Application



Connecting MGB-L1B-EI... to Allen Bradley ControlLogix

from V1.5

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1. About this document

1.1. Version

Version Date		Change/addition	Chapter	
01-08/21	8/11/2021	Prepared	All	

1.2. Scope

The purpose of this document is the integration and configuration of the MGB Ethernet/IP from V1.5 in Rockwell Studio 5000° V32.

1.3. Target group

Design engineers and installation planners for safety systems on machines, as well as setup and servicing staff possessing special expertise in handling safety components as well as expertise in the installation, setup, programming and diagnostics of programmable logic controllers (PLCs) and bus systems.

1.4. Supplementary documents

The overall documentation for this application consists of the following documents:

Document title (document number)	Contents	
Operating instructions (2126330)	Safety Systems MGB-LB-EI (Ethernet/IP) with Data Structure Type A	www
Safety information (2126331)	Safety Information and Maintenance (part of the operating instructions for safety system MGB-L.B-EI (Ethernet/IP))	
Possibly enclosed data sheets	Item-specific information about deviations or additions	

1.5. Notice

This application is based on the MGB Ethernet/IP operating instructions. Please refer to the operating instructions for technical details and other information.

2. Components/modules used

2.1. EUCHNER

 (\mathbf{i})

Description	Order number / item
MGB with Ethernet/IP™ interface	All MGBs with Ethernet/IP™ interface

TIP!

More information and downloads about the aforementioned EUCHNER products can be found at <u>www.euchner.com</u>.

2.2. Others

Description	Order number / item
1756-L81ES GuardLogix® 5580 Safety Controller	1756L81ES
1756-L8SP GuardLogix® 5580 Safety Partner	1756-L8SP

2.3. Software

Description	Version
BootP DHCP Ethernet/IP Commissioning Tool	3.05.00
RSLinx Classic	Rev. 4.12.00 CPR 9 SR 11.0
Studio 5000 Logix Designer	Version 32.03.00 - Professional Edition

3. Functional description

The MGB-L1B-EIA-.. is a guard locking device in accordance with EN ISO 14119 according to the closed-circuit current principle; the MGB-L2B-EIA-.. is a guard locking device in accordance with EN ISO 14119 according to the open-circuit current principle. In this example, all safety functions are processed via the CIP Safety protocol. The MGB Ethernet/IP is connected via the bus module to a GuardLogix[®] 5580 Safety Controller from Allen Bradley.

4. IP address assignment with BOOTP/DHCP

4.1. General BOOTP/DHCP settings

Select the Network Settings option from the Tools menu.

Depending on the network, enter the subnet mask, the gateway address, the primary and/or secondary DNS address and the domain name.

Network Settings						
Defaults						
Server IP address: 192.168.0.98						
Subnet Mask: 255 . 255 . 255 . 0						
Gateway:						
Primary DNS:						
Secondary DNS:						
Domain Name:						
Reset Defaults OK Can	cel					

Fig. 1: BOOTP/DHCP network settings

4.2. New (out of the box) MGB

- 1. Open BOOTP/DHCP and select the corresponding network adapter.
- 2. Make the network settings.
- 3. Connect the network cable (X3 or X4) to the appropriate RJ45 port on the PC.
- 4. Connect the MGB to the power supply (X1 or X2).
- 5. The connected MGB is displayed in the *Discovery History*.

BootP DHCP EtherNet/IP Commissioning Tool —									×		
- FII	Add Relation Discovery History									lear Histor	У
	Ethernet Address	(MAC) T	Гуре	(hr:min:sec)	#	IP Address		Hostname			
	00:1A:5C:05:45:02	D)НСР	8:23:27	55						
				Enter	red Re	elations					
	Ethernet Address	(MAC) T	Гуре	IP Address		Hostname	Desc	ription			
_ E	Errors and warnings										
	Unable to service DHCP request from 00:1A:5C:05:45:02.								0 of 25	6	

