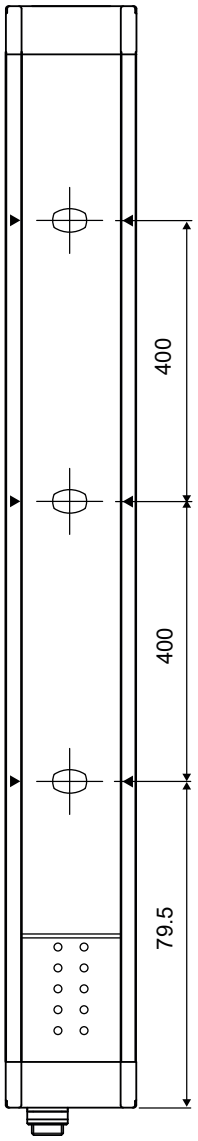
➔ ***In order to check the exact number and position of the connectors, refer to the individual sections of the electrical connections.***

LONG RANGE MODELS BEAMS POSITION

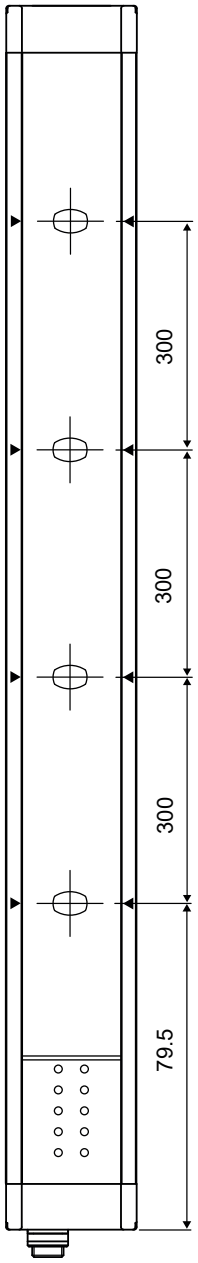
Model 2B LR / LR ILP
Beams position



Model 3B LR / LR ILP
Beams position

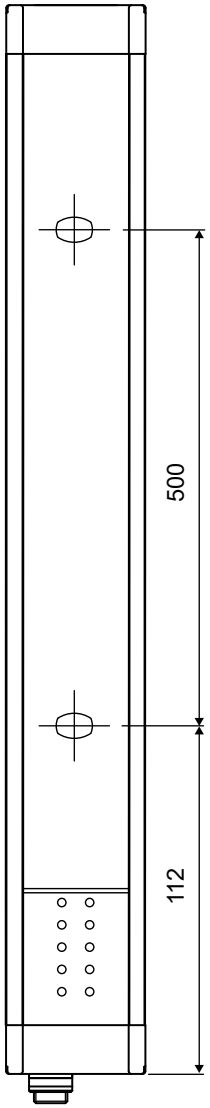


Model 4B LR / LR ILP
Beams position

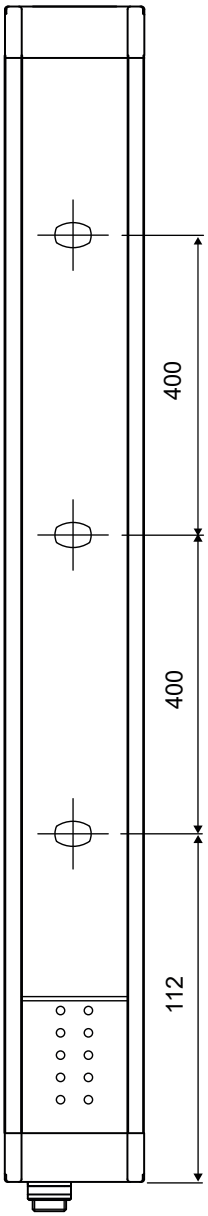


MULTIBEAM MODELS BEAMS POSITION

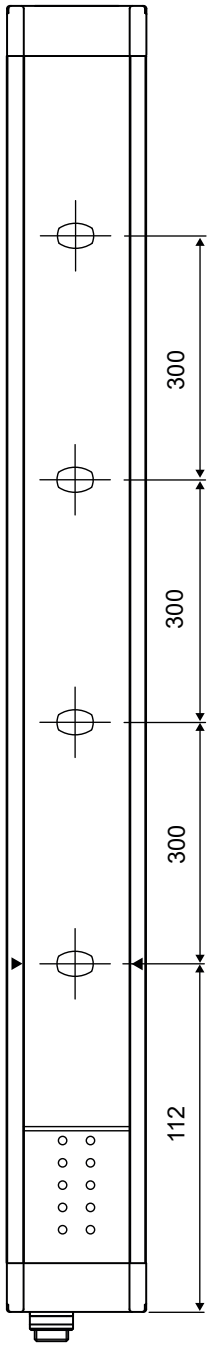
Model 2B
Beams position



Model 3B
Beams position

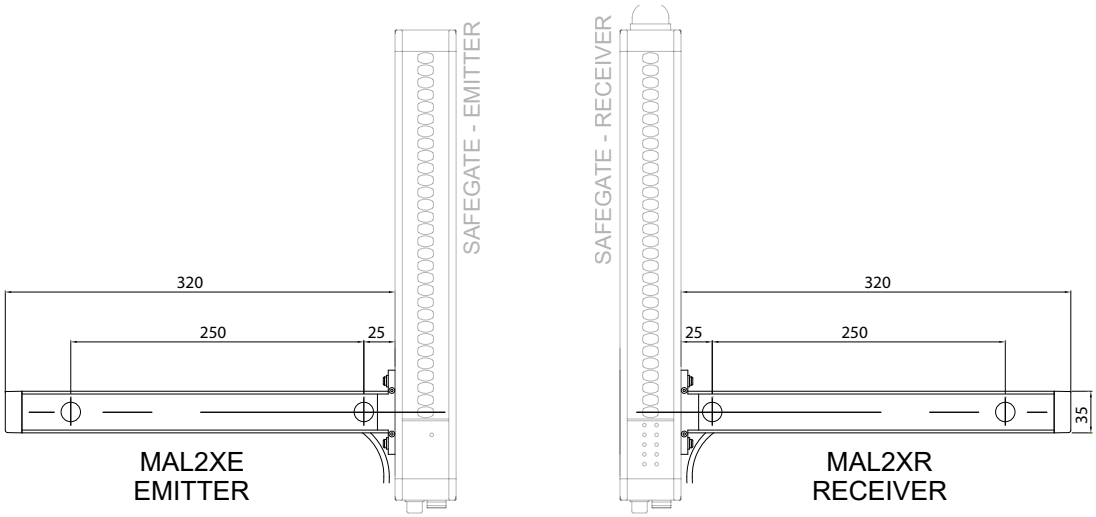


Model 4B
Beams position

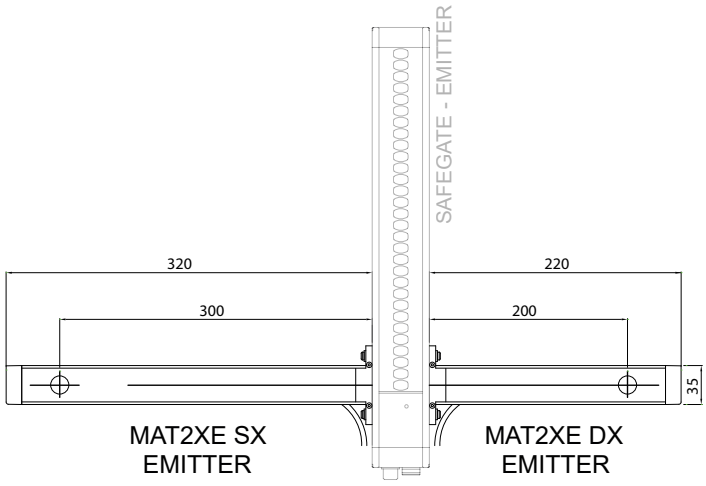


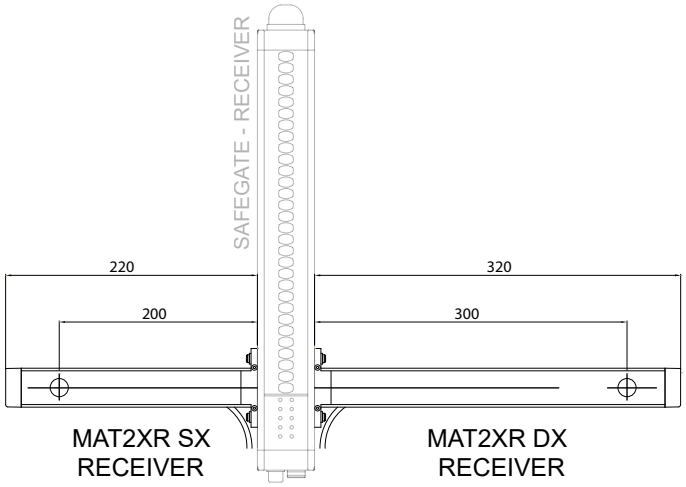
ACCESSORY DIMENSIONS

MAL2X - L arms with 2 crossed TX/RX beams



MAT2X - T arms with 2 crossed TX/RX beams





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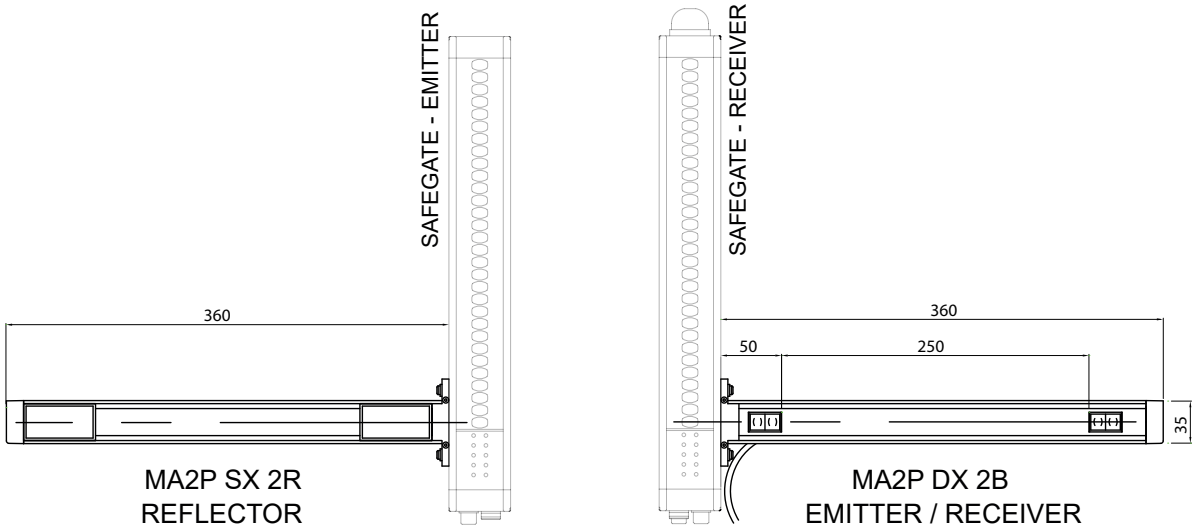
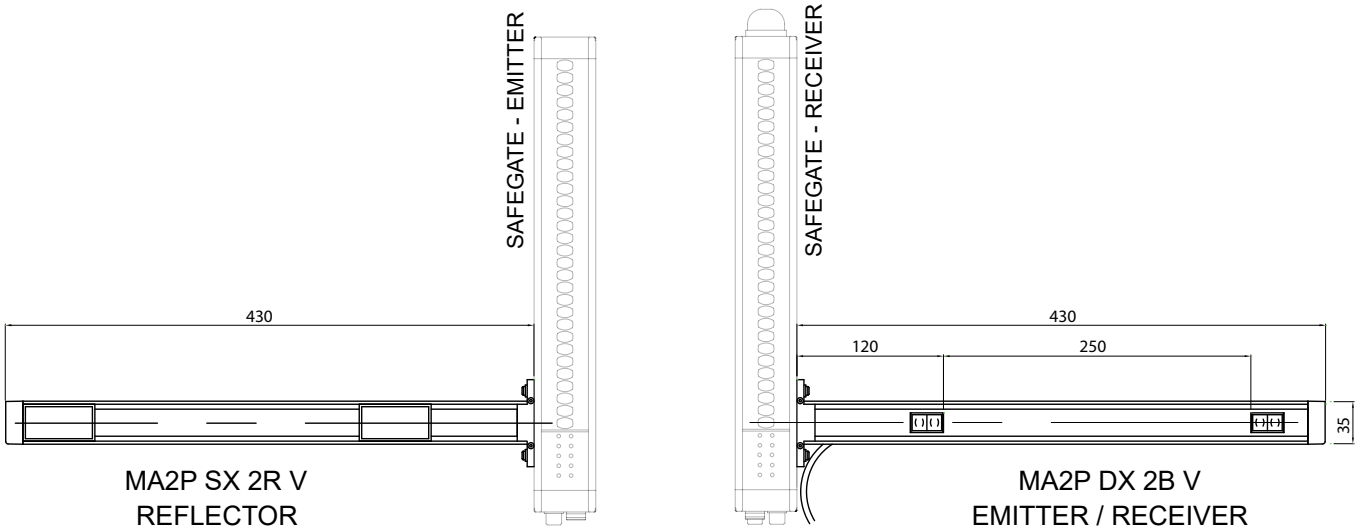
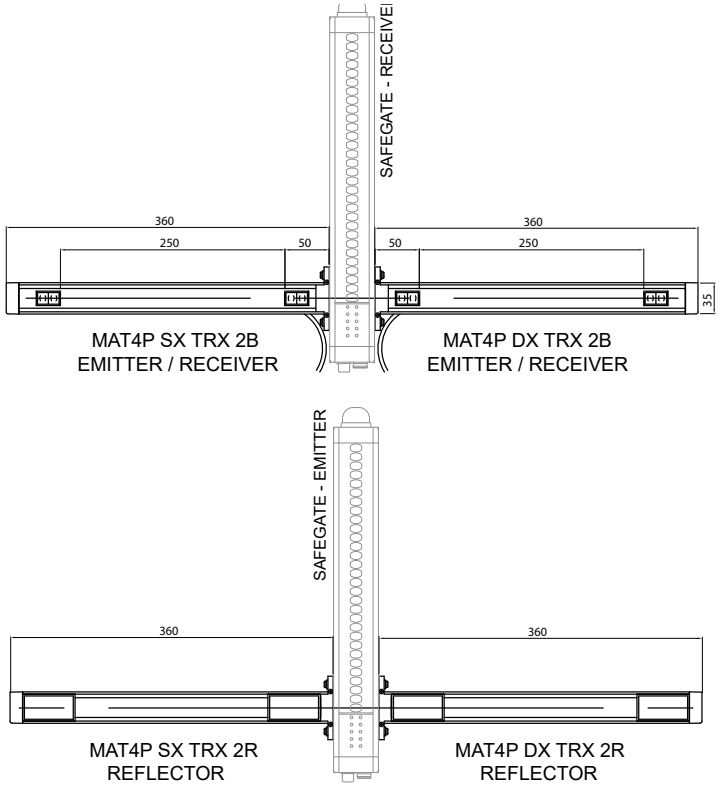
MAL2P TRX - L-arms with 2 parallel beams with reflector



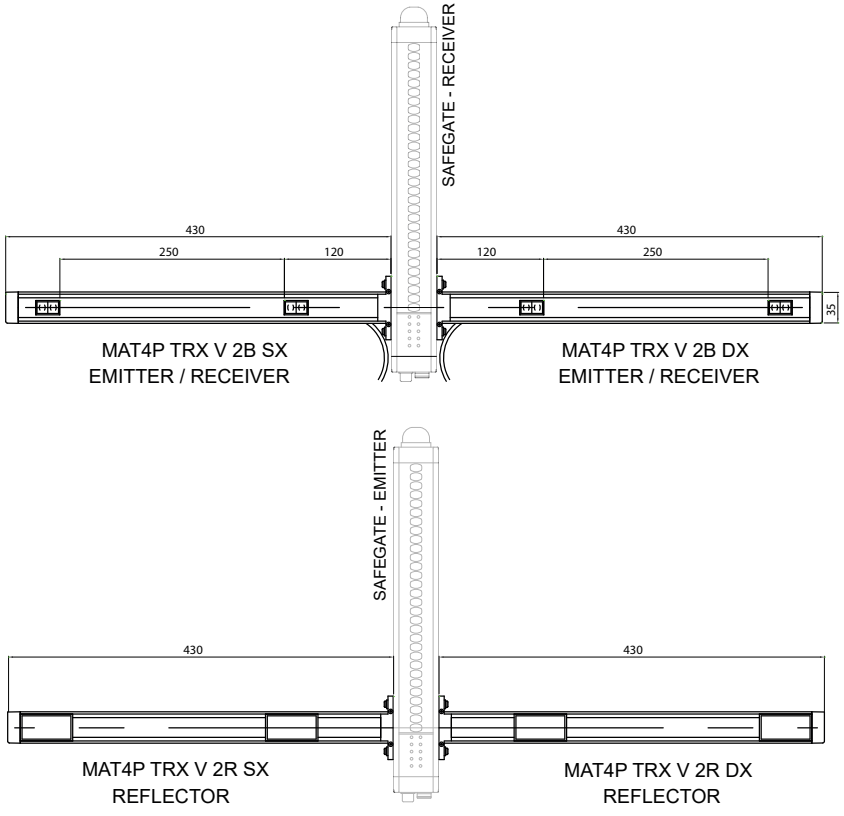
