WAGO

e!COCKPIT

WagoAppDALI

Release 1.3.0.28

Oct 23, 2020

Contents

CHAPTER 1

Description

This document is automatically generated. Because of this, the chapter 30 Visualization is not shown in this document. If you are interested in getting to know more about visualization, we refer to the library manager of e!Cockpit.

Subject to Changes

WAGO Kontakttechnik GmbH & Co. KG reserves the right to provide for any alterations or modifications. WAGO Kontakttechnik GmbH & Co. KG owns all rights arising from the granting of patents or from the legal protection of utility patents. Third-party products are always mentioned without any reference to patent rights. Thus, the existence of such rights cannot be excluded.

Personnel Qualification

All tasks that are carried out with libraries made for the e!COCKPIT software must only be performed by qualified electrical specialists instructed in PLC programming according to IEC 61131-3.

All tasks that have an effect on the properties or the behavior of automation hardware or software products must only be performed by qualified employees with a thorough knowledge of handling the products concerned.

Intended Use of e!COCKPIT Libraries

Libraries created for the e!COCKPIT software are used to simplify the development of application projects in the IEC 61131-3 programming languages.

For automation tasks, WAGO offers programmable logic controllers in a wide variety of performance classes. In combination with a wide range of I/O modules, the controllers can process standard types of field signals. Controllers can be implemented centrally or in decentralized configurations. The controllers offer interfaces for the most commonly used fieldbuses for use in decentralized configurations. Fieldbus independent I/O modules are then linked via fieldbus couplers. WAGO controllers offer a runtime environment for user programs called e!RUNTIME. Software projects for implementation in e!RUNTIME environments can be created in e!COCKPIT. The programming environment in e!COCKPIT is based on the established CODESYS 3 industrial standard. Users with a previous knowledge of CODESYS 3 will thus find this environment largely familiar. The following programming languages of the IEC 61131-3 standard are available:

- Structured Text (ST)
- Ladder Diagram (LD)
- Function Block Diagram (FBD)
- Instruction List (IL)
- Sequential Function Chart (SFC)

- Continuous Function Chart (CFC)

The individual programming languages can also be combined as required during the development of the software. A portfolio of prepared libraries can be accessed for many frequently used functions in order to make software development more efficient. This document provides an overview of the WagoAppDALI that WAGO offers for e!COCKPIT.

This library is for

- Control Gears (ECGs)
- Control devices (Sensors)
- Self-contained emergency lighting (Device type 1)
- Colour control (Device type 8)
- Push buttons (Instance type 1)
- Absolute input devices (Instance type 2)
- Occupancy sensor (Instance type 3)
- Light sensor (Instance type 4)
- Sensor Type 1 (Multi-sensor, Pushbutton)
- Sensor Type 2 (Multi-sensor, Pushbutton)[1]

Further library information are summerized here:

Company WAGO

Title WagoAppDALI

Version 1.3.0.28

Categories WAGO LayerView|App; WAGO FunctionalView|DevicelIO; Application; WAGO FunctionalView|Connectivity|FieldBus; WAGO BusinessView|Building Automation

Namespace WagoAppDALI

Author WAGO / u010729

Placeholder WagoAppDALI

[1]

Based on WagoAppDALI.library, last modified 23.10.2020, 12:04:17. LibDoc 3.5.15.30

CHAPTER 2

10 Documentation

To ensure fast installation and start-up of the units, we strongly recommend that the following information and explanations are carefully read and adhered to.

2.1 doc01_Foreword (FB)

Copyright

This document, including all figures and illustrations contained therein, is subject to copyright. Any use of this document that infringes upon the copyright provisions stipulated herein is prohibited. Reproduction, translation, electronic and phototechnical filing/archiving (e.g., photocopying), as well as any amendments require the written consent of WAGO Kontakttechnik GmbH & Co. KG, Minden, Germany. Non-observance will entail the right of claims for damages.

WAGO Kontakttechnik GmbH & Co. KG reserves the right to make any alterations or modifications that serve to increase the efficiency of technical progress. WAGO Kontakttechnik GmbH & Co. KG owns all rights arising from granting patents or from the legal protection of utility patents. Third-party products are always mentioned without any reference to patent rights. Thus, the existence of such rights cannot be excluded.

Personnel Qualification

The use of the product described in this document is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the appropriate current standards. WAGO Kontakttechnik GmbH & Co. KG assumes no liability resulting from improper action and damage to WAGO products and third-party products due to non-observance of the information contained in this document.

Intended Use

For each individual application, the components are supplied from the factory with a dedicated hardware and software configuration. Modifications are only admitted within the framework of the possibilities documented in this document. All other changes to the hardware and/or software and the non-conforming use of the components entail the exclusion of liability on part of WAGO Kontakttechnik GmbH & Co. KG.

Please direct any requirements pertaining to a modified and/or new hardware or software configuration directly to WAGO Kontakttechnik GmbH & Co. KG.

Scope of Applicability

This application note is based on the _stated hardware and software from the specific manufacturer, as well as the associated documentation. This application note is therefore only valid for the described installation. New

hardware and software versions may need to be handled differently.

Please note the detailed description in the specific manuals.

2.2 doc10_SystemProperties (FB)

Note: All DALI function blocks that communicate with the master must be called up in the same program task.

Note: The maximum number of DALI modules in your node conformation is 25.

This library supports all DALI commands FROM IEC 62386 part 102 and part 103

In addition the following device types from IEC 62386 will be supported:

- Self-contained emergency lighting (Device type 1)
- Colour control (Device type 8)
- Push buttons (Instance type 1)
- Absolute input devices (Instance type 2)
- Occupancy sensor (Instance type 3)
- Light sensor (Instance type 4)

The DALI standard (IEC 62386 part 102) defines:

- max. 64 control gears (ECG)
- max. 16 groups
- max. 16 scenes

WAGO additional supports:

- max. 16 virtual groups

The DALI standard (IEC 62386 part 103) defines:

- max. 64 control device addresses

where WAGO recommends a maximum of 16 input devices (Sensor type 1 or 2 or DALI-2 sensors)

2.3 doc11_DefaultValues (FB)

Default values

Parameters	Default value (factory)	Reset values
Actual level	???? ????	254
Last active level	???? ????	254
Last light level	254	254
Power on level	254	254
System failure level	254	254
Min. level	Physical min level	Physical min level
Max. level	254	254
Fade rate	7	7
Fade time	0	0
Ext. fade time base	0	0
Ext. fade time multiplier	0	0
Short address	255 (“MASK”) no address	no changes
Group 0 - 7	0000 0000 (no group)	0000 0000 (no group)
Group 8 - 15	0000 0000 (no group)	0000 0000 (no group)
Scene 0 - 15	255 (“MASK”)	255 (“MASK”)

2.4 doc12_FadeTimeFadeRate (FB)

Fade Time and Fade Rate

Value	Fade time [s]	Fade rate [fades/s]
0	Extended fade	not applicable
1	0.707	357.796
2	1.0	253.0
3	1.414	178.898
4	2.0	126.5
5	2.828	89.449
6	4.0	63.25
7	5.657	44.725
8	8.0	31.625
9	11.314	22.362
10	16.0	15.813
11	22.627	11.181
12	32.0	7.906
13	45.255	5.591
14	64.0	3.953
15	90.51	2.795

Extended fade time

Note: The extended fade time will only be used, if fade time equals 0.

Format extended fade time: 0YYY AAAAb

YYY equals extended fade time multiplier

AAAA equals extended fade time base value

Fade time = Base value * Multiplier

Value	Multiplier	Base value
0	0	1
1	100 ms	2
2	1 s	3
3	10 s	4
4	1	5
5	Reserved	6
6	Reserved	7
7	Reserved	8
8		9
9		10
10		11
11		12
12		13
13		14
14		15
15		16

CHAPTER 3

20 Program Organization Units

3.1 10 Communication

3.1.1 FbDaliMaster (FB)

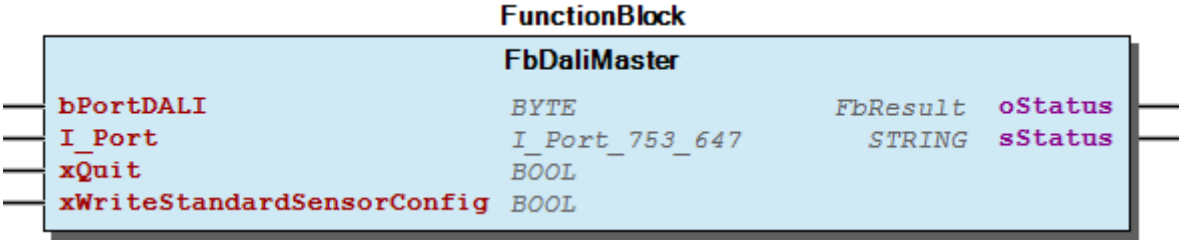
Interface variables

Scope	Name	Type	Initial	Comment
Input	bPortDALI	BYTE	1	Specifies which DALI module is to be addressed at the controller. Counting is from left to right.
	I_Port	WagoTypesModule_753_647.I_Port_753_647		Interface to the 753-647 module.
	xQuit	BOOL		A positive edge resets the last error.
	xWriteStandardSensorConfig	BOOL	TRUE	A positive edge writes the WAGO default configuration for all DALI-2 sensors. The configuration values can be changed in *StandardSensorConfiguration*.
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.
	sStatus	STRING		Error description as string (Listed in *eStatus*)

Function

The function block is necessary for the interface to the DALI Multi-Master module 753-647. All other function blocks communicate with the DALI Multi-Master module via this function block.

Graphical Illustration

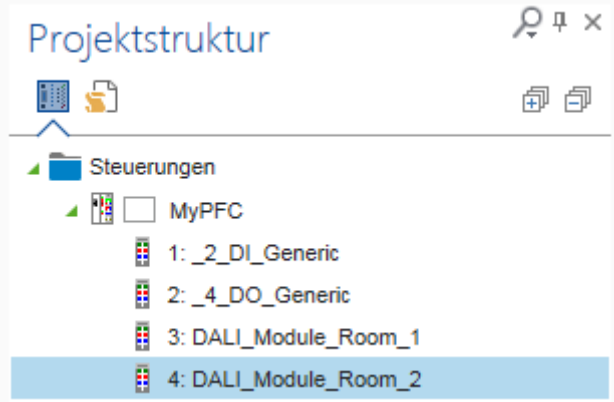


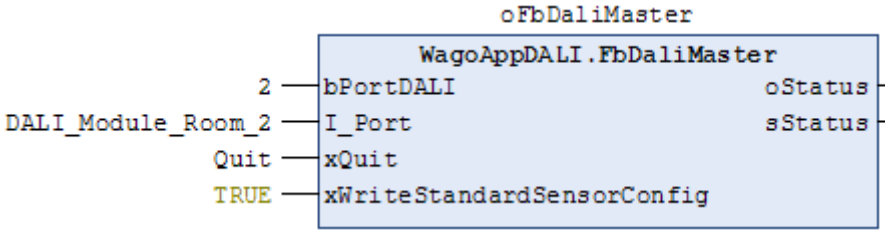
Example

The input `I_Port` will be connected with the module, which is defined in the project structure. Therefore you select the user defined name of the module at the input. E.g. if the module is named "DALI_Module_Room_2" you have to select this name at the input `I_Port`.

Additional you have to fill in the number of the DALI module. In this example it's the second DALI module so you have to fill in a "2" at the input `bPortDALI`.

If DALI-2 sensors are connected, we recommend to write the sensor configuration after each reboot by initialize the `xWriteStandardSensorConfig` with TRUE.





General notes

Note: The `FbDaliMaster` function block should be called in the program sequence before all other DALI function blocks.

Note: Only one DALI Multi-Master module may be called up with each DALI module.

Note: Please consider for a correct function the *system properties*.

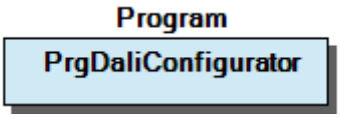
3.2 11 Configuration

3.2.1 PrgDaliConfigurator (PRG)

Function

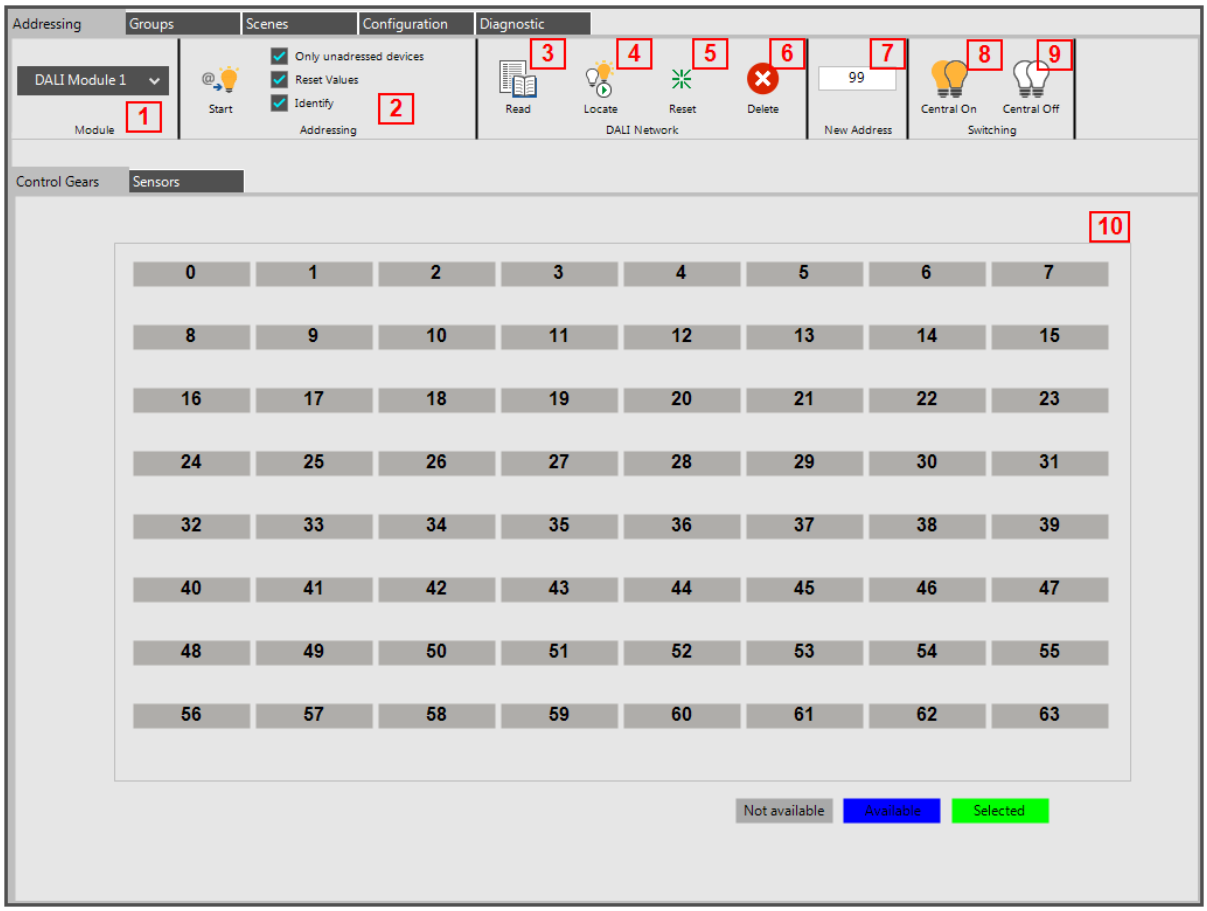
This program must be called once in the project, if you use the visualization `DALIConfigurator`.

Graphical Illustration



Visualization

- Addressing control gears: The ECG short address can be allocated on this page.



1. *Module number:* Specifies which DALI master module is to be addressed on the PLC. Counting is from left to right.
2. *Addressing:* By pressing the “Start” button, random addressing is carried out. Three choices are available:
   - *Only unaddressed devices:* If you mark the checkbox for Only devices without short address, only the devices which do not yet have a short address will be addressed.
   - *Reset values:* If you mark the checkbox, the newly addressed control gear is reset to its default values.
   - *Identify:* While a new control gear is getting addressed, the dim level changed to MAX.
3. *Read:* By pressing this button, the DALI bus is scanned for existing control gears. They are displayed with his device type as “available” in (*10.*).
4. *Locate:* By pressing this button, the selected DALI control gear is set to identification mode.
5. *Reset:* By pressing this button, the selected DALI control gear is set to its default values.
6. *Delete:* By pressing this button, the address of the selected DALI control gear will be deleted.
7. *New Address:* By entering a valid short address, the short address of the selected DALI control gear will be replaced by the entered short address.

