SLIM SERIES

(SL2/4-xx-xxxx-E)

Safety light curtains with infrared beams

QUICK GUIDE

(refer to the Instruction Manual)

This Quick Reference Guide does not replace the Instruction Manual. Download the Instruction Manual by reading the QR code here or at www.datalogic.com. Click on ***Support*** *>* ***Search by product*** *and enter the SLIM family name, then select your product from the dropdown list. Click on the* ***Manuals & Technical Literature*** *link to download your Instruction Manual. The Instruction Manual must be available at all times when installing and working with the product.*

SAFETY INFORMATION

For a correct and safe use of the safety light curtains of the SLIM series, the following points must be observed:

- The stopping system of the machine must be electrically controlled.
- This control system must be able to stop the dangerous movement of the machine within the total machine stopping time T as per paragraph 1.2.3, and during all working cycle phases.
- Mounting and connection of the safety light curtain must be carried out by qualified personnel only, according to the indications included in the special sections (refer to cfr.2; 3; 4; 5) and in the applicable standards.
- The safety light curtain must be securely placed in a particular position so that access to the dangerous zone is not possible without the interruption of the beams (refer cfr. “Installation”).
- The personnel operating in the dangerous area must be well trained and must have adequate knowledge of all the operating procedures of the safety light curtain.
- The RESTART button must be located outside the dangerous zone because the operator must check the dangerous zone during all Restart operations.
- Please carefully read the instructions for the correct functioning before powering the light curtain.

PRECAUTIONS TO BE OBSERVED FOR THE CHOICE AND INSTALLATION

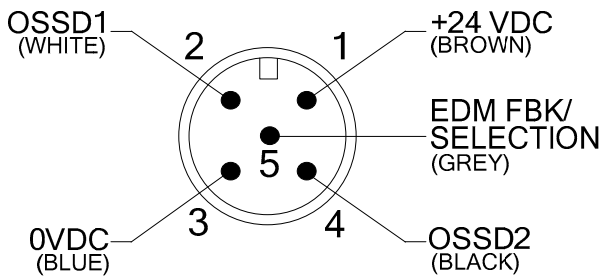
Make sure that the protection level assured by the device (Type 2 or Type 4) is compatible with the real danger level of the machine to be controlled, according to EN ISO 13849-1 or EN 62061.

- Use only matched emitter and receiver pairs with same serial no.
- The outputs (OSSD) of the ESPE must be used as machine stopping devices and not as command devices. The machine must have its own START command.
- The dimension of the smallest object to be detected must be larger than the resolution level of the device.
- The ESPE must be installed in an environment complying with the characteristics indicated in cfr. “Technical data”.
- The ESPE must not be installed close to strong and/or flashing light sources, in particular close to the front window of receiving unit.
- The presence of intense electromagnetic disturbances could affect device’s correct operation. This condition shall be carefully assessed with the advice of Datalogic Technical Service.
- The operating distance of the device can be reduced in presence of smog, fog or airborne dust.
- A sudden change in environment temperature, with very low minimum peaks, can generate a small condensation layer on the lenses and thus jeopardize correct operation.

The failure to respect the safety distance reduces or cancels ESPE the protection function. For more detailed information about calculation of safety distance, please refer to the Instruction Manual.

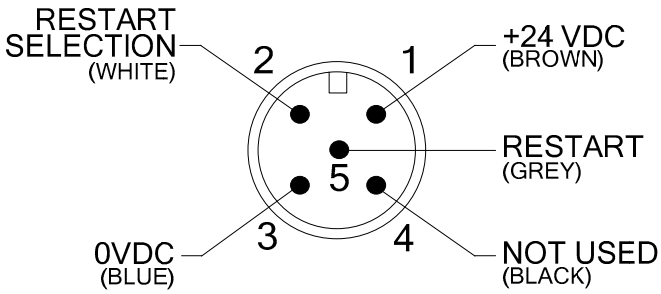
CONNECTIONS

RECEIVER (RX)



FUNCTION	CONNECTION TO	STATUS
EDM FBK / SELECTION	Normally closed contact for a force-guided relay	**EDM ENABLE**
	OSSD1	**EDM DISABLE**

