RASWIN Module SRS
Generating links from PL

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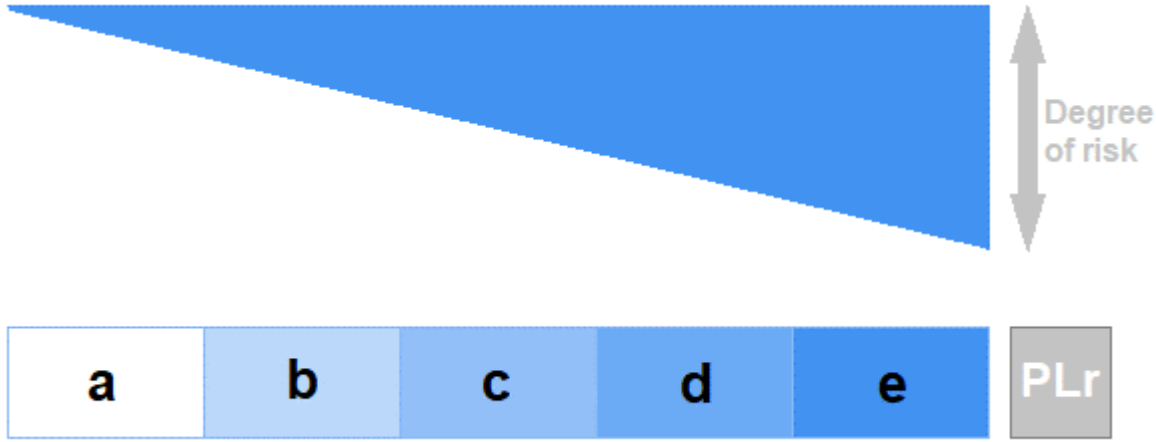
RAS
Risk Assessment Software

Performance Level?

PL Gfx Module

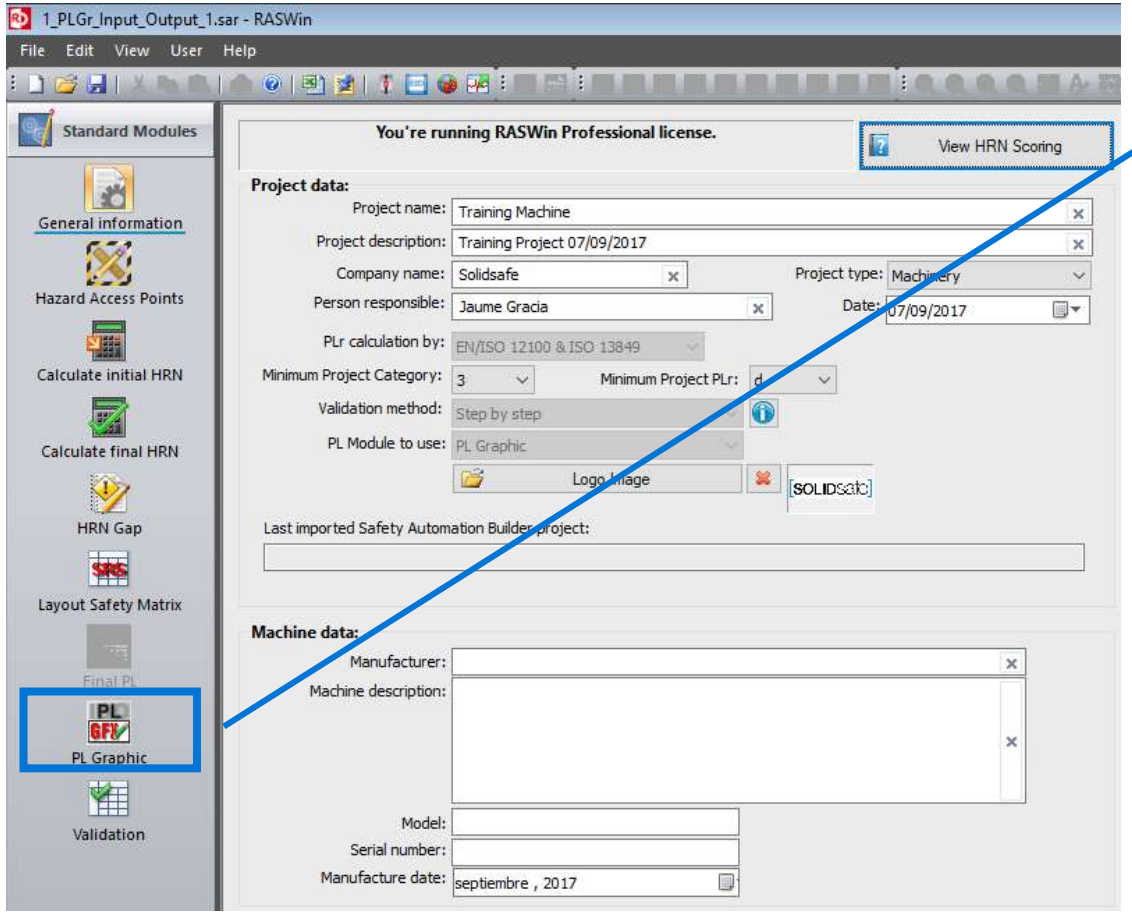
PL is a measure of the reliability of a safety function. This value depends on different parameters as Probability of failure or Mean time to failure.
PL is divided into five levels (a-e).

