SICK MLG-2 PRO LINE SHAPE BARRIER COMMISSIONING AND SETTING

3	**20/01/2021**	**Trovato M. Cappelletti A. Bussei P.**	**17/3/2021**	**Bussei P.**	**Added commissioning contents and pictures, graphical revision**
2	**20/09/2020**	**Chierego L.**			**Added some clarifications**
1	**29/07/2020**	**Chierego L.**			**Added screenshots**
0	**22/08/2018**	**Chierego L.**			**First release**
Rev.	**Date**	**Issued**	**Verified**	Approved	**Description**

CONTENTS

1 – CHANGELOG

Revision 0: First release from R&D.

Revision 1: Added some screenshot to the procedure.

Revision 2: Added some clarifications.

Revision 3: Contents were extended according to field feedbacks, reorder of the index and graphical revision according to ITP-AVV standard template.
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2 – SCOPE OF THE GUIDE

This document describes the standard commissioning procedures for SICK MLG2 PRO barriers applied on FIL spa Induction Lines (GeniFeed) Controllers.

Due an agreement with SICK these sensors will be delivered already pre-configured and ready-to-use, but it might be necessary to restore Fives' standard configuration if something goes wrong.

The first part of the guide (Commissioning Check) illustrates the procedure to check that the barrier has the right parameter settings, the second part (Standard Configuration) shows how to configure the barrier completely from the factory setting.

3 – TOOLS REQUIRED

For checking and programming a FIL spa customized barrier, the following tools are needed:

- Computer with USB and Ethernet port
- SOPAS software from SICK (downloadable free from the SICK official website).
- Ethernet CAT5 cable with RJ45 connector on one end and M12-D coded connector on the other end, to connect directly the PC to the barrier (such as the SICK YM2D24-020EA1MRJA4, FIL code 17A_00384).
  Note: this is the same cable to address the PROFINET devices with M12 connectors.

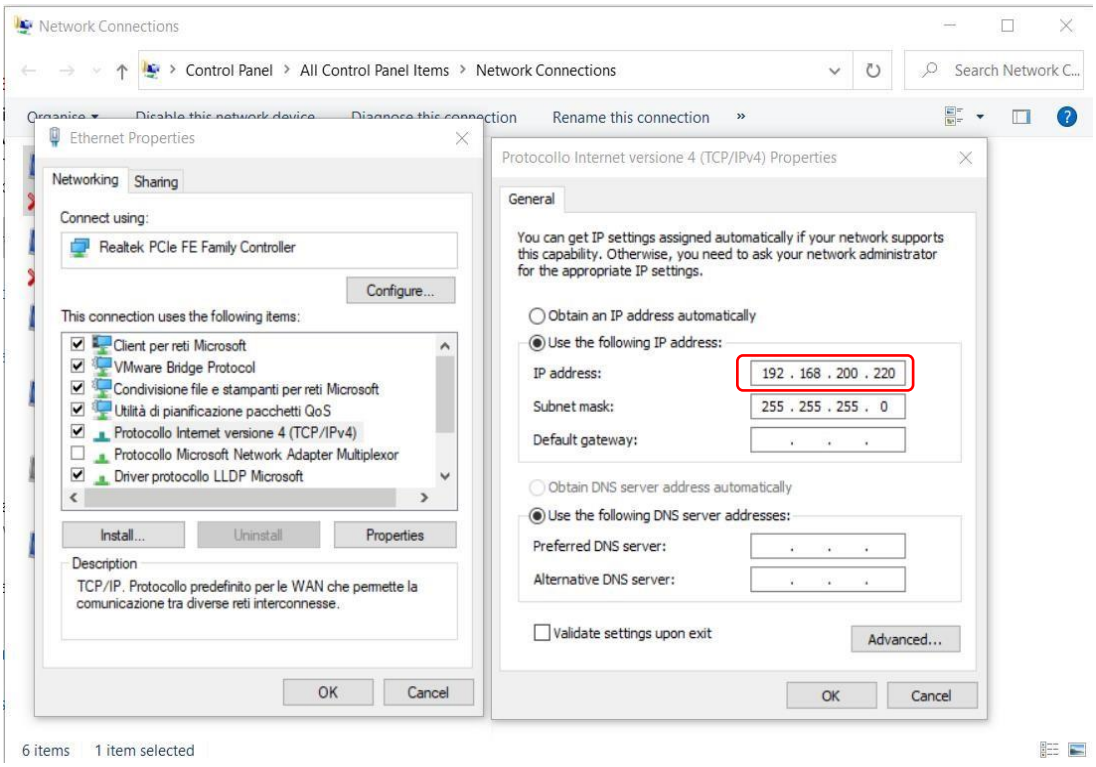
For barriers with old firmware from 2.0 to 2.2.0, "data exchange mode" parameter can only be set with the following tools:

- IO-Link USB Master called "SiLink2 Master" with relative software, IO-Link connection cable, USB cable and 230Vac power adapter, all included in the FIL article 18A_00215 (This is the same IO-Link USB Master used by the Leuze CML)

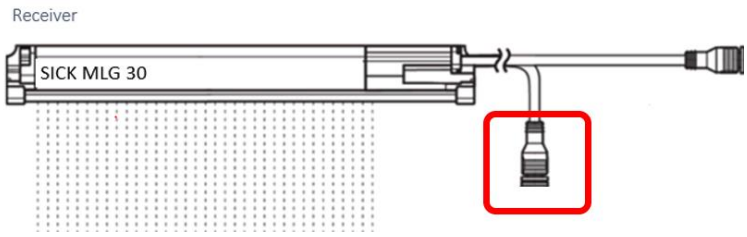
Therefore pay attention to bring those tools with you in case of "barrier factory reset" or barriers without configuration.

4 – COMMISSIONING CHECK

1. Set the IPv4 address of your Laptop Ethernet card to 192.168.200.220 and Subnet Mask to 255.255.255.0 (barrier default IP Address is 192.168.200.100):

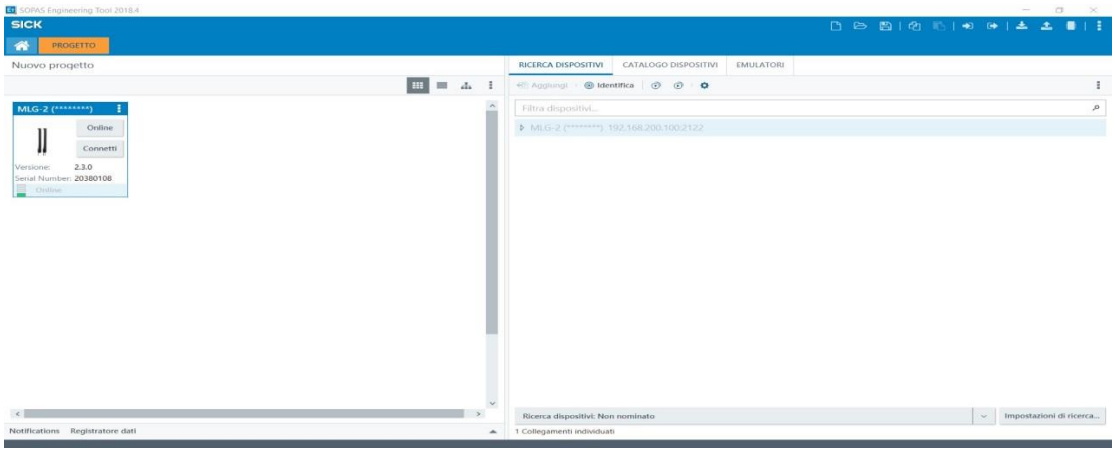


2. Turn ON the barrier and connect to the Service M12 connector located on the Receiver with M12 to RJ45 cable.



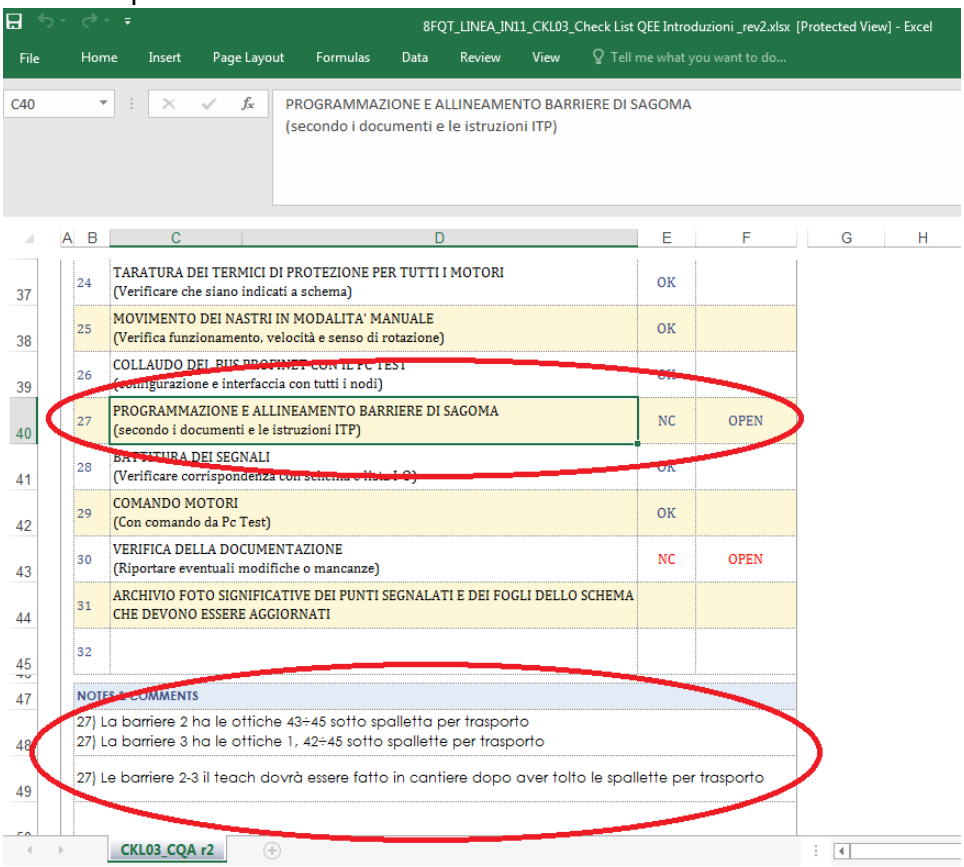
3. Run the SOPAS software and wait for the automatic detection of the barrier, a barrier with IP 192.168.200.100 will appear, if not check that the barrier is properly powered and the connections.
   Note: the first time you will connect to the barrier, you will be ask for the SDD and IODD files specific for the MLG-2 barriers, you may preventively download these file from the SICK official website or SOPAS will automatically install the files (Internet connection needed)