MAL2P TRX - L-arms with 2 parallel beams with reflector - high speed



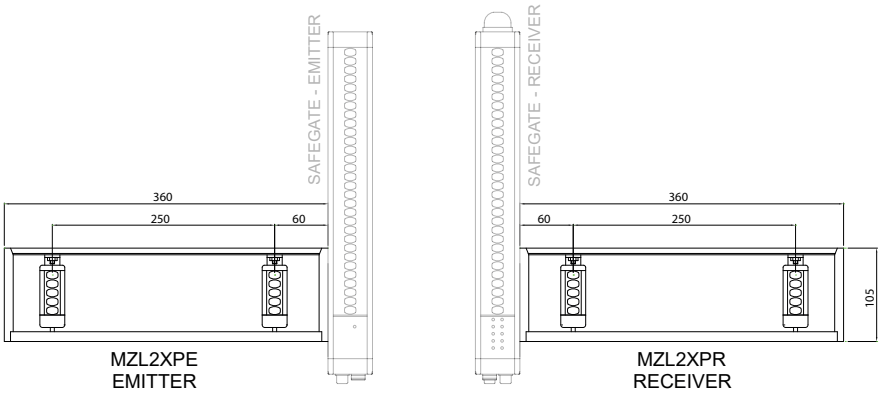
MAT4P TRX - T-arms with 4 parallel beams with reflector



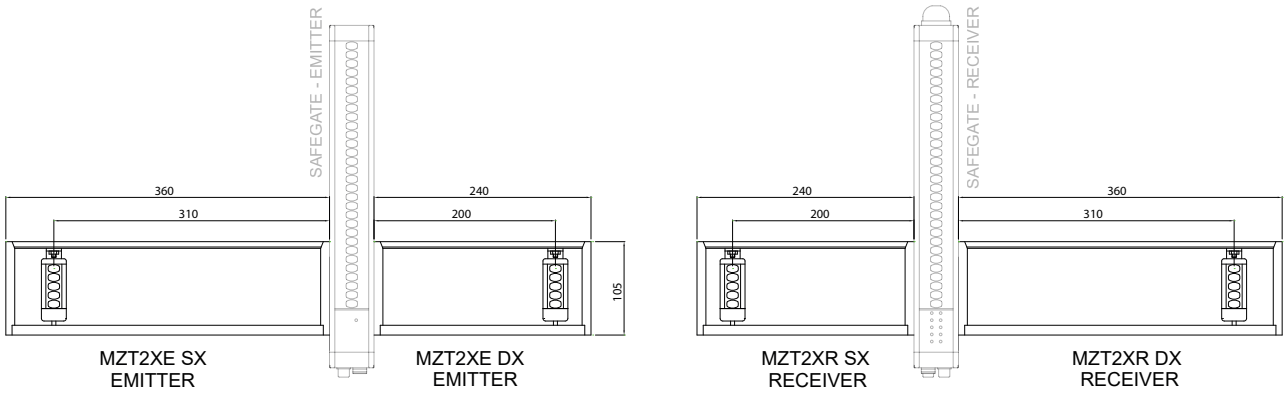
MAT4P TRX - T-arms with 4 parallel beams with reflector - high speed



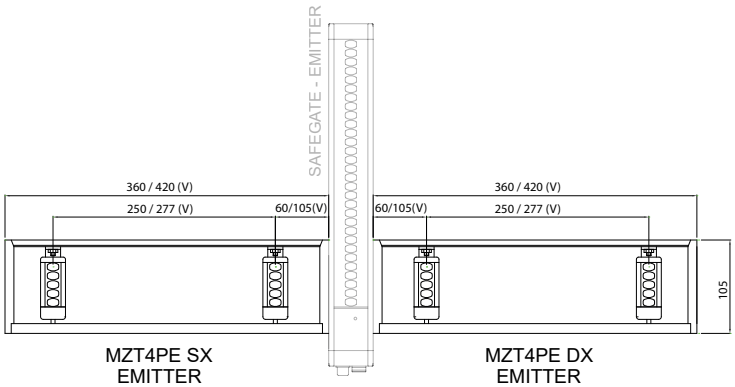
MZL2XP L arms with 2 cross-linked/parallel adjustable M5 beams

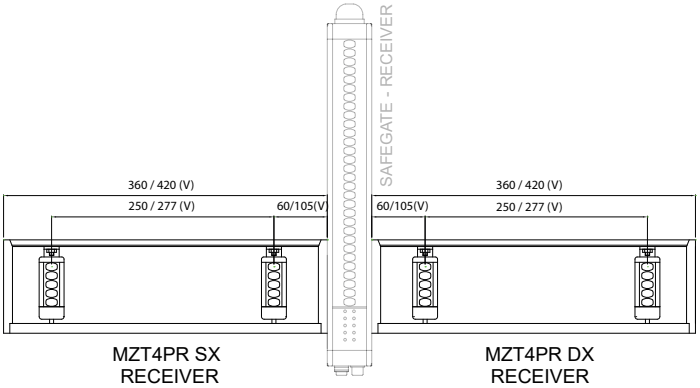


MZT2X - T arms with 2 adjustable M5 cross beams



MZT4P - T arms with 4 adjustable M5 parallel beams





SAFEGATE CONFIGURATOR SOFTWARE

The "SAFEGATE CONFIGURATOR" application software allows configuration of the SAFEGATE curtain characteristics, allowing you to set all the parameters for a proper operation of the curtain and Muting function.
After verifying that the system is working correctly, the operator will no longer need connection to the PC and SAFEGATE can work autonomously.
If you want to continuously monitor the curtain operation by PC, just leave the USB connection enabled with SAFEGATE.
Configuration is possible in a few simple steps through the versatile graphical interface of SAFEGATE CONFIGURATOR; let's see how.