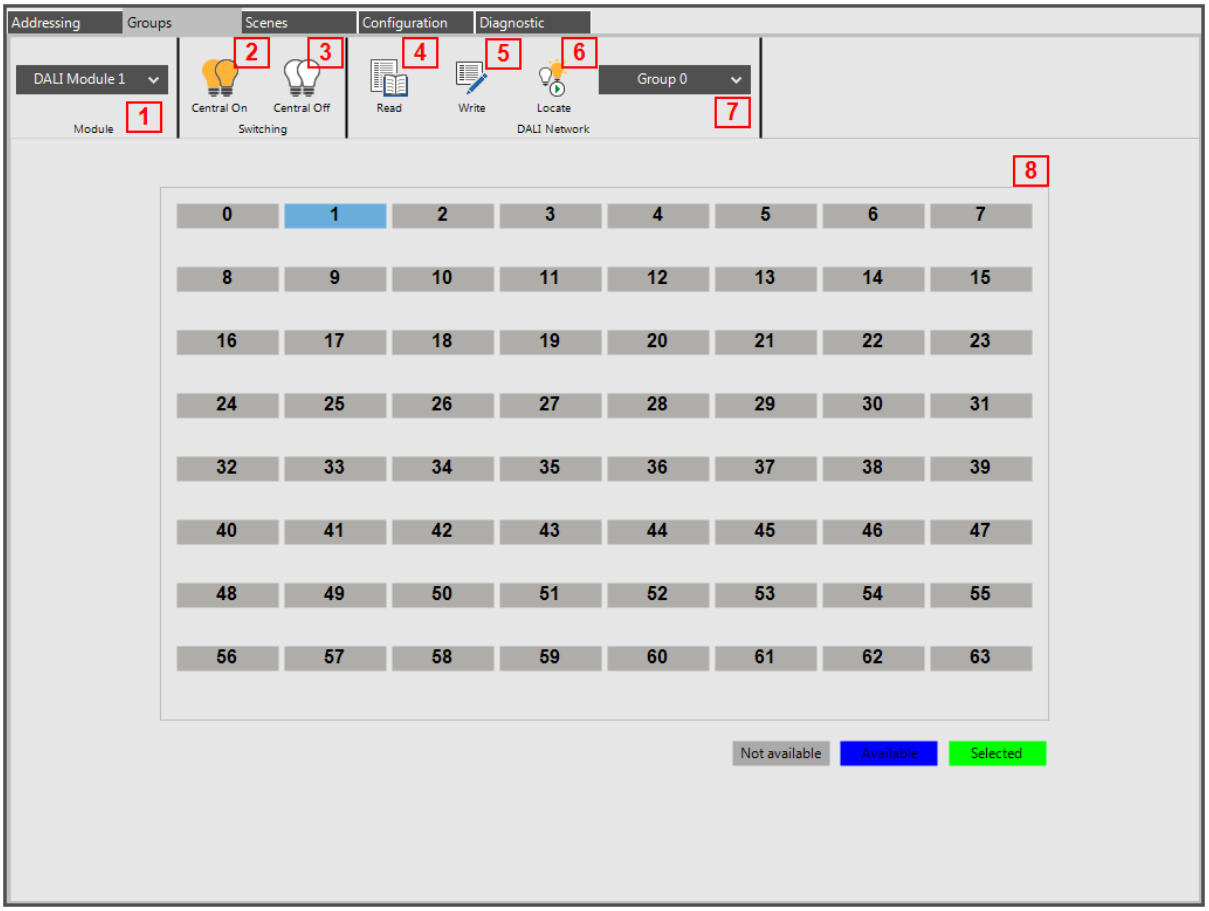
8. *Central On:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched on.
9. *Central Off:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched off.
10. *DALI addresses:* Here the addressed control gears on the DALI bus of the selected module (*1.*) will be displayed after addressing (*2.*) or reading (*3.*).

- Addressing sensors: The sensor short address can be allocated on this page. Only DALI-2 sensors are supported.

1. *Module number:* Specifies which DALI master module is to be addressed on the PLC. Counting is from left to right.
2. *Addressing:* By pressing the "Start" button, random addressing is carried out. Three choices are available:
   - *Only unaddressed devices:* If you mark the checkbox for Only devices without short address, only the devices which do not yet have a short address will be addressed.
   - *Set global configuration:* If you mark the checkbox, the sensor configuration defined in *StandardSensorConfiguration* is written broadcast after successfull addressing.
   - *Identify:* While a new sensor is getting addressed, it is identifying.
3. *Read:* By pressing this button, the DALI bus is scanned for existing control devices (sensors). They are displayed with his device types as "available" in (*7.*).

4. *Locate:* By pressing this button, the selected DALI control device (sensor) is set to identification mode.
5. *Delete:* By pressing this button, the address of the selected DALI control device (sensor) will be deleted.
6. *New Address:* By entering a valid short address, the short address of the selected DALI control gear will be replaced by the entered short address.
7. *DALI addresses:* Here the addressed control devices (sensors) on the DALI bus of the selected module (*1.*) will be displayed after addressing (*2.*) or reading (*3.*).

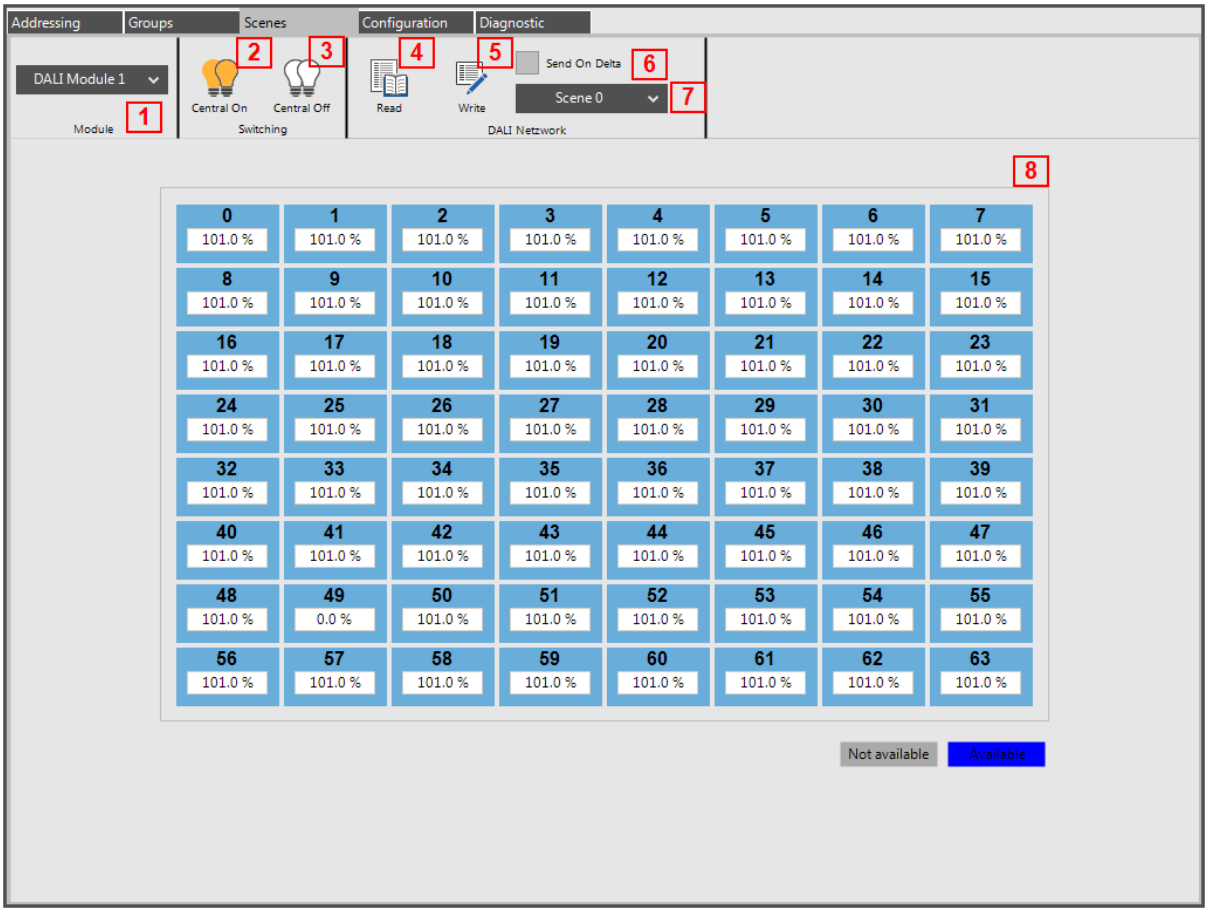
- Groups: The DALI control gear groups can be allocated on this page.



1. *Module number:* Specifies which DALI master module is to be addressed on the PLC. Counting is from left to right.
2. *Central On:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched on.
3. *Central Off:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched off.
4. *Read:* By pressing this button, the group members of the selected group (*7.*) are queried and displayed as "available" in (*8.*).
5. *Write:* By pressing this button, the selected control gears will be added to the selected group (*7.*).
6. *Locate:* By pressing this button, the DALI control gears of the selected group is set to identification mode.

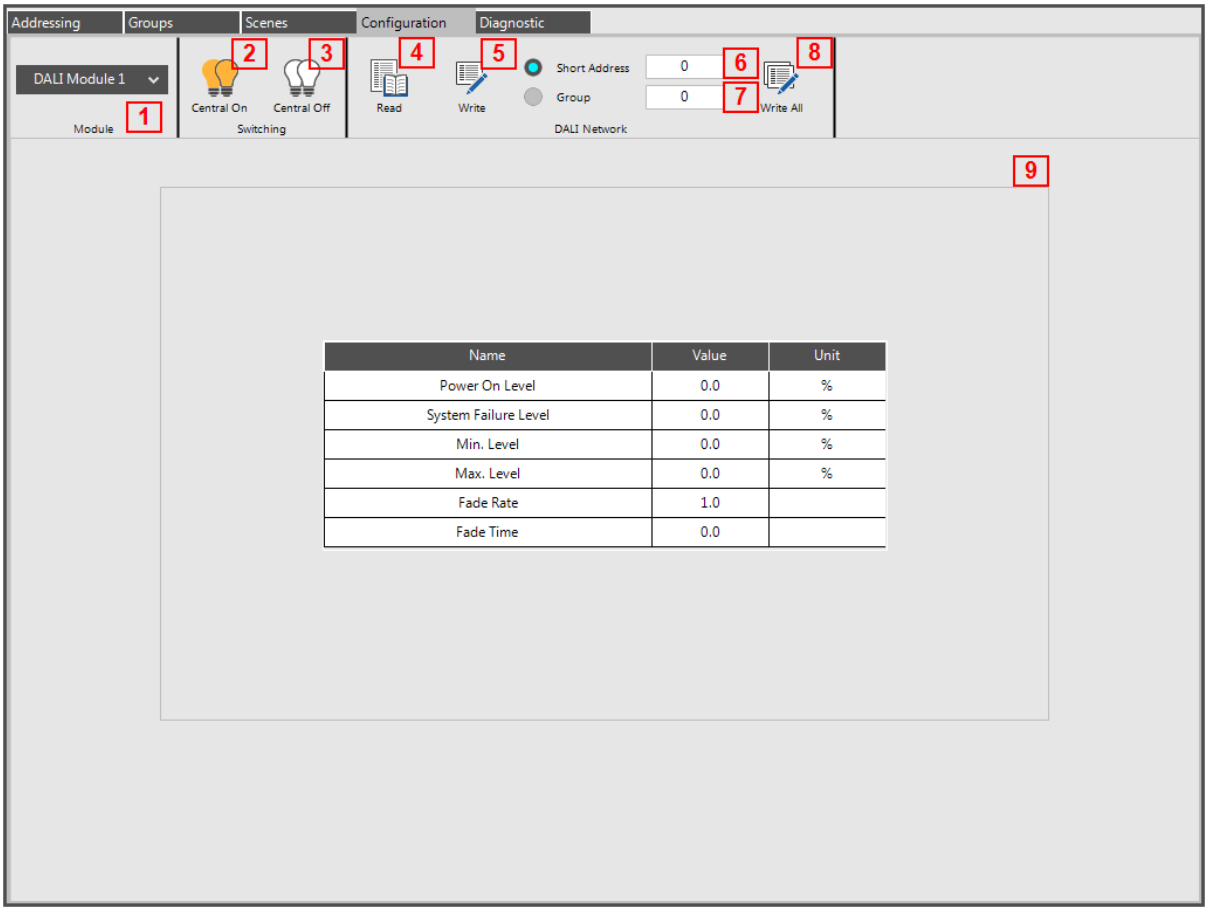
7. *Group X:* In this drop down menu you choose the group.
8. *DALI addresses:* Here the control gears associated to the selected group (*7.*) of the selected module (*1.*) will be displayed after reading (*4.*) or by changing the group (*7.*).

- Scenes: The DALI control gear scenes can be allocated on this page.



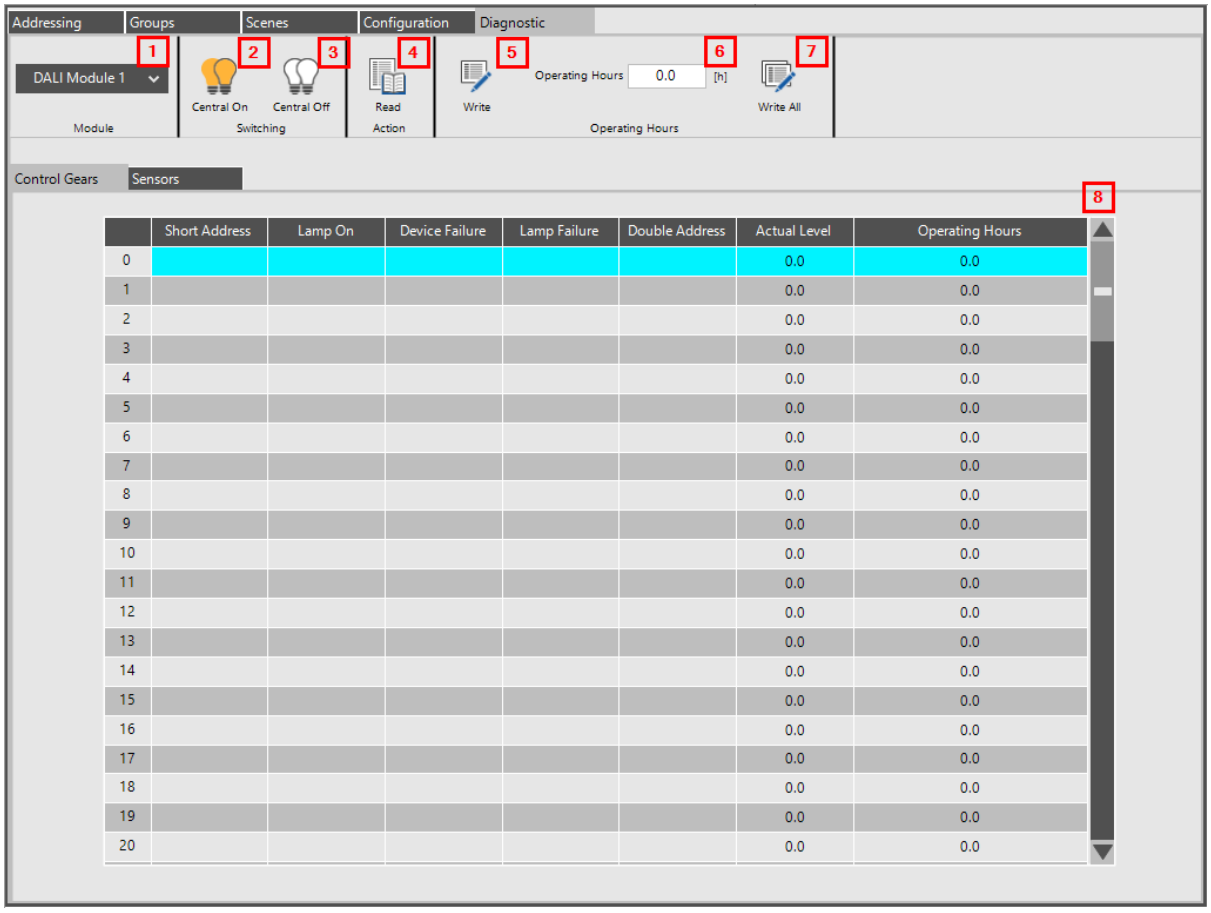
1. *Module number:* Specifies which DALI master module is to be addressed on the PLC. Counting is from left to right.
2. *Central On:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched on.
3. *Central Off:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched off.
4. *Read:* By pressing this button, the scene values of the selected scene (*7.*) are queried and displayed in (*8.*).
5. *Write:* By pressing this button, the scene values will be written to the control gears (*8.*).
6. *Send On Delta:* On a change in value the dim value is transmitted to the control gear, when the checkbox is marked.
7. *Scene X:* In this drop down menu you choose the scene.
8. *DALI addresses:* Here the control gears associated to the selected scene (*7.*) of the selected module (*1.*) will be displayed after reading (*4.*) or by changing the scene (*7.*).

- Configuration: The DALI control gears can be configured on this page.



1. *Module number:* Specifies which DALI master module is to be addressed on the PLC. Counting is from left to right.
2. *Central On:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched on.
3. *Central Off:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched off.
4. *Read:* By pressing this button, the configuration parameters of the selected short address (*6.*) or group address (*7.*) will be read out. They are displayed in *9.*.
5. *Write:* By pressing this button, the configuration parameters of the selected short address (*6.*) or group address (*7.*) will be written.
6. *Short address:* In this field you fill in the short address, which has to be read out or configured.
7. *Group:* In this field you fill in the group address, which has to be read out of configured.
8. *Write All:* By pressing this button, the configuration parameters will be written to every control gear on the DALI bus of the selected module (*1.*)
9. *Configuration parameters:* Here the configuration parameters of the selected control gear (*6.*) or group (*7.*) will be shown and can be edited.