PL e gives the best reliability and is equivalent to the required at the highest level of risk



How to calculate the PL in RASWin?

PL Gfx Module



1. Click on PL Gfx Module icon.

Module: PL Gfx

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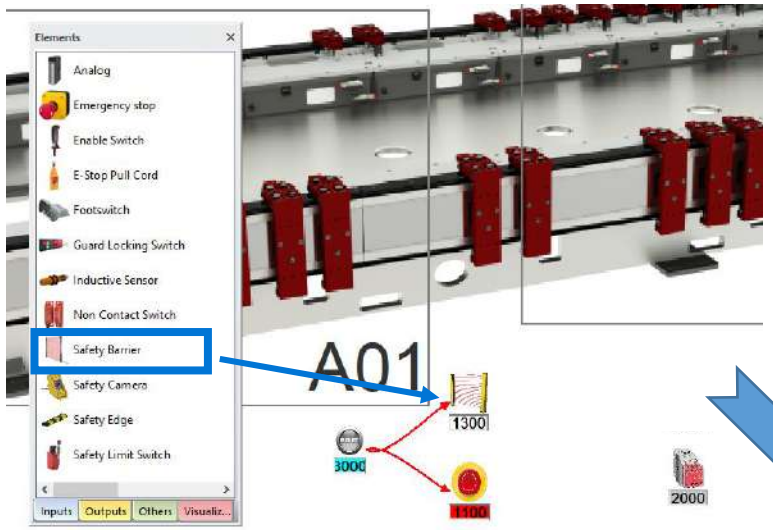
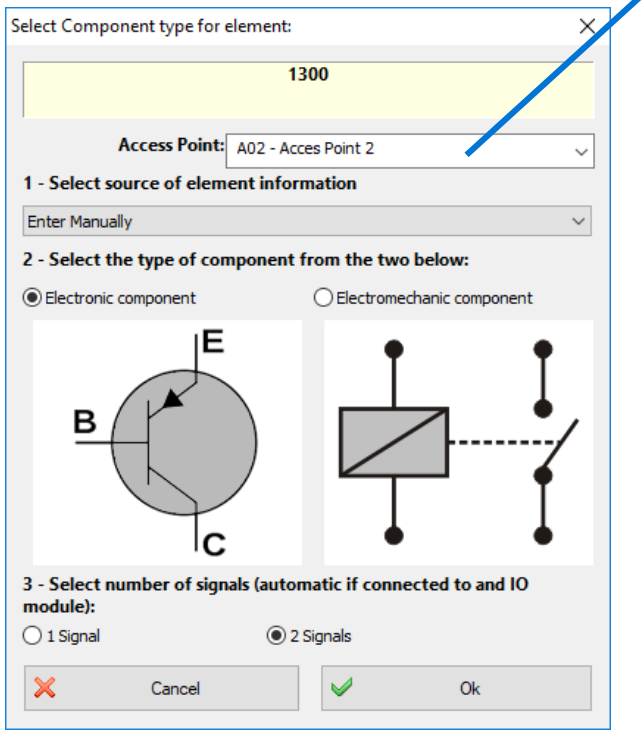
How to calculate the PL in RASWin?

PL Gfx Module





1. Add a new Input element (for example a Light Curtain)
2. Select the Access point of the element
3. Select electronic component (Light curtain is an electronic device).
4. Select the number of signals.

Step 1: Create input elements

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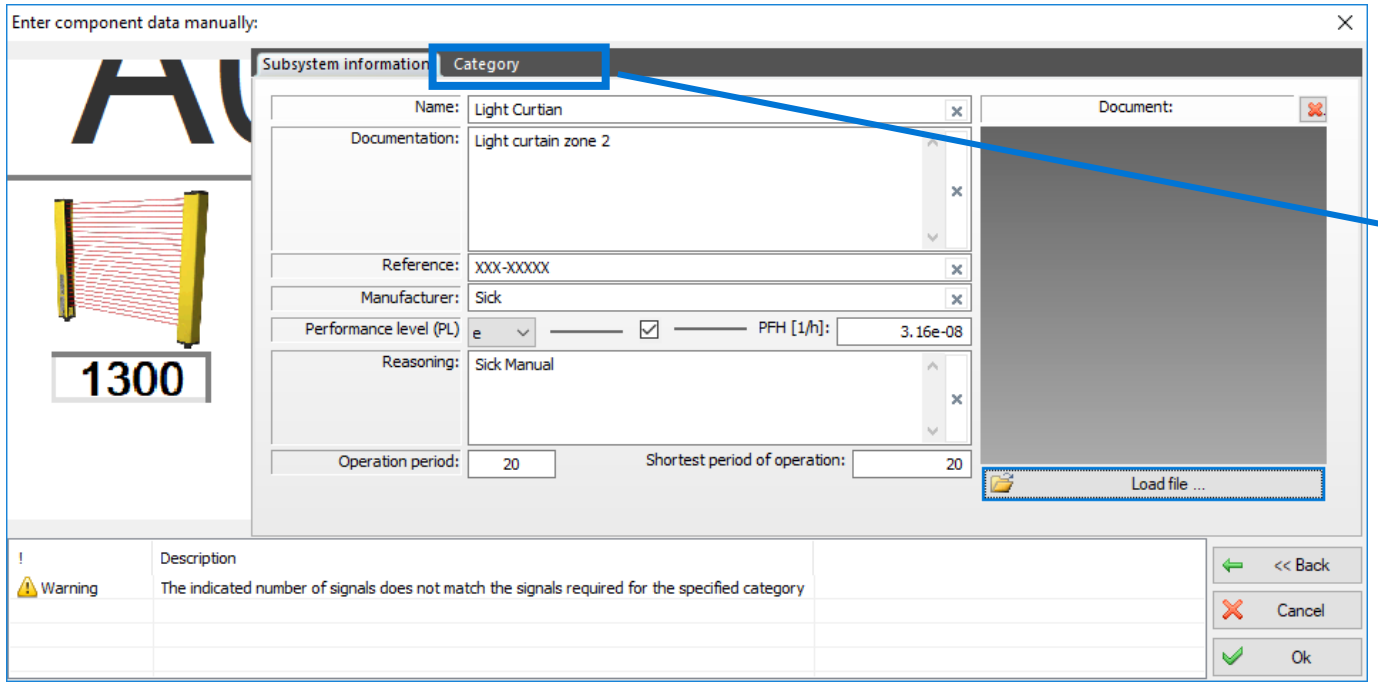
How to calculate the PL in RASWin?