Fig. 2: Automatic search for MAC addresses

6. Compare the MAC address from BOOTP/DHCP with the MAC address on the type label.

BootP DHCP EtherNet/IP Commission		Mandan 4004	
File Tools Help		謳詞 V1.2	vendor: 1324
Add Deletion			Product Type: 157
	Disc	MAC-ID.:	Product Code: x
Ethernet Address (MAC) Type	(hr:min:sec)		
00:1A:5C:05:45:02	8:23:27	► 00 -1A -5C -XX -X	X-XX
		MOD	



7.	Select the	MGB and	add a ne	ew relation	with Add	d Relation

File	BootP DHCP EtherNet/IP Commissioning Tool - ×								×	
	Add Relation		Disco	ivery	History				Clear Hist	ory
	Ethernet Address (MAC)	Туре	(hr:min:sec)	#	IP Address		Hostname			
	00:1A:5C:05:45:02	DHCP	8:25:06	81						
			Ente	red R	elations					
	Ethernet Address (MAC)	Туре	IP Address		Hostname	Desc	ription			
E	Errors and warnings								Rela	tions —
	Unable to service DHCP request from 00:1A:5C:05:45:02. 0 of 256							56		

Fig. 4: Adding relation

8. Assign the IP address of the MGB and confirm with OK.

New Entry		\times
Server IP Address:	192.168.0.98	
Client Address (MAC):	00:1A:5C:05:45:02	
Client IP Address:	192 . 168 . 0 . 92	
Hostname:		
Description:		
ОК	Cancel	

Fig. 5: MGB IP address assignment

9. After successful IP address assignment, the MGB and its IP address are displayed under Entered Relations.

55 File	BootP DHCP EtherNet/IP Commissioning Tool — — — X										
	Add Relation Discovery History Clear History										
	Ethernet Address (MAC) Type (hr:min:sec) # IP Address Hostnar										
	00:1A:5C:05:45:02		DHCP	8:26:00	96	192.168.0.92	2				
				Ente	red Re	elations					
I	F II	44400	T				D	· · · · ·			
	Ethernet Address	(MAC)	Туре	IP Address		Hostname	Desc	ription			
	00:1A:5C:05:45:02		DHCP	192.168.0.92							
гE	rrors and warnings									Relat	ions —
s	ent 192.168.0.92 to Ethern	et address	00:1A:50	D:05:45:02						1 of 2	56

Fig. 6: Entered Relations list

10. Deactivate DHCP in the MGB using *Disable BOOTP/DHCP*.

	BootP DHCP EtherNet/IP Commissioning Tool – 🗆 🗙										
File	e lools Help										
	Add Relation		Disco	ivery ł	History		0	Xear Histo	ry		
	Ethernet Address	(MAC) Type	(hr:min:sec)	#	IP Address	Hostname					
	00:1A:5C:05:45:02	DHCP	8:26:00	96	192.168.0.92						
	Delete Relation		Ente	red R(elations Enab		Disable BC	OTP/DHC	P		
	Ethernet Address	(MAC) Type	IP Address		Hostname	Description					
	00:1A:5C:05:45:02	DHCP	192.168.0.92								
_−E	rrors and warnings							Relati	ons —		
S	ent 192.168.0.92 to Etherne	et address 00:1A:50	C:05:45:02					1 of 25	6		

Fig. 7: Deactivating DHCP mode

11. Successful acknowledgment and completion of IP address assignment.

5	BootP DHCP EtherNet/IP Commissioning Tool – 🗌 🗙								
File	e Tools Help								
	Add Relation		Disco	wery ł	History		Clear History		
	Ethernet Address (MAC) Type	(hr:min:sec)	#	IP Address	Hostname			
	00:1A:5C:05:45:02	DHCP	8:26:00	96	192.168.0.92				
	Delete Rolation		Ente	od R	alations Enable BO				
				eura			Disable DOOTF/DITICF		
	Ethernet Address (MAC) Type	IP Address		Hostname Des	cription			
	00:1A:5C:05:45:02	DHCP	192.168.0.92						
-E	rrors and warnings								
[[)isable DHCP] Command s	successful					1 of 256		

Fig. 8: Acknowledgment

4.3. Assigning a new IP address to an MGB already in use

1. Set the DHCP DIP switch to ON.



Fig. 9: MGB DIP switch

- 2. Open BOOTP/DHCP and select the corresponding network adapter.
- 3. Make the network settings.
- 4. Connect the network cable (X3 or X4) to the appropriate RJ45 port on the PC.
- 5. Connect the MGB to the power supply (X1 or X2).