4. On the Barrier Picture, Double click on the Barriers picture or click Connect, the configuration window will appear.



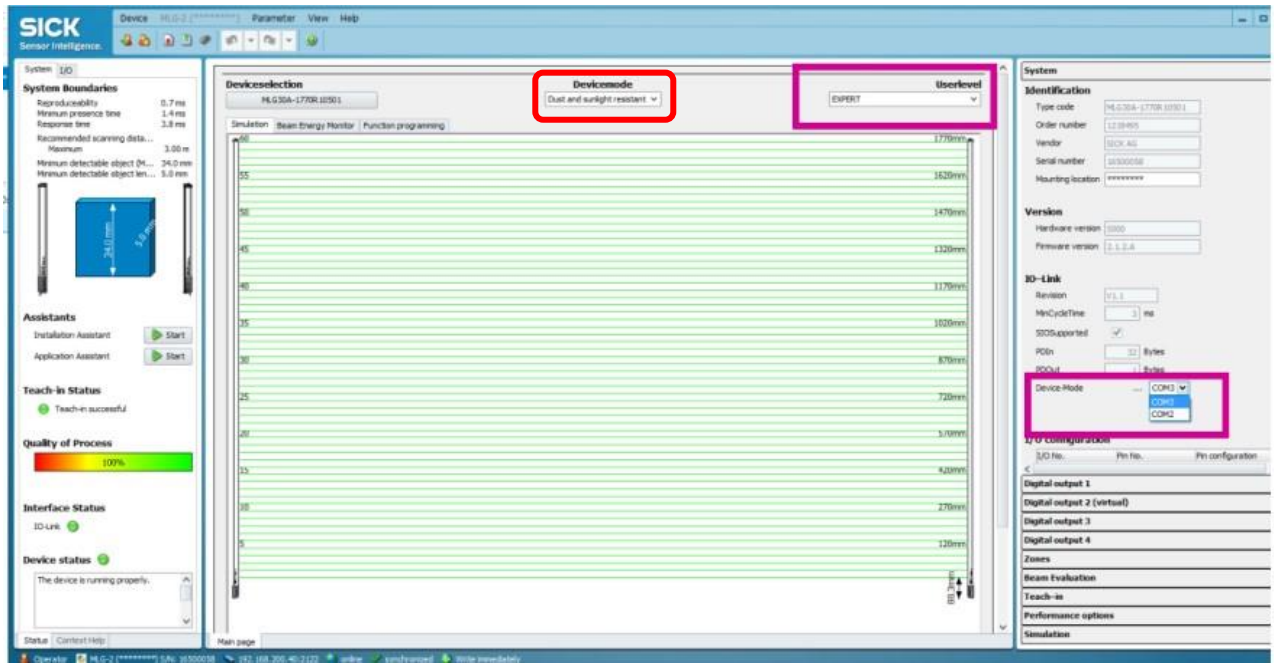
5. In the induction line check list available on our corporate disk Y at Y:_projectCode\04_Documenti\07_Collaudi\Elettrici\REPORT\ , check if parameters have already been set/checked

For Example:

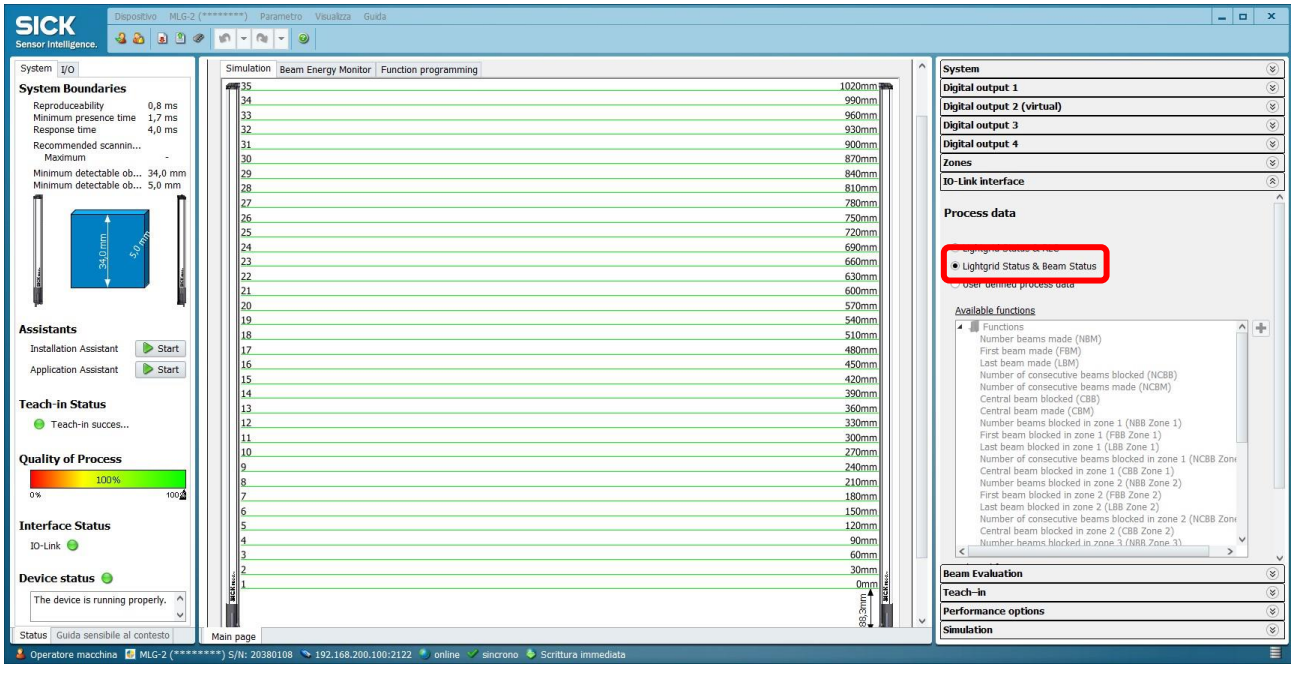


If parameters have been checked (as in the example) skip to “BARRIERS ALIGNMENT”

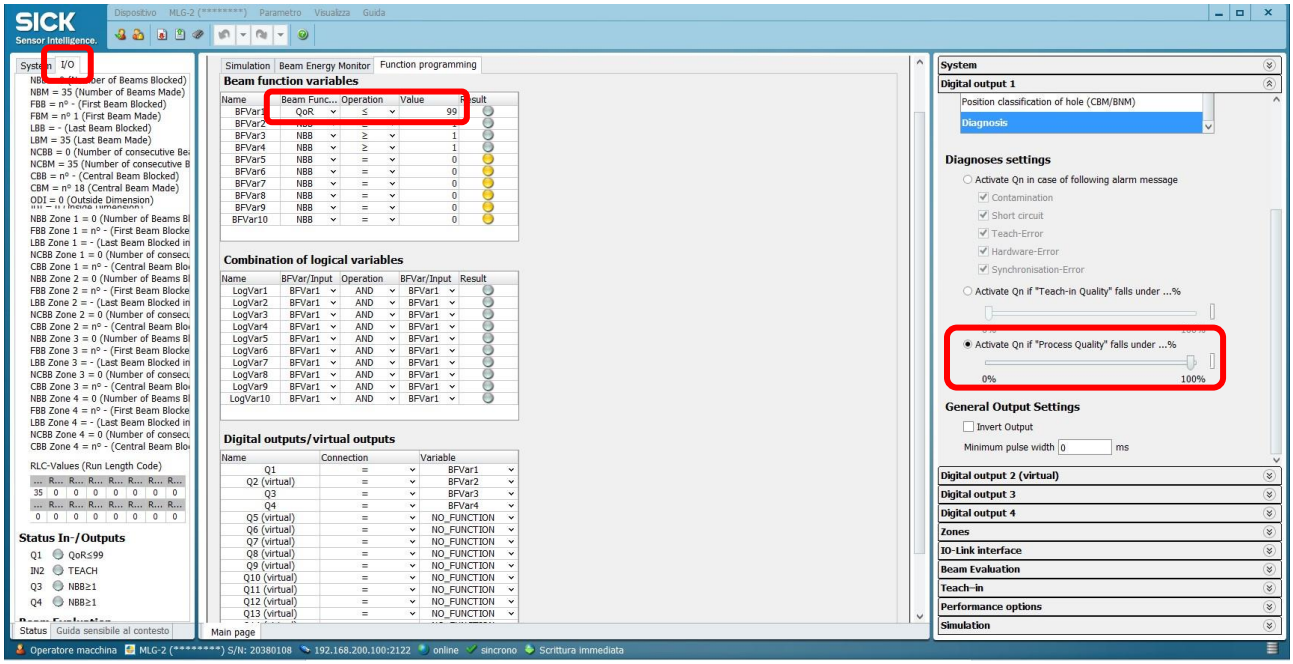
6. Check the following settings:
   Devicemode = Dust and sunlight resistant
   Userlevel = Expert
   System -> I/O Link = COM3