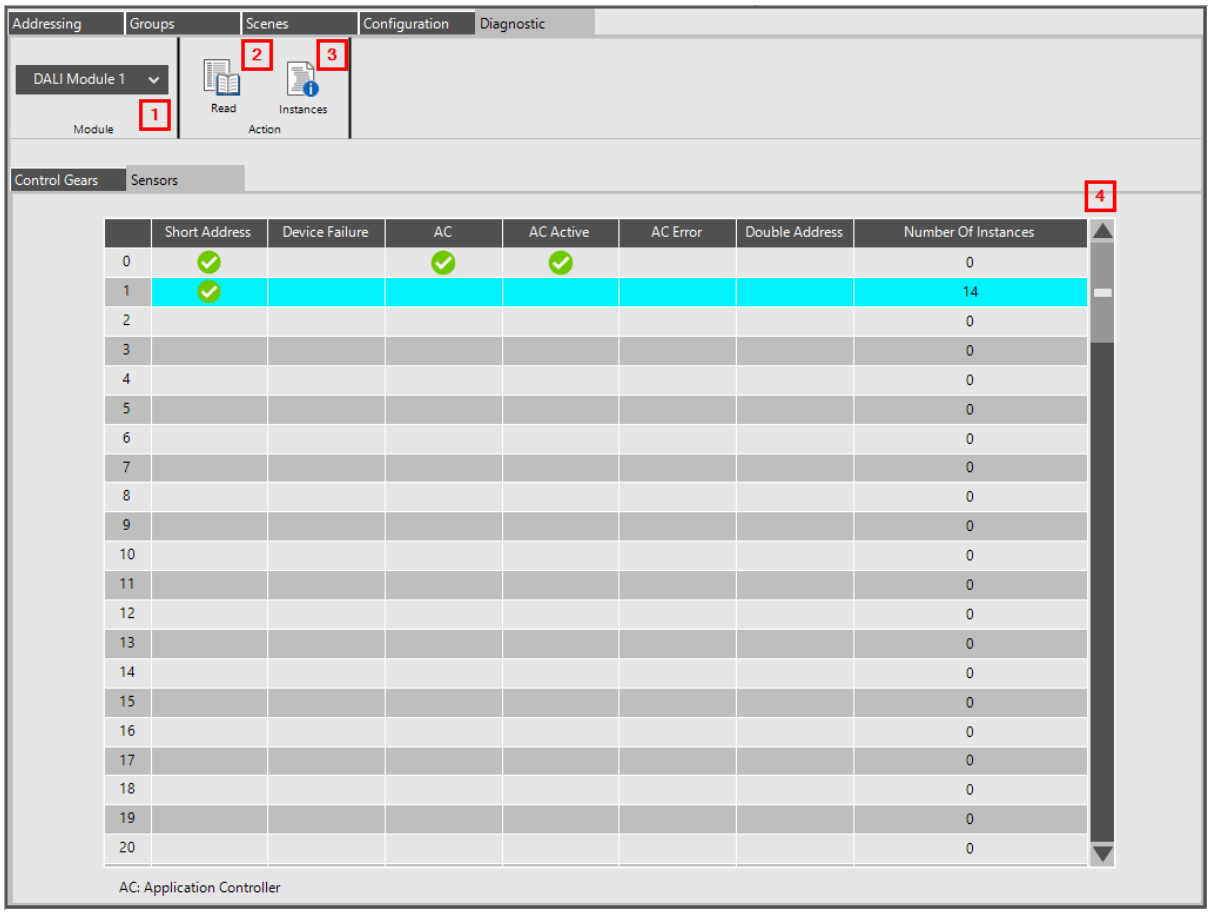
- Diagnostic control gears: The diagnostic data of the DALI control gears will be shown on this page.



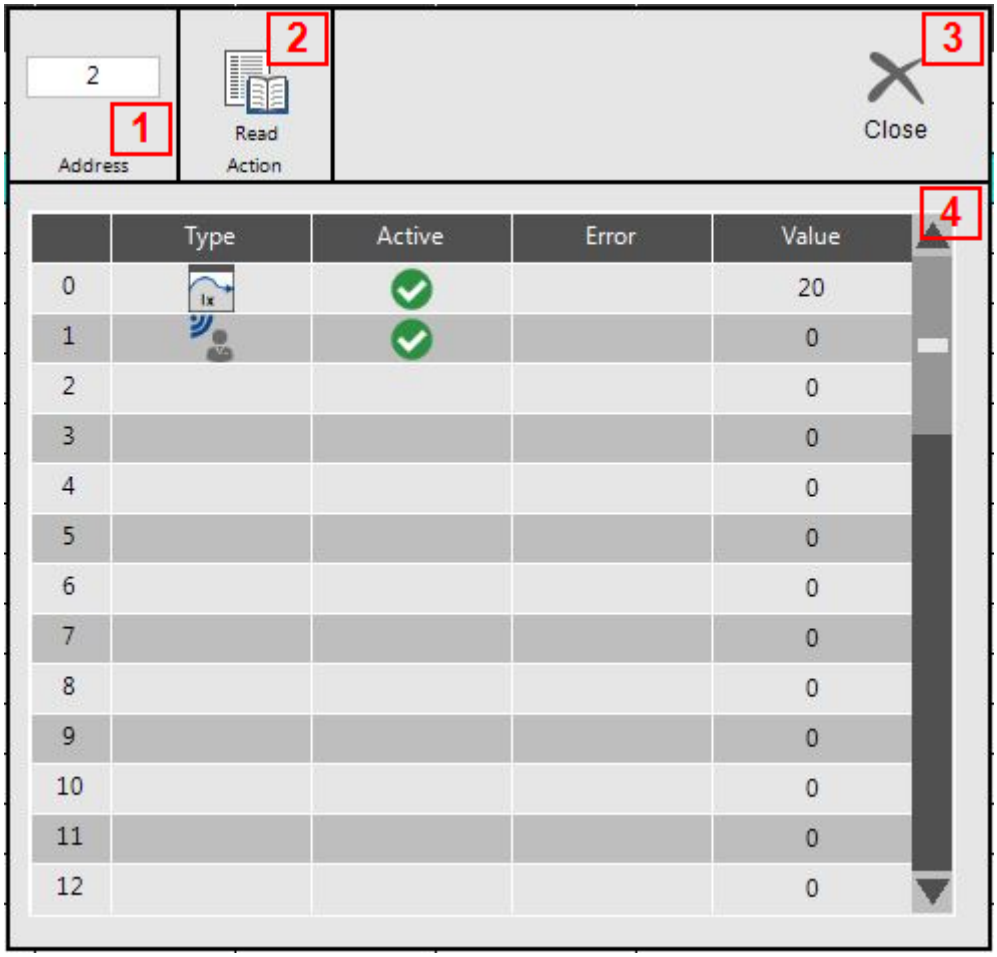
	Short Address	Lamp On	Device Failure	Lamp Failure	Double Address	Actual Level	Operating Hours
0						0.0	0.0
1						0.0	0.0
2						0.0	0.0
3						0.0	0.0
4						0.0	0.0
5						0.0	0.0
6						0.0	0.0
7						0.0	0.0
8						0.0	0.0
9						0.0	0.0
10						0.0	0.0
11						0.0	0.0
12						0.0	0.0
13						0.0	0.0
14						0.0	0.0
15						0.0	0.0
16						0.0	0.0
17						0.0	0.0
18						0.0	0.0
19						0.0	0.0
20						0.0	0.0

1. *Module number:* Specifies which DALI master module is to be addressed on the PLC. Counting is from left to right.
2. *Central On:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched on.
3. *Central Off:* By pressing this button, every control gears on the DALI bus of the selected module (*1.*), will be switched off.
4. *Read:* By pressing this button, the diagnostic data of every control gear found on the DALI bus of the selected module (*1.*) will be read out. They are displayed in (*8.*).
5. *Write:* By pressing this button, the operating hours defined in (*6.*) will be written to the selected control gear.
6. *Operating hours:* In this field you fill in the operating hours, which have to be written to one or all control gears.
7. *Write All:* By pressing this button, the operating hours defined in (*6.*) will be written to every control gear of the selected module (*1.*)
8. *Diagnostic parameters:* Here the diagnostic parameters of the control gears of the selected module (*1.*) will be listed.

- Diagnostic sensors: The diagnostic data of the DALI-2 sensors will be shown on this page.



1. *Module number:* Specifies which DALI master module is to be addressed on the PLC. Counting is from left to right.
2. *Read:* By pressing this button, the diagnostic data of every control device (sensor) found on the DALI bus of the selected module (*1.*) will be read out. They are displayed in (*8.*).
3. *Instances:* By pressing this button, the instance parameters of this sensor short address will be read and shown in the Dialog below.
4. *Diagnostic parameters:* Here the diagnostic parameters of the control device (sensor) of the selected module (*1.*) will be listed.



1. *Address:* Specifies which sensor short address is read out. They are displayed in (*4.*).
2. *Read:* By pressing this button, the diagnostic data of the selected sensor address will be read out. If the sensor address didn't change, only the data content will be actualized. Otherwise the nesseccary parameter (e.g. instance types) will be read also.
3. *Close:* By pressing this button, the dialog is closing.
4. *Diagnostic parameters:* Here the diagnostic parameters of the instances of the selected control device (sensor) module (*1.*) will be listed.

Note: Please consider for a correct function the *system properties*.

3.3 20 Control gear

In this section you can find all function blocks and programs which will be needed for standard control gears (ECG).

3.3.1 01 Configuration

The following function blocks are for the configuration of the standard control gears (ECG).

FbDaliAddressingControlGears (FB)

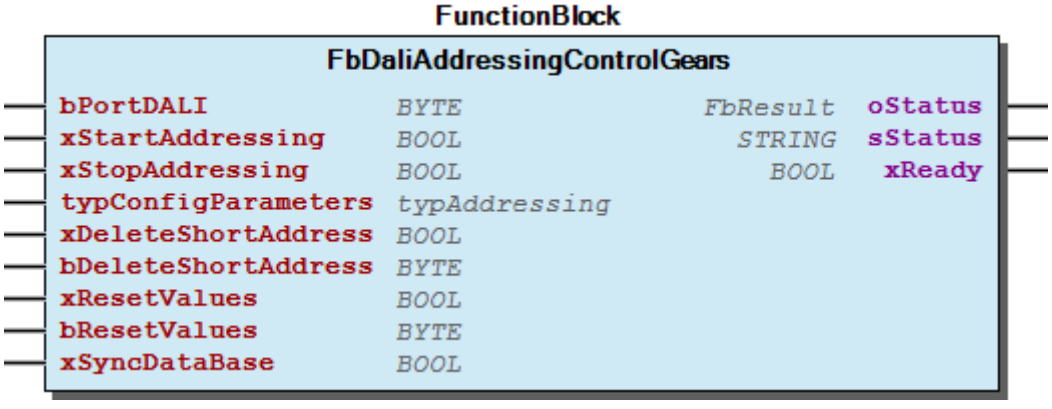
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xStartAddressing	BOOL		A positive edge starts the random addressing of the DALI control gears (ECG).	
	xStopAddressing	BOOL		A positive edge ends the addressing of the control gears (ECG) prematurely.	
	typConfigParameters	*typAddressing*		Selection of the different addressing options.	
	xDeleteShortAddress	BOOL		A positive edge deletes the selected bDeleteShortAddress short address.	
	bDeleteShortAddress	BYTE		Selection of the short address to be deleted.	
	xResetValues	BOOL		A positive edget sets the control gears (ECG) with the short address bResetValues to its “reset values”. *doc11_DefaultValues*	
	bResetValues	BYTE		Selection of the control gears (ECG) to be reset.	
	xSyncDataBase	BOOL		A positive edge synchronizes the module-internal database.	

Function

The function block is used to address the connected DALI control gears (ECG). In addition, the short addresses can be deleted or the settings can be set to the “reset values”. *doc11_DefaultValues*

Graphical Illustration



General notes

Note: All sensors connected to the system are switched to the passive-mode (sensors may not transmit DALI telegrams on their own) prior to addressing.

Note: Upon completion of addressing, the sensors switched back to the active-mode (sensors transmit their values only to the DALI Multi-Master module).

Note: Please consider for a correct function the *system properties*.

`FbDaliChangeAddressControlGears` (FB)

Interface variables

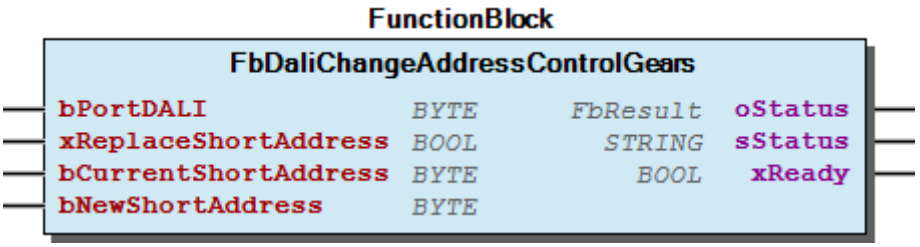
Scope	Name	Type	Initial	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`		Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`bPortDALI`	`BYTE`	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	`xReplaceShortAddress`	`BOOL`		A positive edge replaces the `bCurrentShortAddress` with the `bNewShortAddress`. The `bCurrentShortAddress` must be available at least.	
	`bCurrentShortAddress`	`BYTE`		Actual short address of the control gears (ECG).	
	`bNewShortAddress`	`BYTE`	63	Target short address of the control gears (ECG).	

Note: If `bNewShortAddress` already exists, the addresses will be swapped among each other.

Function

The function block is used to change the control gear (ECG) short addresses.

Graphical Illustration



Example

Swap short address 1 with short address 2, so that the control gear (ECG) with short address 1 gets the short address 2 and vice versa.

1. Set `bCurrentShortAddress` to "1".
2. Set `bNewShortAddress` to "2".
3. Set `xReplaceShortAddress` to "TRUE".

Note: Please consider for a correct function the *system properties*.

`FbDaliConfigControlGears` (FB)

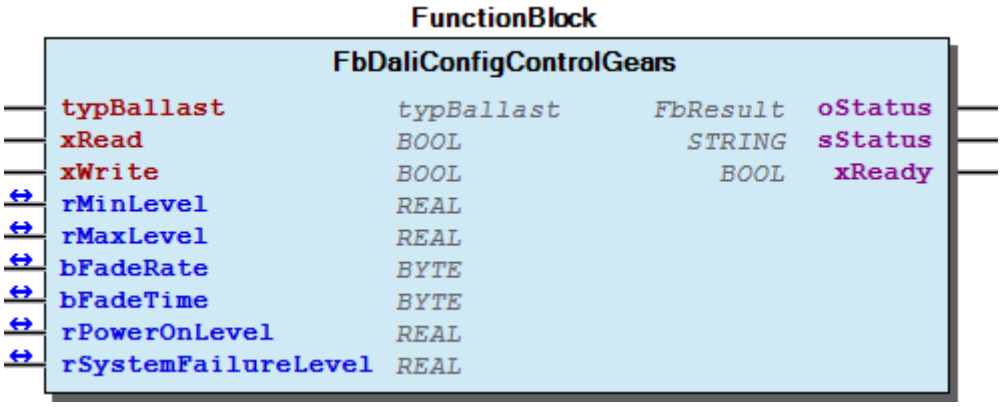
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`	Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`typBallast`	*typBallast*	Definition which control gears will be addressed.	
	`xRead`	`BOOL`	A positive edge causes the configuration values to be read out.	
	`xWrite`	`BOOL`	A positive edge results in writing of the configuration parameters to the control gear (ECG).	
Inout	`rMinLevel`	`REAL`	Minimum dimming level limit of the control gear (ECG) [%].	
	`rMaxLevel`	`REAL`	Maximum dimming level limit of the control gear (ECG) [%].	
	`bFadeRate`	`BYTE`	Fade rate for dimming. The entry is done according to IEC 62386 (*doc12_FadeTimeFadeRate*), with 1 indicating large grading and number 15 fine grading. This value is only effective with relative dimming commands.	
	`bFadeTime`	`BYTE`	Fade time of the control gear (ECG) when sending defined dimming levels. The entry is done according to IEC 62386 (*doc12_FadeTimeFadeRate*), with 0 indicating that new value is reached quickly and 15 that a new value is reached slowly.	
	`rPowerOnLevel`	`REAL`	Power on level [%]. At a value of 101 %, the last value before the power failure is recalled.	
	`rSystemFailureLevel`	`REAL`	System failure level [%] for the event of a bus fault. At a value of 101 %, the actual level remains unchanged.	

Function

The function block can read and write the parameters from an control gear (ECG).

Graphical Illustration



Example

Change configuration values:

1. Read out the configuration from the control gear (ECG) with the `xRead` input.
2. Change the values you want to change.
3. Write the configuration to the control gear (ECG) with the `xWrite` input.

Note: Please consider for a correct function the *system properties*.

`FbDaliConfigGroupControlGears` (FB)

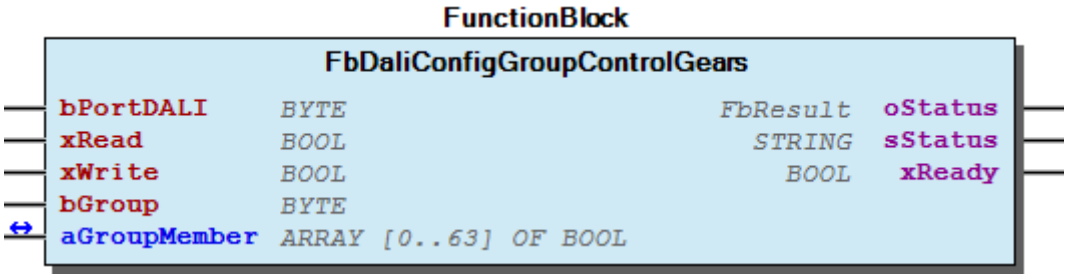
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`		Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`bPortDALI`	`BYTE`	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	`xRead`	`BOOL`		A positive edge causes the selected group configuration to be read out of all control gears (ECG).	
	`xWrite`	`BOOL`		A positive edge results in writing of the selected group configuration to the control gears (ECG).	
	`bGroup`	`BYTE`		Selection of the DALI group which should be configured.	
Inout	`aGroupMember`	ARRAY [0..63] OF BOOL		The array shows the members of the selected group.	

Function

The function block is used to configure the DALI groups. In addition to the 16 standard DALI groups, this function block can be used to configure additionally 16 virtual groups.

Graphical Illustration



Example

Change group configuration:

1. Read out the group configuration from the control gears (ECG) with the `xRead` input.
2. Change the values in `aGroupMember` you want to change.
3. Write the group configuration to the control gears (ECG) with the `xWrite` input.

General notes

Note: The virtual groups are saved in the DALI module and can have up to 8 members. All other subscribers are rejected.

Note: For the virtual groups, the module sends the telegrams to all group members one after the other as fast as possible.

Note: Please consider for a correct function the *system properties*.