PL Gfx Module



1. Add the element information
2. Load an image to describe the element
3. Select the PL of the element (Manufacturer's information)
4. Click on the checkbox
5. The PFH will be automatic loaded
6. Click on "Category"

Step 2: Add information of the Input element

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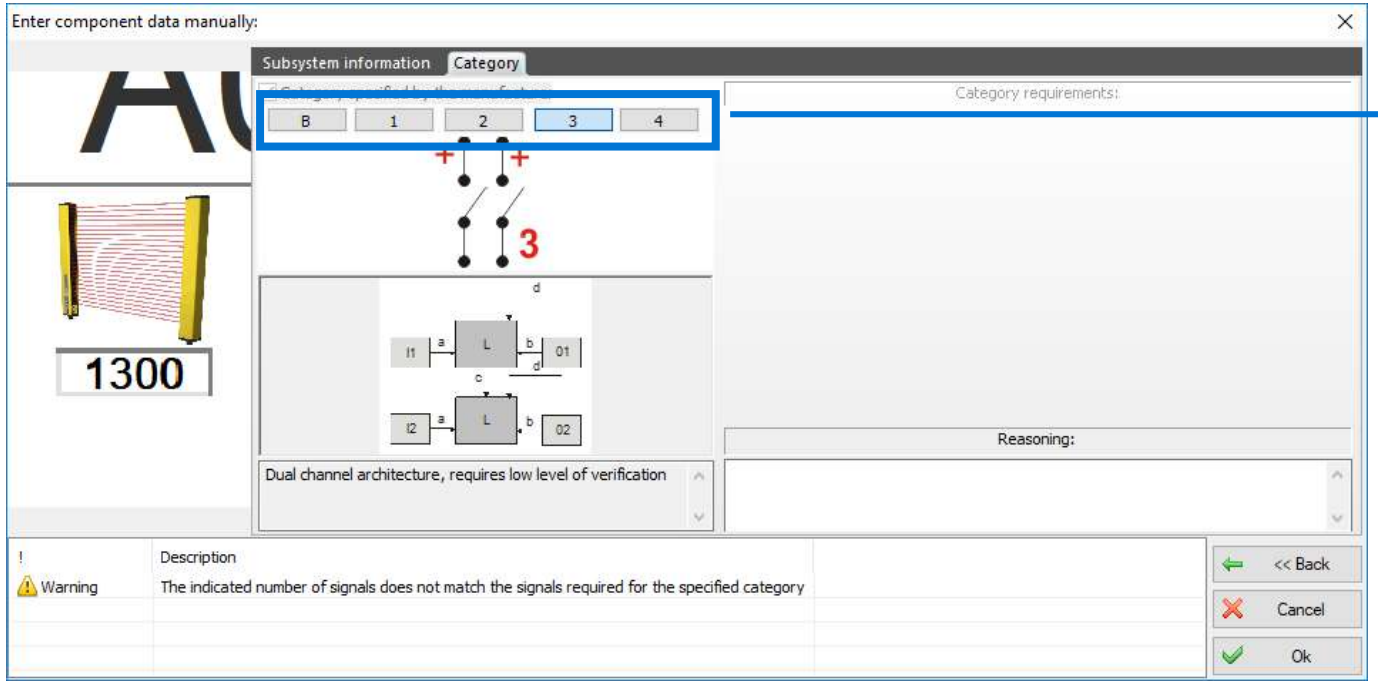
How to calculate the PL in RASWin?