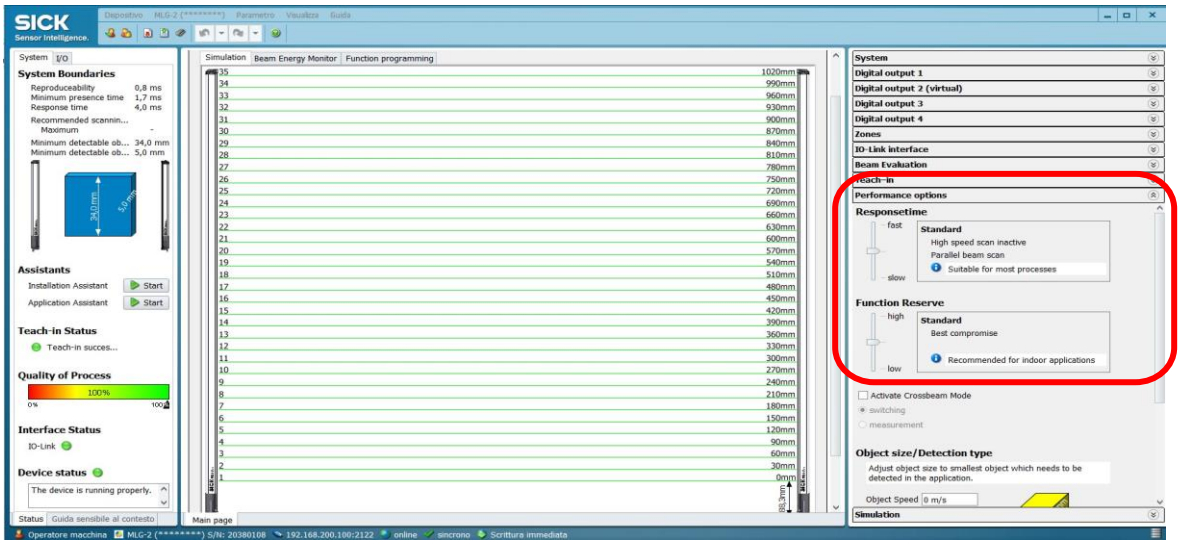
7. Check the setting under I/O-Link interface->Process data = Lightgrid Status & Beam Status



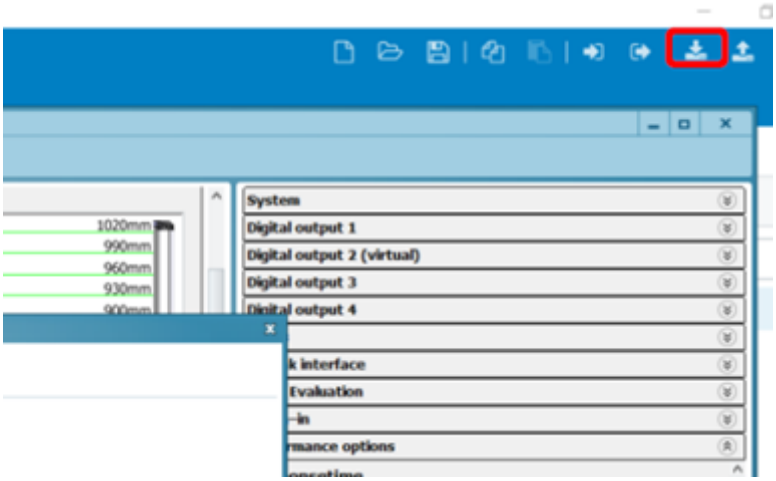
8. Check the setting under Digital output 1 -> Diagnosis settings = Activate Qn if Process Quality falls under…% 99%.



9. Check the setting under Performance options -> Response time and Function Reserve = Standard.

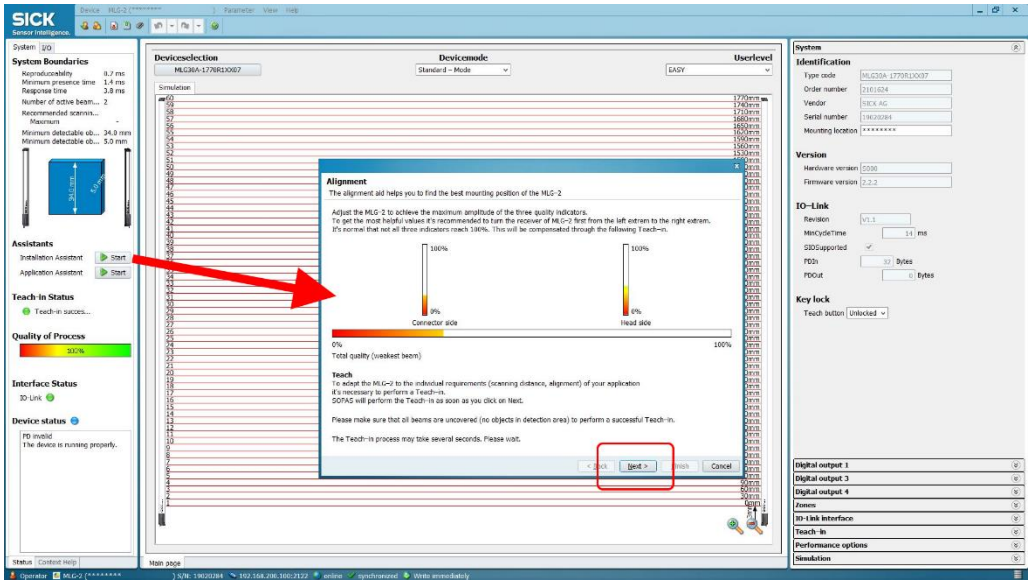


If any configuration has been made, save permanently changes by pressing the “Download to device” button in the top-left part of the screen

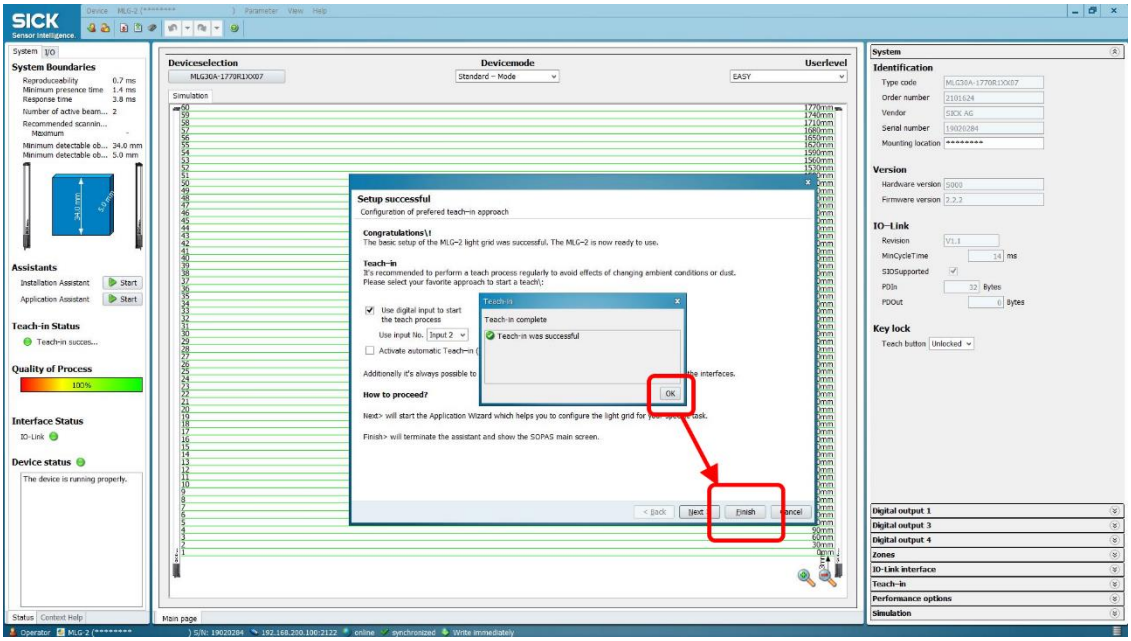


5 – BARRIERS ALIGNMENT

Make sure that all the beams are green (free) or skip to “set masking (point 6)” if some beams will never be free. Start the Installation Assistant on the left part of the window, press “Next” then



proceed with the alignment of the barrier
Mechanically align the barriers and make sure that the Total Quality bar is as greener as possible then click “”Next” to perform the Teach.



Once the teach is successful, click on “Finish”, don’t click “Next” to avoid any changes to the Barrier settings

6 – MASKING

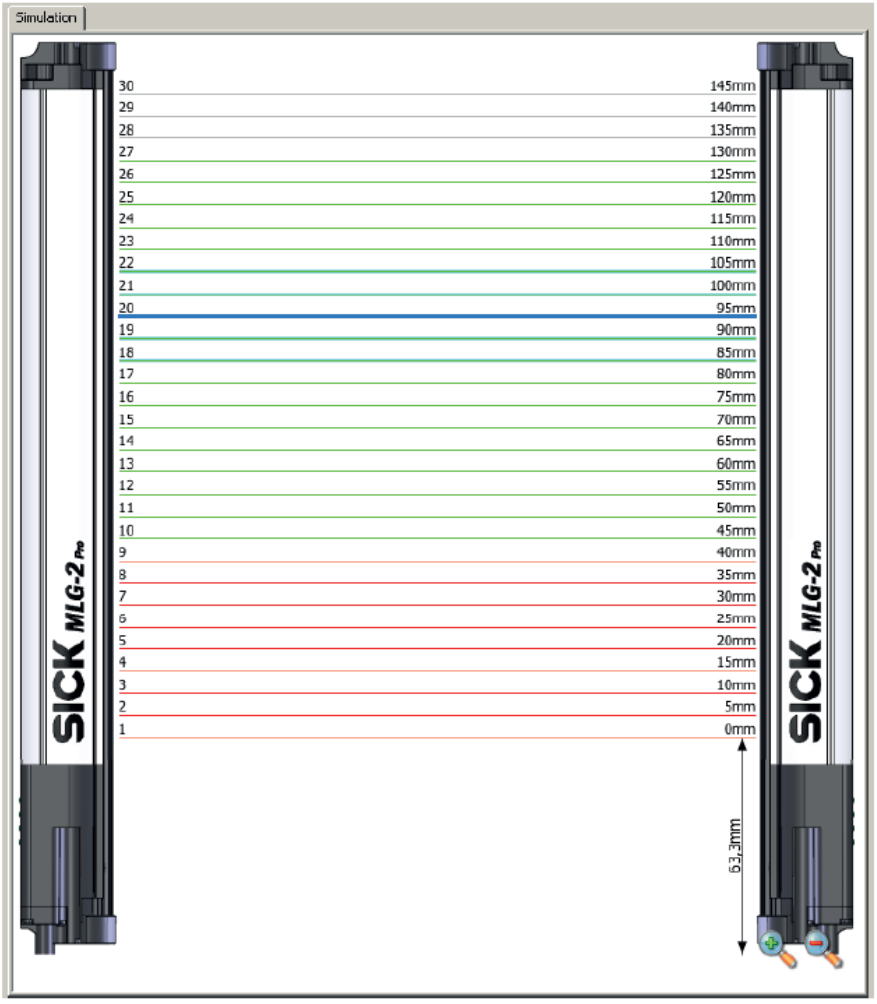
In the general case Masking (called blanking) should not be necessary, as all barrier beams should be free during operation (after all the special supports used for line transportation were removed).