`FbDaliConfigSceneControlGears` (FB)

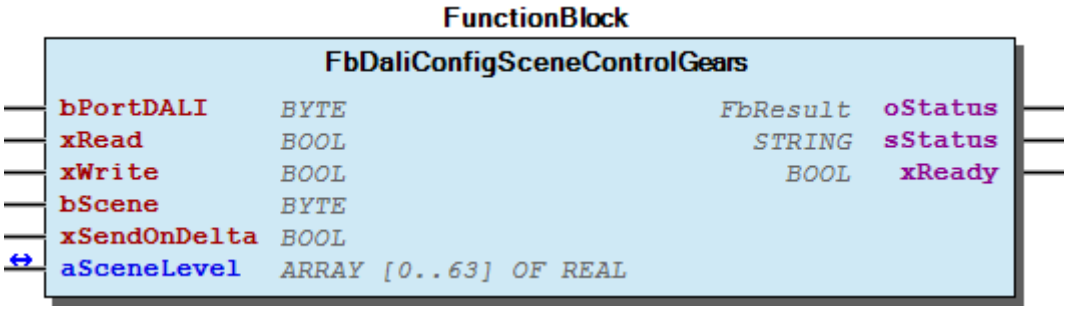
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xRead	BOOL		A positive edge causes the selected scene configuration to be read out of all control gears (ECG).	
	xWrite	BOOL		A positive edge writes the selected scene configuration to the control gears (ECG).	
	bScene	BYTE		Selection of the DALI scene (0-15).	
	xSendOnDelta	BOOL	TRUE	The dimming values are called up directly on any change in the values in aSceneLevel.	
Inout	aSceneLevel	ARRAY [0..63] OF REAL		The array shows the values of the selected scene [%].	

Function

The function block is used for configuring DALI scenes.

Graphical Illustration



Example

Change scene configuration:

1. Read out the scene configuration from the control gears (ECG) with the xRead input.
2. Change the values in aSceneLevel you want to change. If xSendOnDelta is set, the actual level will be changed directly.
3. Write the scene configuration to the control gears (ECG) with the xWrite input.

Note: Please consider for a correct function the *system properties*.

FbDaliDiagnosticControlGears (FB)

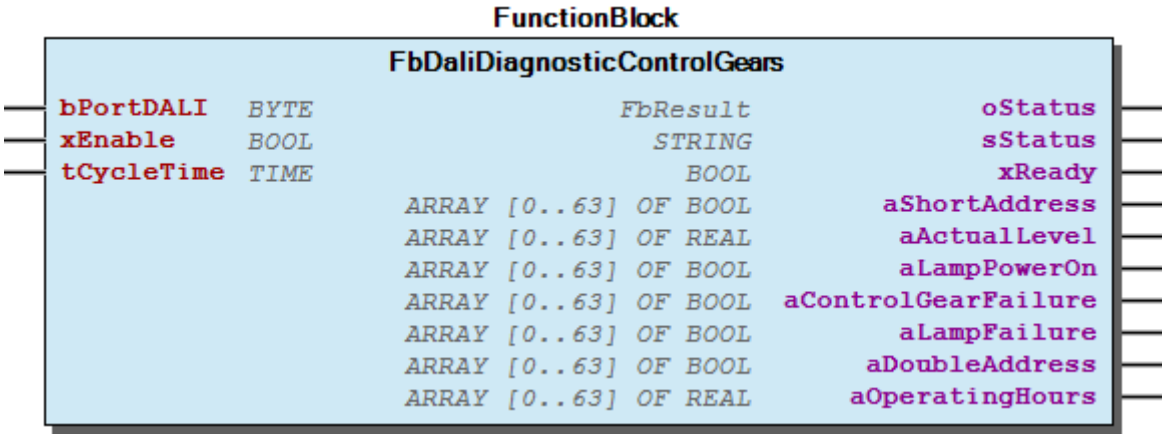
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xEnable	BOOL		A positive edge causes the status values to be read from the internal module database and checks the DALI bus for double addresses.	
	tCycleTime	TIME	TIME#60m0s0ms	Cycle time for the circular request.	
Output	aShortAddress	ARRAY [0..63] OF BOOL		Indication of the existing control gear (ECG) short addresses.	
	aActualLevel	ARRAY [0..63] OF REAL		Actual Level of the control gear (ECG).	
	aLampPowerOn	ARRAY [0..63] OF BOOL		Indication of lamps are switched on.	
	aControlGearFailure	ARRAY [0..63] OF BOOL		Indication of a control gear (ECG) failure.	
	aLampFailure	ARRAY [0..63] OF BOOL		Indication of a lamp failure.	
	aDoubleAddress	ARRAY [0..63] OF BOOL		Indication of double addresses.	
	aOperatingHours	ARRAY [0..63] OF REAL		Operating hours of the control gears (ECG).	

Function

The function block block reads out the current status of the control gears (ECG) from the module database and from the DALI bus.

Graphical Illustration



Example

Change scene configuration:

1. Set `xEnable` for reading out the current status of the control gears (ECG).
2. Wait until `xReady` is true.
3. See the result at the outputs.

Note: Please consider for a correct function the *system properties*.

`FbDaliIdentifyControlGears` (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`		Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`typBallast`	*typBallast*		Definition which control gears will be addressed.	
	`xIdentify`	`BOOL`		The selected control gear (ECG) flashes as long as the input is active.	
	`bFlashPeriod`	`BYTE`	1	Flash period for the identification of the control gear (ECG) [s]. Value range: 1 - 51 s	

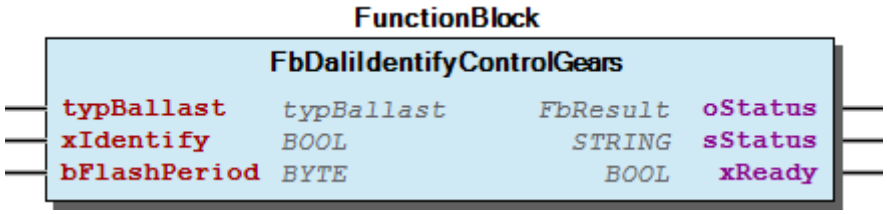
Function

The function block is used to identify the control gear (ECG) short addresses.

Function description

As long as `xIdentify` is active the control gear (ECG), which is selected in `typBallast`, is flashing. If you change the control gear (ECG) selection, the old address stops flashing and the new address starts flashing.

Graphical Illustration



Example

Identifying control gears (ECG) 1 and 2:

1. Set `typBallast` to short address “1”.
2. Set `xIdentify` to “TRUE”.
3. Now control gear (ECG) with short address “1” is flashing.
4. Set `typBallast` to short address “2”.
5. Now control gear (ECG) with short address “2” is flashing. (Control gear (ECG) with short address “1” stops flashing.)
6. Set `xIdentify` to “FALSE” to stop the identification.

Note: Please consider for a correct function the *system properties*.

`FbDaliMemoryBankControlGears` (FB)

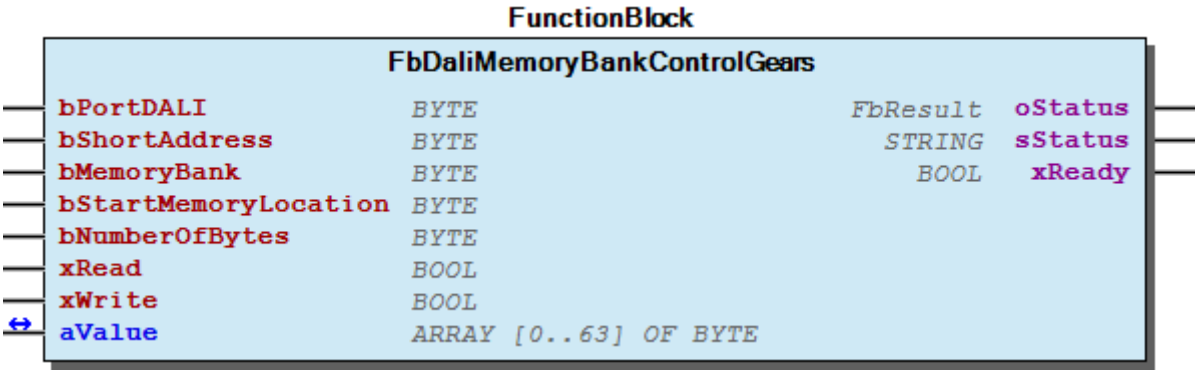
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`		Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`bPortDALI`	`BYTE`	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	`bShortAddress`	`BYTE`		Short address (0–63)	
	`bMemoryBank`	`BYTE`		Selection of the memory bank for reading and writing.	
	`bStartMemoryLocation`	`BYTE`		Start address inside the memory bank for reading and writing.	
	`bNumberOfBytes`	`BYTE`		Number of memory addresses for reading and writing.	
	`xRead`	`BOOL`		A positive edge initiates reading out the selected content of the memory bank.	
	`xWrite`	`BOOL`		A positive edge initiates writing the selected content to the memory bank.	
Inout	`aValue`	ARRAY [0..63] OF BYTE		The array shows the values of the selected memory bank.	

Function

The function block can be used to read and write the control gears (ECG) memory banks.

Graphical Illustration



General notes

Note: To enable the write access the value 16#55 must be set at memory address 16#02.

Example

Writing data (16#5F) to Memory bank 2 at address 9 and 10:

1. Set `bMemoryBank` to “2”.
2. Set `bStartMemoryLocation` to “2”.
3. Set `bNumberOfBytes` to “1”. (length of the data)
4. Set `aValue[0]` to “16#55”. (write access)
5. Positive edge at `xWrite`. (write access command will be written)
6. Set `bStartMemoryLocation` to “9”.
7. Set `bNumberOfBytes` to “2”. (length of the data)
8. Set `aValue[0]` and `aValue[1]` to “16#5F”.
9. Positive edge at `xWrite`. (values will be written into the memory bank)

Note: Please consider for a correct function the *system properties*.

`FbDaliOperatingHours` (FB)

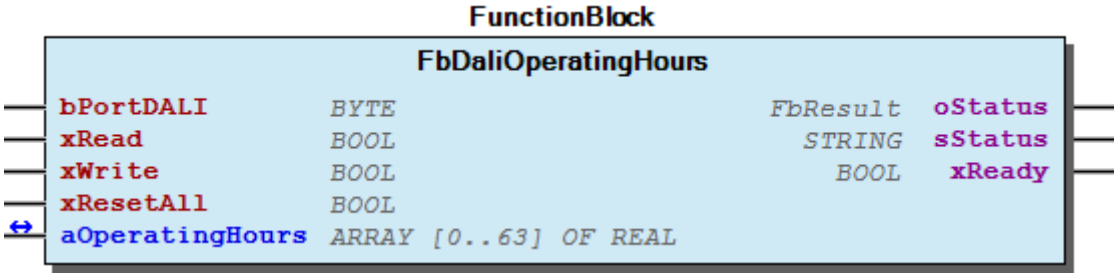
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`		Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`bPortDALI`	`BYTE`	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	`xRead`	`BOOL`		A positive edge initiates reading out the operating hours of the module database.	
	`xWrite`	`BOOL`		A positive edge initiates writing the operating hours to the module database.	
	`xResetAll`	`BOOL`		A positive edge causes all the operating hours in the module database to be set to “0”.	
Inout	`aOperatingHours`	ARRAY [0..63] OF REAL		The array shows the operating hours of each control gear (ECG) [h].	

Function

The function block reads and writes the operating hours of the DALI control gear (ECG) into the module database.

Graphical Illustration



Example

Reading out the operating hours and delete afterwards:

1. Positive edge at `xRead`.
2. Wait until `xReady` is true.
3. See the operating hours in `aOperatingHours`.
4. Positive edge at `xResetAll`. (Initialize `aOperatingHours` with “0”)
5. Positive edge at `xWrite`. (Operating hours are deleted now)

General notes

Note: The function block reads and writes always all operating hours into the module database.

Note: Please consider for a correct function the *system properties*.

FbDaliSendFadeRate (FB)

Interface variables

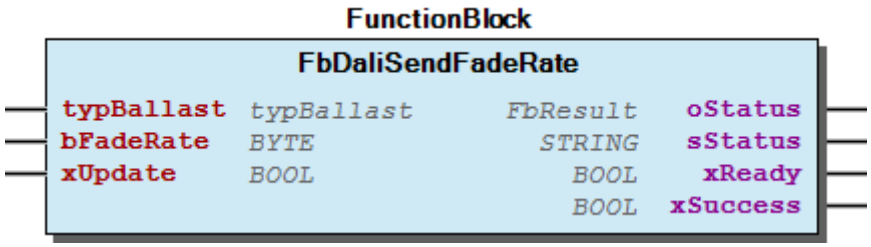
Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*		Definition which control gears will be addressed.	
	bFadeRate	BYTE	255	Fade rate for dimming. The entry is done according to IEC 62386 (*doc12_FadeTimeFadeRate*), with 1 indicating large grading and number 15 fine grading. This value is only effective with relative dimming commands.	
	xUpdate	BOOL		A positive edge writes the fade rate into the control gear (ECG).	
Output	xSuccess	BOOL		Trigger signal to display the completed transmission.	

Note: The function block writes the fade rate, when bFadeRate changes or there is a positive edge at xUpdate.

Function

The function block writes the fade rate to one or more control gears (ECG).

Graphical Illustration



Example

Set fade rate to 63,25 fades/s.:

1. Set value “6” at bFadeRate.
2. Positive edge at xUpdate.

Note: Please consider for a correct function the *system properties*.

FbDaliSendFadeTime (FB)

Interface variables

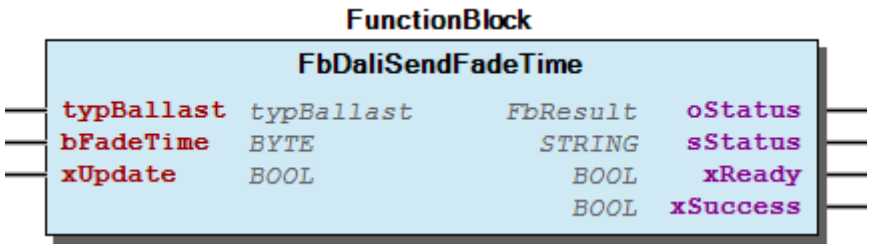
Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*		Definition which control gears will be addressed.	
	bFadeTime	BYTE	255	Defined fade time, which is to be transmitted.	
	xUpdate	BOOL		A positive edge writes the fade time into the control gear (ECG).	
Output	xSuccess	BOOL		Trigger signal to display the completed transmission of the set fade time.	

Note: The function block writes the fade time, when `bFadeTime` changes or there is a positive edge at `xUpdate`.

Function

The function block writes the fade time to one or more control gears (ECG).

Graphical Illustration



Example

Set fade time to 16.0 s.:

1. Set value “10” at `bFadeTime`.
2. Positive edge at `xUpdate`.

Note: Please consider for a correct function the *system properties*.

`FbDaliStoreActualLevelAsScene` (FB)

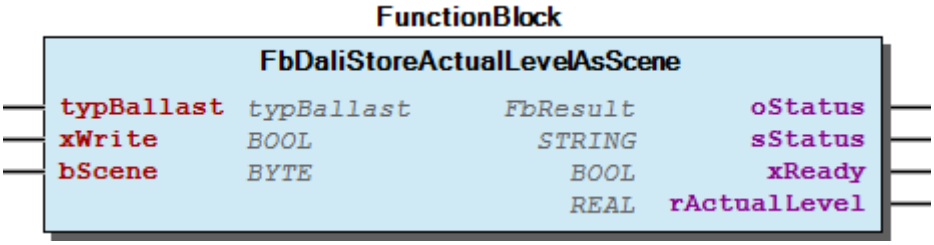
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`	Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`typBallast`	*typBallast*	Definition which control gears will be addressed.	
	`xWrite`	`BOOL`	A positive edge causes the current value to be saved as scene.	
	`bScene`	`BYTE`	Scene number, which should be saved.	
Output	`rActualLevel`	`REAL`	Indication of the current dimming level [%]	

Function

The function block can be used to save the set dimming values as scenes.

Graphical Illustration



Example

Change light level with the function block `FbDaliDimDoubleButton` and save the dim value as scene:

1. Call the light level you want to save with the function block `FbDaliDimDoubleButton`.
2. Define at `bScene` the scene number of the target scene.
3. Positive edge at `xWrite` saves the actual dim value into the selected scene.

Note: Please consider for a correct function the *system properties*.

3.3.2 02 Switching

In diesem Ordner befinden sich Funktionsbausteine zum Schalten der DALI EVGs

FbDaliLatchingRelay (FB)

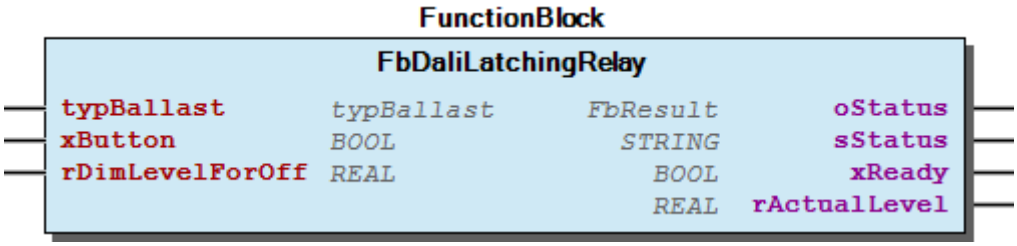
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xButton	BOOL	A positive edge at the xButton input causes the light addressed by the short or group address to switch on or off. Whether the light is switched on or off depends on the previous switching _state of the lighting.	
	rDimLevelForOff	REAL	If rDimLevelForOff is greater than zero, the lights are not switched off, but are set instead to the dimming level set at the rDimLevelForOff input.	
Output	rActualLevel	REAL	The rActualLevel output displays the current dimming level [%] of the selected short address or group.	

Function

The function block maps the function of a latching relay.

Graphical Illustration



Example

Change light level with the function block FbDaliDimDoubleButton and save the dim value as scene:

1. Call the light level you want to save with the function block FbDaliDimDoubleButton.
2. Define at bScene the scene number of the target scene.
3. Positive edge at xWrite saves the actual dim value into the selected scene.

Note: Please consider for a correct function the *system properties*.