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6. The connected MGB is displayed in the *Discovery History*.

55 File	File Tools Help										×
	Add Relation	C	lear Histo	ry							
	Ethernet Address	(MAC) Typ	be ((hr:min:sec)	#	IP Address		Hostname			
	00:1A:5C:05:45:02	DH	ICP 8	8:23:27	55						
				Enter	ed Re	elations					
	Ethernet Address	(MAC) Ty	be	IP Address		Hostname	Desc	cription			
FE	Errors and warnings Relations										
	Inable to service DHCP re	equest from 00:	:1A:5C:	:05:45:02.						0 of 25	6

Fig. 10: Automatic search for MAC addresses

7. Compare the MAC address from BOOTP/DHCP with the MAC address on the type label.

BootP DHCP EtherNet/IP Commissioning Tool		Vendor: 132	24
Add Relation Discove Ethernet Address (MAC) Type (br/min/sec)	MAC-ID.:	Product Type: 15 Product Code:	57 X
00:1A:5C:05:45:02 → DHCP 8:23:27	00 - 1A - 5C - XX - XX -		

Fig. 11: MAC address comparison

8.	Select the	MGB a	ind add	a n	ew rela	ation	with	Add	Relation
----	------------	-------	---------	-----	---------	-------	------	-----	----------

BootP DHCP EtherNet/IP Commissioning Tool										
Add Relation Discovery History										
Ethernet Address (MAC) Type (hr:min:sec) # IP Address Hostna										
DHCP	8:25:06	81								
	Ente	red R	elations							
Туре	IP Address		Hostname	Description						
					Relations					
nable to service DHCP request from 00:1A:5C:05:45:02. 0 of 256										
	Type DHCP Type	missioning Tool Disco Type (hr:min:sec) DHCP 8:25:06 Ente Type IP Address n 00:1A:5C:05:45:02.	missioning Tool Discovery Type (hr:min:sec) # DHCP 8:25:06 81 Entered Ro Type IP Address m 00:1A:5C:05:45:02.	missioning Tool Discovery History Type (hr:min:sec) # IP Address DHCP 8:25:06 81 81 Entered Relations Type IP Address Hostname m 00:1A:5C:05:45:02.	missioning Tool Discovery History Type (hr:min:sec) # IP Address Hostname DHCP 8:25:06 81 Hostname Hostname					

Fig. 12: Adding relation

9. Assign the IP address of the MGB and confirm with OK.

New Entry	×
Server IP Address: 192.168.0.98	
Client Address (MAC): 00:1A:5C:05:45:02	
Client IP Address: 192 . 168 . 0 .	92
Hostname:	
Description:	
OK Cancel]

Fig. 13: MGB IP address assignment

10. After successful IP address assignment, the MGB and its IP address are displayed under Entered Relations.

<u></u>	BootP DHCP EtherNet/IP Cor	nmissioni	ng Tool				_		×
File	e Tools Help		-						
	Add Relation		Disco	very l	History			Clear Histo	ry
	Ethernet Address (MAC)	Туре	(hr:min:sec)	#	IP Address	Hostname			
	00:1A:5C:05:45:02	DHCP	8:26:00	96	192.168.0.92				
			Enter	ed Re	elations				
	Ethernet Address (MAC)	Туре	IP Address		Hostname D	Description			
	00:1A:5C:05:45:02	DHCP	192.168.0.92						
FE	rrors and warnings							Relat	ons —
S	ent 192.168.0.92 to Ethernet addres	ss 00:1A:50	C:05:45:02					1 of 25	56

Fig. 14: Entered Relations list

11. Deactivate DHCP in the MGB using Disable BOOTP/DHCP.

5 File	BootP DHCP EtherNet/IP Commissioning Tool Ile Tools Help										
	Add Relation	0	Clear Histo	iry							
	Ethernet Address (MAC)	Туре	(hr:min:sec)	#	IP Address	3	Hostname				
	00:1A:5C:05:45:02	DHCP	8:26:00	96	192.168.0.9	2					
	Delete Relation		Ente	red Ri	elations En	able BO(отр/онср	Disable BC)OTP/DH(
	Ethernet Address (MAC)	Type	IP Address		Hostname	Desc	ription				
	00:1A:5C:05:45:02	DHCP	192.168.0.92				·				
Ē	rrors and warnings								Relat	ions —	
	ent 192.168.0.92 to Ethernet addre	ss 00:1A:5	C:05:45:02						1 of 25	56	