PL Gfx Module



1. Select the Category of the element (Manufacturer's information)

2. Click "Ok"

Step 3: Add the category of the Input element

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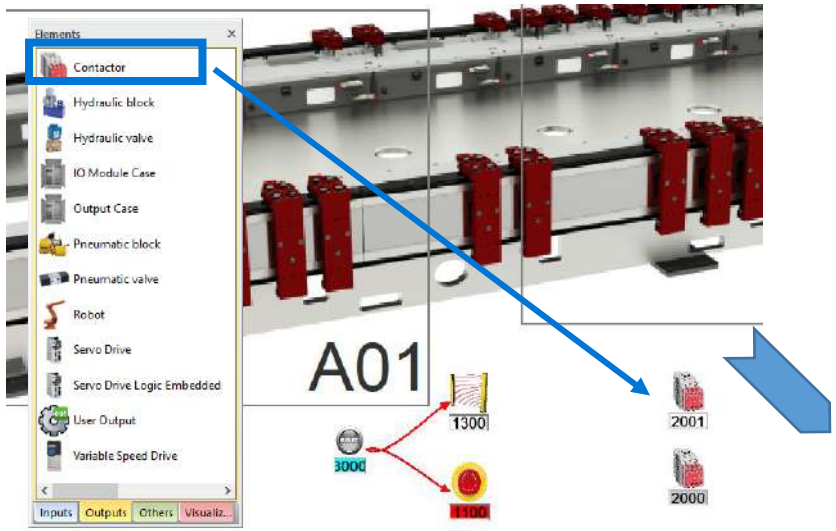
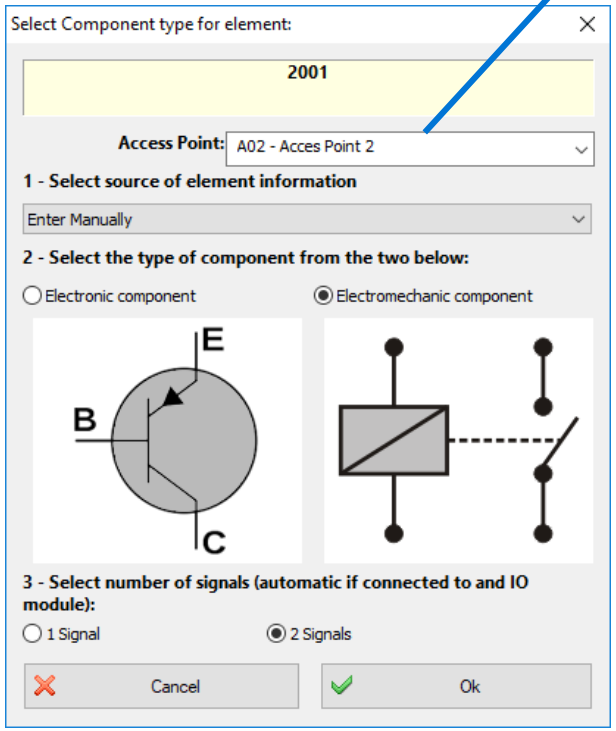
How to calculate the PL in RASWin?

PL Gfx Module





1. Add a new Output element (for example a Contactor)
2. Select the Access point of the element
3. Select the type of component
4. Select the number of signals.

Step 4: Create Output elements

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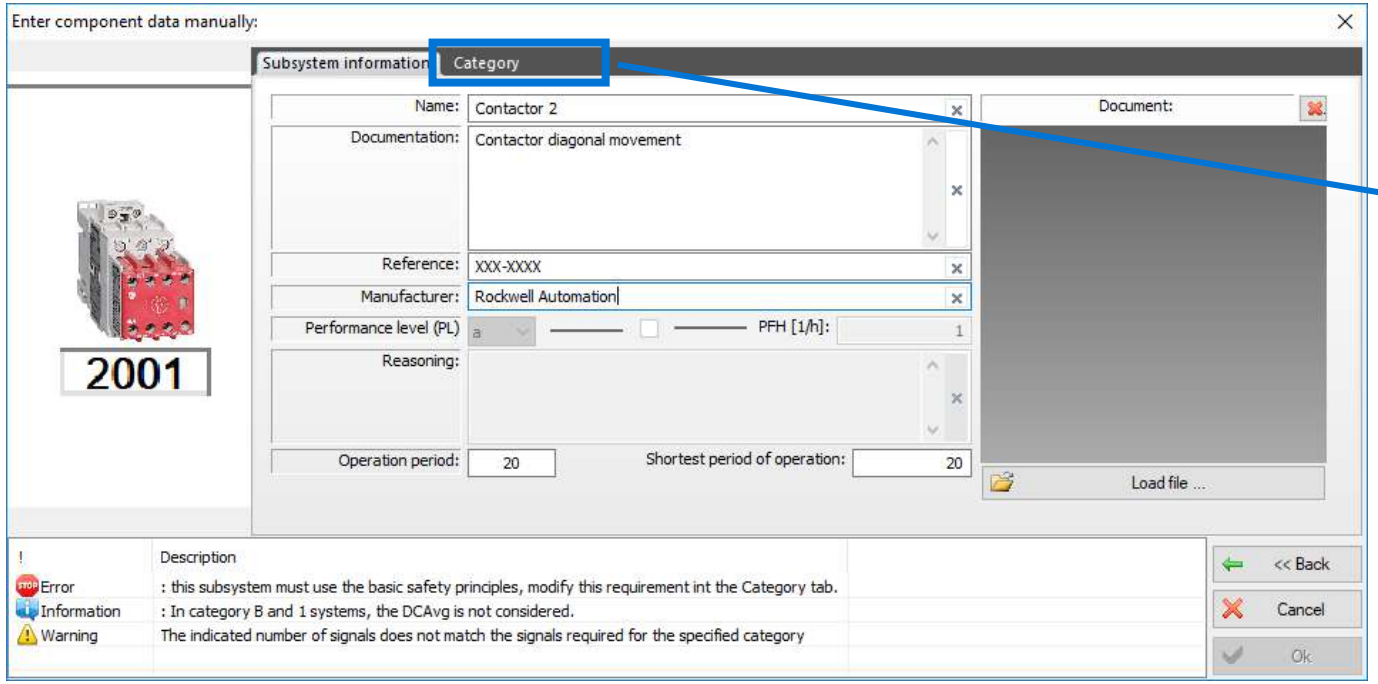
How to calculate the PL in RASWin?