SOFWARE INSTALLATION

HARDWARE characteristics requested by the PC for connection

- RAM memory: 1GB (sufficient enough to operate Windows 7 SP1 + Framework 4.0)
- Fixed Disk: clear Space > 500Mbyte
- USB connector: 1.1, 2.0 or 3.0

SOFTWARE characteristics requested by the PC for connection

Windows 7 with Service Pack 1 installed (or higher OS).
You must have Microsoft Framework 4.0 (or higher) installed on your computer

How to install SAFEGATE CONFIGURATOR

- Download the latest available version from the Download section of the ReeR website: https://www.reersafety.com/it/en/download/configuration-software.
- Run the file "SetupConfigurator.exe".
- Wait for the auto-run installation program to request the SW setup.

➔ ***When the installation procedure is complete, a window appears requesting to run the program.***

➔ ***To program SMP / SMPO models it is mandatory that pin 6 and 11 of main connector on the receiver detect 0VDC (or open circuit).***

CONFIGURATION PHASES

This section describes the main features that characterize SAFEGATE configuration software:

- GRAPHICAL INTERFACE
- CONNECTION
- PROGRAMMING
- DOWNLOAD CONFIGURATION
- CONFIGURATION VALIDATION AND LOADING
- PRINT REPORT
- CURTAIN ACTIVATION
- CURTAIN CONDITION MONITORING
- ERRORS HISTORY

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THE TOOLBAR

The standard toolbar is reproduced in the figure below and the meaning of the different icons is listed:

1 ->  MODIFY CURTAIN CONFIGURATION

2 ->  SAVING CONFIGURATION on Hard Disk

3 ->  LOADING CONFIGURATION from Hard Disk

4 ->  PROJECT INFORMATION

5->  PRINT CONFIGURATION REPORT

6 ->  CONFIGURATION VALIDATION

7 ->  CONNECTION

8 ->  DOWNLOAD CONFIGURATION

9 ->  UPLOAD CONFIGURATION

10 ->  DISCONNECTION (or RESTART in case of disconnected curtain)

11->  MONITOR CURTAIN CONDITION (graphics and text)

12->  CONFIGURATION HISTORY

13->  ERRORS DOWNLOAD (refer to the errors table at the end of the manual)

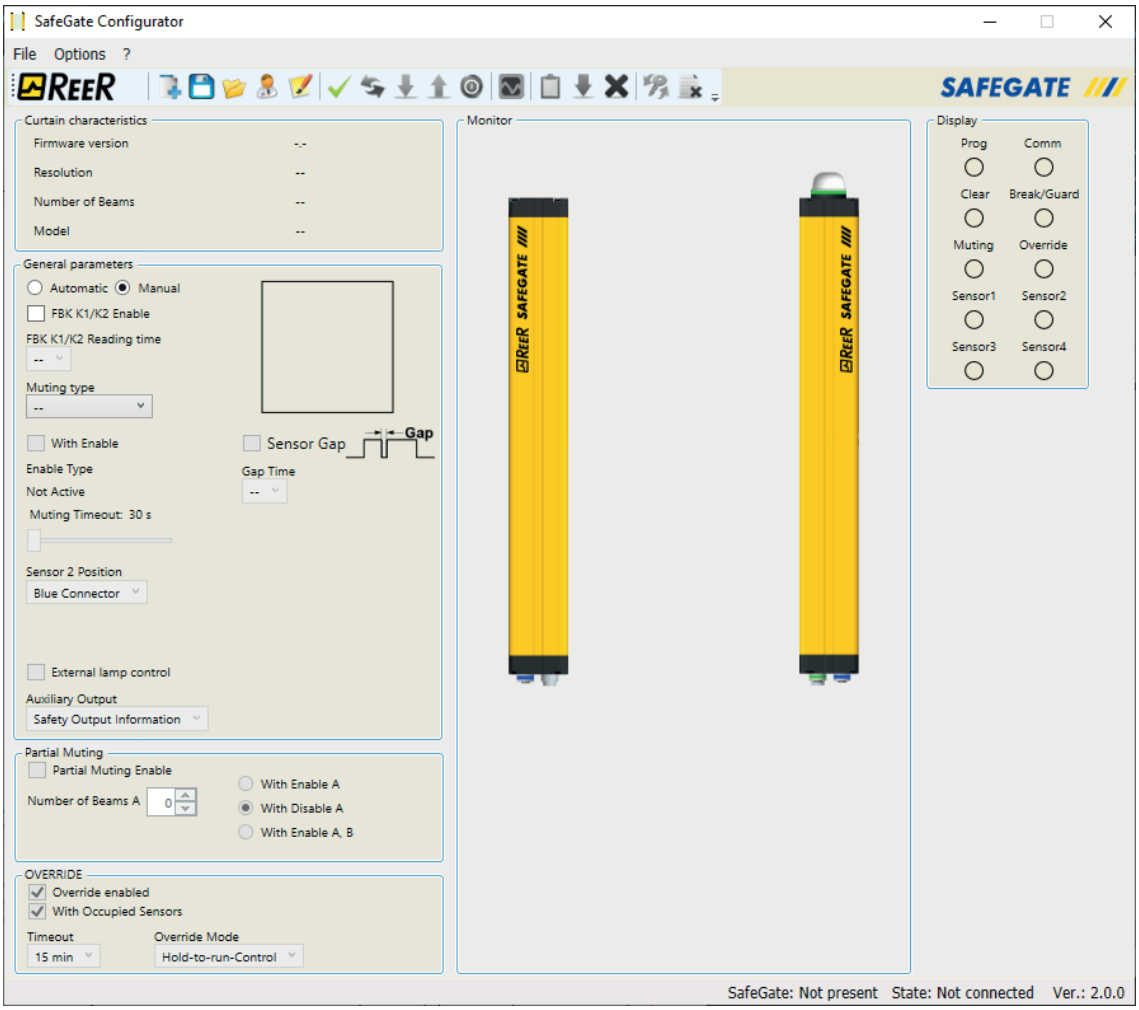
14->  ERROR HISTORY CANCELLATION

15->  CHANGE PASSWORD

16->  CONFIGURATION DELETION

GRAPHICAL INTERFACE

The various features of the software will be described below.
At start-up, the software will show the following initial screen.



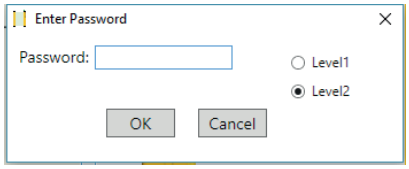
The operator can decide whether:

- to create a new configuration
- to load a previously created configuration *(icon)*.

➔ ***To proceed with the programming, after the connection with SAFEGATE, a PASSWORD is required:***

Level 1 password

- At the first system initialization the operator must use the password "" (ENTER key). The operator who knows the level 2 password is enabled to enter a new level 1 password (alphanumeric, max 8 characters).

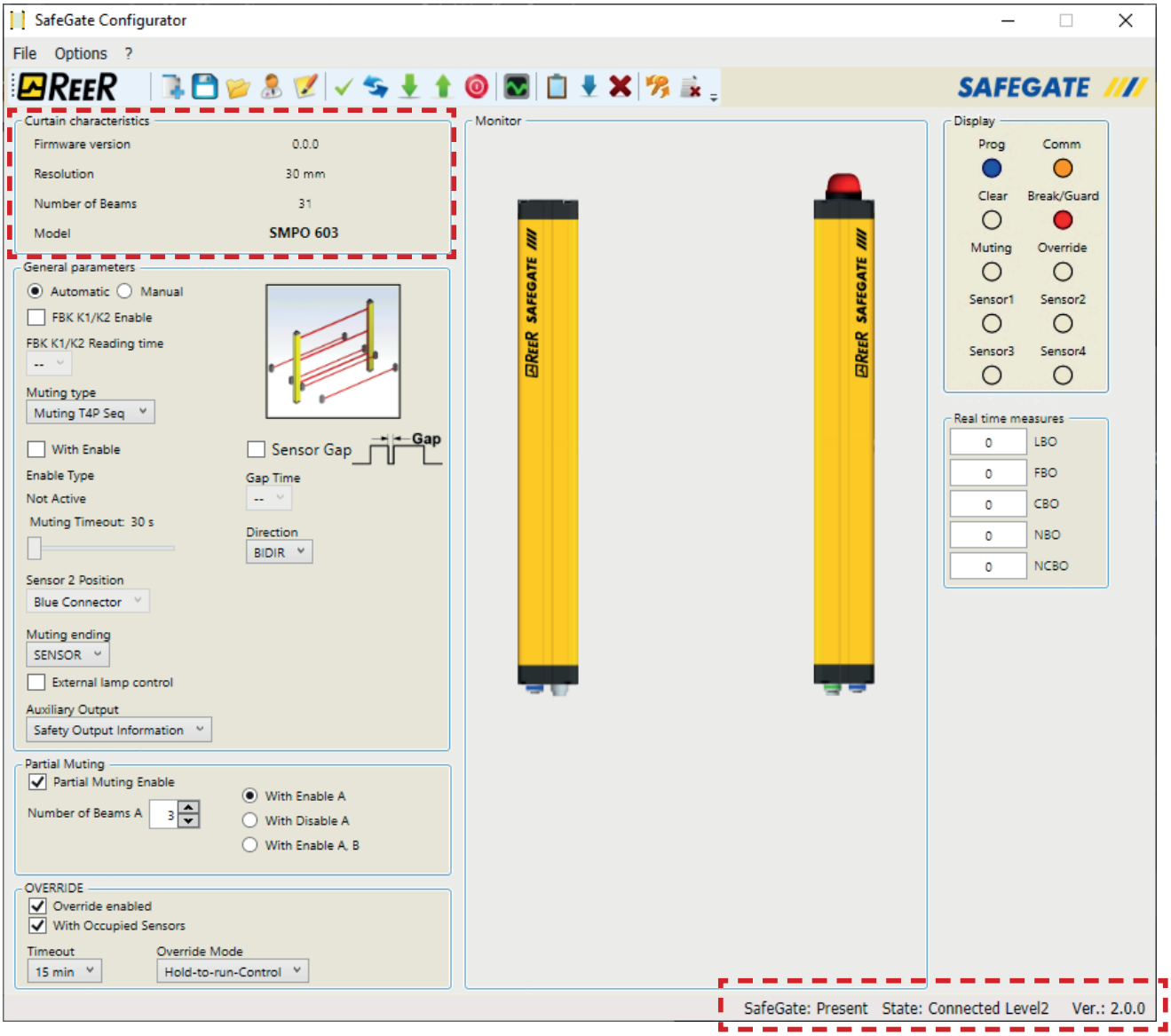


Level 2 password

- The operator authorised to create the configuration must know a level 2 PASSWORD. At initial system initialization the operator must use the SAFEPASS password (all capital letters). The operator who knows the level 2 password is enabled to enter a new level 2 password (alphanumeric, max 8 characters).