Fig. 15: Deactivating DHCP mode

12. Successful acknowledgment and completion of IP address assignment.

BootP DHCP EtherNet/IP Commissionir	BootP DHCP EtherNet/IP Commissioning Tool – 🗌 🗙								
File Tools Help									
Add Relation	Discovery I	History	Clear History						
Ethernet Address (MAC) Type	(hr:min:sec) #	IP Address	Hostname						
00:1A:5C:05:45:02 DHCP	8:26:00 96	192.168.0.92							
Delete Relation	Entered Br	alations Enable BO							
	Entered 1 (Disable Bootrybrice						
Ethernet Address (MAC) Type	IP Address	Hostname Desc	ription						
00:1A:5C:05:45:02 DHCP	192.168.0.92								
 Errors and warnings 			Relations						
[Disable DHCP] Command successful			1 of 256						

Fig. 16: Acknowledgment

13. Set the DHCP DIP switch of the MGB to OFF. If the DIP switch is not set to OFF, the IP address setting will be deleted again the next time the MGB is restarted.



Fig. 17: MGB DIP switch

5. Integrating the MGB in Studio 5000®

5.1. Installing the EDS file using RSLinx Classic

1. Open RSLinx Classic and scan the network. Then right-click the device you found. Now select Upload EDS file from device.



Fig. 18: RSLinx Classic device overview

2. The Rockwell Automation's EDS Wizard opens. Follow the Wizard's instructions by clicking Next until the EDS file has been successfully installed. Then click *Finish*.

Rockwell Automation's	EDS Wizard			×
Upload EDS File This will upload EC	DS file(s) from a device.			A.
File location:	C:\Users\install\AppDa	ata \Local\Temp\RSI_EMBEDDED	ED	
The EDS file uploading	finishes. 3026 bytes of the t	otal 3026 bytes has been uploaded	L.	
This device's EDS file				_
	Size:	3.026 KB (3026 bytes)		
	Embedded filename:	EDS.gz		
	File revision:	1.001		
Related EDS files				_
	Size:			
	Embedded filename:			
	File revision:			
			< Zurück Weiter > Ab	brechen

Fig. 19: Rockwell Automation's EDS Wizard

3. RSLinx Classic will display the device with designation and item number.



Fig. 20: RSLinx Classic device overview

5.2. Configuring and parameterizing the MGB in Studio 5000®

1. In your project in Studio 5000®, right-click Ethernet and select New Module....



Fig. 21: Adding new module

2. Enter the item number (here: 126148) in the search box on the Catalog tab. Then click Create.

126148		<u>C</u> lear Filters					Hide Filters *
Module Type Catego 20 - Comm-ER Analog CIP Motion Drive CIP Motion Safety Tra	ry Filters ck Section		~	Module Advanc Dialight Endress EUCHN	e Type Vendor Filters ced Energy Industries, Inc. t s+Hauser NER GmbH + Co. KG		~
Catalog Number	Description		Vendor		Category		
MGB-L2B-EIA-R-12614	8 MGB-L2B-EI	A-R-126148	EUCHNER Gm	bH + Co. KG	Guard Locking w. Access Con	trol,Safety	

Fig. 22: Device catalog

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- 3. The device must now be parametrized. To do this, complete the following fields on the General tab:
- Name: MGB_EI_AP000267 (as example here)
- IP Address: 192.168.0.92 (as example here)

General	General				
General* - Connection - Safety - Module Info - Internet Protocol - Port Configuration - Network	General Type: Vendor: Parent Name: Description: Description: Electronic K Safety Input	MGB-L2B-EIA-R-126148 MGB-L2B-EIA-R-126148 EUCHNER GmbH + Co. KG Local MGB_EI_AP000267	Ethernet Address Private Network: Private Network: Safety Network Number:	192.168.1. 192.168.0 . 92 Advanced 4586_0261_C400 9/23/2020 1:06:01.600 PM	
Status: Creating	Standard Co	Change		OK Cancel	Help

Fig. 23: Module parametrization

4. Open the Safety tab. Enter 20 in the editable part of the table. The other table values will adapt automatically. Deselect the configuration signature (the MGB does not include any configuration data).