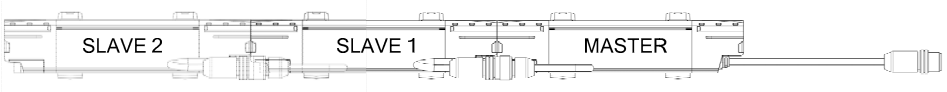
EMITTER (TX)



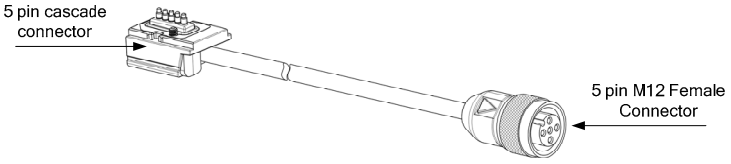
FUNCTION	CONNECTION TO	STATUS
RESTART	Normally Closed contact to 24VDC	**MANUAL RESTART**
	RESTART SELECTION	**AUTOMATIC RESTART**
	FLOATING	**ALIGN MODE**

CASCADE CONNECTION

Up to three SLIM light curtains can be connected in a cascade series.
The cascade connection allows monitoring up to three areas with only two Safety Outputs connected to Master unit.
Master unit takes care of collecting safety optic scan results from Slave units and the synchronization between them to avoid mutual interference. Each SLIM unit can either be used as Master or Slave, only depending on cable connection.



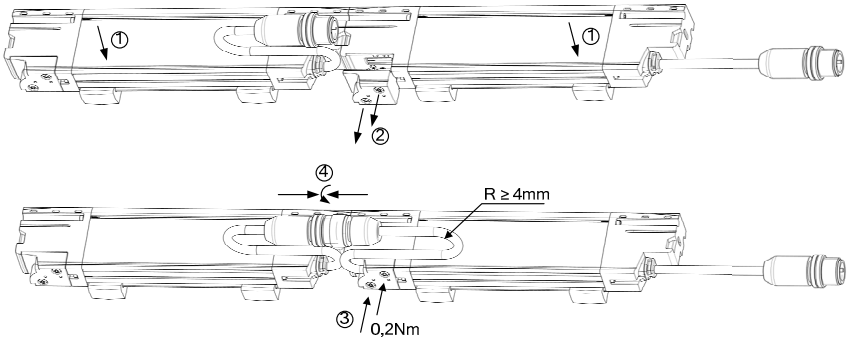
For cascaded system connection three Cascade Cables are available as accessory:



MODEL	DESCRIPTION	L ±10 (mm)	CODE
CS-H1-03-B-001	CS-H1-03-B-001 SLIM CASCADE 0,1m	90	95A252950
CS-H1-03-B-005	CS-H1-03-B-005 SLIM CASCADE CABLE 0,5m	490	95ASE2550
CS-H1-03-B-01	CS-H1-03-B-01 SLIM CASCADE CABLE 1m	990	95ASE2560

To connect Cascade unit:

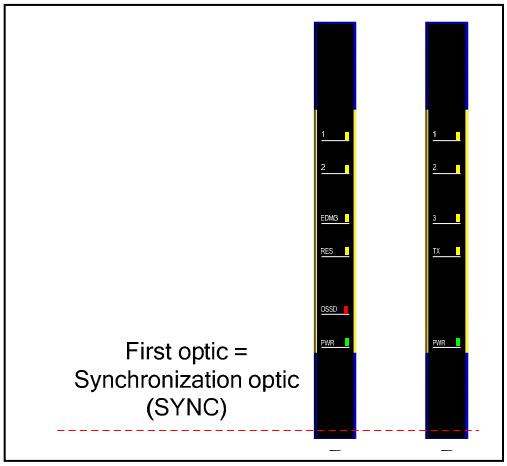
- Fix all cascade units with proper brackets as described in Chapter 3 “Mechanical Mounting” (1)
- Remove Terminator Caps at the end of Master and Slave 1 (if present) by loosening the two fixing screws for both emitter and receiver. (2)
- Fasten the cascade cables in place of removed terminator caps, ensure all cables bend radius it’s not less than 4mm (3)
- Connect Slaves M12 male connectors to M12 Female connectors from cascade cables (4)