FbDaliSwitchOnOff (FB)

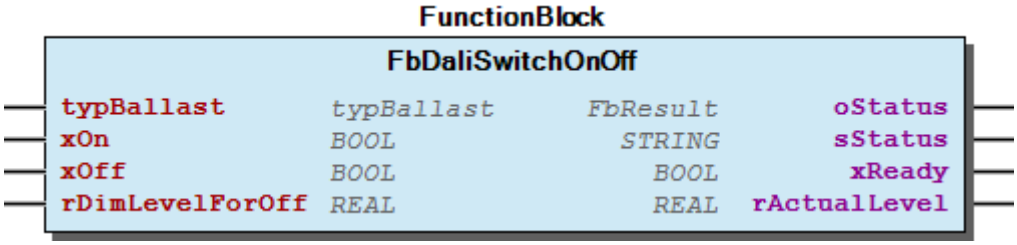
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed..	
	xOn	BOOL	A positive edge switches the selected control gear (ECG) on.	
	xOff	BOOL	A positive edge switches the selected control gear (ECG) off.	
	rDimLevelForOff	REAL	If rDimLevelForOff is greater than zero, the lights are not switched off, but are set instead to the dimming level set at the rDimLevelForOff input.	
Output	rActualLevel	REAL	The rActualLevel output displays the current dimming level [%] of the selected short address or group.	

Function

The function block maps the function of a switch.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.3.3 03 Dimming

FbDaliDimDoubleButton (FB)

Interface variables

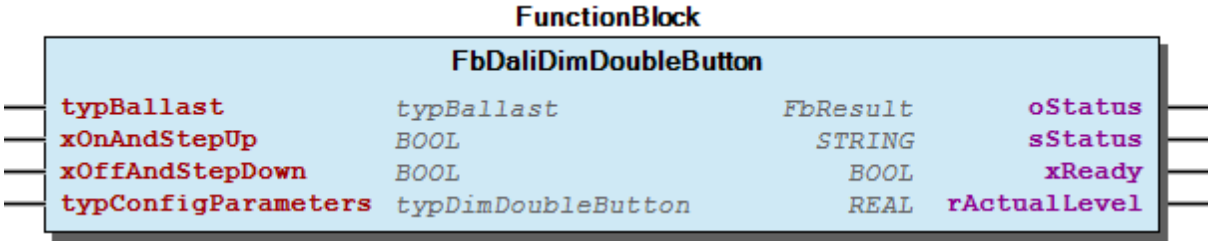
Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xOnAndStepUp	BOOL	Switch on (short press) or dim up (long press)	
	xOffAndStepDown	BOOL	Switch off (short press) or dim down (long press)	
	typConfigParameters	*typDimDoubleButton*	Setting parameter for the dimmer	
Output	rActualLevel	REAL	The rActualLevel output displays the current dimming level [%] of the selected short address or group.	

Note: The function of the inputs xOnAndStepUp and xOffAndStepDown dependent on typConfigParameters.xOnlyDimming.

Function

The function block can be used to dim the DALI lighting. The lighting is dimmed or powered on and off by controlling two separate button inputs.

Graphical Illustration



General notes

Note: The time for differentiating between a short and long button press can be specified via the gp_ShortPushButton input parameter in *ParameterList*. Any button pulse that is smaller in value than the set parameter value is interpreted as a short button press.

Note: Please consider for a correct function the *system properties*.

FbDaliDimSingleButton (FB)

Interface variables

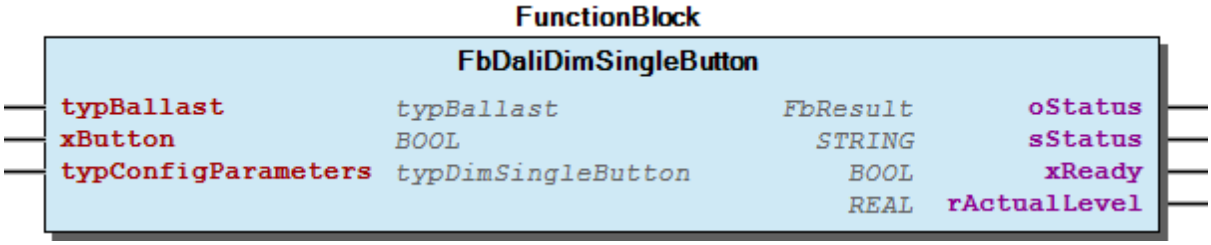
Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xButton	BOOL	Button for switching (short press) and dimming (long press)	
	typConfigParameters	*typDimSingleButton*	Setting parameter for the dimmer	
Output	rActualLevel	REAL	The rActualLevel output displays the current dimming level [%] of the selected short address or group.	

Note: The function of the input xButton dependent on typConfigParameters.xOnlyDimming.

Function

The function block can be used to dim the DALI lighting. The lighting is dimmed or powered on and off by controlling one button.

Graphical Illustration



General notes

Note: The time for differentiating between a short and long button press can be specified via the gp_ShortPushButton input parameter in *ParameterList*. Any button pulse that is smaller in value than the set parameter value is interpreted as a short button press.

Note: Please consider for a correct function the *system properties*.

3.3.4 04 Constant Light control

ConstantLightControl (GVL)

FbDaliConstantLightControl (FB)

Interface variables

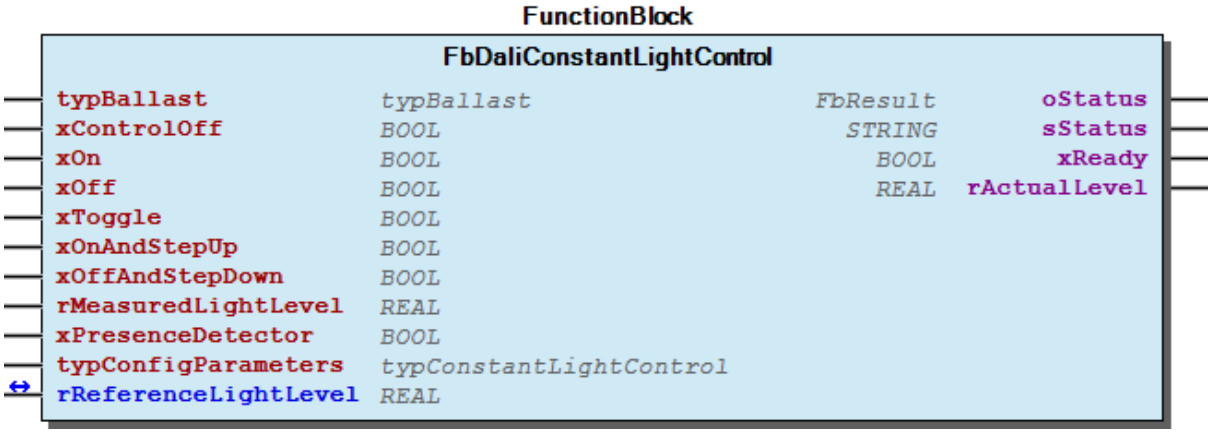
Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed. the ECGs.	
	xControlOff	BOOL	The control can be deactivated via input xControlOff so that, for example, when selecting a scene of the relevant address, the dimming level will not be immediately overwritten.	
	xOn	BOOL	Switch on the lighting.	
	xOff	BOOL	Switch off the lighting.	
	xToggle	BOOL	A positive edge at the input switches the lighting on or off.	
	xOnAndStepUp	BOOL	The lighting is switched on by pushing the button briefly, the lighting is dimmed brighter by pushing the button longer.	
	xOffAndStepDown	BOOL	The lighting is switched off by pushing the button briefly, the lighting is dimmed lower by pushing the button longer.	
	rMeasuredLightLevel	REAL	Input signal of the light sensor [lx]	
	xPresenceDetector	BOOL	Switching signal of the presence detector. The lighting and controller are switched off (standby) by a falling edge.	
	typConfigParameters	*typConstantLightControl*	Setting parameter for the constant light control	
Inout	rReferenceLightLevel	REAL	Light intensity setpoint [lx]. It can be raised or lowered by a long button press at the xOnAndStepUp and xOffAndStepDown inputs. The setpoint offset must be activated with the typConfigParameters.xSetpValueShifting and typConfigParameters.xDimmingActivateController parameters.	
Output	rActualLevel	REAL	The rActualLevel output displays the current dimming level [%] of the selected short address or group.	

Note: The rReferenceLightLevel variable should be defined as RETAIN.

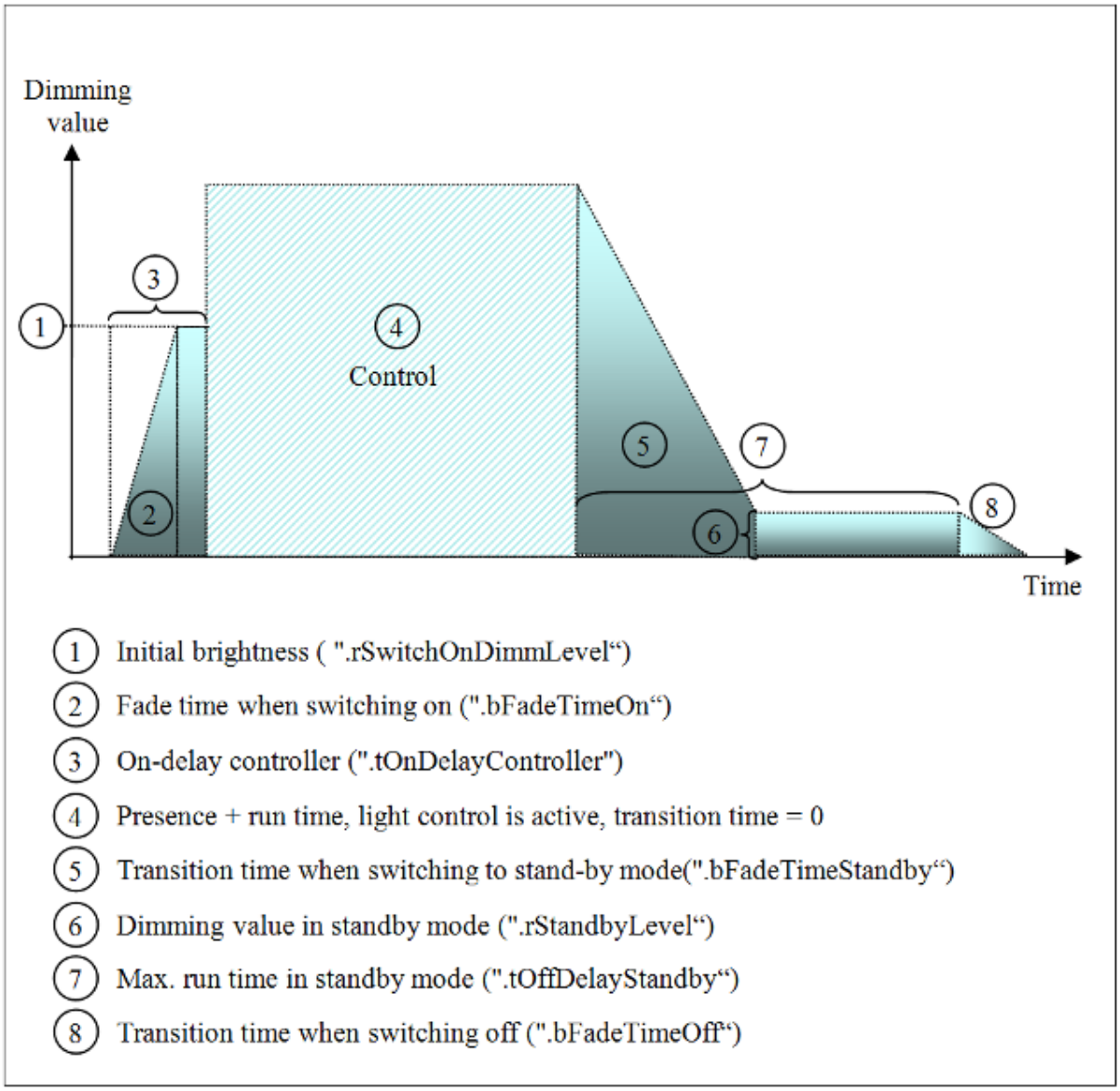
Function

The function block enables constant light to be controlled automatically in connection with a light sensor.

Graphical Illustration



Time referenced behavior



Calibration

- The source of light to be measured must be switched on about 20 minutes before measuring, so that the lamps can operate at their full potential.

- The specified light intensity level must be measured on the work surface. A luxmeter that can adapt well to the V(λ) curve is required for this.
- The calibration cannot be performed until the room has been completely furnished since the measured values of the light sensor depend on the reflection properties of the room.
- Start value `rGain` = 3
- Start value `rGainAdaption` = 20

Two measurements are required for calibrating the light sensor. For both measurements, the luxmeter is placed on the work surface where the desired light intensity must be reached.

The first measurement is performed in a darkened room using pure artificial light. The calibration value is determined as follows:

- If the light intensity in the workplace is higher than the light intensity setpoint, the calibration value must be increased until the desired light intensity is reached.
- If the light intensity in the workplace is lower than the light intensity setpoint, the calibration value must be decreased until the desired light intensity is reached.

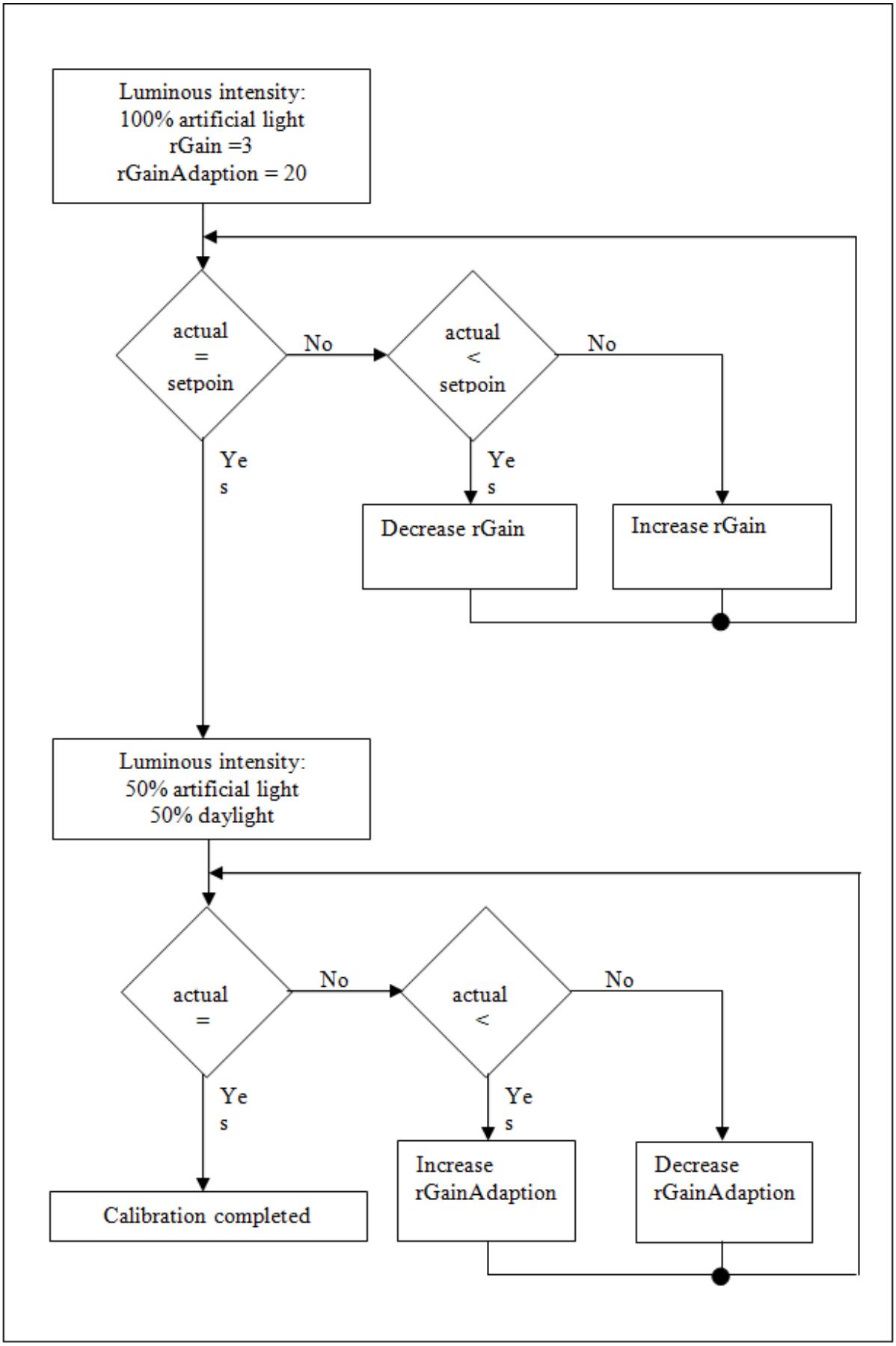
For safety reasons, the light intensity measured by the luxmeter should be about 10% higher than the desired light intensity setpoint.

The second calibration measurement is required in order to determine the percentage adaptation of the calibration value. This measurement is performed in a semi-darkened room with residual artificial light.

The second measurement is performed as follows:

- If the light intensity in the workplace is lower than the light intensity setpoint, the percentage of the adaptation must be increased until the desired light intensity is reached.
- If the light intensity in the workplace is higher than the desired light intensity, the percentage of the adaptation must be decreased until the desired light intensity is reached.

If the percentage adaptation of the calibration value is performed in a semi-darkened room, the lowest possible offset is achieved depending on the part of daylight or artificial light. The actual value of the light intensity can still be lower than the light intensity setpoint.


Luminous intensity:
100% artificial light
rGain =3
rGainAdaption = 20
actual
=
setpoin
No
actual
<
setpoin
No
Ye
s
Ye
s
Decrease rGain
Increase rGain
Luminous intensity:
50% artificial light
50% daylight
actual
=
No
actual
<
No
Ye
s
Ye
s
Calibration completed
Increase
rGainAdaption
Decrease
rGainAdaption

General notes

Note: Following a setpoint adjustment, the constant light controller waits for a period of `tDelayReferenceLightLevel` until it determines new setpoints. This is necessary because the current sensor value is not always directly available. The "tDelayReferenceLightLevel" delay period can be set using the `FbDaliConfigConstantLightControl` function block.