New Module					×
General*	Safety				
- Connection - Safety* - Module Info - Internet Protocol - Port Configuration - Network	Connection Type Requested Pack Interval (RPI) (ms Safety Input Safety Output 20	t Connection Reaction) Time Limit (ms) € 80.0 0 60.0	Max Observed Network Delay (ms) Reset Reset	Advanced	
	Configuration Ownership:			Disabling the Configuration Signature	
	ID:	(Hex)	<u>C</u> opy	disables the configuration validation check performed when connections are established.	
	Date:		Paste		
	Time:	🔹 🌲 ms			
Status: Creating				OK Cancel Hel	p

Fig. 24: Safety parametrization

- 5. The program must now be transferred. Go online after loading to the control system.
- 6. The Safety Network Number must be set as the next step. To do this, open the MGB properties and click 🥮.

General	General				
Connection Safety Module Info Safety Configuration Internet Protocol Port Configuration Network	Type: MGB-L2B-EIA-R-126148 MGB-L2B-EIA-R-126148 Vendor: EUCHNER GmbH + Co. KG Parent: Local Name: MGB_EI_AP000257 Description:	~	Ethernet Address Private Network: IP Address: Safety Network Number:	192.168.1. 192.168.0 . 92 Advanced 4586_0261_C400 9/23/2020 1:06:01:600 PM	

Fig. 25: Opening Safety Network Number

7. The following window opens. Click Set.

Safety Network Number	×
Eormat © <u>Time-based</u> 9/23/2020 1:06:01.600 PM	
O <u>M</u> anual EtherNet/IP: (Decimal)	
4586_0261_C400 (Hex) Copy	
Set	•
OK Cancel Help	

Fig. 26: Setting Safety Network Number

8. Acknowledge the warning. This will transfer the ownership for the MGB to the CPU in this project.

Set Safety	/ Network Number in Module	\times
	DANGER. Setting Safety Network Number in module. Network status indicator on module's front panel is alternating red and green to help validate module addressing. If two or more controllers are attempting to configure module, setting Safety Network Number will result in configuration ownership being granted to first controller that successfully configures module. If two or more controllers are attempting to connect to outputs of module, setting Safety Network Number will result in output ownership being granted to first controller that successfully connects to outputs. Set Safety Network Number?	
	<u>J</u> a <u>N</u> ein Hilfe	

Fig. 27: Safety Network Number warning

6. Using the AOI

An Add-On-Instruction (AOI) is available for download from the Euchner homepage, www.euchner.com. When the AOI is used, the safe information is separated from the standard information and the designations for the individual bits are assigned to the respective MGB. If several MGBs are used, the same number of AOI instances must be created. Each instance must have a unique name.

6.1. Importing the AOI

1. In the Controller Organizer, right-click Add-On Instructions under Assets. Then select Import Add-On Instruction....



Fig. 28: Importing AOI

2. Select the unzipped AOI in L5X file format and then click Open.



EN

Fig. 29: Selecting AOI

3. Name the AOI and confirm with OK. All required information will now be imported.

Import Configuration - AOI_MGB_E	EI_1_5_V32_20210	811.L5X		×
☆ ☆ Find: Find Within: Final Name	~ 40 40	Find/Replace		
Import Content:				
Add-On Instructions	Configure Add-	In Instruction Properties		
Parameters and Local Tags	Import Name:	AOI_MGB_EI_1_5_V32_20210811		
Routines	Operation:	Create v D		
References		configured in the References folders		
-Lo Errors/Warnings	Final Name:	AOI_MGB_EI_1_5_V32_20210 V	95	
	Description:	Defines datastructure for all		
		MGB-Ethernet/1P		
		~		
	Class:	Safety		
	Revision:	v1.1 Basic Version		3
	Revision Note:	Description adapted.		
	Vendor:	EUCHNER GmbH + Co. KG		
			OK Cancel Help	
				_
Ready				1