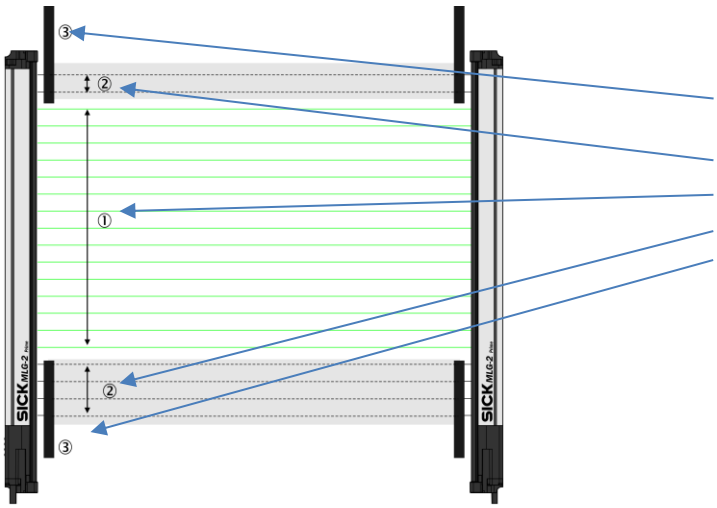
Any mechanical impediment or obstruction should be removed.

The only case when masking is needed is when the barrier is longer than the line width and, consequently, it might "see" the sideguards or other parts.
In such a case, masking is helpful to make sure that the barrier led switches only when an item pass through the sensor.
Masking, if required, must be set during barrier configuration (NO masking during database configuration).

In Sick's manuals, masking is called **"blanking**" or **"muting".** In the detection area, blanked beams are grey color

(Green = free beams, Red = Blocked beams, Gray = Blanked beams, Blue = Beams selected with the mouse, Turquoise = Configured tolerance)



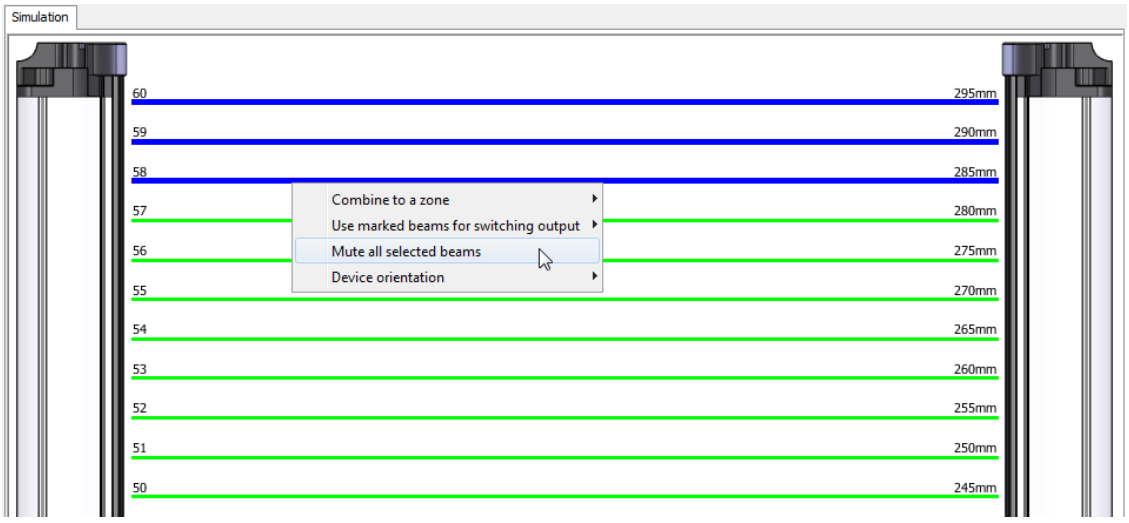


(3) Structural restrictions on the detection area
(2) Blanked beams
(1) Included beams
(2) Blanked beams
(3) Structural restrictions on the detection area

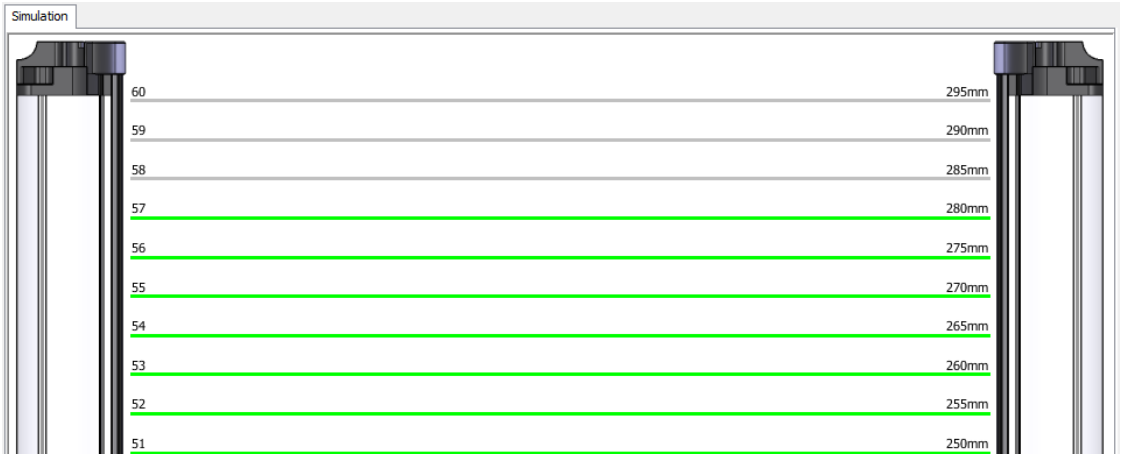
Set **only manually** blanking so that those beams will be ignored during teaching **(first blanking, later teaching):**

1. Move the mouse on the beam and right click for selecting (press the Ctrl key to select several beams)
2. In the context menu, select the command Blank all selected beams (“mute selected beams)

For example:



After muting, the beams will be grey color



7 – BEAM INVERSION

One important rule is that for the ISPC application, the first "logical" sensor beam (**PH1 in the trace**) MUST be the one on the side of the induction **"where the sorter arrives".**
"where the sorter leaves" side is the opposite side. Please never say right/left side nor short/long side but only side seeing the sorter arriving/leaving.
Barriers are usually assembled with the first "physical" beam next to the connector side.
If connector side isn't on the same side of the sorter arriving, inversion is required **during database configuration (NO beams inversion during barrier configuration)** so that PH1 will always be next to the side seeing the sorter arriving**.**

8 – BEAM MAPPING CHECK

Using the ISPC Engine application, there is a commissioning mode log that is always automatically enabled when induction line is switched in maintenance mode or you need to enable trace level 20 "shape barrier" if induction line is in automatic mode.

In the ISC log, beam status is reported by a row like:

[Lv:Barrier] [CBarrierClass::Main] BID:1; PH 9 (170) >>
_____XXX_____ << 11 (850)

Where
BID = barrier ID: 1 = BOOK, 2=FEEDBACK, 3=ORIENTING
PH 9 = index of the first busy beam (start counting from the side seeing the sorter arriving of induction line, this index starts from 1)
(170) = distance from beam 1 of the first busy beam -> [(first busy beam – 1) + 0,5] * pitch
_ = free beam
X = busy beam
11 = index of the last busy beam

(850) = distance of the last busy beam from the last beam of the barrier -> [(number of beams – index of the last busy beam) + 0,5] * pitch