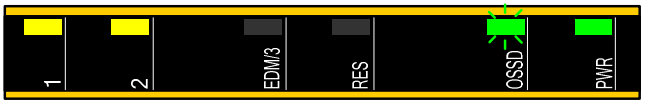
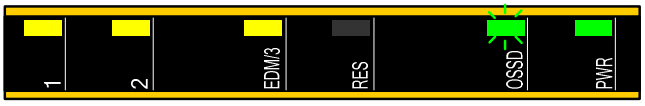
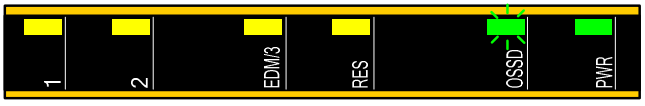


ALIGNMENT PROCEDURE

The alignment between the emitting and the receiving units is necessary to obtain the correct operation of the light curtain.
A good alignment prevents outputs instability caused by dust or vibrations.
The alignment is perfect if the optical axes of the first and the last emitting unit's beams coincide with the optical axes of the corresponding elements of the receiving unit.
The beam used to synchronise the two units is the closest one to the pig-tail cable: SYNC optic.

In alignment mode user interface inform the user about quality and level of alignment.
To activate **Alignment Mode** leave **RESTART input floating on TX unit** (cfr. "Electrical connections").



INDICATION	LED CONFIGURATION	OSSD STATUS RESULT IN NORMAL OPERATION
	BLINK INDIFFERENT OFF ON	
NOT ALIGNED, **SYNC NOT ENGAGED**		**OFF**
SYNC ENGAGED, ONE OR MORE BEAMS INTERCEPTED		**OFF**
LOW SIGNAL LEVEL, ALL BEAMS FREE		**ON**
MEDIUM SIGNAL LEVEL, ALL OPTICS FREE		**ON**
MAX SIGNAL LEVEL, ALL OPTICS FREE		**ON**

CORRECT ALIGNMENT PROCEDURE

The light curtain alignment can be effected only after having completed the mechanical installation and the electrical connections as described above. Compare alignment results with those given in the table above.

A Activate **Alignment Mode** leaving **RESTART input floating on TX** unit (cfr. "Electrical connections").

B Keep the receiver in a steady position and adjust the emitter until the **"1" Yellow LED** on the receiver is **ON**. This condition shows the alignment of the first synchronisation beam.

C Rotate the emitter, pivoting on the lower optics axis, until the "**OSSD" Green LED** is **BLINKING ON.**

D Delimit the area in which the **OSSD LED** blinks **Green** through some adjustments for the emitter first then for the receiver unit - and then place both units approximately the centre of this area where as many yellow LEDs are steady ON.

NOTE: Ensure that at least two yellow LEDs (1/2) are steady ON.

E Fix the two units firmly using provided brackets.

- Verify that the **Green OSSD LED** on the RX unit is **blinking ON** and beams are not interrupted and then verify that the red **Red OSSD LED** turns **blinking ON** if even one single beam is interrupted (condition where an object has been detected).
- This verification shall be made with the special cylindrical "Test Piece" having a size suitable to the resolution of the device used (cfr. "Controls after first installation).

F Switch OFF and ON the device in normal operating mode.

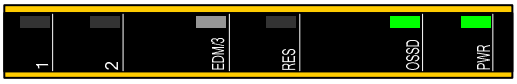
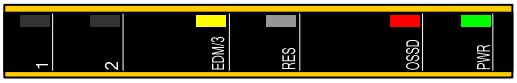
To check alignment level for periodical maintenance ESPE must be restarted in Alignment Mode.
For cascaded system start the alignment procedure always from Master unit, then proceed with Slaves.

DIAGNOSTICS FUNCTION

Light Curtain operating status is visualised through a LED User Interface present on both the receiver and emitter units. The figures show all LEDs signalling modes: OFF, ON and BLINKING.

The operator can evaluate the main causes of the system stop or failure through the display and signalling LEDs.