Fig. 30: Import configuration

- 4. After the import, you will see the new data types for the MGB in the *Add-On Instructions* folder and the new data types for the MGB in the *Data-Types* folder, *User-Defined* subfolder.
- Add-On Instructions
- AOI_MGB_EI_1_5_V32_20210811
 Parameters and Local Tags

 Dogic
 Data Types
 User-Defined
 MGB_Safety_In_Data_Type
 MGB_Safety_Out_Data_Type
 - WINCD Safety Tone Tree
 - IN MGB_Safety_Tags_Type
 - MGB_Std_In_Data_Type
 - 器 MGB_Std_Out_Data
- Fig. 31: AOI content

6.2. Integrating the AOI

1. Drag and drop the AOI_MGB to add it to your safety program.

Logix Designer - AP000267 in MGB_Ethernet_IP.ACD [1756-L81ES 32.12]	-		×
Example 2 SafetyProgram - MainRoutine* ×			-
⊕ Q H L □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □			
0	11 ?? ? ? ? ? ?	Ĵ	^
			~

Fig. 32: Adding AOI to safety program

2. Open the context-sensitive menu by right-clicking AOI_MGB_EI.... Select New Tag....

💰 Logix Desig	ner - AP000267 in MGB_Ethernet_IP.ACD [1756-L81ES 32.12]		-		×	
SafetyProg	<mark>gram - MainRoutine* ×</mark>				-	
••	tin t					
	AOL MGB_EL_1_5_V32_20210811	2			^	
	FaultCode		Ne	ew Tag		
	MGB_Device_Input_Data MGB_Device_Output_Data	ж	Cu	ut Instrue	tion	Strg+X
	MGB_Sarety_Tags MGB_Standard_Input_Tags	ŋ	Co	opy Instr	uction	Strg+C
	MGB Standard Output Tags	Ô	Pa	iste		Strg+V
			De	elete Inst	ruction	Entf
(End)		_	Ac	dd Ladde	r Element	Alt+Einfg
			Ed	lit Main (Operand Description	Strg+D
			Sa	ve Instru	iction Defaults	
			Cl	ear Instr	uction Defaults	
•			Re	move Fo	rce	

Fig. 33: Creating new tag

3. Give the instance a unique name (here: AOI_MGB_Tag). Select SafetyProgram from the Scope: drop-down list.

New Tag		×
Name:	AOI_MGB_Tag	Create 🗸
Description:	^	Cancel
		Help
	~	
Usage:	Local Tag \lor	
Туре:	Base ~ Connection	
Alias For:	~	
Data Type:	AOI_MGB_EI_1_5_V32_20210811	
Parameter Connection:	~	
Scope:	■SafetyProgram	
Class:	Safety ~	
External Access:	Read/Write \vee	
Style:	\sim	
Constant		
Sequencing		
Open Config	juration	
Open Paran	neter Connections	

Fig. 34: Configuring new tag

4. Once the tag has been created, the inputs and outputs must be linked to the MGB used in the MGB_Device_Input_Data and MGB_Device_Output_Data fields. For this purpose, select the designation of the MGB to which the command is to be linked (here: the designation of application AP000267).

💰 Logix Desig	gner - AP000267 in MGB_Ethernet_IP.ACD [1756-L81ES 32	2.12] – 🗆 ×	
📙 SafetyPro	ogram - MainRoutine* 🗙	↓	
Q. Q. H	H 🔚 🕄 📑 📷 🔤 📴 💩 🗸 (18)		
0 8	Defin datastruc all MGB-Et AOLMGB_EL1_5_V32_2 AOLMGB_EL1_5_V32_2 FaultCode MGB_Device_Input_Data MGB_Device_Input_Data	es ture for themet/IP 0210 AOI_MGB_Tag 0 [MGB_EI_AP000267:SI.Data ↓	
	MGB_Safety_Tags MGB_Standard_Input_Tag MGB_Standard_Outout_Tag	Enter Name Filter	✓ Show All Tags ✓ === □ Data Type ∧
	,,	AOL_MGB_Tag AMGB_EL_AP000267:SI MGB_EL_AP000267:SI MGB_EL_AP000267:SI ConnectionEaulte	AOI_MGB_EI_1_5_V32_20210811 052C:MGB_L2B_EIA_R_126148_7FDE013E:SI:0 BOOI
(End)		- MGB_EI_AP000267:SI.Data ■ ► MGB_EI_AP000267:SO	SINT[12] _052C:MGB_L2B_EIA_R_126148_AAB94180:SO:0
•	1		~
		Show controller tags	Show standard tags
		Show SafetyProgram tags	Show safety tags
		Show parameters from other program: <none></none>	Y