CONNECTION WITH SAFEGATE

- Connect the PC to SAFEGATE *(icon)*
- After entering the PASSWORD, the following screen will appear:



At this stage we have a STATIC reading of the SAFEGATE condition, as the curtain is still not in operation.
In the boxes, the information is highlighted:

- General characteristics of the curtain
- Password Level
- Connected/Disconnected
- Software Version

DOWNLOAD CONFIGURATION

- In order to view the curtain configuration, it is necessary to request a download of the configuration *(icon).*

➔ ***Otherwise, the SAFEGATE configuration procedure is required.***

CURTAIN PROGRAMMING

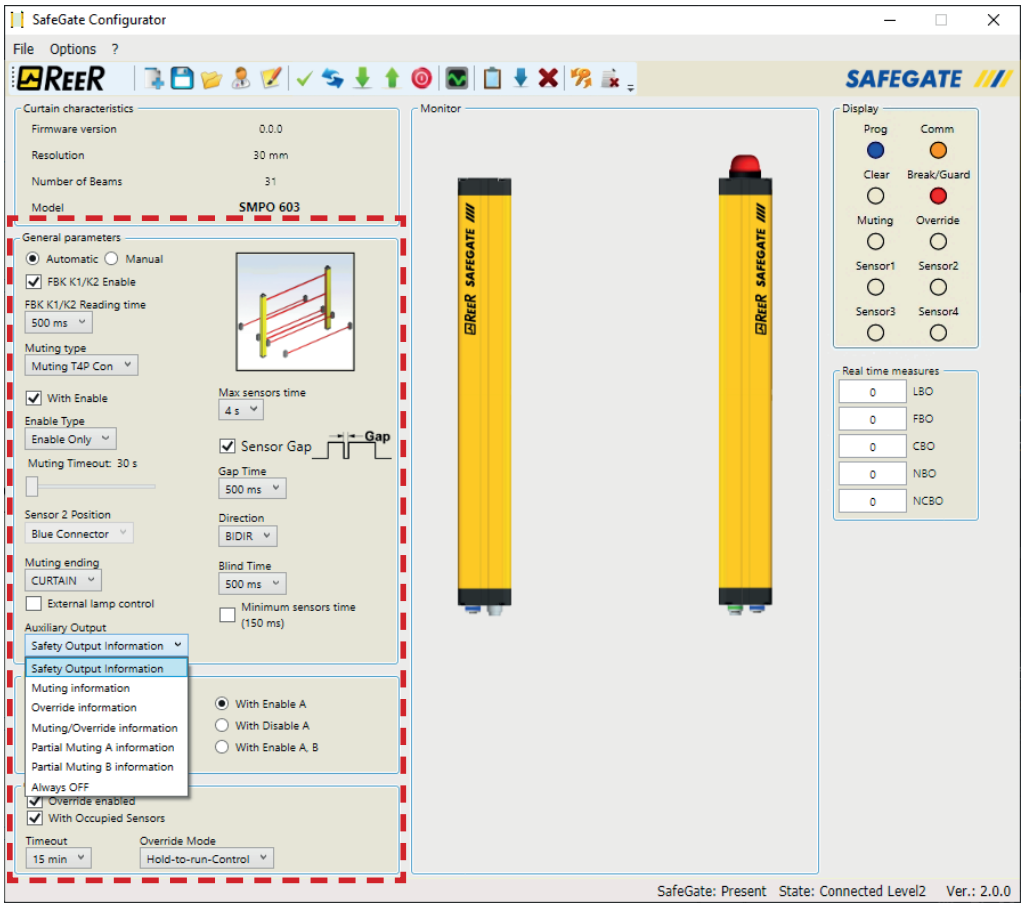
The dotted box highlights the area to be filled for the proper programming of the curtain.

Level 2 password

➢ The operator authorised to create the configuration must know a level 2 PASSWORD. At first system initialization the operator must use the SAFEPASS password all capital letters). The designer who knows the level 2 password is enabled to enter a new level 2 password (alphanumeric, max 8 characters).

➔ ***Programming (BLUE) and Communication (YELLOW) leds are lit during programming.***

➔ ***Refer to the "CONFIGURATION PARAMETERS" section for the meaning of the various parameters and their possible options.***

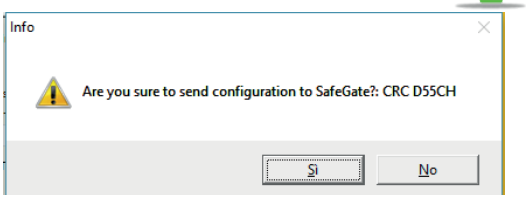


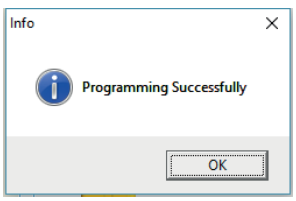
➢ After you have properly configured the curtain, you can save that information ***(icon)***.

CONFIGURATION VALIDATION AND LOADING

➢ Check the correctness of the configuration with the validation procedure *(icon)*.

➢ Then send the configuration to SAFEGATE *(icon)* and confirm:



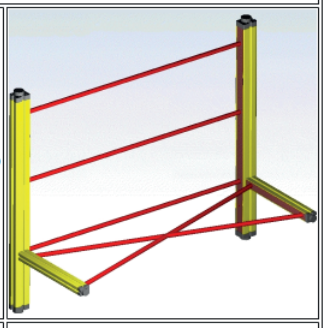


This SAFEGATE system report assumes that configuration has been performed correctly with the SCS configuration software, in compliance with the regulations stated in the SAFETY section.

PRINT REPORT CONFIGURATION

➢ Thanks to the Report Printing feature *(icon)* you can make a report (Report) of the main parameters set by the operator during configuration.

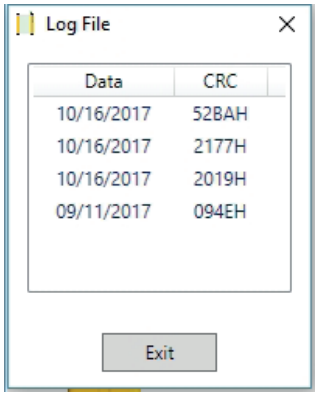
➔ ***This function allows immediate verification of the configuration just set.***

Print Report SafeGate Configurator Ver.: 1.0.0		REER
Date: 08/05/2017		CRC: D55CH
General parameters		
Automatic		
Feedback K1_K2 disabled	-	
Muting		
Muting type	Muting L2X/L2P	
Muting Timeout	30 s	
With Enable	NO	
Concurrent time sensors	4 s	
Minimum sensors time	NO	
S2 Position	2	
End Muting Time	4.0 s	
Blind Time	500 ms	
Gap Sensors	NO	
Mandatory lamp	NO	
Partial Muting		
Partial Muting Enable	YES	
Number of Rays	6	With Disable
OVERRIDE		
Override enabled	YES	
Override Mode	Spring return key	
Timeout	15 min	
With Occupied Sensors	NO	

CONFIGURATION HISTORY

Within the configuration history file are contained the date of creation and the CRC (4-digit hexadecimal identification) of the last configurations loaded.
This logfile can record up to 5 consecutive events; the register will be then overwritten starting with the least recent event.

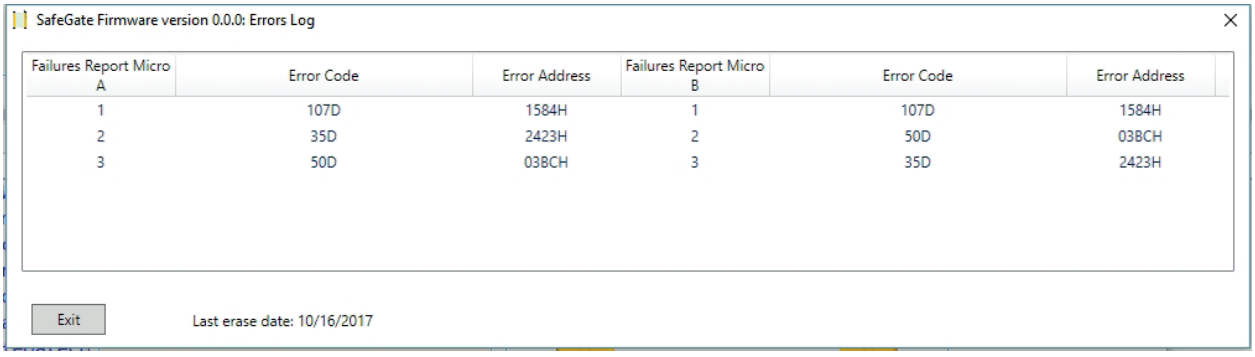
The LOG file can be viewed using the appropriate icon in the standard menu *(icon)*.



ERRORS DOWNLOAD

Using the *icon*, the operator can download the Errors Log file containing Error Code, Micro involved and Error Address.

Please refer to the errors table at the end of the manual to follow the appropriate corrective action.



SAFEGATE ACTIVATION

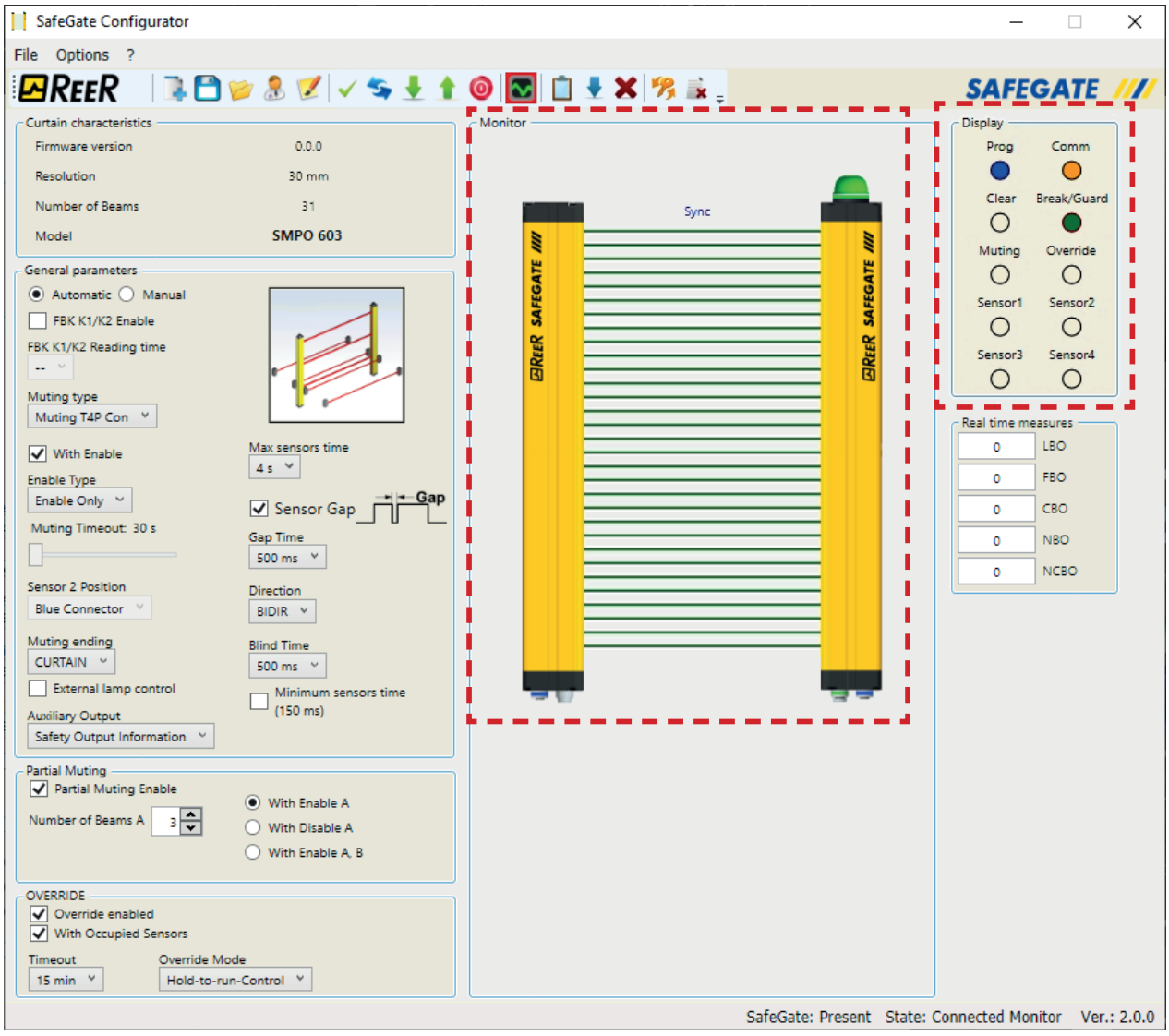
The actual operation and display of the curtain status is obtained via two successive commands:

- Disconnect *(icon)*. SAFEGATE is now operative.
- Monitor curtain status *(icon)*.