EXAMPLE 1

The commissioner will move his finger from the side seeing the sorter arriving to the side seeing the sorter leaving, beams 1 and 53 were blanked during barrier configuration:

```
10:57:01 (0502176726) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  2 (  30) >> _X_____________________________________________ <<  2 (1030)
10:57:02 (0502177546) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  3 (  50) >> __X____________________________________________ <<  3 (1010)
10:57:03 (0502178286) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  4 (  70) >> ___X___________________________________________ <<  4 ( 990)
10:57:03 (0502178986) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  5 (  90) >> ____X__________________________________________ <<  5 ( 970)
10:57:04 (0502180086) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  6 ( 110) >> _____X_________________________________________ <<  6 ( 950)
10:57:05 (0502180696) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  7 ( 130) >> ______X________________________________________ <<  7 ( 930)
10:57:06 (0502181676) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  8 ( 150) >> _______X_______________________________________ <<  8 ( 910)
10:57:06 (0502182246) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  9 ( 170) >> _______X_______________________________________ <<  9 ( 890)
10:57:07 (0502182806) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 10 ( 190) >> _________X_____________________________________ << 10 ( 870)
10:57:08 (0502183646) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 11 ( 210) >> _________X_____________________________________ << 11 ( 850)
10:57:08 (0502184166) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 12 ( 230) >> __________X____________________________________ << 12 ( 830)
10:57:09 (0502184616) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 13 ( 250) >> __________X____________________________________ << 13 ( 810)
10:57:09 (0502185086) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 14 ( 270) >> ___________X___________________________________ << 14 ( 790)
10:57:10 (0502185406) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 15 ( 290) >> ___________X___________________________________ << 15 ( 770)
10:57:10 (0502185776) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 16 ( 310) >> ____________X__________________________________ << 16 ( 750)
10:57:10 (0502186006) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 17 ( 330) >> ____________X__________________________________ << 17 ( 730)
10:57:10 (0502186226) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 17 ( 330) >> ____________XX_________________________________ << 18 ( 710)
10:57:11 (0502186246) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 18 ( 350) >> ____________X__________________________________ << 18 ( 710)
10:57:11 (0502186436) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 19 ( 370) >> _____________X_________________________________ << 19 ( 690)
10:57:11 (0502186686) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 19 ( 370) >> ____________XX_________________________________ << 20 ( 670)
10:57:11 (0502186696) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 20 ( 390) >> _____________X_________________________________ << 20 ( 670)
10:57:11 (0502186846) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 21 ( 410) >> _____________X_________________________________ << 21 ( 650)
10:57:11 (0502187066) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 22 ( 430) >> ____________X__________________________________ << 22 ( 630)
10:57:12 (0502187266) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 23 ( 450) >> _____________X_________________________________ << 23 ( 610)
10:57:12 (0502187486) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 24 ( 470) >> _____________X_________________________________ << 24 ( 590)
10:57:12 (0502187686) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 25 ( 490) >> _____________X_________________________________ << 25 ( 570)
10:57:12 (0502187866) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 26 ( 510) >> _____________X_________________________________ << 26 ( 550)
10:57:12 (0502188036) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 27 ( 530) >> _____________X_________________________________ << 27 ( 530)
10:57:12 (0502188206) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 28 ( 550) >> _____________X_________________________________ << 28 ( 510)
10:57:13 (0502188356) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 29 ( 570) >> _____________X_________________________________ << 29 ( 490)
10:57:13 (0502188526) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 30 ( 590) >> _____________X_________________________________ << 30 ( 470)
10:57:13 (0502188706) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 30 ( 590) >> _____________XX________________________________ << 31 ( 450)
10:57:13 (0502188716) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 31 ( 610) >> _____________X_________________________________ << 31 ( 450)
10:57:13 (0502188836) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 31 ( 610) >> _____________XX________________________________ << 32 ( 430)
10:57:13 (0502188856) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 32 ( 630) >> _____________X_________________________________ << 32 ( 430)
10:57:13 (0502188966) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 32 ( 630) >> _____________XX________________________________ << 33 ( 410)
10:57:13 (0502188996) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 33 ( 650) >> _____________X_________________________________ << 33 ( 410)
10:57:13 (0502189116) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 33 ( 650) >> _____________XX________________________________ << 34 ( 390)
10:57:13 (0502189126) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 34 ( 670) >> _____________X_________________________________ << 34 ( 390)
10:57:13 (0502189196) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 35 ( 690) >> _____________X_________________________________ << 35 ( 370)
10:57:14 (0502189336) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 35 ( 690) >> _____________XX________________________________ << 36 ( 350)
10:57:14 (0502189346) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 36 ( 710) >> _____________X_________________________________ << 36 ( 350)
10:57:14 (0502189526) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 37 ( 730) >> _____________X_________________________________ << 37 ( 330)
10:57:14 (0502189656) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 37 ( 730) >> _____________XX________________________________ << 38 ( 310)
10:57:14 (0502189666) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 38 ( 750) >> _____________X_________________________________ << 38 ( 310)
10:57:14 (0502189826) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 38 ( 750) >> _____________XX________________________________ << 39 ( 290)
10:57:14 (0502189846) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 39 ( 770) >> _____________X_________________________________ << 39 ( 290)
10:57:14 (0502190036) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 40 ( 790) >> _____________X_________________________________ << 40 ( 270)
10:57:14 (0502190216) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 40 ( 790) >> _____________XX________________________________ << 41 ( 250)
10:57:15 (0502190286) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 41 ( 810) >> _____________X_________________________________ << 41 ( 250)
10:57:15 (0502190376) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 41 ( 810) >> _____________XX________________________________ << 42 ( 230)
10:57:15 (0502190406) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 42 ( 830) >> _____________X_________________________________ << 42 ( 230)
10:57:15 (0502190596) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 42 ( 830) >> _____________XX________________________________ << 43 ( 210)
10:57:15 (0502190626) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 43 ( 850) >> _____________X_________________________________ << 43 ( 210)
10:57:15 (0502190766) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 43 ( 850) >> _____________XX________________________________ << 44 ( 190)
10:57:15 (0502190866) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 44 ( 870) >> _____________X_________________________________ << 44 ( 190)
10:57:15 (0502190956) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 44 ( 870) >> _____________XX________________________________ << 45 ( 170)
10:57:15 (0502191036) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 45 ( 890) >> _____________X_________________________________ << 45 ( 170)
10:57:15 (0502191176) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 45 ( 890) >> _____________XX________________________________ << 46 ( 150)
10:57:15 (0502191216) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 46 ( 910) >> _____________X_________________________________ << 46 ( 150)
10:57:16 (0502191416) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 46 ( 910) >> _____________XX________________________________ << 47 ( 130)
10:57:16 (0502191456) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 47 ( 930) >> _____________X_________________________________ << 47 ( 130)
10:57:16 (0502191586) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 47 ( 930) >> _____________XX________________________________ << 48 ( 110)
10:57:16 (0502191686) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 48 ( 950) >> _____________X_________________________________ << 48 ( 110)
10:57:16 (0502191766) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 48 ( 950) >> _____________XX________________________________ << 49 (  90)
10:57:16 (0502191816) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 49 ( 970) >> _____________X_________________________________ << 49 (  90)
10:57:16 (0502191936) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 50 ( 990) >> _____________X_________________________________ << 50 (  70)
10:57:16 (0502192156) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 50 ( 990) >> _____________XX________________________________ << 51 (  50)
10:57:17 (0502192256) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 51 (1010) >> _____________X_________________________________ << 51 (  50)
10:57:17 (0502192366) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 51 (1010) >> _____________XX________________________________ << 52 (  30)
10:57:17 (0502192436) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 52 (1030) >> _____________X_________________________________ << 52 (  30)
```