Fig. 35: Linking the MGB inputs

🗿 Logix Desig	gner - AP000267 in MGB_Ethernet_IP.ACD [1756-L81	ES 32.12] – [
🗏 SafetyPro	gram - MainRoutine* 🛛 🕹		•
Q Q 1	- 🔚 🖓 🕼 📑 abca 🐉 ab 🗸 (ab)		
0 8	De datastr all MOB AOI MGB EI 1 5 V32 2 AOI MGB EI 1 5 V32 2 FaultCode MGB_Device_Input_Data MGB_Device_Output_Data MGB_Device_Trans	fines ucture for Ethemet/IP 0210811 0210 AOL_MGB_Tag 0 ← MGB_EI_AP000267:SI.Data MGB_EI_AP000267:SO.Data ~	
	MGB_Standard_Input_Tag MGB_Standard_Output_Tag	s T. Enter Name Filter	
	NOD Standard Output - 12	Name	
(End)			:a
		Show controller tags	
		Show SafetyProgram tags	
		Show parameters from other progra <none></none>	m:

Fig. 36: Linking the MGB outputs

5. Now create the standard tags and the safety tag. Under *Scope*, select where the tags are to be created. In this example, the safety tag is created in the *SafetyProgram* and the standard tags under the *Controller Tags*.



Fig. 37: Creating new tag

New Tag		×	New Tag		×
Name:	FIO_MGB_Tags	Create 🔻	<u>N</u> ame:	I_MGB_Tags	Create 🔻
Description:	^	Cancel	Description:	<u> </u>	Cancel
		Help			Help
	~			~	
<u>U</u> sage:	Local Tag \vee		<u>U</u> sage:	<controller></controller>	
Typ <u>e</u> :	Base ~ <u>C</u> onnection		Typ <u>e</u> :	Base ~ <u>C</u> onnection	
Alias <u>F</u> or:	· · · · · · · · · · · · · · · · · · ·		Alias For:	×	
Data <u>T</u> ype:	MGB_Safety_Tags_Type		Data <u>T</u> ype:	MGB_Std_In_Data_Type	
Parameter Connection:	×		Parameter Connection:	×	
Scope:	L SafetyProgram ∨		Scope:	PAP000267 ~	
Class:	Safety ~		Cl <u>a</u> ss:	Safety ~	
External Access:	Read/Write ~		External Access:	Read/Write ~	
Style:	×		St <u>v</u> le:	~	
Constant			Constant		
Seguencing			Seguencin	g	
Open Configuration			Open Confi	iguration	
Open Parar	neter Connections		Open Para	meter Connections	

Fig. 38: Configuring new tags

<u>N</u> ame:	O_MGB_Tags	Create
Description:	-	Cancel
		Help
		,
<u>U</u> sage:	<controller></controller>	v.
Typ <u>e</u> :	Base ~ <u>C</u> onnection	
Alias <u>F</u> or:		Y
Data <u>T</u> ype:	MGB_Std_Out_Data	
Para <u>m</u> eter Connection:		-
Scope:	P AP000267	~
Cl <u>a</u> ss:	Safety	¥.
E <u>x</u> ternal Access:	Read/Write	~
St <u>y</u> le:		-
<u>C</u> onstant		
Seguencin	3	
0		

Fig. 39: Configuring new tag

6. Open the global *Controller Tags*, create a new tag with the data type *MGB_Std_Out_Data* and select the *Class Standard* (here: Tag Name: O_MGB_Std_Tags).