PL Gfx Module



1. Add the element information
2. Load an image to describe the element
3. Click on “Category”

Step 5: Add information of the Output element

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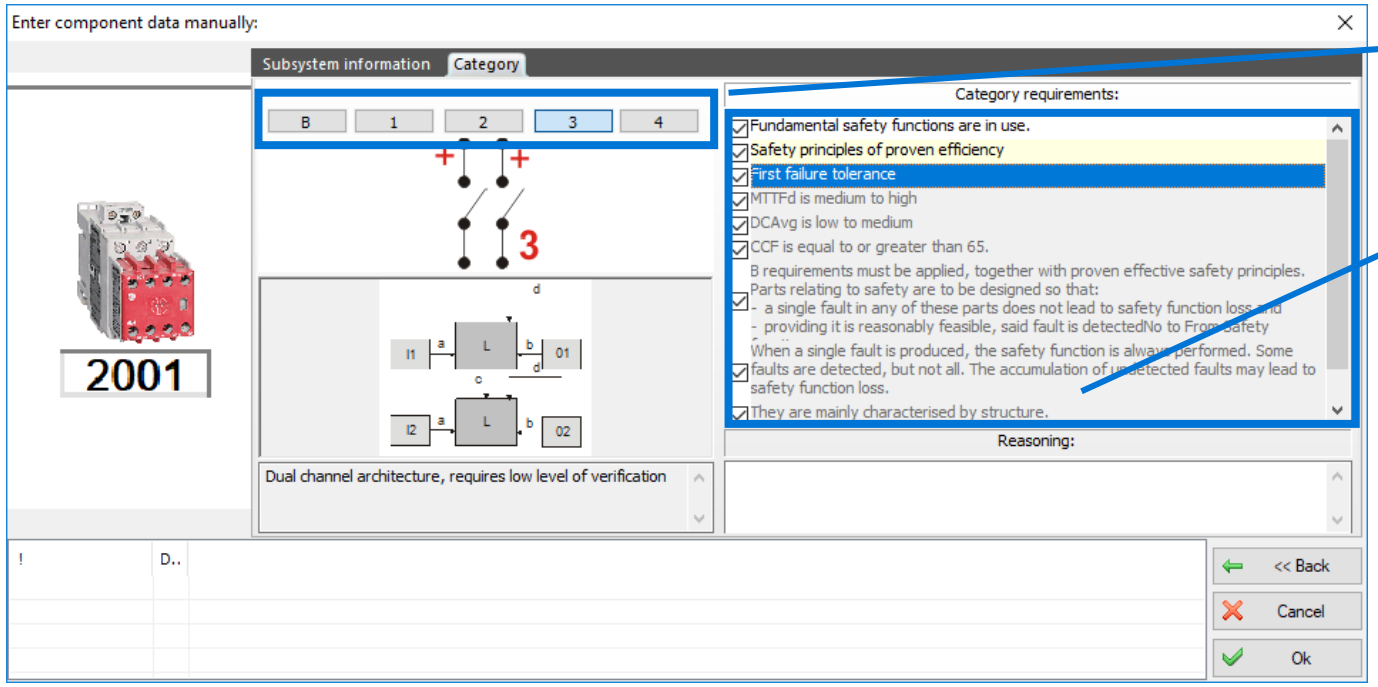
How to calculate the PL in RASWin?