EXAMPLE 2

The commissioner will move his hand from the side seeing the sorter arriving to the side seeing the sorter leaving, beams 1 and 53 were blanked during barrier configuration:

```
10:56:19 (0502134556) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  2 (  30) >> _X_____ << 2 (1030)
10:56:19 (0502134606) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  2 (  30) >> _XX_____ << 3 (1010)
10:56:19 (0502134646) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  2 (  30) >> _XXX_____ << 4 ( 990)
10:56:19 (0502134686) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  2 (  30) >> _XXXX_____ << 5 ( 970)
10:56:19 (0502134696) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  3 (  50) >> __XXX_____ << 5 ( 970)
10:56:19 (0502134726) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  3 (  50) >> __XXXX_____ << 6 ( 950)
10:56:19 (0502134736) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  4 (  70) >> ___XXX_____ << 6 ( 950)
10:56:19 (0502134766) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  4 (  70) >> ___XXXX_____ << 7 ( 930)
10:56:19 (0502134776) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  5 (  90) >> ____XXX_____ << 7 ( 930)
10:56:19 (0502134796) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  5 (  90) >> ____XXXX_____ << 8 ( 910)
10:56:19 (0502134816) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  6 ( 110) >> _____XXX_____ << 8 ( 910)
10:56:19 (0502134836) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  6 ( 110) >> _____XXXX_____ << 9 ( 890)
10:56:19 (0502134856) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  7 ( 130) >> ______XXX_____ << 9 ( 890)
10:56:19 (0502134866) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  7 ( 130) >> ______XXXX_____ << 10 ( 870)
10:56:19 (0502134886) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  8 ( 150) >> _______XXX_____ << 10 ( 870)
10:56:19 (0502134896) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  8 ( 150) >> _______XXXX_____ << 11 ( 850)
10:56:19 (0502134916) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  9 ( 170) >> ________XXX_____ << 11 ( 850)
10:56:19 (0502134936) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH  9 ( 170) >> ________XXXX_____ << 12 ( 830)
10:56:19 (0502134956) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 10 ( 190) >> _________XXX_____ << 12 ( 830)
10:56:19 (0502134976) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 10 ( 190) >> _________XXXX_____ << 13 ( 810)
10:56:19 (0502134986) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 11 ( 210) >> __________XXX_____ << 13 ( 810)
10:56:19 (0502135006) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 11 ( 210) >> __________XXXX_____ << 14 ( 790)
10:56:19 (0502135016) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 12 ( 230) >> ___________XXX_____ << 14 ( 790)
10:56:19 (0502135046) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 12 ( 230) >> ___________XXXX_____ << 15 ( 770)
10:56:19 (0502135056) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 13 ( 250) >> ____________XXX_____ << 15 ( 770)
10:56:19 (0502135086) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 13 ( 250) >> ____________XXXX_____ << 16 ( 750)
10:56:19 (0502135096) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 14 ( 270) >> _____________XXX_____ << 16 ( 750)
10:56:19 (0502135116) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 14 ( 270) >> _____________XXXX_____ << 17 ( 730)
10:56:19 (0502135136) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 15 ( 290) >> ______________XXX_____ << 17 ( 730)
10:56:19 (0502135156) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 15 ( 290) >> ______________XXXX_____ << 18 ( 710)
10:56:19 (0502135176) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 16 ( 310) >> _______________XXX_____ << 18 ( 710)
10:56:19 (0502135196) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 16 ( 310) >> _______________XXXX_____ << 19 ( 690)
10:56:19 (0502135216) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 17 ( 330) >> ________________XXX_____ << 19 ( 690)
10:56:19 (0502135236) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 17 ( 330) >> ________________XXXX_____ << 20 ( 670)
10:56:20 (0502135256) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 18 ( 350) >> _________________XXX_____ << 20 ( 670)
10:56:20 (0502135276) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 18 ( 350) >> _________________XXXX_____ << 21 ( 650)
10:56:20 (0502135296) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 19 ( 370) >> __________________XXX_____ << 21 ( 650)
10:56:20 (0502135316) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 19 ( 370) >> __________________XXXX_____ << 22 ( 630)
10:56:20 (0502135336) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 20 ( 390) >> ___________________XXX_____ << 22 ( 630)
10:56:20 (0502135366) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 20 ( 390) >> ___________________XXXX_____ << 23 ( 610)
10:56:20 (0502135386) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 21 ( 410) >> ____________________XXX_____ << 23 ( 610)
10:56:20 (0502135406) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 21 ( 410) >> ____________________XXXX_____ << 24 ( 590)
10:56:20 (0502135426) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 22 ( 430) >> _____________________XXX_____ << 24 ( 590)
10:56:20 (0502135456) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 22 ( 430) >> _____________________XXXX_____ << 25 ( 570)
10:56:20 (0502135476) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 23 ( 450) >> ______________________XXX_____ << 25 ( 570)
10:56:20 (0502135496) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 23 ( 450) >> ______________________XXXX_____ << 26 ( 550)
10:56:20 (0502135526) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 24 ( 470) >> _______________________XXX_____ << 26 ( 550)
10:56:20 (0502135546) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 24 ( 470) >> _______________________XXXX_____ << 27 ( 530)
10:56:20 (0502135576) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 25 ( 490) >> ________________________XXX_____ << 27 ( 530)
10:56:20 (0502135596) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 25 ( 490) >> ________________________XXXX_____ << 28 ( 510)