Note: The fade time shown under items 2, 5 and 8 in the diagram above cannot be set for virtual groups.

Note: Please consider for a correct function the *system properties*.

`FbDaliConstantLightControl.SetDisableSendFadeTime` (PROP)

With this property, the changing of fade time by constant light controller can be enabled/disabled. Default: FALSE = Send fade time enabled

3.3.5 `05 Scenes`

`FbDaliRecallScene` (FB)

Interface variables

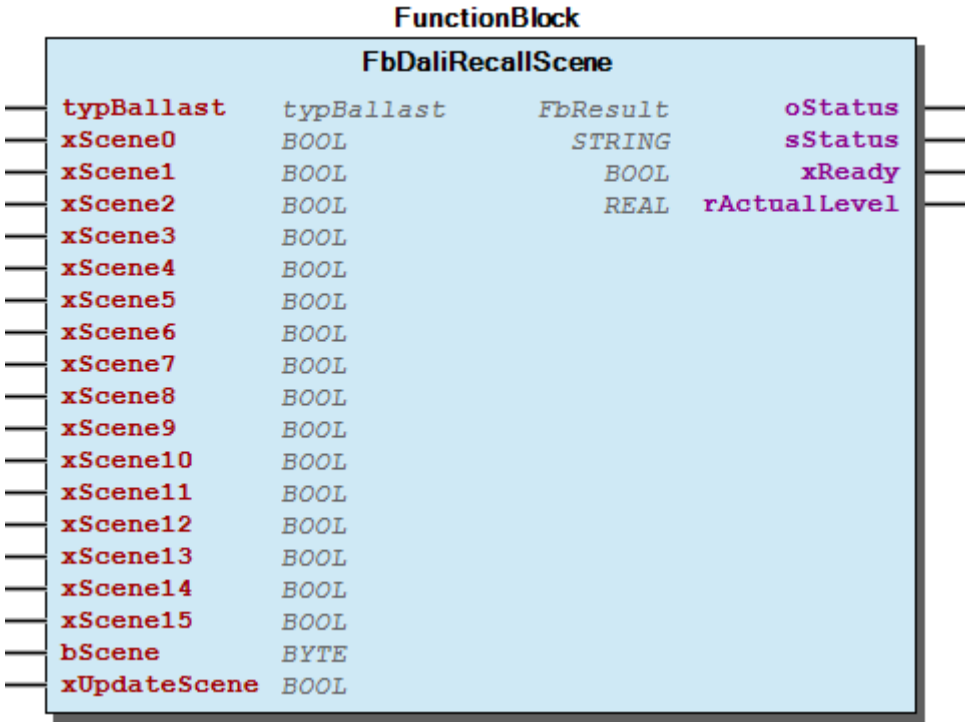
Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xScene0	BOOL	A positive edge calls up scene 0	
	xScene1	BOOL	A positive edge calls up scene 1	
	xScene2	BOOL	A positive edge calls up scene 2	
	xScene3	BOOL	A positive edge calls up scene 3	
	xScene4	BOOL	A positive edge calls up scene 4	
	xScene5	BOOL	A positive edge calls up scene 5	
	xScene6	BOOL	A positive edge calls up scene 6	
	xScene7	BOOL	A positive edge calls up scene 7	
	xScene8	BOOL	A positive edge calls up scene 8	
	xScene9	BOOL	A positive edge calls up scene 9	
	xScene10	BOOL	A positive edge calls up scene 10	
	xScene11	BOOL	A positive edge calls up scene 11	
	xScene12	BOOL	A positive edge calls up scene 12	
	xScene13	BOOL	A positive edge calls up scene 13	
	xScene14	BOOL	A positive edge calls up scene 14	
	xScene15	BOOL	A positive edge calls up scene 15	
	bScene	BYTE	Scene recall when the scene number changes. Value range: 0 - 15	
	xUpdateScene	BOOL	The scene selected at the “bScene” input is called on a positive edge.	
Output	rActualLevel	REAL	The rActualLevel output displays the current dimming level [%] of the selected short address or group.	

Note: This note refers to a specific input, which is not described in Function description.

Function

The function block can be used to call up the DALI light scenes defined in the control gear (ECG).

Graphical Illustration



Function description

The DALI light scenes can be called in two different ways:

1. With a positive edge at inputs `xScene0` to `xScene15`, the corresponding DALI light scene is called.
2. If a value changes at the `bScene` input or with a positive edge at the `xUpdateScene` input, the DALI light scene specified at the `bScene` input is called up.

General notes

Note: The `FbDaliSendFadeTime` function block can be situated upstream of scene call-up to alter the fade time for a scene. The `xSuccess` output transmits a trigger signal to the desired scene input after transmitting the fade time which results in the scene call-up to be executed as described above.

Note: Please consider for a correct function the *system properties*.

3.3.6 06 General

`FbDaliActualLevelControlGears` (FB)

Interface variables

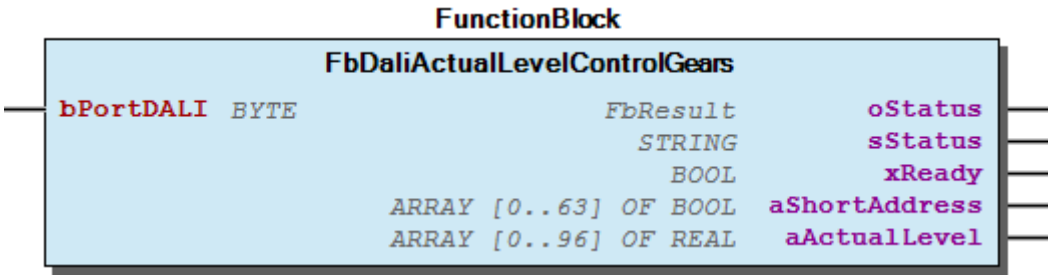
Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
Output	aShortAddress	ARRAY [0..63] OF BOOL		Available short addresses	
	aActualLevel	ARRAY [0..96] OF REAL		Actual level from the control gear (ECG)	

Function

The function block can be used to read out the available short addresses and the current dimming values for the control gear (ECG).

Note: Only applicable with PFC family >=FW4

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbDaliCommandsControlGears (FB)

Interface variables

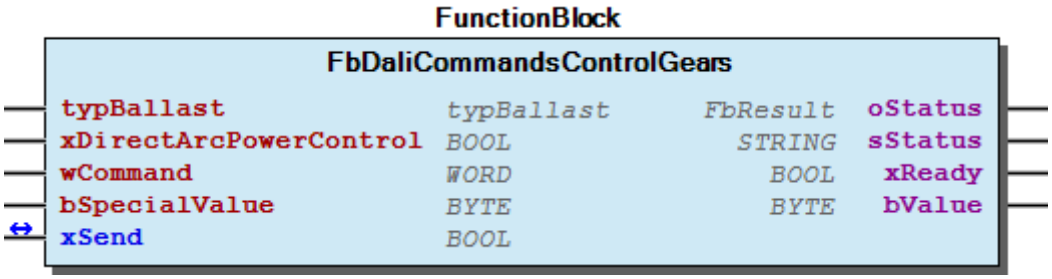
Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xDirectArcPowerControl	BOOL	TRUE: The values at the input wCommand are interpreted as direct dimming value (raw value). FALSE: The values at the input wCommand are interpreted as DALI commands.	
	wCommand	WORD	Command	
	bSpecialValue	BYTE	Special values	
Inout	xSend	BOOL	If the input is set, the DALI command is transmitted to the terminal. After transfer, the input is reset by the function module.	
Output	bValue	BYTE	Response from the control gear (ECG)	

Note: Address 16#FF (255) can be entered at input „bAddress“ for the broadcasting commands.

Function

The function block can be used to issue the DALI commands specified in standard IEC 82386 (see Table 2 in the appendix).

Graphical Illustration



Command Set

Indirect control commands of the lamp power		
Command	**wCommand**	**bSpecialValue**
OFF	0	•
UP	1	•
DOWN	2	•
STEP UP	3	•

Continued on next page

Table 3.1 – continued from previous page

Indirect control commands of the lamp power		
STEP DOWN	4	•
RECALL MAX LEVEL	5	•
RECALL MIN LEVEL	6	•
STEP DOWN AND OFF	7	•
ON AND STEP UP	8	•
ENABLE DAPC SEQUENCE	9	•
GO TO LAST ACTIVE LEVEL	10	•
CONTINUOUS UP	11	•
CONTINUOUS DOWN	12	•
RESERVED	13 - 15	•
GO TO SCENE	16 - 31	•
Configuration commands		
RESET	32	•
STORE ACTUAL LEVEL IN THE DTR	33	•
SAVE PERSISTENT VARIABLES	34	•
SET OPERATING MODE	35	•
RESET MEMORY BANK	36	•
IDENTIFY DEVICE	37	•

Continued on next page

Table 3.1 – continued from previous page

Indirect control commands of the lamp power		
RESERVED	38 - 41	•
STORE THE DTR AS MAX LEVEL	42	•
STORE THE DTR AS MIN LEVEL	43	•
STORE THE DTR AS SYSTEM FAILURE LEVEL	44	•
STORE THE DTR AS POWER ON LEVEL	45	•
STORE THE DTR AS FADE TIME	46	•
STORE THE DTR AS FADE RATE	47	•
SET EXTENDED FADE TIME	48	•
RESERVED	49 - 63	•
STORE THE DTR AS SCENE	64 - 79	•
REMOVE FROM SCENE	80 - 95	•
ADD TO GROUP	96 - 111	•
REMOVE FROM GROUP	112 - 127	•
STORE DTR AS SHORT ADDRESS	128	•
ENABLE WRITE MEMORY	129	•
RESERVED	130 - 143	•
Query commands		
QUERY STATUS	144	•

Continued on next page

Table 3.1 – continued from previous page

Indirect control commands of the lamp power		
QUERY CONTROL GEAR PRESENT	145	•
QUERY LAMP FAILURE	146	•
QUERY LAMP POWER ON	147	•
QUERY LIMIT ERROR	148	•
QUERY RESET STATE	149	•
QUERY MISSING SHORT ADDRESS	150	•
QUERY VERSION NUMBER	151	•
QUERY CONTENT DTR	152	•
QUERY DEVICE TYPE	153	•
QUERY PHYSICAL MINIMUM LEVEL	154	•
QUERY POWER FAILURE	155	•
QUERY CONTENT DTR1	156	•
QUERY CONTENT DTR2	157	•
QUERY OPERATION MODE	158	•
QUERY LIGHT SOURCE TYPE	159	•
QUERY ACTUAL LEVEL	160	•
QUERY MAX LEVEL	161	•

Continued on next page

Table 3.1 – continued from previous page

Indirect control commands of the lamp power		
QUERY MIN LEVEL	162	•
QUERY POWER ON LEVEL	163	•
QUERY SYSTEM FAILURE LEVEL	164	•
QUERY FADE TIME / FADE RATE	165	•
QUERY MANUFACTURER SPECIFIC MODE	166	•
QUERY NEXT DEVICE TYPE	167	•
QUERY EXTENDED FADE TIME	168	•
QUERY CONTROL GEAR FAILURE	169	•
RESERVED	170 - 175	•
QUERY SCENE LEVEL	176 - 191	•
QUERY GROUPS 0 - 7	192	•
QUERY GROUPS 8 - 15	193	•
QUERY RANDOM ADDRESS (H)	194	•
QUERY RANDOM ADDRESS (M)	195	•
QUERY RANDOM ADDRESS (L)	196	•
READ MEMORY LOCATION	197	•
RESERVED	198 - 223	•
Device specific commmands		

Continued on next page

Table 3.1 – continued from previous page

Indirect control commands of the lamp power		
DEVICE TYPE SPECIFIC COMMANDS	224 - 254	DEVICE TYPE
QUERY EXTENDED VERSION NUMBER	255	DEVICE TYPE
Special commands		
TERMINATE	256	•
DATA TRANSFER REGISTER (DTR)	257	VALUE
INITIALIZE	258	VALUE
RANDOMIZE	259	•
COMPARE	260	•
WITHDRAW	261	•
PING	262	•
RESERVED	263	•
SEARCHADDRH	264	VALUE
SEARCHADDRM	265	VALUE
SEARCHADDRL	266	VALUE
PROGRAM SHORT ADDRESS	267	•
VERIFY SHORT ADDRESS	268	•
QUERY SHORT ADDRESS	269	•
RESERVED	270 - 271	•
ENABLE DEVICE TYPE X	272	DEVICE TYPE
DATA TRANSFER REGISTER 1 (DTR1)	273	VALUE
DATA TRANSFER REGISTER 2 (DTR2)	274	VALUE
WRITE MEMORY LOCATION	275	VALUE
WRITE MEMORY LOCATION (NO REPLY)	276	VALUE

Note: Please consider for a correct function the *system properties*.

FbDaliMacroCommandsControlGears (FB)

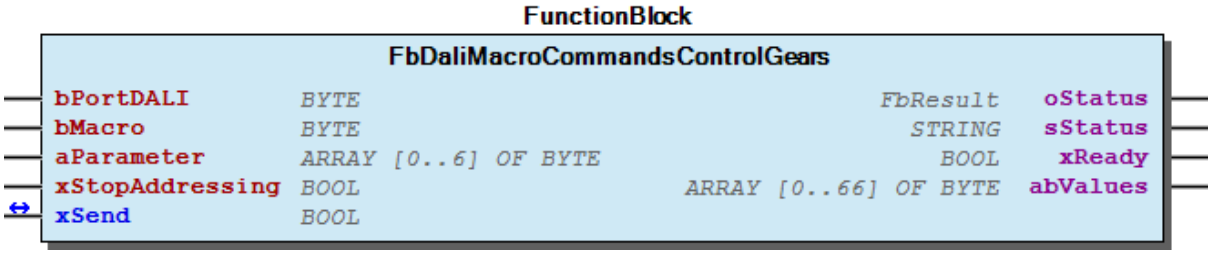
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	bMacro	BYTE		Macro number	
	aParameter	ARRAY [0..6] OF BYTE		Parameter for the macros.	
	xStopAddressing	BOOL		A positive edge terminates the addressing macro	
Inout	xSend	BOOL		If the input is set, the call-up of the macro is transmitted to the terminal. After transfer, the input is reset by the function module.	
Output	abValues	ARRAY [0..66] OF BYTE		Feedback from the respective macros	

Function

The function block is used to call up the macros stored in the DALI Multi-Master module.

Graphical Illustration



Command Set

Macro 1 - Random Addressing

Send		
abParameter[0]	0:	All newly addressed operating units are set to the “reset value”.
	1:	The operating units retain their settings.
abParameter[1]	0:	Only non-addressed devices are addressed.
	1:	All operating units are re-addressed.
abParameter[2]	0:	The dimming value is changed during addressing (max. value).
	1:	The dimming value is not changed during addressing.
Receive		
abValues[0]	Macro used.	
abValues[1]	Number of addressed operating units.	
abValues[2]	First short address assigned.	
abValues[3]	Last short address assigned.	

Macro 2 - Physical Selection

Send		
abParameter[0]	0:	All newly addressed operating units are set to the “reset value”.
	1:	The operating units retain their settings.
abParameter[1]	0:	Only non-addressed devices are addressed.
	1:	All operating units are re-addressed.
abParameter[2]	0:	The dimming value is changed during addressing (max. value).
	1:	The dimming value is not changed during addressing.
Receive		
abValues[0]	Macro used.	
abValues[1]	Number of addressed operating units.	
abValues[2]	First short address assigned.	
abValues[3]	Last short address assigned.	

Macro 3 - Exchange short addresses

Send	
abParameter[0]	Short address (0 - 63) to be exchanged must be available.
abParameter[1]	Short address (0 - 63) to be exchanged can be available.
Receive	
abValues[0]	Macro used.

Macro 4 - Send two commands successively

Send	
abParameter[0]	Address of first command (based on IEC 62386).
abParameter[1]	First DALI command.
abParameter[2]	Reserved
abParameter[3]	Address of second command (based on IEC 62386).
abParameter[4]	Second DALI command.
abParameter[5]	Reserved.
abParameter[6]	Number of repetitions (should always be zero).
Receive	
abValues[0]	Macro used.

Macro 5 - Read serial number (8 bytes)

Send	
abParameter[0]	Short address (0 - 63)
Receive	
abValues[0]	Macro used.
abValues[1]	Number of bytes read.
abValues[2]	Serial number byte 8
abValues[3]	Serial number byte 7
abValues[4]	Serial number byte 6
abValues[5]	Serial number byte 5
abValues[6]	Serial number byte 4
abValues[7]	Serial number byte 3
abValues[8]	Serial number byte 2
abValues[9]	Serial number byte 1

Macro 6 - Synchronize module database

Send	
Receive	
abValues[0]	Macro used.

Macro 7 - Start flashing

Send		
abParameter[0]	Address (0 - 96)	
	0-63	Short address 0 - 63
	64-95	Group 0 - 31
	96	Broadcast
abParameter[1]	Number of flashing periods.	
Receive		
abValues[0]	Macro used.	

Macro 8 - Stop flashing

Send		
abParameter[0]	Address (0 - 96)	
	0-63	Short address 0 - 63
	64-95	Group 0 - 31
	96	Broadcast
abParameter[1]	Number of flashing periods.	
Receive		
abValues[0]	Macro used.	