pe: PAP000	267 ~	Show: A	I Tags		
Name	-== -	Alias For	Base Tag	Data Type	Class
MGB_EI_AF	000267:SO			_052C:MGB_L2B_EIA_R_126148_AAB94180:SO:0	Safety
MGB_EI_AF	000267:SI			_052C:MGB_L2B_EIA_R_126148_7FDE013E:SI:0	Safety
Local:3:0				AB:1756_DO:O:0	Standard
Local:3:1				AB:1756_DO_Fused:1:0	Standard
Local:3:C				AB:1756_DO:C:0	Standard
Local:2:1				AB:1756_DI:I:0	Standard
Local:2:C				AB:1756_DI:C:1	Standard
I_MGB_Tag	s			MGB_Std_In_Data_Type	Safety
O_MGB_Tag	gs			MGB_Std_Out_Data	Safety
O_MGB_Sto	_Tags			MGB_Std_Out_Data	Standard

Fig. 40: Creating new tag in Controller Tags

7. During processing in the safety task, the AOI copies the necessary bits from the MGB input area to the variables created earlier. The outputs from the standard task are copied to the MGB structure. To separate safe bits and standard bits, the standard bits still need to be made available for the outputs on the standard tasks. For this purpose the corresponding part of the safe bits is mapped to the new variable just created. The safe inputs can be read directly from the safe data in the standard task.



Fig. 41: Opening safety tag mapping

fety Tag Mapping			×
Standard Tag Name Ø O_MGB_Std_Tags *	Safety Tag Name O_MGB_Tags	<u>C</u> lose Help	
		Delete Row	•

Fig. 42: Linking standard tag with safety tag

NOTICE
All tags of the <i>Safety</i> class from the AOI are available for reading. The tags of the class (here: O_MGB_ Std_Tags) are available for writing.

7. Important note – please observe carefully!

This document is intended for a design engineer who possesses the requisite knowledge in safety engineering and knows the applicable standards, e.g. through training for qualification as a safety engineer. Only with the appropriate qualification is it possible to integrate the example provided into a complete safety chain.

The example represents only part of a complete safety chain and does not fulfill any safety function on its own. In order to fulfill a safety function, the energy switch-off function for the danger zone and the software must also be considered in the safety evaluation, for example.

The applications provided are only examples for solving certain safety tasks for protecting safety doors. The examples cannot be comprehensive due to the application-dependent and individual protection goals within a machine/installation.

If questions concerning this example remain open, please contact us directly.

According to the Machinery Directive 2006/42/EC, the design engineer of a machine or installation has the obligation to perform a risk assessment and take measures to reduce the risk. While doing this, the engineer must comply with the applicable national and international safety standards. Standards generally represent the current state-of-the-art. Therefore, the design engineer should continuously inform himself about changes in the standards and adapt his considerations to them. Relevant standards for functional safety include EN ISO 13849 and EN 62061. This application must be regarded only as assistance for the considerations about safety measures.

The design engineer of a machine/installation has the obligation to assess the safety technology himself. The examples must not be used for an assessment, because only a small excerpt of a complete safety function was considered in terms of safety engineering here.

In order to be able to use the safety switch applications correctly on safety doors, it is indispensable to observe the standards EN ISO 13849-1, EN ISO 14119 and all relevant C-standards for the respective machine type. Under no circumstances does this document replace the engineer's own risk assessment, and it cannot serve as the basis for a fault assessment.

In particular in relation to a fault exclusion, it must be noted that a fault can be excluded only by the machine's or installation's design engineer and this action requires justification. A general fault exclusion is not possible. More information about fault exclusion can be found in EN ISO 13849-2.

Changes to products or within assemblies from third-party suppliers used in this example can lead to the function no longer being ensured or the safety assessment having to be adapted. In any event, the information in the operating instructions on the part of EUCHNER, as well as on the part of third-party suppliers, must be used as the basis before this application is integrated into an overall safety function. If contradictions should arise between the operating instructions and this document, please contact us directly.

Use of brand names and company names

All brand names and company names stated are the property of the related manufacturer. They are used only for the clear identification of compatible peripheral devices and operating environments in relation to our products.

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