10:56:20 (0502135616) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 26 ( 510) >> _________________________XXX_____ << 28 ( 510)
10:56:20 (0502135646) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 26 ( 510) >> _________________________XXXX_____ << 29 ( 490)
10:56:20 (0502135666) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 27 ( 530) >> __________________________XXX_____ << 29 ( 490)
10:56:20 (0502135696) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 27 ( 530) >> __________________________XXXX_____ << 30 ( 470)
10:56:20 (0502135726) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 28 ( 550) >> ___________________________XXX_____ << 30 ( 470)
10:56:20 (0502135756) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 28 ( 550) >> ___________________________XXXX_____ << 31 ( 450)
10:56:20 (0502135776) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 29 ( 570) >> ____________________________XXX_____ << 31 ( 450)
10:56:20 (0502135816) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 29 ( 570) >> ____________________________XXXX_____ << 32 ( 430)
10:56:20 (0502135846) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 30 ( 590) >> _____________________________XXX_____ << 32 ( 430)
10:56:20 (0502135886) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 30 ( 590) >> _____________________________XXXX_____ << 33 ( 410)
10:56:20 (0502135906) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 31 ( 610) >> ______________________________XXX_____ << 33 ( 410)
10:56:20 (0502135956) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 31 ( 610) >> ______________________________XXXX_____ << 34 ( 390)
10:56:20 (0502135976) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 32 ( 630) >> _______________________________XXX_____ << 34 ( 390)
10:56:20 (0502136046) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 32 ( 630) >> _______________________________XXXX_____ << 35 ( 370)
10:56:20 (0502136066) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 33 ( 650) >> ________________________________XXX_____ << 35 ( 370)
10:56:20 (0502136136) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 33 ( 650) >> ________________________________XXXX_____ << 36 ( 350)
10:56:20 (0502136176) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 34 ( 670) >> _________________________________XXX_____ << 36 ( 350)
10:56:21 (0502136256) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 34 ( 670) >> _________________________________XXXX_____ << 37 ( 330)
10:56:21 (0502136316) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 35 ( 690) >> __________________________________XXX_____ << 37 ( 330)
10:56:21 (0502136426) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 35 ( 690) >> __________________________________XXXX_____ << 38 ( 310)
10:56:21 (0502136486) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 36 ( 710) >> ___________________________________XXX_____ << 38 ( 310)
10:56:21 (0502136616) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 36 ( 710) >> ___________________________________XXXX_____ << 39 ( 290)
10:56:21 (0502136666) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 37 ( 730) >> ____________________________________XXX_____ << 39 ( 290)
10:56:21 (0502136786) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 37 ( 730) >> ____________________________________XXXX_____ << 40 ( 270)
10:56:21 (0502136826) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 38 ( 750) >> _____________________________________XXX_____ << 40 ( 270)
10:56:21 (0502136906) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 38 ( 750) >> _____________________________________XXXX_____ << 41 ( 250)
10:56:21 (0502136936) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 39 ( 770) >> ______________________________________XXX_____ << 41 ( 250)
10:56:21 (0502137016) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 39 ( 770) >> ______________________________________XXXX_____ << 42 ( 230)
10:56:21 (0502137036) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 40 ( 790) >> _______________________________________XXX_____ << 42 ( 230)
10:56:21 (0502137116) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 40 ( 790) >> _______________________________________XXXX_____ << 43 ( 210)
10:56:21 (0502137136) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 41 ( 810) >> ________________________________________XXX_____ << 43 ( 210)
10:56:21 (0502137216) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 41 ( 810) >> ________________________________________XXXX_____ << 44 ( 190)
10:56:21 (0502137236) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 42 ( 830) >> _________________________________________XXX_____ << 44 ( 190)
10:56:22 (0502137306) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 42 ( 830) >> _________________________________________XXXX_____ << 45 ( 170)
10:56:22 (0502137326) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 43 ( 850) >> __________________________________________XXX_____ << 45 ( 170)
10:56:22 (0502137376) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 43 ( 850) >> __________________________________________XXXX_____ << 46 ( 150)
10:56:22 (0502137406) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 44 ( 870) >> ___________________________________________XXX_____ << 46 ( 150)
10:56:22 (0502137456) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 44 ( 870) >> ___________________________________________XXXX_____ << 47 ( 130)
10:56:22 (0502137476) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 45 ( 890) >> ____________________________________________XXX_____ << 47 ( 130)
10:56:22 (0502137506) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 45 ( 890) >> ____________________________________________XXXX_____ << 48 ( 110)
10:56:22 (0502137536) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 46 ( 910) >> _____________________________________________XXX_____ << 48 ( 110)
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10:56:22 (0502137566) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 46 ( 910) >> ____________________________________________XXXX____ << 49 (  90)
10:56:22 (0502137636) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 46 ( 910) >> ____________________________________________XX_X____ << 49 (  90)