PL Gfx Module



1. Select the Category of the element (Manufacturer's information)
2. Select the category requirements
3. Click "Ok"

Step 6: Add the category of the Output element

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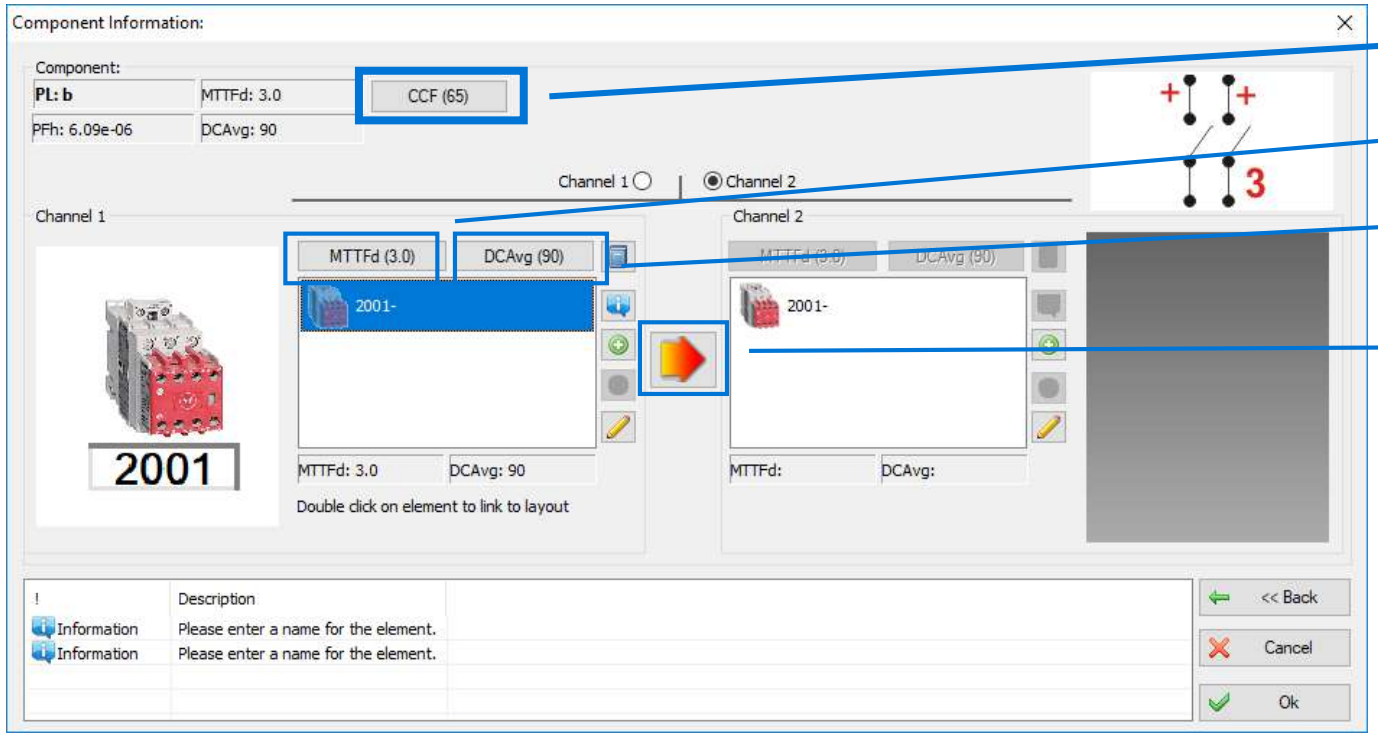
How to calculate the PL in RASWin?

PL Gfx Module



1. Add the CCF value
2. Enter the MTTFd value
3. Enter the DCAvg value
4. Click on the arrow to copy the parameters of channel 1 to channel 2
5. Click “Ok”.

Step 7: Add the Safety parameters of the element

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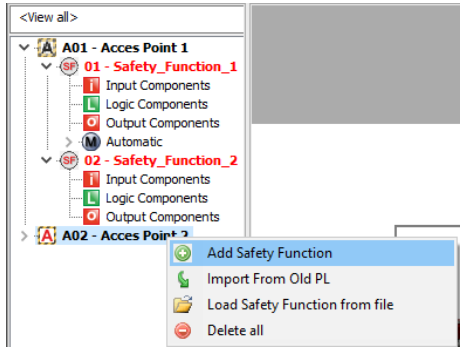
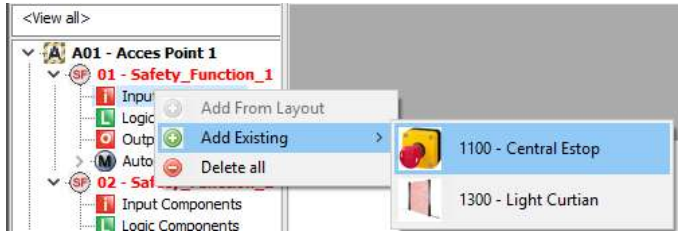
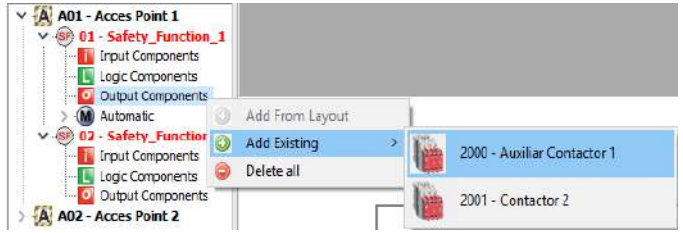
How to calculate the PL in RASWin?

PL Gfx Module







1. Create a safety function
2. Add the input elements to a Safety Function
3. Add the Output elements to a Safety Function
4. Repeat for each Safety Function

Step 8: Enter the elements to each Safety Function

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RAS Risk Assessment Software