CURTAIN CONDITION MONITORING

At this stage we have a DYNAMIC reading of the SAFEGATE operating condition.
In particular, they are highlighted:

- A graphic representation of the curtain, with integrated lamp (if present) with colouration in real time.
- A graphic representation of the colour-coded label in real time; Programming blue led and Communication yellow led on = ***Curtain is programmed and communicating.***



SETTING CURTAIN GENERAL PARAMETERS

Automatic/Manual: This parameter allows you to communicate the desired operating mode to SAFEGATE (refer to section "OPERATING MODES SELECTION").

Enable FBK K1/K2: If selected, it is mandatory to read an external EDM signal (refer to section "SELECTING MODES OF OPERATION").

Time reading FBK K1/K2: Lets you set a delay in reading the external FBK signal.
Possible values: from 100 ms to 1300 ms (with 100 ms steps).

Auxiliary Output: With drop-down menu, select the meaning to be assigned to the receiver pin 12 (STATUS):

- Safety Output information
- Muting information
- Override information
- Muting/Override information
- Partial Muting A information
- Partial Muting B information
- Always OFF

When one of the previous options is selected, the pin 12 (STATUS) state level turn by 0VDC to 24VDC, thus indicating that the function is active.

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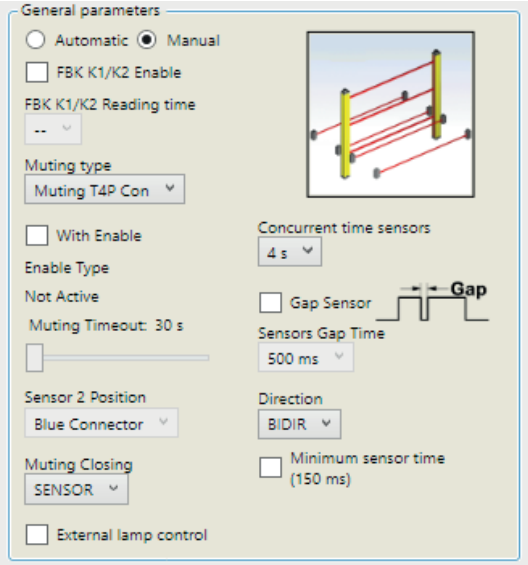
SETTING MUTING PARAMETERS

The incorrect setting of the Muting parameters by the operator compromises the safe operation of the barrier.

"Concurrent" Muting

The activation of the Muting function occurs as a result of the interruption of the sensors S1 and S2 (the order is not relevant) within a time between 2s and 5s decided by the operator, (or S4 and S3 with material moving in the opposite direction). Contemporaneous Muting enables the muting function to be activated by the S1, S2, S3 and S4 inputs. Preliminary condition: The Muting cycle can start if all sensors are at 0VDC and the light curtain is free.



Parameters

With Enable: If checked, it is possible to read the external signal of **"MUT_ENABLE"** (Muting Enable).
Otherwise, the Muting function is always enabled. Enable can be of two types: Enable/Disable and Enable Only. If you select it **"Enable/Disable"** the Muting cycle cannot start if Enable is fixed at 24VDC or 0VDC but it is activated only with one **rising edge,** if you want to disable the muting, the signal must be returned to 0VDC. In this way, the detected falling edge disables Muting in any condition. If you select it **"Enable only"** there is no way to disable Muting over the entire duration of the function, but you must always return Enable to 0VDC to allow a new rising edge for the next Muting cycle (refer to the "Partial Muting" section).

Muting Timeout: Allows you to set the time, variable from 10 sec to infinity, within which the Muting cycle must end, if when the cycle is not yet over, Muting is disabled immediately.

Max sensors time: You can set the maximum time (2 to 5 seconds) that must be between the activation of two muting sensors.

Sensor Gap: With non - homogeneous pallet materials and possible "holes" in the interruption of the muting, this parameter allows filtering in the fall of the sensor signal leaving then the muting sequence unchanged. This parameter can take values from 200ms to 1000ms (with 100ms steps)

Sensor 2 Position: Not allowed.

Direction: You can set the occupancy order of the sensors; if set BIDIR the occupation can take place in both directions from S1 & S2 to S3 & S4 or reverse order; if you choose UP the occupancy order is: S1 & S2 to S3 & S4 and eventually with DOWN the occupancy order is: S4 & S3 to S2 & S1.

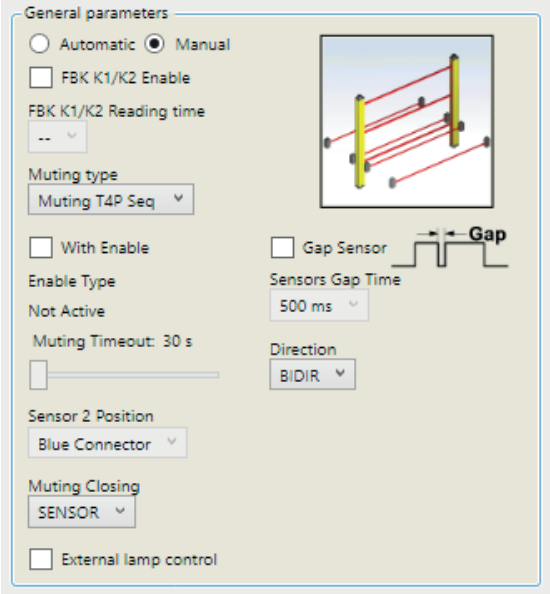
Muting ending: It can be of two types CURTAIN and SENSOR. By selecting CURTAIN, muting closes at the release of the protected gate, while with SENSOR closure occurs after the release of the last but one sensor.

Minimum sensors time: If selected, it allows Muting activation only if it is time >150 ms between activation of sensor 1 and sensor 2 (or sensor 4 and sensor 3).

External lamp control: If selected, the Muting lamp is compulsory.

"Sequential" Muting

➔ ***The activation of the Muting function occurs following the sequential interruption of the sensors S1 and S2, and the sensors S3 and S4. If the pallet proceeds in an opposite direction the correct sequence is: S4, S3, S2, S1.***



Parameters

With Enable: If checked, it is possible to read the external signal of **"MUT_ENABLE"** (Muting Enable).
Otherwise, the Muting function is always enabled. Enable can be of two types: Enable/Disable and Enable Only. If you select it **"Enable/Disable"** the Muting cycle cannot start if Enable is fixed at 24VDC or 0VDC but it is activated only with one rising edge, if you want to disable the muting, the signal must be returned to 0VDC. In this way, the detected falling edge disables Muting in any condition. If you select it **"Enable Only"** there is no way to disable Muting over the entire duration of the function, but you must always return Enable to 0VDC to allow a new rising edge for the next Muting cycle (refer to the "Partial Muting" section).

Muting Timeout: Allows you to set the time, variable from 10 sec to infinity, within which the Muting cycle must end, if, when the cycle is not yet over, Muting is disabled immediately.

Sensor Gap: With non-homogeneous pallet materials and possible "gaps" in the interruption of muting, this parameter allows filtering the drop of the sensor signal leaving then the muting sequence unchanged. This parameter can take values from 200ms to 1000ms (with 100ms steps)

Sensor 2 Position: Not allowed.

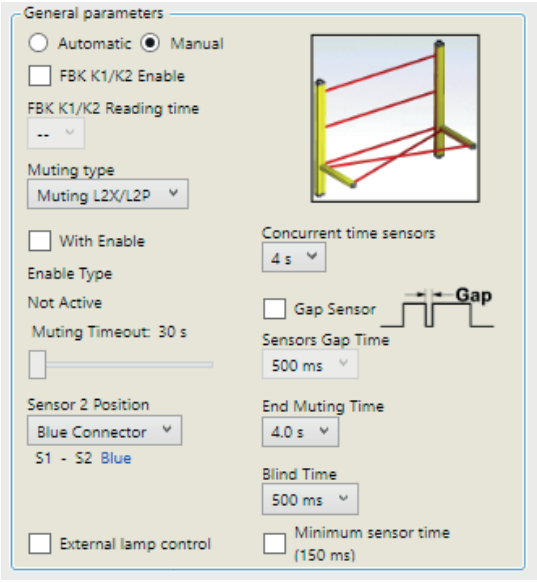
Direction: You can set the occupancy order of the sensors; if set BIDIR the occupation can take place in both directions from S1 & S2 to S3 & S4 or reverse order; if you choose UP the occupancy order is: S1 & S2 to S3 & S4 and eventually with DOWN the occupancy order is: S4 & S3 to S2 & S1.

Muting ending: It can be of two types CURTAIN and SENSOR. By selecting CURTAIN, muting closes at the release of the protected gate, while with SENSOR, closure occurs after the release of the last but one sensor.

External lamp control: If selected, the Muting lamp is compulsory.

"L" Muting

➔ ***The activation of the Muting function occurs as a result of the interruption of sensors S1 and S2 (the order is not relevant) within a time between 2s and 5s decided by the operator.***
The status of Muting ends after the release of the gate.



Parameters

With Enable: If checked, it is possible to read the external signal of **"MUT_ENABLE"** (Muting Enable).
Otherwise, the Muting function is always enabled. Enable can be of two types: Enable/Disable and Enable Only. If you select **"Enable/Disable"** the Muting cycle cannot Start if Enable is fixed at 24VDC or 0VDC but is activated only by a **rising edge;** if you want to disable the muting, the signal must be returned to 0VDC. In this way, the detected falling edge disables Muting in any condition. If you select **"Enable only"** there is no way to disable Muting over the entire duration of the function, but you must always return Enable to 0VDC to allow a new rising edge for the next Muting cycle (refer to the "Partial Muting" section).

Muting Timeout: Allows you to set the time, variable from 10 sec to infinity, within which the Muting cycle must end, if, when the cycle is not yet over, Muting is disabled immediately.

Max sensors time: You can set the maximum time (2 to 5 seconds) that must be between the activation of two muting sensors.

Sensor Gap: With non - homogeneous pallet materials and possible "holes" in the interruption of the muting, this parameter allows filtering in the fall of the sensor signal leaving then the muting sequence unchanged. This parameter can take values from 200ms to 1000ms (with 100ms steps)

Sensor 2 Position: The *Position S2* parameter allows the operator to select the connector (blue or red) to which the external Muting S2 sensor must be connected. The **blue** connector must be selected using integrated L-arms (with output on a single connector). Using two separate sensors (with 2 connectors) the operator must select the **red** connector.

End Muting Time You can set the (from 2.5 to 6 seconds, with 500 ms steps) that must be between the release of the first sensor and the release of the dangerous gate. At the end of this time the Muting function ends.

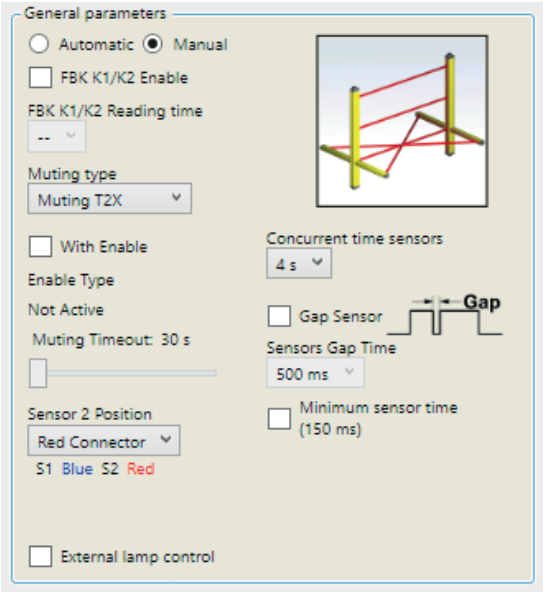
Blind Time: Only with Muting Closure = Curtain, blind time is triggered if it is known that after the complete transit of the pallet (muting cycle closure) objects may be protruding and occupy the curtain, sending the curtain to BREAK status. During blind time, OSSD outputs remain active. The Blind Time may vary from 250 ms to 1 second.