10:56:22 (0502137656) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 46 ( 910) >> ____________________________________________XXXXX___ << 50 (  70)
10:56:22 (0502137666) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 46 ( 910) >> ____________________________________________X_XXX___ << 50 (  70)
10:56:22 (0502137686) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 48 ( 950) >> _____________________________________________XXX___ << 50 (  70)
10:56:22 (0502137696) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 47 ( 930) >> _____________________________________________XX_X___ << 50 (  70)
10:56:22 (0502137706) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 47 ( 930) >> _____________________________________________XX_XX__ << 51 (  50)
10:56:22 (0502137726) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 47 ( 930) >> _____________________________________________XXXXX__ << 51 (  50)
10:56:22 (0502137746) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 47 ( 930) >> _____________________________________________X_XXX__ << 51 (  50)
10:56:22 (0502137756) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 47 ( 930) >> _____________________________________________X_X_X__ << 51 (  50)
10:56:22 (0502137776) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 47 ( 930) >> _____________________________________________X_XXX__ << 51 (  50)
10:56:22 (0502137796) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 48 ( 950) >> _____________________________________________X_X_X_ << 52 (  30)
10:56:22 (0502137806) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 48 ( 950) >> _____________________________________________X_X___ << 50 (  70)
10:56:22 (0502137826) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 48 ( 950) >> _____________________________________________X_XX__ << 51 (  50)
10:56:22 (0502137846) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 48 ( 950) >> _____________________________________________X__X__ << 51 (  50)
10:56:22 (0502137856) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 48 ( 950) >> _____________________________________________XX_X__ << 51 (  50)
10:56:22 (0502137866) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 49 ( 970) >> _____________________________________________X_X__ << 51 (  50)
10:56:22 (0502137876) [Lv:Barrier] [CBarrierClass::Main] BID:1; PH 49 ( 970) >> _____________________________________________X____ << 49 (  90)
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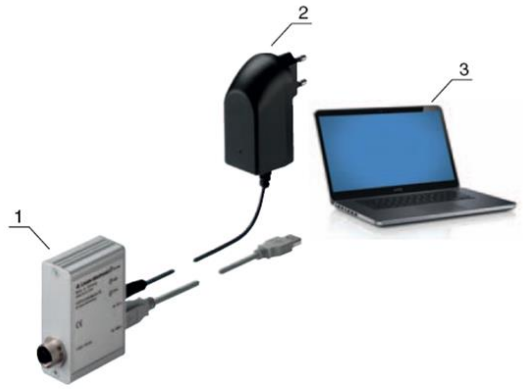
9 – CONNECTION WITH I/O LINK MASTER

8.1. IO-Link master setup

An IO-Link master (Fives code 18A_00215) is needed to set the sensor data exchange mode only for firmware version from 2.0 to 2.2.0.



1 IO-Link USB master
2 Plug-in power supply unit
3 PC

8.2. Installation on the PC of all required software

All software and documentation is available on the network “Application Manual folder” or on the SICK website.

- To be installed:
- SOPAS software
- Driver for the SILink2 Master
- IODD file for SICK MLG2-Pro barrier
- SDD file for SICK MLG2-Pro IO-Link COM3 barrier

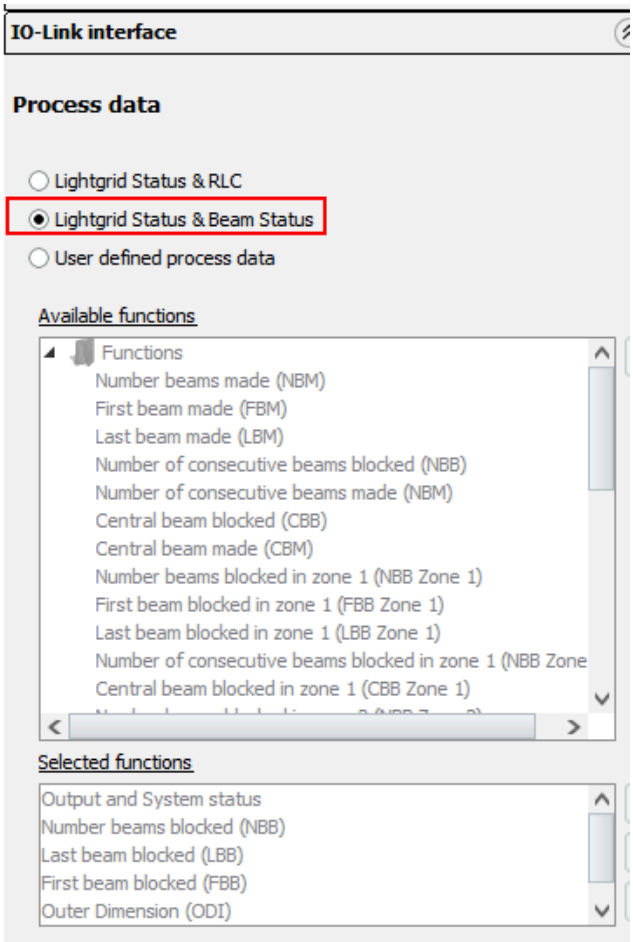
8.3. Connection with IO-Link master

In situations where it is necessary to connect with the IO-Link master (less practical), the following steps must be completed:

- Connect the IO-Link master to a USB port.
- Connect the auxiliary power supply of the USB master
- Connect the IO-Link master with the barrier, disconnecting first the connection going to the - induction line IO-Link master.
- Open SOPAS.
- Scan for connected devices
- Updated the device driver (SDD file) if suggested by SOPAS. Follow the instructions. Exit - and enter SOPAS
- Click on the barrier to connect

10 – STANDARD CONFIGURATION

Configuration of IO-Link communication
It is necessary to set up the barrier with the following parameters:

Parameter	Value	Notes
Bit rate	COM3	Can be set via IO-Link or Ethernet.
Process data select	1	Meaning: output the status of each beam. Can be set via IO-Link ONLY on firmware 2.0 to 2.2.0. On newer firmware versions it can be set via Ethernet 
Q1 (Bit 0 of Output-Status)	QoR <= 99%	Meaning: switching to 1 when at least one beam is "dirty". Can be set via IO-Link or Ethernet.

The following diagram shows how the process data should be configured:

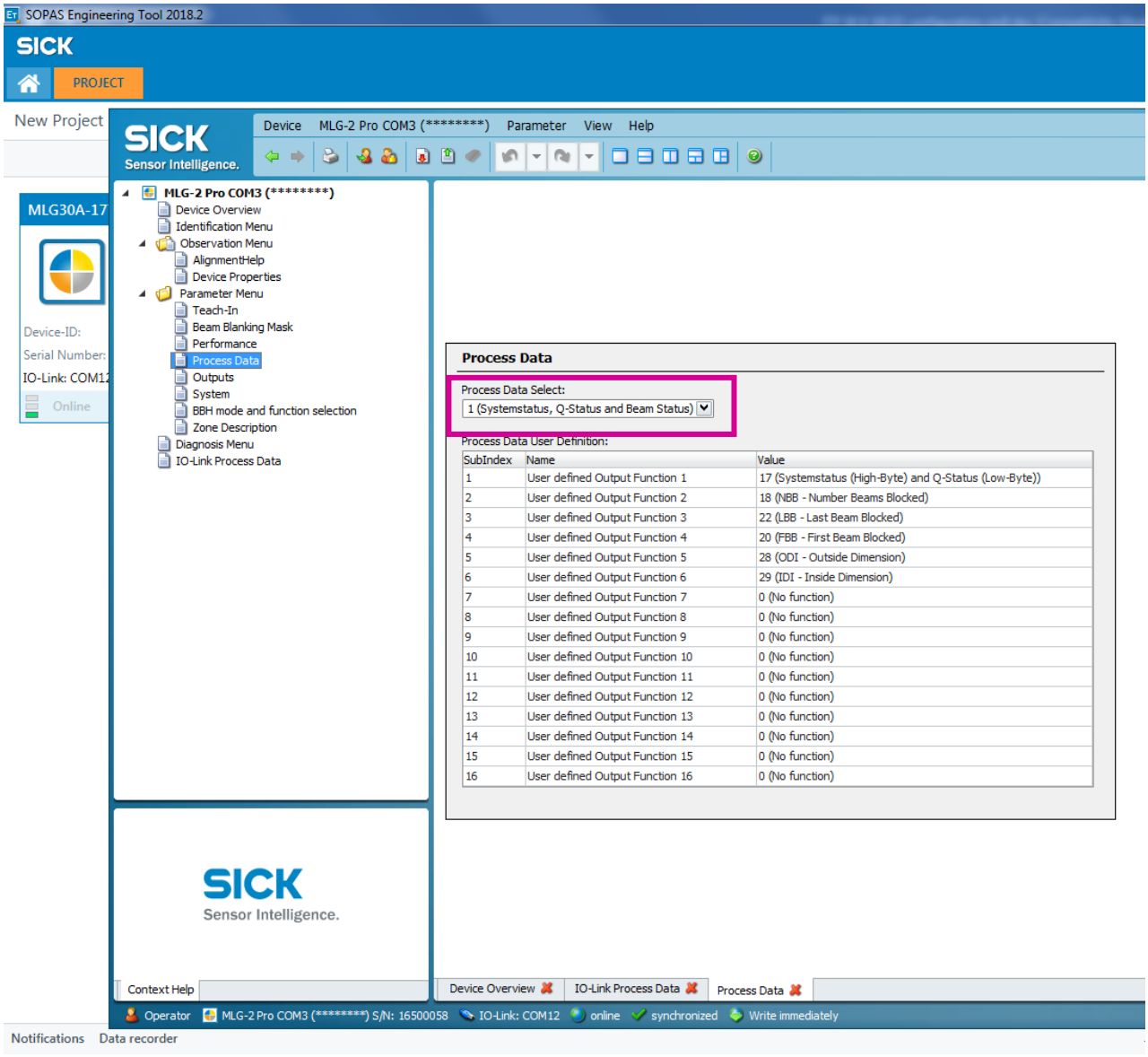
b) Condition: ISDU: Process Data Select, Index 120; Value 1

System- & Q-Status + Beam Status																													
Byte-Offset	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	beam 225…240		beam 209…224		beam 193…208		beam 177…192		beam 161…176		beam 145…160		beam 129…144		beam 113…128		beam 97…112		beam 81…96		beam 65…80		beam 49…64		beam 33…48		beam 17…32		beam 1…16		System Status*)	Output Status*)

The following diagram shows the content of bytes 1 and 0:

	*) System Status								*) Output-Status							
Bit-Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	Sync Error	Teach Fail	Hardware Error	Conta-mination Alarm	Teach Active	Over Tempe-rature	Process Data Invalid	Q-Short Circuit	not used	not used	not used	not used	Q4	Q3	Q2	Q1
	0 = false 1 = true								0 = OFF 1 = ON							

Change / Check the process data mode
Connecting via IO-Link master, change the following:

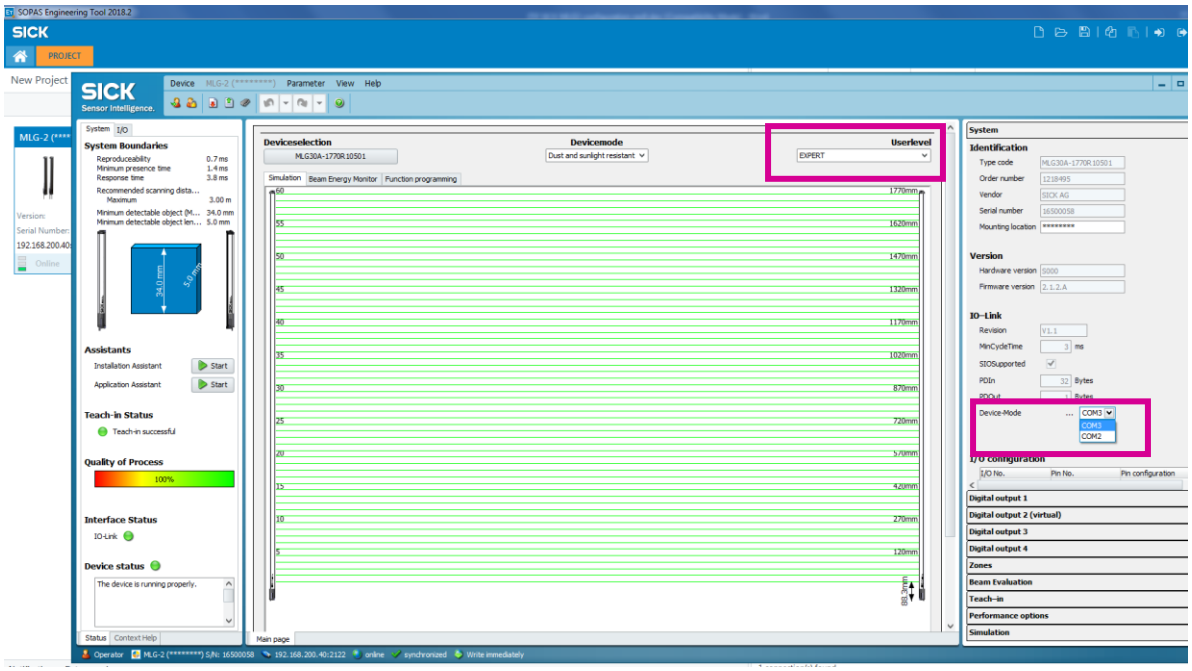


The default should already be 1.

Change / Check the IO-Link communication speed

Connecting via Ethernet,

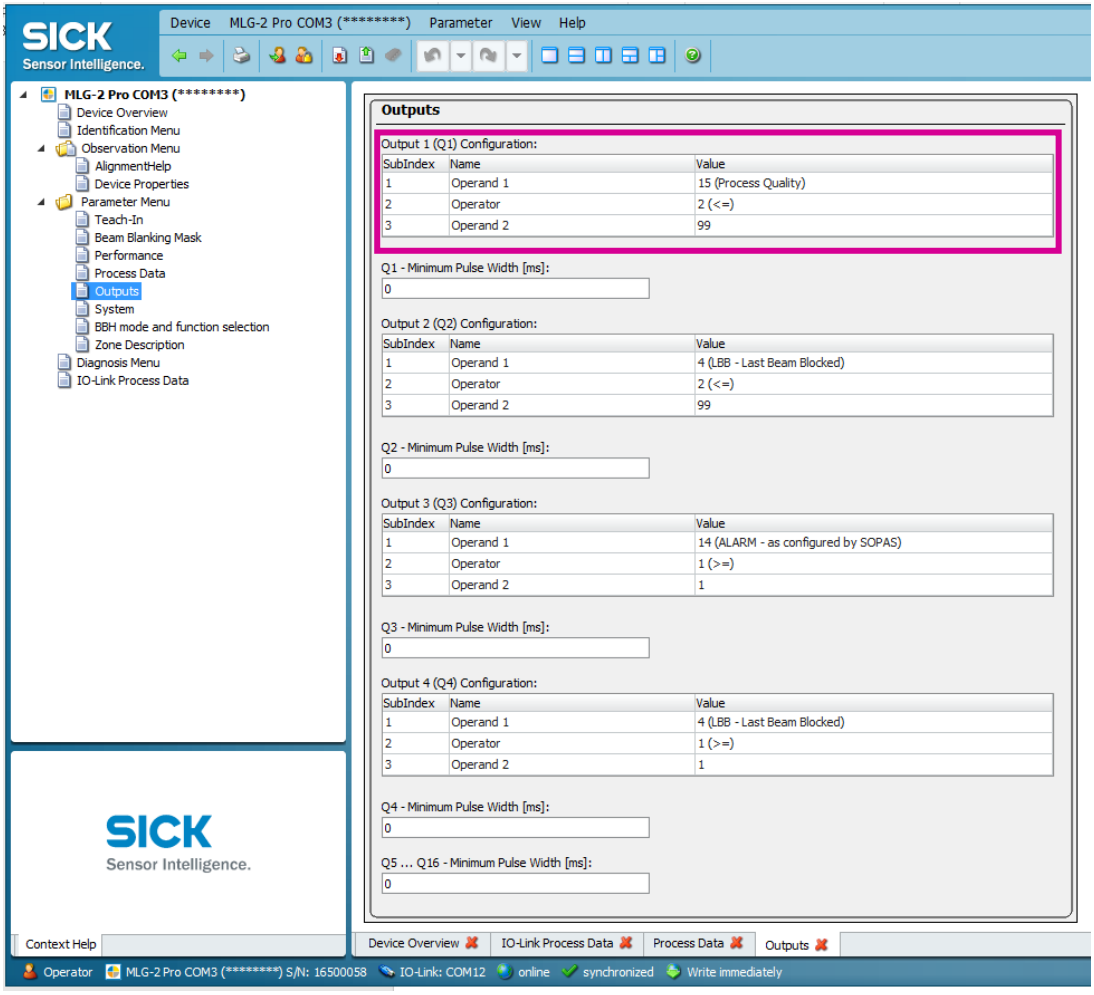
- Select the Userlevel “Expert”
- Check the Device mode control in the IO-Link section:



The default should already be COM3

Check the Q1 output configuration

Connecting via IO-Link master, change the following:



The default should already be 15, 2, 99.

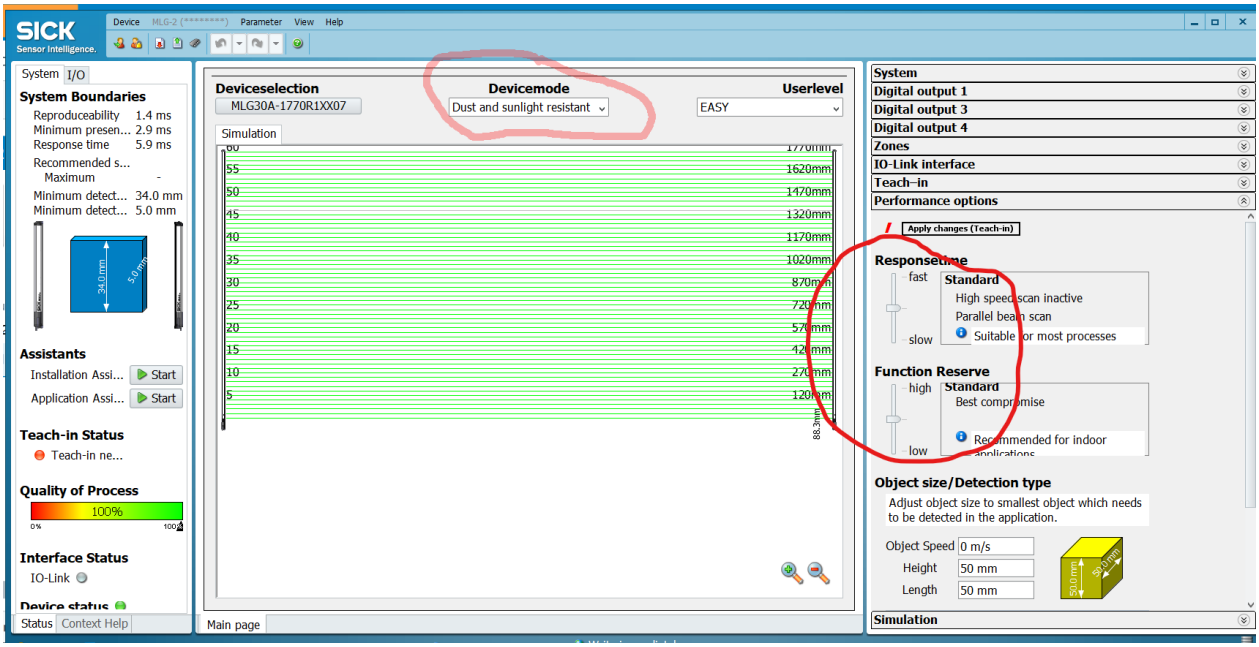
Performance configuration

The default setup is the following:

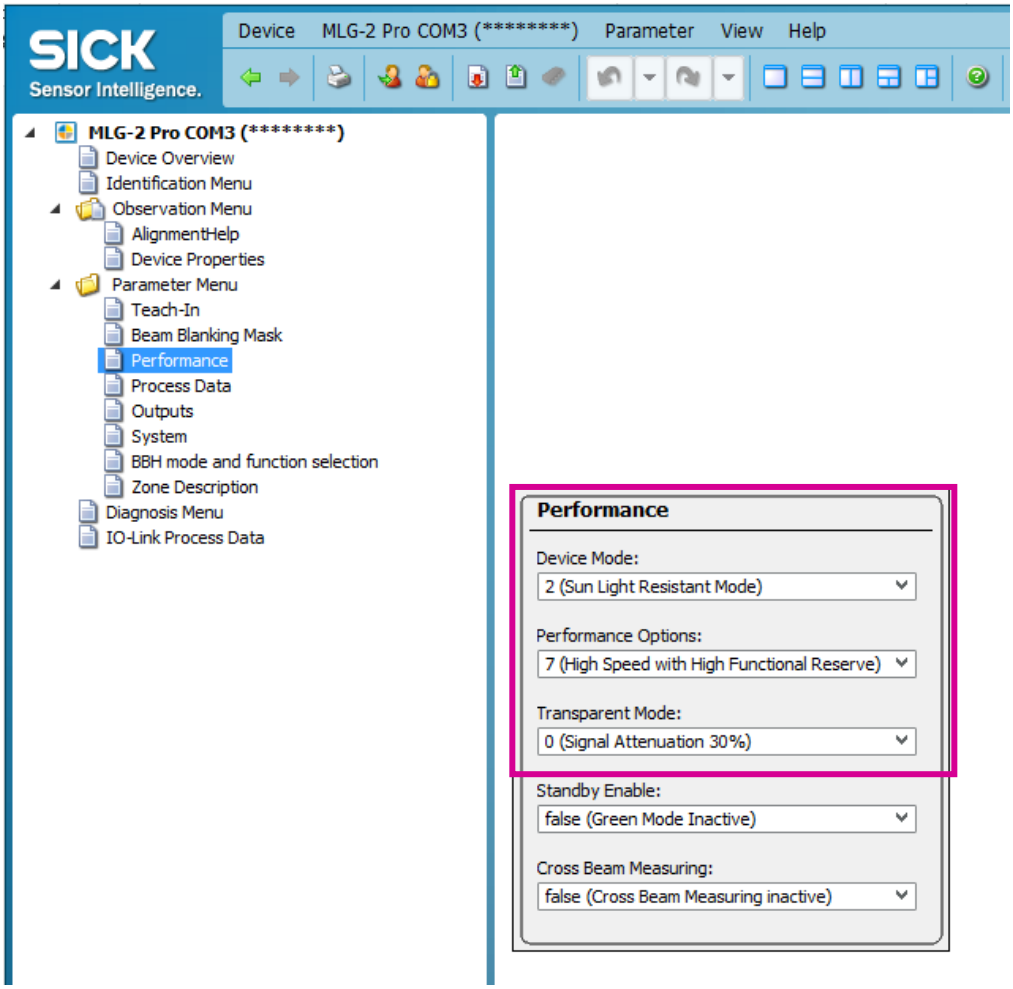
- Devicemode = dust and sunlight resistant
- Responsetime = medium: parallel beam disabled, high speed scan disabled
- Function reserve = medium

It is advised to change them only in case of transparent objects or reading issues.

On the latest SOPAS software, you should find this performance setting:



On older versions:



Download the configuration in the barriers

Remaind to download the configuration in the barrier after any modifications to make them active.

To double-check, power off and on the barrier and upload the configuration in SOPAS.