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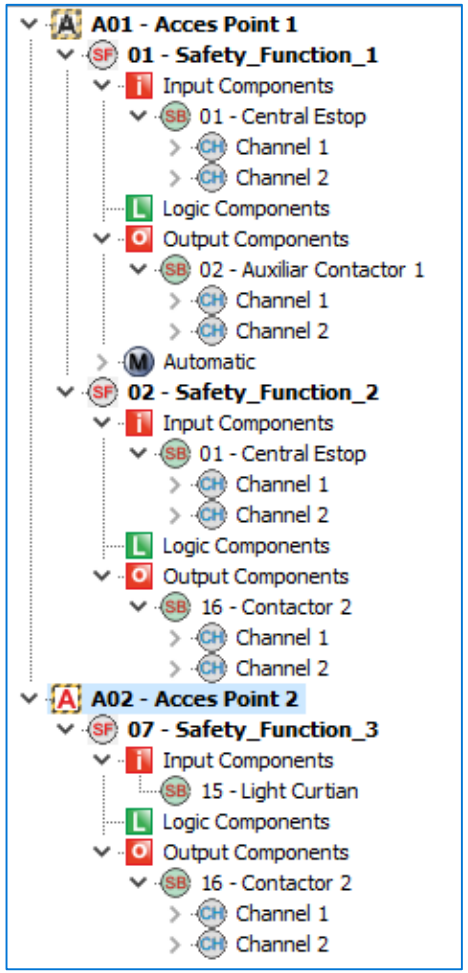
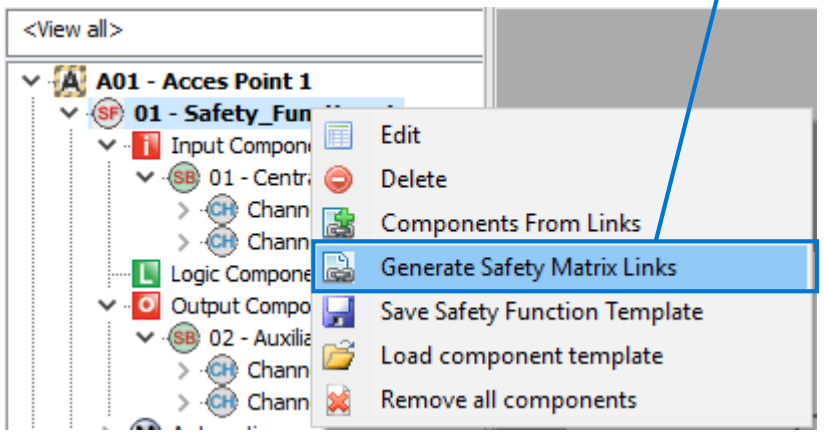
PL Gfx Module





Once all the Safety Function have been created is able to generate the links of the Safety Matrix from the Safety Function.

1. Select the safety function

2. Select Generate Safety Matrix Links

Step 9: Generate links from Safety Function

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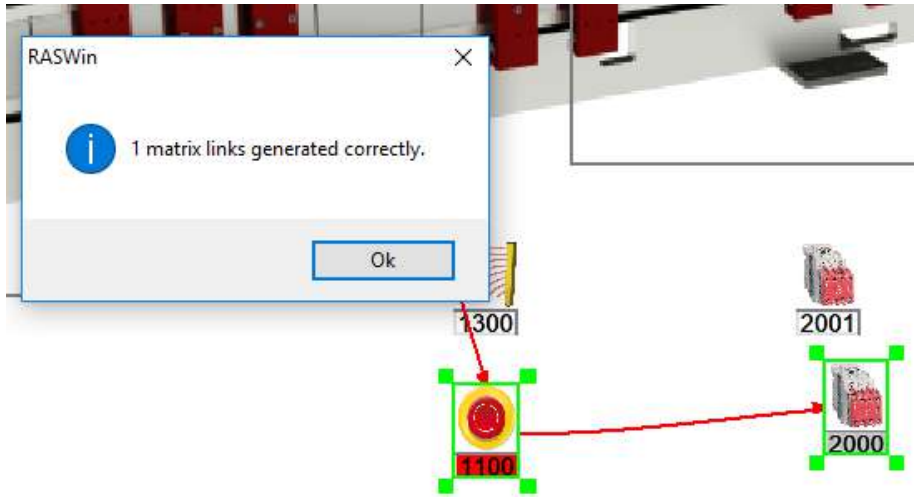
How to calculate the PL in RASWin?

PL Gfx Module



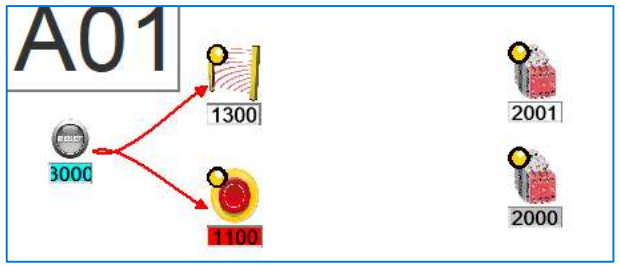
A message will appear with the information of how many links have been generated.

The link of the first Safety Function (Estop-KA1), has been created

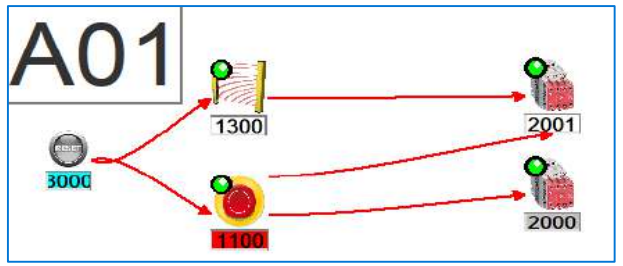
Repeat the process for each Safety Function