Minimum sensors time: If selected, it allows Muting activation only if it is time >150 ms between activation of sensor 1 and sensor 2 (or sensor 4 and sensor 3).

External lamp control: If selected, the Muting lamp is compulsory.

"T" Muting

➔ ***The activation of the Muting function occurs as a result of the interruption of the sensors S1 and S2 (the order is not relevant) within a time between 2s and 5s decided by the operator. The status of Muting ends after the release of the gate.***



Parameters

With Enable: If checked, it is possible to read the external signal of "MUT_ENABLE" (Muting Enable).
Otherwise, the Muting function is always enabled. Enable can be of two types: Enable/Disable and Enable Only. If you select it "Enable/Disable" the Muting cycle cannot start if Enable is fixed at 24VDC or 0VDC but it is activated only with one rising edge, if you want to disable the muting, the signal must be returned to 0VDC. In this way, the detected falling edge disables Muting in any condition. If you select it "Enable only" there is no way to disable Muting over the entire duration of the function, but you must always return to 0VDC Enable to allow a new rising edge for the next Muting cycle (refer to the "Partial Muting" section).

Muting Timeout: Allows you to set the time, variable from 10 sec to infinity, within which the Muting cycle must end, if When the cycle is not yet over, Muting is disabled immediately.

Max sensors time: You can set the maximum time (2 to 5 seconds) that must be between the activation of two muting sensors.

Sensor Gap: With non - homogeneous pallet materials and possible "holes" in the interruption of the muting, this parameter allows filtering in the fall of the sensor signal leaving then the muting sequence unchanged. This parameter can take values from 200ms to 1000ms (with 100ms steps)

Sensor 2 Position: The *Position S2* parameter allows the operator to select the connector (blue or red) to which the external Muting S2 sensor must be connected. The **blue** connector must be selected using sensors with output on a single connector. Using two separate sensors (with 2 connectors) the operator must select the **red** connector.

Minimum sensors time: If selected, it is only possible to activate Muting if a time > 150 ms elapses between the activation of Sensor 1 and Sensor 2 (or Sensor 4 and Sensor 3).

External lamp control: If selected, Muting lamp is compulsory.

PARTIAL MUTING

A SAFEGATE function concerns the possibility of limiting the muting function to a number of well-defined beams (from the first beam).
This function, called Partial Muting, has the following features:

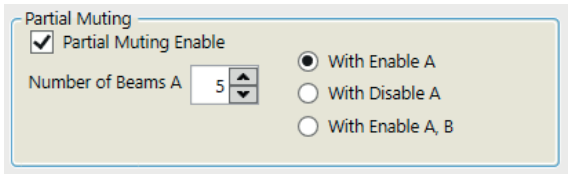
➔ *Read carefully "PARTIAL MUTING", page 54*

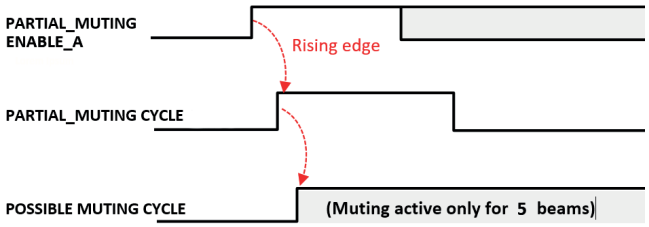
➔ ***It can only be enabled with the Safegate Configurator SOFTWARE: (Tick on "Partial Muting Enable").***

➔ ***The first beam of the Partial Muting always starts from the bottom (connection side).***

Partial Muting with Enable

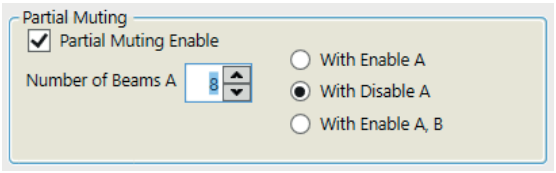
When Partial Muting with ENABLE (A or A,B) is selected after a "PARTIAL Muting" signal rising before the start of the Muting cycle, SAFEGATE enables the Partial Muting function only for the first n beams (5 in the example).

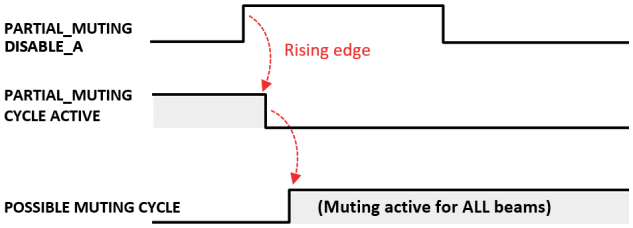


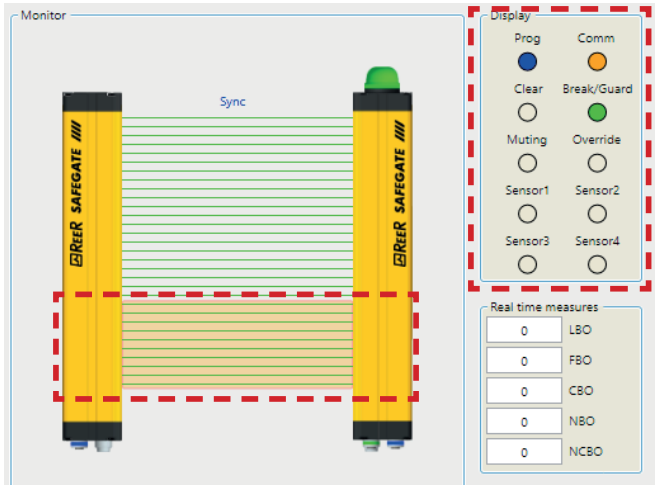


Partial Muting with Disable

When Partial Muting with DISABLE (A) is selected, SAFEGATE enables the Partial Muting function only for the first n beams (8 in the example).
Only after a "PARTIAL Muting" signal occurs before the start of the Muting cycle will the Muting Normal cycle be enabled.







Partial Muting: MONITOR

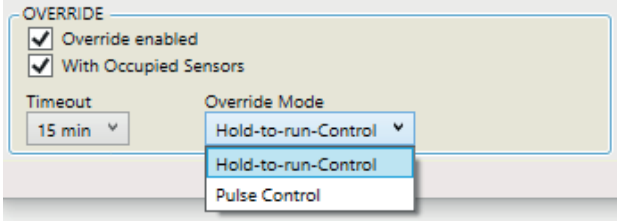
At this stage we have a dynamic reading of the SAFEGATE condition.

In particular, they are highlighted:

- A graphic representation of the curtain, with integrated lamp with colour in real time.
- A graphic representation of the signalling label.
- A graphical representation of the curtain, with highlighted beams for Partial muting function

➔ ***Pay attention to the two highlighted zones in the boxes: in the example, the Partial muting option for the first 10 beams was selected. THE BEAMS WITH Partial Muting FUNCTION ARE HIGHLIGHTED IN YELLOW, WHILE GREEN COLOURED BEAMS WORK NORMALLY: ACTIVE CURTAIN.***

MUTING OVERRIDE



➔ ***The OVERRIDE function becomes necessary when, after incorrect Muting activation sequences, the machine stops with the dangerous hazardous material.***

➔ ***Refer to the section "MUTING OVERRIDE", page 23***

In this situation, the OSSD outputs are inactive because the curtain and/or at least one Muting sensor are occupied. In this condition, the OVERRIDE request LED flashes. This operation activates the OSSD outputs make it possible to remove the blocking material; In addition, the Override/Muting lamp flashes.

During the entire phase in which the OVERRIDE function is active, the Override/Muting lamp flashes. You should periodically verify the efficiency of this lamp (during Muting or Override phases).

Warning! The Pulse Override command automatically activates the curtain outputs until both the curtain and the Muting sensors are again free of obstacles. During this period the curtain is not able to protect access to the dangerous gate. It is therefore necessary that all operations be conducted under close supervision of experienced personnel.

Override can only be activated if Muting is not active and at least one Muting sensor is occupied (or if the curtain is busy). At the release of the grid and sensors the Override ends.

Override can be configured in two ways:
- Hold-to-run control.
- Pulse control.

Override with Hold-to-run control

Activating this function must be done by keeping the Override command active for the duration of subsequent operations. However, it is still possible to start a new override de-activating and re-activating the command. At the release of the curtain and sensors (clear gate) or the timeout expiration, the Override terminates without additional commands.

Override with Pulse control

Activating this function occurs by activating the Override command.
At the release of the curtain and sensors (clear gate) or the timeout expiration, the Override terminates.
The function can only resume if the Override command is switched on again.

Parameters

With sensors occupied: When selected, the activation of at least one sensor AND the BREAK condition of the light curtain are required to activate the OVERRIDE.

Timeout: It allows to set the time, which varies from 5 min to 30 min, within which the function Override must end.

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SAFEGATE DIAGNOSTIC - ERRORS

ERROR	FAILURE DESCRIPTION	ACTION
0 ÷ 25	Internal error	Return the barrier to ReeR to be repaired
34 35, 37 40, 47 49, 50	OSSD error	Verify connection of pins 3, 4 on the main RECEIVER connector
32, 33, 36, 38, 39, 41 42, 43, 44 45, 46, 48, 51	OSSD Internal error	Return the barrier to ReeR to be repaired
64 ÷ 73	Main board Internal error	Return the barrier to ReeR to be repaired
74, 75	Overcurrent on 24VDC	Verify max current consumption ≤ 1,6A
76 ÷ 85 90	Main board Internal error	Return the barrier to ReeR to be repaired
86, 87	STATUS out error	Verify connection of pin 12 on the main RECEIVER connector
88	Overcurrent on auxiliary LAMP	Verify connection of pin 1 on the RECEIVER LAMP/USB connector
89	See 86, 87, 88	See 86, 87, 88
105, 106	Interfering Emitter detected	➢ Switch the position of the Emitter and Receiver ➢ Move the interfering Emitter to avoid this illuminating the Receiver ➢ Shield the beams coming from the interfering Emitter using opaque protections
128	Configuration error	Verify connection of pins 6, 7, 8, 11 on the main RECEIVER connector
129	Initial configuration modified	Verify connection of pins 6, 7, 8, 11 on the main RECEIVER connector
130	See 128, 129	See 128, 129
131, 132	With EDM active, initial PIN 8 status wrong	Verify connection of pin 8 on the main RECEIVER connector
133	Stucked EDM contact (closed)	Verify external contacts
134	Open EDM contact	Verify external contacts
135	See 133, 134	See 133, 134
136	OVERRIDE configuration error	Verify connection of pins 9, 10 on the main RECEIVER connector
137	Exceeded max number of Override requests	Turn off and on SAFEGATE
138	See 137	See 137
139	24VDC on STATUS output	Verify connection of pin 12 on the main RECEIVER connector
140	Overcurrent on STATUS output	Verify connection of pin 12 on the main RECEIVER connector
141	See 139, 140	See 139, 140
142	Error on Integrated lamp	Return the barrier to ReeR to be repaired
143, 144	Error on Auxiliary lamp	Verify connection of pin 1 on the RECEIVER LAMP/USB connector
146, 147	Muting sensors configuration error	➢ Verify muting sensors connection ➢ Verify position of sensor 2 with the software ➢ If no error is detected, return the barrier to ReeR to be repaired

CONTROLS, CARE AND MAINTENANCE

PRE-ACTIVATION CHECKLIST

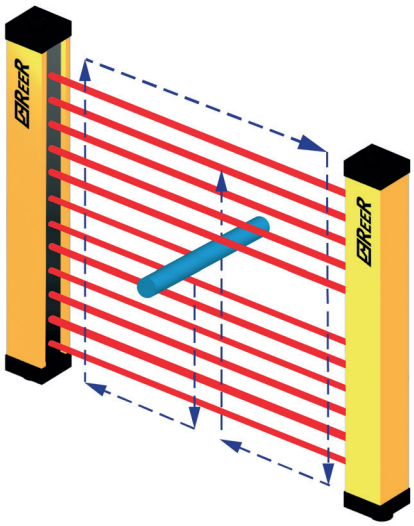
➔ ***To make sure that SAFEGATE has been configured correctly, follow the following checklist before turning on the product for the first time.***

1. Verify that the electrical connections have been carried out correctly.
2. Verify that the supply voltage is 24Vdc ± 20% (PELV, compliant with EN 60204-1 (Chapter 6.4)).
3. Verify that access to the hazardous area can only take place through the gate protected by Safegate.
4. Verify that there are physical protection curtains preventing access to the hazardous area.
5. The power contactors operating the hazardous machine must meet the safety level off the grid: SIL 3 - PL e - Cat.4.
6. RESTART and OVERRIDE commands must not be accessible from inside the hazardous area.
7. The minimum safety distance must have been previously measured and respected during installation.
8. There must be no reflective surfaces near the dangerous voyage.
9. Make sure that the MUTING/OVERRIDE signal lamp is correctly installed in a visible location by the operator.
10. Ensure that there are no spurious light sources that may affect the smooth operation of the SAFEGATE.
11. Make sure the on-board staff has been adequately trained on the SAFEGATE operation.