RX SIDE:

ESPE WORKING MODE	INDICATION	LED CONFIGURATION (BLINK / INDIFFERENT / OFF / ON)	RECOMMENDATIONS
Alignment	NOT ALIGNED, SYNC NOT ENGAGED		Follow Chapter "Alignment procedure" for correct Alignment Procedure or properly connect RESTART input on Tx unit to enter Normal Operation mode (cfr."Commissioning and configuration").
	MININUM SIGNAL LEVEL, SYNC ENGAGED		
	MAX.M SIGNAL LEVEL		
Normal Operation Manual Restart Only	INTERLOCK FREE BEAMS		Press RESTART button for at least 0.5sec to restart ESPE in Normal Operation
Normal Operation	OSSD ON		Normal Operation
	OSSD OFF		Safe status, remove any blocking object or correctly align the ESPE
	EDM ACTIVE		EDM Function Enabled
Failure LOCKOUT	**F1:** FAILURE ON MICROPROCESSOR		Internal failure, check for operating condition (cfr."Technical data") and any cause of electrical interference, power cycle the ESPE.
	F2: FAILURE ON OPTICS		Failure on optic scan, check for any cause of optical and electrical interference, power cycle the ESPE.
	F3: FAILURE ON EDM		failure on EDM, check connection to relay, then power cycle the ESPE
	F12: CASCADE FAILURE		failure on cascade communication, check cascade connection or terminator cap fixing (cfr."Electrical connections")
	F13: FAILURE ON RESTART		failure on restart function, check for restart button connection and any cause of optical interference, then power cycle the ESPE.
	F23: FAILURE ON OSSDS		failure on safety outputs, check for proper connection and any cause of electrical interference, then power cycle the ESPE.
	POWER SUPPLY FAILURE		check for proper connection (cfr."Electrical connections")
	If failure persist after recommended checks and ESPE power cycle, please contact Datalogic (cfr. "Warranty")		

TX SIDE:

ESPE WORKING MODE	INDICATION	LED CONFIGURATION (BLINK / INDIFFERENT / OFF / ON)	RECOMMENDATIONS
Normal Operation	EMISSION		
Failure LOCKOUT	**F1:** FAILURE ON MICROPROCESSOR		Internal failure, check for operating condition (cfr."Technical data") and any cause of electrical interference, power cycle the ESPE.
	F2: FAILURE ON OPTICS		failure on optic scan, check for any cause of electrical interference, power cycle the ESPE
	F12: CASCADE FAILURE		failure on cascade communication, check cascade connection or terminator cap fixing (cfr."Electrical connections")
	F13: FAILURE ON RESTART		Failure on restart function, check restart selection connection (cfr."Commissioning and configuration").
	If failure persist after recommended checks and ESPE power cycle, please contact Datalogic (cfr. "Warranty")		

ORIGINAL INSTRUCTIONS (ref. 2006/42/EC)

Patent. See www.patents.datalogic.com for patent list.
This product is covered by one or more of the following patents: IT1427575

CE Compliance

CE marking states the compliance of the product with essential requirements listed in the applicable European directive. Since the directives and applicable standards are subject to continuous updates, and since Datalogic promptly adopts these updates, therefore the EU declaration of conformity is a living document. The EU declaration of conformity is available for competent authorities and customers through Datalogic commercial reference contacts. Since April 20th, 2016 the main European directives applicable to Datalogic products require inclusion of an adequate analysis and assessment of the risk(s). This evaluation was carried out in relation to the applicable points of the standards listed in the Declaration of Conformity. Datalogic products are mainly designed for integration purposes into more complex systems. For this reason it is under the responsibility of the system integrator to do a new risk assessment regarding the final installation.

Warning
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Datalogic S.r.l.
Via S. Vitalino 13 - 40012 Calderara di Reno - Italy
Tel: +39 051 3147011 - Fax: +39 051 3147205 - www.datalogic.com

Helpful links at www.datalogic.com: **Contact Us, Terms and Conditions, Support**.

The warranty period for this product is 36 months. See General Terms and Conditions of Sales for further details.

821003513 Rev. C