Finally all the links of the Safety Matrix will be generated

Before Generating links



After Generating links



Step 10: Links have been generated

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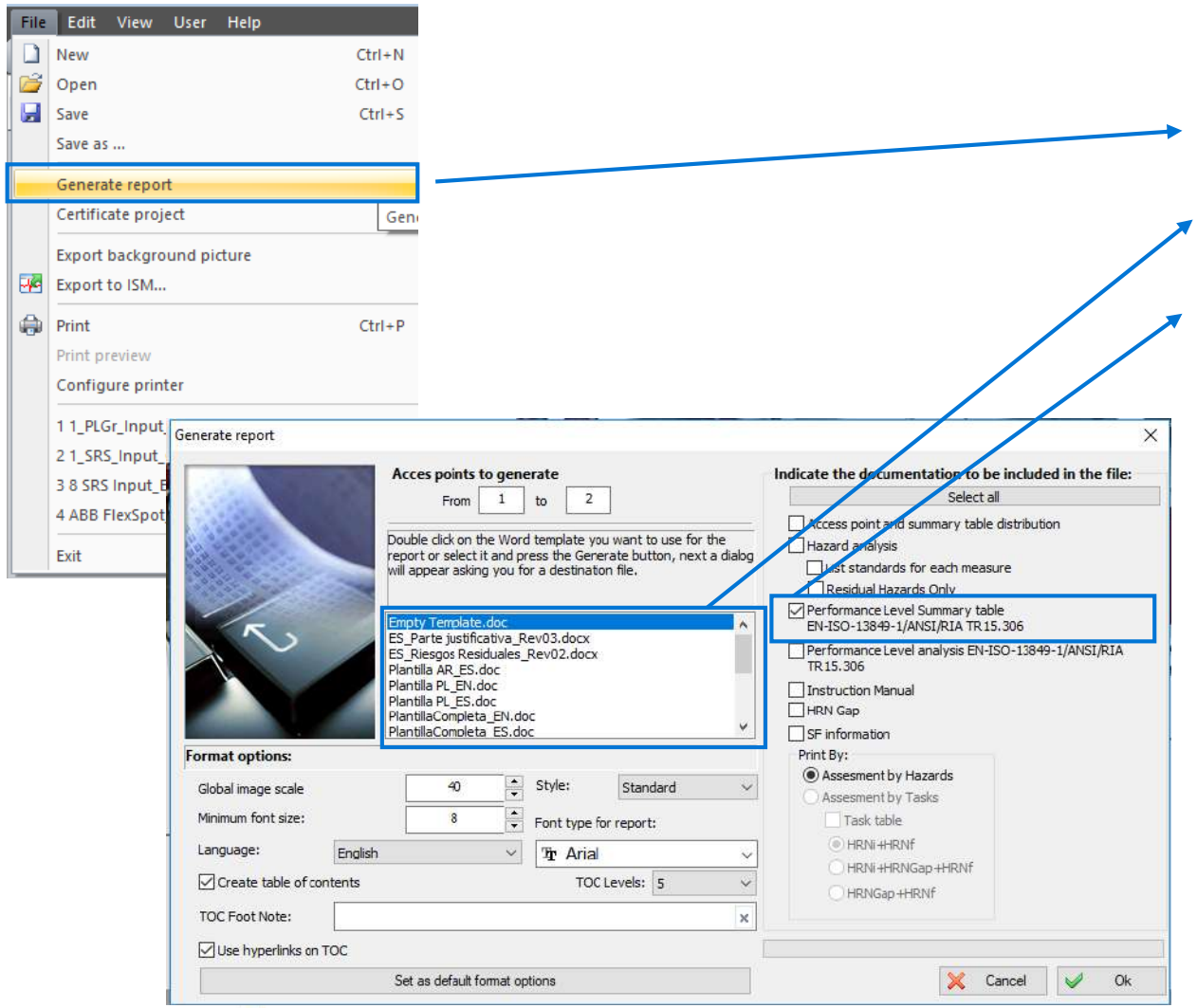
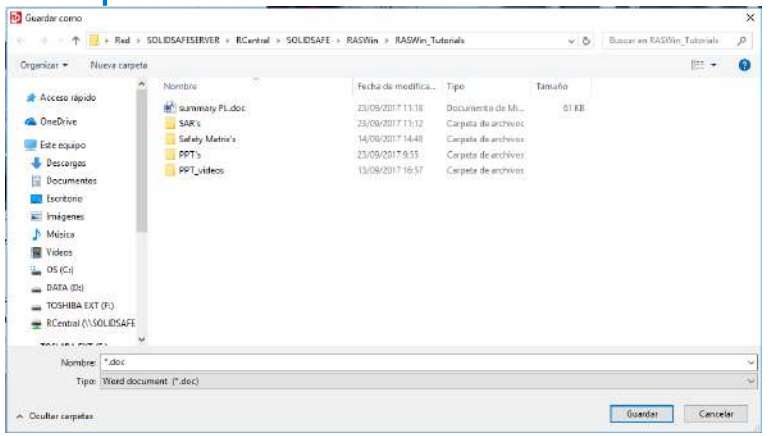
RAS Risk Assessment Software

How to calculate the PL in RASWin?

PL Gfx Module



1. Click on “File”
2. Select “Generate report”
3. Select the Word Template
4. Select “Performance level Summary table”
5. Click “Ok”
6. Save the document



Step 11: Generating report

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RAS Risk Assessment Software

How to calculate the PL in RASWin?

PL Gfx Module

Access point	Function	Subsystem	PLr	PL	PFh
A01-Acces Point 1	A01.01 - Safety_Function_1		d	e	4.98e-09
		Central Estop			4.08e-09
		Auxiliar Contactor 1			9.06e-10
	A01.02 - Safety_Function_2		d	e	4.70e-08
		Central Estop			4.08e-09
		Contactor 2			4.29e-08
A02-Acces Point 2	A02.07 - Safety_Function_3		c	e	7.45e-08
		Light Curtian			3.16e-08
		Contactor 2			4.29e-08

The summary of the PL has been created

PL Summary generated

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