PERIODIC CONTROL

Functional checks must be carried out at a certain frequency (e.g. daily), depending on the risk analysis and the grid utilization environment.

1. Verify that Emitter and Receiver have been properly connected to the power supply. (24VDC±20%).
2. Verify (only if SAFEGATE is programmed via Software) that the blue LED “PRG” is turned on.
3. Verify the correct configuration settings:
   a) **MANUAL:**
   At power-up, the curtain waits for a RESTART command to activate its work cycle (START INTERLOCK). Verify that this command is positioned so that it cannot be activated from the inside of the hazardous area. Stop at least one beam of the protected area and make sure that the red LED  on the Receiver (RESTART INTERLOCK) lights up.
   b) **AUTOMATIC:**
   Stop at least one beam of the protected area and verify that the green LED  is lit again on correct operation
4. Verify protected zone resolution: For the test, use the correct test object (matt cylinder of the diameter equal to the resolution of the curtain. Refer to the Accessories/Spare Parts section for the correct ordering code for the test object.



a) Insert the test object into the controlled area and move it slowly from top to bottom (or vice versa), first in the centre, and then close to both the transmitter and the receiver.
b) For Multibeam models: Interrupt with one opaque object every one of the first beams in the centre and then close to both the Emitter and Receiver.
c) Check that at each stage of the test object movement the red LED on the receiver remains in any case switched on and that the dangerous machine stops.

5. Verify of TEST function operation.
   a) Referring to the chapter “CONNECTIONS”, activate the TEST function on the emitter and make sure that the red LED  on the Receiver lights up.

CARE AND MAINTENANCE

SAFEGATE does not require any specific maintenance work; However, periodic cleaning of the frontal protection surfaces of the two devices is recommended.
Cleaning should be carried out with a damp cloth; In particularly dusty environments, after cleaning the front surface, it is advisable to spray it with an anti-static product.

In any case, do not use abrasive, corrosive, solvents or alcohol that may damage the part to be wiped or wool cloth to avoid electrostatically loading the front surface of the curtain itself.

Even a very fine groove of frontal plastic surfaces can increase the width of the beam of the light curtain, thus compromising the effectiveness of detection in the presence of reflective lateral surfaces.

It is therefore essential to pay particular attention during the cleaning steps of the curtain front window, particularly in environments where abrasive powders are present. (e.g. cement plants, etc.).

WARRANTY

REER guarantees that every new SAFEGATE system is free from defects in materials and manufacturing for a period of 12 (twelve) months from the time it is released by the factory if used under normal conditions. During this period, REER is committed to eliminate any defects in the product by repairing or replacing defective parts, completely free of charge, both for material and labour.
However, REER reserves the right to proceed, instead of repairing it, to replace the entire defective equipment with one having the same or equal characteristics.

The validity of the warranty is subject to the following conditions:

➔ ***The failure must be reported by the user to REER within twelve months from the date of delivery of the product.***

➔ ***The equipment and its components are in the same condition as delivered by REER.***

➔ ***Failure or malfunction has not originated directly or indirectly from:***

- Use for inappropriate purposes;
- Failure to comply with the rules of use;
- Negligence, lack of expertise, incorrect maintenance;
- Repairs, modifications, adaptations not performed by REER personnel, tampering, etc.;
- Accidents or shocks (even if due to transport or causes of force majeure);
- Other causes independent of REER.

The repair will be carried out at the REER laboratories where the material must be delivered or shipped: the shipping costs and the risks of any damage or loss of material during shipment are the responsibility of the customer.
All replaced products and components become REER property.

REER does not recognize any other warranties or rights except those expressly described above; in no case can claims for damages for expenses, activity interruption, or other factors or circumstances be made in any way related to the failure of the product or one of its parts.

The strict and complete observance of all the standards, indications and prohibitions set forth in this manual is an essential requirement for the proper operation of the light curtain. REER s.p.a., therefore, disclaims any liability in case of non-respect, even partial, of these indications.

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APPENDIX E: PIN OUT PROMPT GUIDE

Select if you need a Hardware or Software configuration	Do you need External Device Monitoring?	Do you need Muting Enable to be ON or OFF?	Would you like a Manual or Automatic restart?	Please select the type of Muting that you need?	And finally, the Timeout required	Go to the relevant table to see the Pin Out for Emitter and Receiver	
Conf	**EDM**	**Muting Enable**	**Restart**	**Muting Type ***	**Timeout**	**Follow table**	**Page**
HW	YES	ON	Automatic	LXP	30 sec	1	1
HW	YES	ON	Automatic	LXP	9 hrs	2	1
HW	YES	ON	Automatic	TX	30 sec	3	1
HW	YES	ON	Automatic	TX	9 hrs	4	1
HW	YES	ON	Automatic	TP C	30 sec	5	2
HW	YES	ON	Automatic	TP C	9 hrs	6	2
HW	YES	ON	Automatic	TP S	30 sec	7	2
HW	YES	ON	Automatic	TP S	Infinite	8	2
HW	YES	ON	Manual	LXP	30 sec	9	3
HW	YES	ON	Manual	LXP	9 hrs	10	3
HW	YES	ON	Manual	TX	30 sec	11	3
HW	YES	ON	Manual	TX	9 hrs	12	3
HW	YES	ON	Manual	TP C	30 sec	13	4
HW	YES	ON	Manual	TP C	9 hrs	14	4
HW	YES	ON	Manual	TP S	30 sec	15	4
HW	YES	ON	Manual	TP S	Infinite	16	4
HW	YES	OFF	Automatic	LXP	30 sec	17	5
HW	YES	OFF	Automatic	LXP	9 hrs	18	5
HW	YES	OFF	Automatic	TX	30 sec	19	5
HW	YES	OFF	Automatic	TX	9 hrs	20	5
HW	YES	OFF	Automatic	TP C	30 sec	21	6
HW	YES	OFF	Automatic	TP C	9 hrs	22	6
HW	YES	OFF	Automatic	TP S	30 sec	23	6
HW	YES	OFF	Automatic	TP S	Infinite	24	6
HW	YES	OFF	Manual	LXP	30 sec	25	7
HW	YES	OFF	Manual	LXP	9 hrs	26	7
HW	YES	OFF	Manual	TX	30 sec	27	7
HW	YES	OFF	Manual	TX	9 hrs	28	7
HW	YES	OFF	Manual	TP C	30 sec	29	8
HW	YES	OFF	Manual	TP C	9 hrs	30	8
HW	YES	OFF	Manual	TP S	30 sec	31	8
HW	YES	OFF	Manual	TP S	Infinite	32	8
HW	NO	ON	Automatic	LXP	30 sec	33	9
HW	NO	ON	Automatic	LXP	9 hrs	34	9
HW	NO	ON	Automatic	TX	30 sec	35	9
HW	NO	ON	Automatic	TX	9 hrs	36	9
HW	NO	ON	Automatic	TP C	30 sec	37	10
HW	NO	ON	Automatic	TP C	9 hrs	38	10
HW	NO	ON	Automatic	TP S	30 sec	39	10
HW	NO	ON	Automatic	TP S	Infinite	40	10
HW	NO	ON	Manual	LXP	30 sec	41	11
HW	NO	ON	Manual	LXP	9 hrs	42	11
HW	NO	ON	Manual	TX	30 sec	43	11
HW	NO	ON	Manual	TX	9 hrs	44	11
HW	NO	ON	Manual	TP C	30 sec	45	12
HW	NO	ON	Manual	TP C	9 hrs	46	12
HW	NO	ON	Manual	TP S	30 sec	47	12
HW	NO	ON	Manual	TP S	Infinite	48	12
HW	NO	OFF	Automatic	LXP	30 sec	49	13
HW	NO	OFF	Automatic	LXP	9 hrs	50	13
HW	NO	OFF	Automatic	TX	30 sec	51	13
HW	NO	OFF	Automatic	TX	9 hrs	52	13
HW	NO	OFF	Automatic	TP C	30 sec	53	14
HW	NO	OFF	Automatic	TP C	9 hrs	54	14
HW	NO	OFF	Automatic	TP S	30 sec	55	14
HW	NO	OFF	Automatic	TP S	Infinite	56	14
HW	NO	OFF	Manual	LXP	30 sec	57	15
HW	NO	OFF	Manual	LXP	9 hrs	58	15
HW	NO	OFF	Manual	TX	30 sec	59	15
HW	NO	OFF	Manual	TX	9 hrs	60	15
HW	NO	OFF	Manual	TP C	30 sec	61	16
HW	NO	OFF	Manual	TP C	9 hrs	62	16
HW	NO	OFF	Manual	TP S	30 sec	63	16
HW	NO	OFF	Manual	TP S	Infinite	64	16
SW	All parameters selected via the SCS software					65	17

** Key*

LXP	*L-logic, Exit-Only, Crossed or Parallel Beams*
TX	*T-logic, Entry-Exit, Crossed Beams*
TP C	*T-logic, Entry-Exit, Parallel Beams, Concurrent Muting*
TP S	*T-logic, Entry-Exit, Parallel Beams, Sequential Muting*