Macro 9 - Start dimming

Send		
abParameter[0]	Address (0 - 96)	
	0-63	Short address 0 - 63
	64-95	Group 0 - 31
	96	Broadcast
abParameter[1]	Bit	
	0.1	00 = Dimming only
		01 = Start at the last dimming value.
		02 = Can be switched on via dimming.
	2	0 = Darker
		1 = Brighter
	3	0 = Light remains on then minimum value is reached.
		1 = Light switches off when minimum value is reached.
	4	0 = No check whether min./max. value has been reached.
		1 = Check for min./max. value
	5	0 = Use UP / DOWN commands
		1 = Use CONTINIUOUS UP / CONTINIUOUS DOWN commands(from FW 20)
	6	0 = Use LAST LEVEL from module database
		1 = USE GO TO LAST LEVEL (from FW 20)
	7	reserved
Receive		
abValues[0]	Macro used.	

Macro 10 - Stop dimming

Send		
abParameter[0]	Address (0 - 96)	
	0-63	Short address 0 - 63
	64-95	Group 0 - 31
	96	Broadcast
Receive		
abValues[0]	Macro used.	

Macro 11 - Delete virtual group

Send	
abParameter[0]	Virtual group (16 - 31)
Receive	
abValues[0]	Macro used.

Macro 12 - Read device status

Send		
abParameter[0]	Bit	
	0	Short address available
	1	Operating unit (ECG) is switched on.
	2	Reading a status bit.
abParameter[1]	Bit number in status byte, starting from Parameter[0] = 2	
	0	_state of the operating unit (ECG)
	1	Lamp error
	2	Lamp power on
	3	Query limit value error
	4	Transition process
	5	Query “Reset _state”?
	6	Query short address is missing?
	7	Query “Power Failure”?
Receive		
abValues[0]	Macro used.	
abValues[1]	Status short address 0 - 7 (bit coded)	
abValues[2]	Status short address 8 - 15 (bit coded)	
abValues[3]	Status short address 16 - 23 (bit coded)	
abValues[4]	Status short address 24 - 31 (bit coded)	
abValues[5]	Status short address 32 - 39 (bit coded)	
abValues[6]	Status short address 40 - 47 (bit coded)	
abValues[7]	Status short address 48 - 55 (bit coded)	
abValues[8]	Status short address 56 - 63 (bit coded)	

Macro 13 - Read memory bank

Send	
abParameter[0]	Short address (0 - 63)
abParameter[1]	Number of memory bank
abParameter[2]	Starting value (Offset)
abParameter[3]	Number of bytes to be read
Receive	
abValues[0]	Macro used.
abValues[1]	Number of bytes read
abValues[2]	1st read byte from the memory bank
abValues[3]	2nd read byte from the memory bank
	And more...
abValues[65]	64st read byte from the memory bank

Macro 14 - Write memory bank

Send	
abParameter[0]	Short address (0 - 63)
abParameter[1]	Number of memory bank
abParameter[2]	Starting value (Offset)
abParameter[3]	Number of bytes to be write
abParameter[4]	First byte to write
abParameter[5]	Second byte to write
abParameter[6]	Third byte to write
Receive	
abValues[0]	Macro used.

Macro 15 - Write module database into EEPROM

Send	
abParameter[0]	No significance
Receive	
abValues[0]	Macro used.

Macro 16 - Read module database from EEPROM

Send	
abParameter[0]	No significance
Receive	
abValues[0]	Macro used.

Macro 17 - Read operating hours

Send	
abParameter[0]	Short address (0 - 63)
Receive	
abValues[0]	Macro used.
abValues[1]	First byte of operating hours (LSB)
abValues[2]	Second byte of operating hours
abValues[3]	Third byte of operating hours (MSB)

Macro 18 - Delete operating hours

Send	
abParameter[0]	Short address (0 - 63)
Receive	
abValues[0]	Macro used.

Macro 19 - Add short address to virtual group

Send	
abParameter[0]	Short address (0 - 63)
abParameter[1]	Virtual group (16 - 31)
Receive	
abValues[0]	Macro used.

Macro 20 - Remove short address from virtual group

Send	
abParameter[0]	Short address (0 - 63)
abParameter[1]	Virtual group (16 - 31)
Receive	
abValues[0]	Macro used.

Macro 21 - Check for subscription in virtual group

Send	
abParameter[0]	Short address (0 - 63)
Receive	
abValues[0]	Macro used.
abValues[1]	Virtual group 16 - 23 (bit coded)
abValues[2]	Virtual group 24 - 31 (bit coded)

Macro 23 - Read module register

Send	
abParameter[0]	First register to read
abParameter[1]	Number of register to read (max. 16)
Receive	
abValues[0]	Macro used.
abValues[1]	Number of read registers
abValues[2]	Register value 1 (MSB)
abValues[3]	Register value 1 (LSB)
	And more...
abValues[32]	Register value 16 (MSB)
abValues[33]	Register value 16 (LSB)

Macro 24 - Write module register

Send	
abParameter[0]	Register to write (32 - 41)
abParameter[1]	Register value (MSB)
abParameter[2]	Register value (LSB)
Receive	
abValues[0]	Macro used.

Macro 25 - Send configuration commands

Send	
abParameter[0]	Reserved
abParameter[1]	Contents of Data Transfer Register (DTR)
abParameter[2]	Address of second command (based on IEC 62386)
abParameter[3]	DALI command
Receive	
abValues[0]	Macro used.

Macro 26 - Switch own power supply on / off

Send		
abParameter[0]	0:	On
	1:	Off
Receive		
abValues[0]	Macro used.	

Macro 28 - Read group subscribers

Send	
abParameter[0]	Group (0 - 31)
Receive	
abValues[0]	Macro used.
abValues[1]	Short address 0 - 7 (bit coded)
abValues[2]	Short address 8 - 15 (bit coded)
abValues[3]	Short address 16 - 23 (bit coded)
abValues[4]	Short address 24 - 31 (bit coded)
abValues[5]	Short address 32 - 39 (bit coded)
abValues[6]	Short address 40 - 47 (bit coded)
abValues[7]	Short address 48 - 55 (bit coded)
abValues[8]	Short address 56 - 63 (bit coded)

Macro 29 - Configuration with DTR, DTR1 and DTR2

Send		
abParameter[0]	Contents of Data Transfer Register (DTR2)	
abParameter[1]	Contents of Data Transfer Register (DTR1)	
abParameter[2]	Contents of Data Transfer Register (DTR)	
abParameter[3]	Address (based on IEC 62386)	
abParameter[4]	DALI command	
abParameter[5]	Bit	
	0	Data Transfer Register (DTR1) being written
	1	Data Transfer Register (DTR2) being written
abParameter[6]	Device type	
Receive		
abValues[0]	Macro used.	

Macro 30 - Set operation time

Send	
abParameter[0]	Short address 0 - 63
abParameter[1]	Operating hours unit of measure 0.25 hours (Low Byte)
abParameter[2]	Operating hours unit of measure 0.25 hours (Middle Byte)
abParameter[3]	Operating hours unit of measure 0.25 hours (High Byte)
Receive	
abValues[0]	Macro used.

Macro 31 - Software reset

Send		
abParameter[0]	0	Reserved
	1	Software reset
	2	Bus reset
abParameter[6]	Device type	
Receive		
abValues[0]	Macro used.	

Macro 32 - Restore dim value

Send	
No parameter	
Receive	
abValues[0]	Macro used.

Macro 33 - Read module database

Send		
abParameter[0]	Start address	
abParameter[1]	Lenghth (max. 64)	
abParameter[2]	Index	
	0	Short address of control gear (ECG)
	1	Group 0 - 7 of the control gear (ECG) (bit-encoded response)
	2	Group 8 - 15 of the control gear (ECG) (bit-encoded response)
	3	Current status of the control gear (ECG)
	4	Current dimming value for the control gear (ECG)
	5	Dimming value of the control gear (ECG) on loss of the DALI bus
	6	Switch-on dimming value of the control gear (ECG)
	7	Minimum dimming value for the control gear (ECG)
	8	Maximum dimming value for the control gear (ECG)
	9	Minimum physical dimming value for the control gear (ECG)
	10	Fade time / Fade rate
	11	Dimming value for Scene 0
	12	Dimming value for Scene 1
	13	Dimming value for Scene 2
	14	Dimming value for Scene 3
	15	Dimming value for Scene 4
	16	Dimming value for Scene 5
	17	Dimming value for Scene 6
	18	Dimming value for Scene 7
	19	Dimming value for Scene 8
	20	Dimming value for Scene 9
	21	Dimming value for Scene 10
	22	Dimming value for Scene 11
	23	Dimming value for Scene 12
	24	Dimming value for Scene 13
	25	Dimming value for Scene 14
	26	Dimming value for Scene 15
	27	Operating hours for a light, Low Byte
	28	Operating hours for a light, Middle Byte
	29	Operating hours for a light, High Byte
	30	Virtual groups 24 - 31 for the control gear (ECG)
	31	Virtual groups 16 - 23 for the control gear (ECG)
	32	Content DTR (from FW 20)
	35	Last dim level (from FW 20)
	36	Extended fade time (from FW 20)
	37	Operation mode (from FW 20)
Receive		
abValues[0]	Number of bytes read	
abValues[1..65]	Data	

Macro 35 - Application extended query commands (from FW 5)

Send	
abParameter[0]	Short address (based on IEC 62386)
abParameter[1]	Contents of Data Transfer Register (DTR)
abParameter[2]	DALI command
Receive	
abValues[0]	Macro used.
abValues[1]	Query response

Note: Please consider for a correct function the *system properties*.

`FbDaliRestoreActualLevel` (FB)

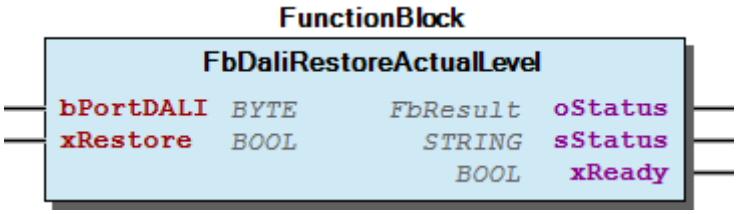
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`		Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`bPortDALI`	`BYTE`	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	`xRestore`	`BOOL`		On a positive edge, the most recently saved dimming value from the database is transmitted to the control gear (ECG).	

Function

The function block is used to store the last known dimming value.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbDaliSendDimValue` (FB)

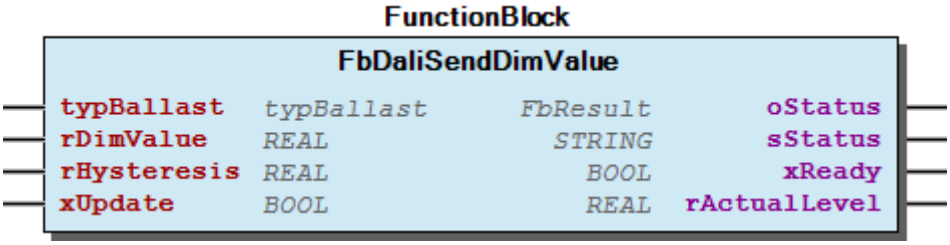
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*		Definition which control gears will be addressed.	
	rDimValue	REAL		The dimming level specified at the input is sent after each change in value [%].	
	rHysteresis	REAL	1	Hysteresis	
	xUpdate	BOOL		A positive edge sends the “rDimValue” dimming level again.	
Output	rActualLevel	REAL		The rActualLevel output displays the current dimming level [%] of the selected short address or group.	

Function

The function block sends direct dimming levels to the selected DALI control gear (ECG).

Graphical Illustration



Function description

If the value change at the rDimValue input is greater than rHysteresis, or a positive edge is detected at the xUpdate input, the selected lamps are dimmed to the dimming value set at the rDimValue input.

Note: Please consider for a correct function the *system properties*.

FbDaliSwitchPowerSupply (FB)

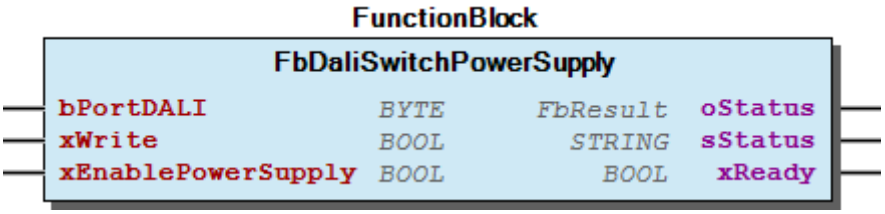
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xWrite	BOOL		On a positive edge, the internal power supply is activated/deactivated as a function of the xEnablePowerSupply input.	
	xEnablePowerSupply	BOOL		Enabling of the internal DALI power supply	

Function

The function block can be used to activate/deactivate the internal DALI power supply.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.3.7 07 Conversion

FuDaliDimValue (FUN)

Interface variables

Scope	Name	Type	Comment
Return	FuDaliDimValue	BYTE	
Input	rPercent	REAL	Dim level in percent [%]

Function

This function is used for converting the 0 – 100 percent dimming level to a DALI dimming value (0 – 254). The value 101 % will be displayed with 255 (MASK).

Graphical Illustration

Note: Please consider for a correct function the *system properties*.

FuPercentDimValue (FUN)

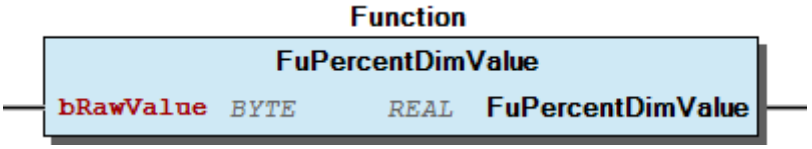
Interface variables

Scope	Name	Type	Comment
Return	FuPercentDimValue	REAL	
Input	bRawValue	BYTE	DALI dim value

Function

This function is used for converting the DALI dimming value (0 – 254) to a 0 – 100 percent dimming level. The raw value 255 means MASK and will be displayed as 101 %.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FuTypBallast (FUN)

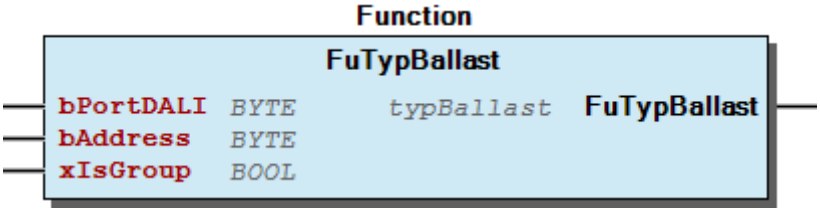
Interface variables

Scope	Name	Type	Initial	Comment
Return	FuTypBallast	*typBallast*		
Input	bPortDALI	BYTE	1	Specifies which DALI master module is to be addressed at the controller. Counting is from left to right.
	bAddress	BYTE		Short address of 0 – 63, Group address 0 – 15, virtual Group 16 - 32 or Broadcast 255.
	xIsGroup	BOOL		Selects short or group address: FALSE: Short address or broadcast; TRUE: Group address

Function

This function describes the parameters in “typBallast”.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.3.8 80 Data Types

Addresses

typBallast (STRUCT)

InOut:

Name	Type	Initial	Comment
bAddress	BYTE		Short address of 0 – 63, Group address 0 – 15, virtual Group 16 - 32 or Broadcast 255.
xIsGroup	BOOL		Selects short or group address: FALSE: Short address or broadcast; TRUE: Group address
bPortDALI	BYTE	1	Specifies which DALI master module is to be addressed at the controller. Counting is from left to right.

Additional information

Modus	bAddress	xIsGroup
Short address	0 - 63	FALSE
Group	0 - 31	TRUE
Broadcast	255	FALSE

Configuration

typAddressing (STRUCT)

InOut:

Name	Type	Initial	Comment
xOnlyUnadressedDevices	BOOL	TRUE	Only control gear (ECG) with no short address are readdressed.
xResetValues	BOOL	TRUE	All newly addressed control gear (ECG) are set to their “reset values”.
xIdentify	BOOL	TRUE	The dimming level is changed during addressing

typConstantLightControl (STRUCT)

InOut:

Name	Type	Initial	Comment
rPresetReferenceLightLevel	REAL	500	Setpoint value when switching on [lx]
rSwitchOnDimLevel	REAL	50	Dimming level when switching on before the controller is activated [%]
rGain	REAL	3	Amplifying of the light sensor measured value
rGainAdaptation	REAL	20	Adaptation of the gain depending on the daylight percentage [%]
tOffDelayAtMinLevel	TIME	TIME#15m0s0ms	The time after which the lighting changes to the standby mode at the minimum dimming level. Any change to the dimming value restarts the switch-off delay. The “t#0s” value can be used to deactivate switching off the lighting at minimum dimming level.
tOffDelayStandby	TIME	TIME#30m0s0ms	The runtime of the standby mode. The lighting is switched off when the specified time period expires. The standby function can be deactivated using the value “t#0s”.
bFadeTimeOn	BYTE	4	Transition time, when the light is turned on. See also *system properties*
bFadeTimeStandby	BYTE	9	Transition time, when the controller goes into stand-by mode. See also *system properties*
bFadeTimeOff	BYTE	7	Transition time, when the light is switched off. See also *system properties*
rMinValueLightControl	REAL	1	Minimum dimming value for the constant light controller while dimming is being regulated.
rStandbyLevel	REAL	3	Dim level in standby mode [%]
xSetpValueSetting	BOOL	TRUE	The `xOnAndStepUp` and `xOffAndStepDown` buttons can be used to raise/lower the dimming level.
xRememberLastLightLevel	BOOL		The lighting is adjusted to the `rReferenceLightLevel` after switching on. Otherwise, it is adjusted to the `rPresetReferenceLightLevel` setpoint value.
xOnPresenceBelowSetpoint	BOOL		The `xPresenceDetector` input switches on the light as long the presence signal is available and the actual value is smaller than the setpoint value by 50 lx.
xOnPresence	BOOL		A positive edge of the `xPresenceDetector` input switches on the light indepentend from the `rMeasuredLightLevel` value.
xDimmingActivatedByController	BOOL	TRUE	The `rReferenceLightLevel` setpoint value can be raised/lowered using long button press at the `xOnAndStepUp` and `xOffAndStepDown` buttons.
xDisableShortPress	BOOL		The brief button press is deactivated at both `xOnAndStepUp` and `xOffAndStepDown` button inputs.

typDimDoubleButton (STRUCT)

InOut:

Name	Type	Initial	Comment
xSwitchOnLastLevel	BOOL		Switching on with the last dimming level
xUseSwitchOnLevel	BOOL	TRUE	Switching on with a defined dimming level
rSwitchOnLevel	REAL	90	Dimming level when switching on [%]
rDimLevelForOff	REAL		Dimming level which switching off [%]
xOnlyDimming	BOOL		Dimming can only be performed via the “xOnAndStepUp” and “xOffAndStepDown” inputs.
xSwitchOnAndStepUp	BOOL		Before dimming, a switch-on command is sent.
xStepDownAndSwitchOff	BOOL		If the minimum dimming level is reached, the lighting is switched off.

typDimSingleButton (STRUCT)

InOut:

Name	Type	Initial	Comment
xSwitchOnLastLevel	BOOL		Switching on with the last dimming level
xUseSwitchOnLevel	BOOL	TRUE	Switching on with a defined dimming level
rSwitchOnLevel	REAL	90	Dimming level when switching on [%]
rDimLevelForOff	REAL		Dimming level which switching off [%]
xOnlyDimming	BOOL		Dimming can only be performed via the "xOnAndStepUp" and "xOffAndStepDown" inputs.
xSwitchOnAndStepUp	BOOL		Before dimming, a switch-on command is sent.
xStepDownAndSwitchOff	BOOL		If the minimum dimming level is reached, the lighting is switched off.