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element				Connect to	Emitter (excl. TRX)			
1	Hardware	YES	ON	Automatic	LXP	30 sec	Pin 1		Brown	24 VDC	24 VDC	**Low Range**			
							Pin 2		Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3		White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4		Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5		Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6		Yellow	SEL_A	STATUS	Pin 5	Gray	PE	GROUND
							Pin 7		Black	MUT_ENABLE	Connect to External Muting Enable Signal	**High Range**			
							Pin 8		Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9		Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10		Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11		Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12		Red/Blue	STATUS	SEL_A	Pin 5	Gray	PE	GROUND
2	Hardware	YES	ON	Automatic	LXP	9 hrs	Pin 1		Brown	24 VDC	24 VDC	**Low Range**			
							Pin 2		Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3		White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4		Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5		Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6		Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7		Black	MUT_ENABLE	Connect to External Muting Enable Signal	**High Range**			
							Pin 8		Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9		Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10		Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11		Gray/Pink	SEL_B	STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12		Red/Blue	STATUS	SEL_B	Pin 5	Gray	PE	GROUND
3	Hardware	YES	ON	Automatic	TX	30 sec	Pin 1		Brown	24 VDC	24 VDC	**Low Range**			
							Pin 2		Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3		White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4		Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5		Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6		Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7		Black	MUT_ENABLE	Connect to External Muting Enable Signal	**High Range**			
							Pin 8		Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9		Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10		Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11		Gray/Pink	SEL_B	STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12		Red/Blue	STATUS	SEL_B	Pin 5	Gray	PE	GROUND
4	Hardware	YES	ON	Automatic	TX	9 hrs	Pin 1		Brown	24 VDC	24 VDC	**Low Range**			
							Pin 2		Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3		White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4		Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5		Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6		Yellow	SEL_A	STATUS	Pin 5	Gray	PE	GROUND
							Pin 7		Black	MUT_ENABLE	Connect to External Muting Enable Signal	**High Range**			
							Pin 8		Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9		Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10		Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11		Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12		Red/Blue	STATUS	SEL_A	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
5	Hardware	YES	ON	Automatic	TP C	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	STATUS	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A	Pin 5	Gray	PE	GROUND
6	Hardware	YES	ON	Automatic	TP C	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_B	Pin 5	Gray	PE	GROUND
7	Hardware	YES	ON	Automatic	TP S	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
8	Hardware	YES	ON	Automatic	TP S	Infinite	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	SEL_B and STATUS	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	SEL_A and STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A and SEL_B	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
9	Hardware	YES	ON	Manual	LXP	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
10	Hardware	YES	ON	Manual	LXP	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
11	Hardware	YES	ON	Manual	TX	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
12	Hardware	YES	ON	Manual	TX	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	-	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
13	Hardware	YES	ON	Manual	TP C	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A and SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2 and SEL_B	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2 and SEL_A	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
14	Hardware	YES	ON	Manual	TP C	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A and SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1 and SEL_B	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1 and SEL_A	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
15	Hardware	YES	ON	Manual	TP S	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1 and SEL_A	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
16	Hardware	YES	ON	Manual	TP S	Infinite	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
17	Hardware	YES	OFF	Automatic	LXP	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	STATUS and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS and SEL_A	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
18	Hardware	YES	OFF	Automatic	LXP	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS and SEL_B	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	STATUS and MUTING_ENABLE	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_B and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
19	Hardware	YES	OFF	Automatic	TX	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	SEL_B and STATUS	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	STATUS and MUTING_ENABLE	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_B and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
20	Hardware	YES	OFF	Automatic	TX	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	STATUS and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS and SEL_A	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A and MUTING_ENABLE	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element				Connect to	Emitter (excl. TRX)			
21	Hardware	YES	OFF	Automatic	TP C	30 sec	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		STATUS and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		STATUS and SEL_A	High Range			
							Pin 8	Gray	EDM		Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		OSSD2	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		SEL_A and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
22	Hardware	YES	OFF	Automatic	TP C	9 hrs	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		SEL_A	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		OSSD2	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		SEL_B and STATUS	High Range			
							Pin 8	Gray	EDM		Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		MUTING _ENABLE and STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		MUTING _ENABLE and SEL_B	Pin 5	Gray	PE	GROUND
23	Hardware	YES	OFF	Automatic	TP S	30 sec	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		STATUS	High Range			
							Pin 8	Gray	EDM		Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		MUTING _ENABLE	Pin 5	Gray	PE	GROUND
24	Hardware	YES	OFF	Automatic	TP S	Infinite	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		MUTING _ENABLE and SEL_B and STATUS	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		SEL_A and SEL_B and STATUS	High Range			
							Pin 8	Gray	EDM		Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		SEL_A and MUTING _ENABLE and STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		SEL_A and SEL_B and MUTING _ENABLE	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
25	Hardware	YES	OFF	Manual	LXP	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
26	Hardware	YES	OFF	Manual	LXP	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
27	Hardware	YES	OFF	Manual	TX	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
28	Hardware	YES	OFF	Manual	TX	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
29	Hardware	YES	OFF	Manual	TP C	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A and SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2 and SEL_B	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to Restart (24 VDC)	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2 and SEL_A	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
30	Hardware	YES	OFF	Manual	TP C	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A and SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1 and SEL_B	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1 and SEL_A	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
31	Hardware	YES	OFF	Manual	TP S	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	OSSD2 output	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
32	Hardware	YES	OFF	Manual	TP S	Infinite	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	Connect to the series of N.C. contacts (connected to 24 VDC)	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
33	Hardware	NO	ON	Automatic	LXP	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	STATUS	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A	Pin 5	Gray	PE	GROUND
34	Hardware	NO	ON	Automatic	LXP	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL B	Pin 5	Gray	PE	GROUND
35	Hardware	NO	ON	Automatic	TX	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL B	Pin 5	Gray	PE	GROUND
36	Hardware	NO	ON	Automatic	TX	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	STATUS	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element				Connect to	Emitter (excl. TRX)			
37	Hardware	NO	ON	Automatic	TP C	30 sec	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		EDM and SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		STATUS	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM		OSSD2 and SEL_B	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		OSSD2 and EDM	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		SEL_A	Pin 5	Gray	PE	GROUND
38	Hardware	NO	ON	Automatic	TP C	9 hrs	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		SEL_A and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		OSSD2 and EDM	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM		OSSD2 and SEL_A	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		SEL_B	Pin 5	Gray	PE	GROUND
39	Hardware	NO	ON	Automatic	TP S	30 sec	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM		OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		STATUS output	Pin 5	Gray	PE	GROUND
40	Hardware	NO	ON	Automatic	TP S	Infinite	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		STATUS and SEL_B	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM		OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		SEL_A and STATUS	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		SEL_A and SEL_B	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
41	Hardware	NO	ON	Manual	LXP	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
42	Hardware	NO	ON	Manual	LXP	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2 and EDM	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_A	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
43	Hardware	NO	ON	Manual	TX	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2 and EDM	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_A	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND
44	Hardware	NO	ON	Manual	TX	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_B and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_B	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2 and EDM	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	STATUS output	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element				Connect to	Emitter (excl. TRX)			
45	Hardware	NO	ON	Manual	TP C	30 sec	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		SEL_A and SEL_B and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		OSSD2 and SEL_B and EDM	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM		OSSD2 and SEL_A and SEL_B	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		OSSD2 and SEL_A and EDM	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		STATUS output	Pin 5	Gray	PE	GROUND
46	Hardware	NO	ON	Manual	TP C	9 hrs	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		SEL_A and SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		OSSD1 and SEL_B	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM		OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		OSSD1 and SEL_A	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		STATUS output	Pin 5	Gray	PE	GROUND
47	Hardware	NO	ON	Manual	TP S	30 sec	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM		OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		STATUS output	Pin 5	Gray	PE	GROUND
48	Hardware	NO	ON	Manual	TP S	Infinite	Pin 1	Brown	24 VDC		24 VDC	Low Range			
							Pin 2	Blue	0 VDC		0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1		OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2		SEL_B and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE		GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A		24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE		Connect to External Muting Enable Signal	High Range			
							Pin 8	Gray	EDM		OSSD2 and SEL_B	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2		Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART		Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B		OSSD2 and EDM	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS		STATUS output	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
49	Hardware	NO	OFF	Automatic	LXP	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	STATUS and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	SEL_A and STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
50	Hardware	NO	OFF	Automatic	LXP	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS and SEL_B	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	STATUS and MUTING_ENABLE	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_B and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
51	Hardware	NO	OFF	Automatic	TX	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS and SEL_B	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	STATUS and MUTING_ENABLE	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_B and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
52	Hardware	NO	OFF	Automatic	TX	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	STATUS and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS and SEL_A	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A and MUTING_ENABLE	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
53	Hardware	NO	OFF	Automatic	TP C	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_B and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	STATUS and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS and SEL_A	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_B	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2 and EDM	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
54	Hardware	NO	OFF	Automatic	TP C	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2 and EDM	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS and SEL_B	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_A	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	STATUS and MUTING _ENABLE	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL B and MUTING _ENABLE	Pin 5	Gray	PE	GROUND
55	Hardware	NO	OFF	Automatic	TP S	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
56	Hardware	NO	OFF	Automatic	TP S	Infinite	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	SEL_B and STATUS and MUTING_ENABLE	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	SEL_A and SEL_B and STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	SEL_A and STATUS and MUTING_ENABLE	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	SEL_A and SEL_B and MUTING_ENABLE	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
57	Hardware	NO	OFF	Manual	LXP	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
58	Hardware	NO	OFF	Manual	LXP	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2 and EDM	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_A	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	24 VDC	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
59	Hardware	NO	OFF	Manual	TX	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2 and EDM	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_A	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
60	Hardware	NO	OFF	Manual	TX	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_B and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_B	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2 and EDM	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout	Receiver/Active Element			Connect to	Emitter (excl. TRX)			
61	Hardware	NO	OFF	Manual	TP C	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	SEL_A and SEL_B and EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD2 and EDM and SEL_B	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_A and SEL_B	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2 and SEL_A and EDM	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
62	Hardware	NO	OFF	Manual	TP C	9 hrs	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_A and SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	OSSD1 and SEL_B	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1 and SEL_A	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
63	Hardware	NO	OFF	Manual	TP S	30 sec	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	SEL_B	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD1	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND
64	Hardware	NO	OFF	Manual	TP S	Infinite	Pin 1	Brown	24 VDC	24 VDC	Low Range			
							Pin 2	Blue	0 VDC	0 VDC	Pin 1	Brown	24 VDC	24 VDC
							Pin 3	White	OSSD1	OSSD1 output	Pin 2	White	Range 0	24 VDC
							Pin 4	Green	OSSD2	EDM and SEL_B	Pin 3	Blue	0 VDC	0 VDC
							Pin 5	Pink	PE	GROUND	Pin 4	Black	Range 1	0 VDC
							Pin 6	Yellow	SEL_A	24 VDC	Pin 5	Gray	PE	GROUND
							Pin 7	Black	MUT_ENABLE	STATUS	High Range			
							Pin 8	Gray	EDM	OSSD2 and SEL_B	Pin 1	Brown	24 VDC	24 VDC
							Pin 9	Red	OVERRIDE2	Connect to Override command (N.O.: HOLD TO RUN, N.C.: PULSE, 24 VDC)	Pin 2	White	Range 0	0 VDC
							Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override command (N.O., 24 VDC) and to Restart (24 VDC)	Pin 3	Blue	0 VDC	0 VDC
							Pin 11	Gray/Pink	SEL_B	OSSD2 and EDM	Pin 4	Black	Range 1	24 VDC
							Pin 12	Red/Blue	STATUS	MUTING_ENABLE	Pin 5	Gray	PE	GROUND

	Configuration	EDM	Muting Enable	Restart	Muting	Timeout
65	Software		All parameters selected via the SCS software			

Receiver/Active Element			Connect to
Pin 1	Brown	24 VDC	24 VDC
Pin 2	Blue	0 VDC	0 VDC
Pin 3	White	OSSD1	OSSD1 output
Pin 4	Green	OSSD2	OSSD2 output
Pin 5	Pink	PE	GROUND
Pin 6	Yellow	SEL_A	0 VDC or Connect to External Partial Muting A Signal (Rising Edge)
Pin 7	Black	MUT_ENABLE	0 VDC or Connect to External Muting Enable Signal (Rising Edge)
Pin 8	Gray	EDM	0 VDC or Connect to the series of N.C. contacts (connected to 24 VDC)
Pin 9	Red	OVERRIDE2	Connect to Override command
Pin 10	Purple	OVERRIDE1/RESTART	Connect to Override1_Restart command
Pin 11	Gray/Pink	SEL_B	0 VDC or Connect to External Partial Muting B Signal (Rising Edge)
Pin 12	Red/Blue	STATUS	-

Emitter (excl. TRX)			
Low Range			
Pin 1	Brown	24 VDC	24 VDC
Pin 2	White	Range 0	24 VDC
Pin 3	Blue	0 VDC	0 VDC
Pin 4	Black	Range 1	0 VDC
Pin 5	Gray	PE	GROUND
High Range			
Pin 1	Brown	24 VDC	24 VDC
Pin 2	White	Range 0	0 VDC
Pin 3	Blue	0 VDC	0 VDC
Pin 4	Black	Range 1	24 VDC
Pin 5	Gray	PE	GROUND