3.4 21 Self-contained emergency lighting (device type 1)

3.4.1 01 Configuration

FbCfgAutoTest (FB)

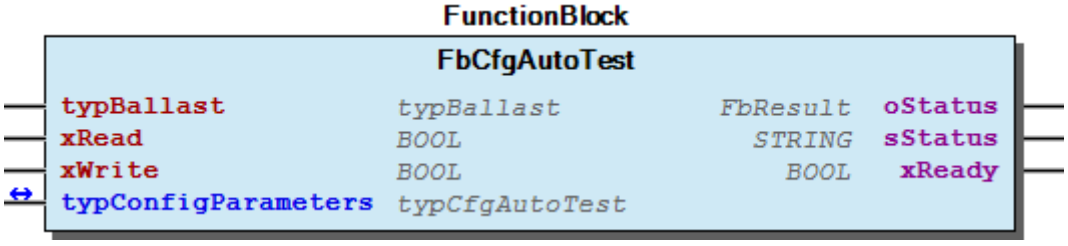
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xRead	BOOL	A positive edge causes the auto configuration to be read out.	
	xWrite	BOOL	A positive edge writes the auto configuration to the self- contained emergency lighting.	
Inout	typConfigParameters	*typCfgAutoTest*		

Function

The function block can read and write the schedule settings for the emergency lighting device.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbCfgEmergencyLighting (FB)

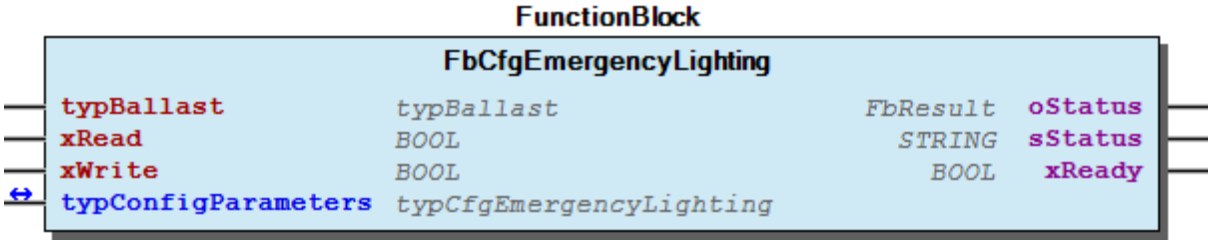
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xRead	BOOL	A positive edge causes the configuration to be read out.	
	xWrite	BOOL	A positive edge writes the configuration to the self- contained emergency lighting.	
Inout	typConfigParameters	*typCfgEmergencyLighting*		

Function

The function block reads the status of all emergency lighting devices.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbReadFactorySettings (FB)

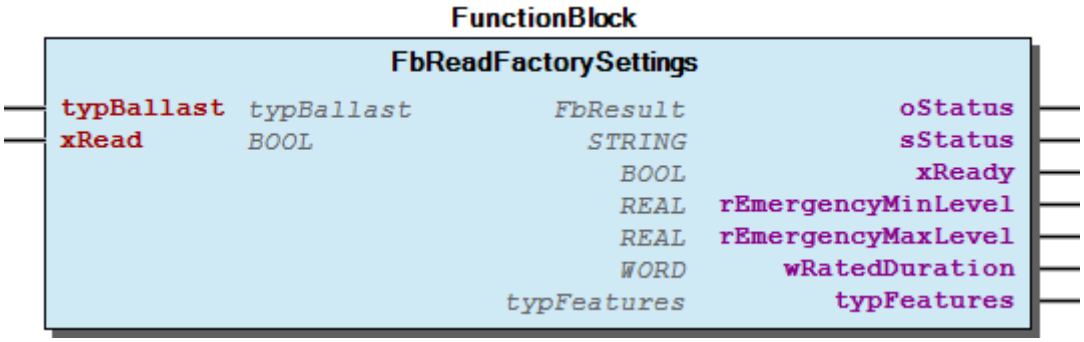
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xRead	BOOL	A positive edge initiates reading out the factory settings	
Output	rEmergencyMinLevel	REAL	Min. level for emergency mode	
	rEmergencyMaxLevel	REAL	Max. level for emergency mode	
	wRatedDuration	WORD	Rated duration [min]	
	typFeatures	*typFeatures*	Features of the self-contained emergency lighting	

Function

The function block readout the manufacture defined parameters

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.4.2 02 Function test

FbControlEmergencyLighting (FB)

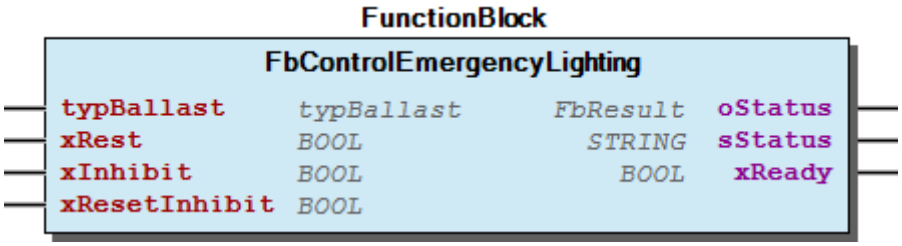
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xRest	BOOL	The emergency lighting is switched off	
	xInhibit	BOOL	Emergency operation is inhibited for 15 minutes	
	xResetInhibit	BOOL	Reset inhibit mode	

Function

The function block sends different control / reset commands to the emergency lighting devices.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbDurationTest (FB)

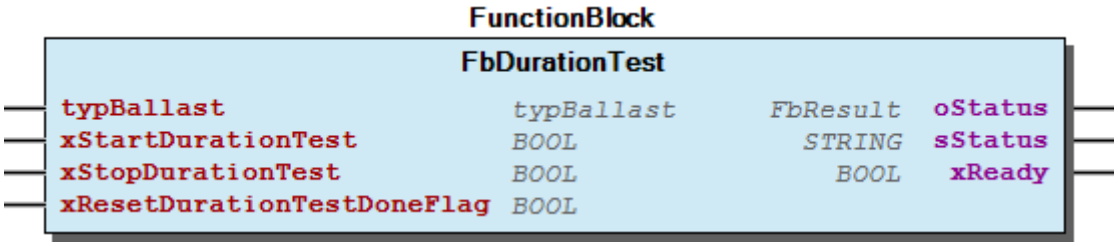
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xStartDurationTest	BOOL	Start duration test	
	xStopDurationTest	BOOL	Stop duration test	
	xResetDurationTestDone	BOOL	Resets the duration test done flag	

Function

The function block allows manual start / stop of the duration test.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbFunctionTest` (FB)

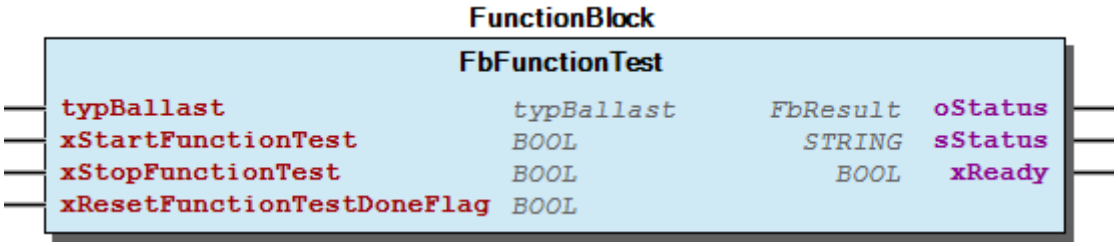
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorObject.FbResult`	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`	Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`typBallast`	*typBallast*	Definition which control gears will be addressed.	
	`xStartFunctionTest`	`BOOL`	Start function test	
	`xStopFunctionTest`	`BOOL`	Stop function test	
	`xResetFunctionTestDoneFlag`	`BOOL`	Resets the function test done flag	

Function

The function block allows manual start / stop of the function test.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.4.3 `03 Status`

`FbOperationTimeEmergencyLighting` (FB)

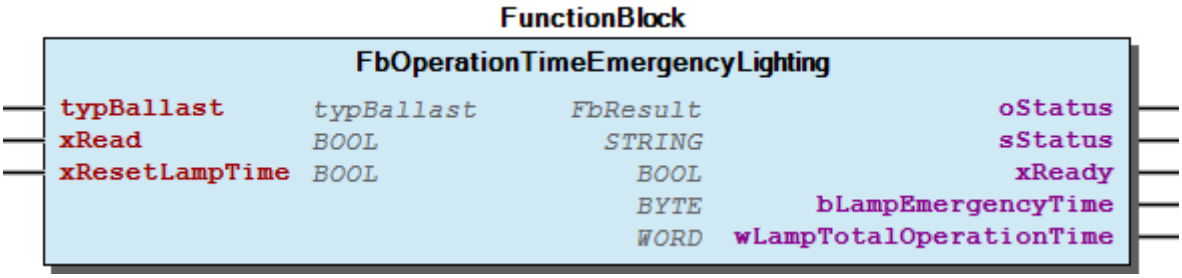
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xRead	BOOL	A positive edge initiates reading out the status values	
	xResetLampTime	BOOL		
Output	bLampEmergencyTime	BYTE	Hours	
	wLampTotalOperationTime	WORD	Hours	

Function

The function block readout the operation time of the self-contained emergency lighting.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbStatusEmergencyLighting` (FB)

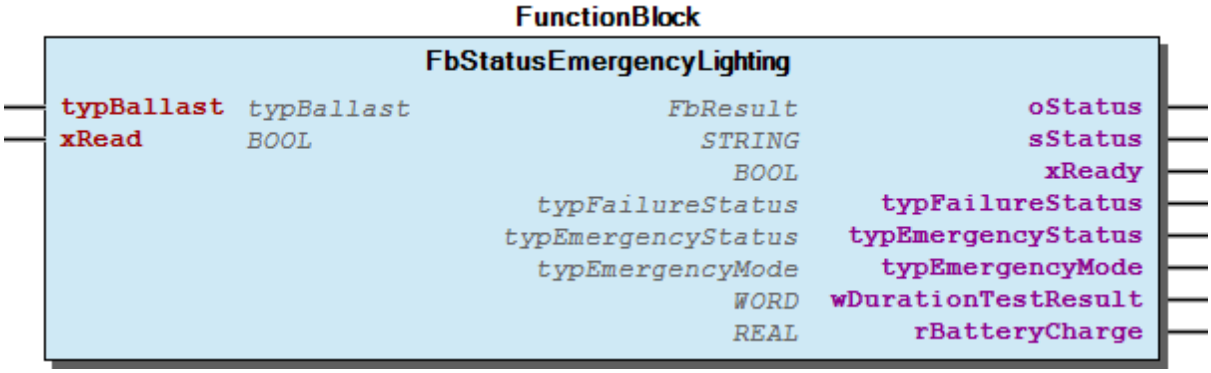
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	xRead	BOOL	A positive edge initiates reading out the status values	
Output	typFailureStatus	*typFailureStatus*	Actual failure status	
	typEmergencyStatus	*typEmergencyStatus*	Actual emergency status	
	typEmergencyMode	*typEmergencyMode*	Actual emergency mode	
	wDurationTestResult	WORD	Result of the last duration test [min]	
	rBatteryCharge	REAL	Charge condition of the battery [%]	

Function

The function block readout the status of the self-contained emergency lighting.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.4.4 80 Data Types

typCfgAutoTest (STRUCT)

InOut:

Name	Type	Comment
bFunctionTestInterval	BYTE	Function test interval in [days]
wFunctionTestDelayTime	WORD	Function Test Delay Time in [mins]
bDurationTestInterval	BYTE	Duration Test Interval in [weeks]
wDurationTestDelayTime	WORD	Duration Test Delay Time in [mins]

typCfgEmergencyLighting (STRUCT)

InOut:

Name	Type	Comment
rEmergencyLevel	REAL	%
bProlongTime	BYTE	0,5 min
bTestExecutionTimeout	BYTE	days

typEmergencyMode (STRUCT)

InOut:

Name	Type	Comment
xRestModeActive	BOOL	If rest mode is active, the lamp is intentionally of whilst the control gear is powered by the battery.
xNormalModeActive	BOOL	If normal mode is active, the main supply is available and the battery is charging.
xEmergencyModeActive	BOOL	If emergency mode is active, the main supply has failed and whilst the control gear is powered by the battery until deep discharge point.
xExtendedEmergencyModeActive	BOOL	If extended emergency mode is active, the control gear continues to operate the lamp in the same way as in emergency mode for the programmed prolong time after the restoration of the mains supply or after receipt of the control command to enter extendes emergency mode.
xFunctionTestInProgress	BOOL	If the function test is in progress, the integrity of the circuit and the correct operation of a lamp, a changeover device and the self-contained battery will be checked.
xDurationTestInProgress	BOOL	If the duration test is in progress, the self-contained battery will be checked if it supplies the system within the limits of rated duration of emergency operation.
xHardwireInhibitActive	BOOL	If the hardwired inhibit is active, the additional input of the control gear prevents the control gear from going into the emergency mode.
xHardwireSwitchIsOn	BOOL	If the hardwired switch is turned on, the additional input of the control gear is connected to a switch to switch the lamp on and off in normal mode.

typEmergencyStatus (STRUCT)

InOut:

Name	Type	Comment
xInhibitMode	BOOL	If this parameter is active, the inhibit mode is switched on.
xFunctionTestDoneAndResultValid	BOOL	If this parameter is active, the function test is done and the result is valid.
xDurationTestDoneAndResultValid	BOOL	If this parameter is active, the duration test is done and the result is valid.
xBatteryFullyCharged	BOOL	If this parameter is active, the battery is fully charged.
xFunctionTestRequestPending	BOOL	If this parameter is active, the function test is in progress.
xDurationTestRequestPending	BOOL	If this parameter is active, the duration test is in progress.
xIdentificationActive	BOOL	If this parameter is active, the identification is active.
xPhysicallySelected	BOOL	If this parameter is active, the physical selection is supported.

typFailureStatus (STRUCT)

InOut:

Name	Type	Comment
xCircuitFailure	BOOL	If this parameter is active, a curcuit failure is given.
xBatteryDurationFailure	BOOL	If This parameter is active, a battery duration failure is given.
xBatteryFailure	BOOL	If This parameter is active, a battery failure is given.
xEmergencyLampFailure	BOOL	If This parameter is active, a emergency lamp failure is given.
xFunctionTestMaxDelayExceeded	BOOL	If This parameter is active, the max delay exceeded in function test.
xDurationTestMaxDelayExceeded	BOOL	If This parameter is active, the max delay exceeded in duration test.
xFunctionTestFailed	BOOL	If This parameter is active, the function test failed.
xDurationTestFailed	BOOL	If This parameter is active, the duration test failed.

typFeatures (STRUCT)

InOut:

Name	Type	Comment
xIntegralEmergencyControlGear	BOOL	If This parameter is active, the feature “Integral emergency control gear” is given.
xMaintainedControlGear	BOOL	If This parameter is active, the feature “Maintained control gear” is given.
xSwitchedMaintainedControlGear	BOOL	If This parameter is active, the feature “Switched maintained control gear” is given.
xAutoTestCapability	BOOL	If This parameter is active, the feature “Auto test capability” is given.
xAdjustableEmergencyLevel	BOOL	If This parameter is active, the emergency level is adjustable.
xHardwireInhibitSupported	BOOL	If This parameter is active, the hardwired inhibit is supported.
xPhysicalSelectionSupported	BOOL	If This parameter is active, the physical selection is supported.
xReLightInResetModeSupported	BOOL	If This parameter is active, the feature “Relight in reset mode” is given.

3.5 28 Colour control (device type 8)

3.5.1 FbDaliRecallColourTemperature (FB)

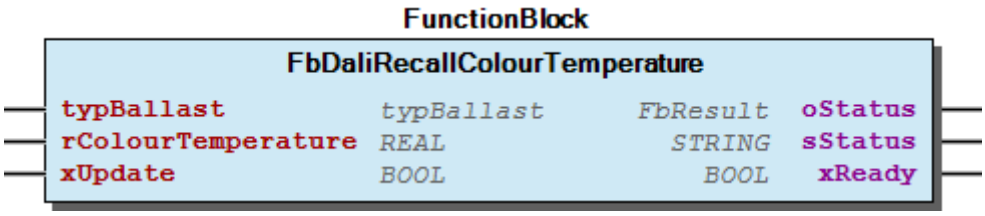
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	rColourTemperature	REAL	At this input the Colour temperature Tc can be set within a range of 1000 - 10000 K.	
	xUpdate	BOOL	The associated colour is called up directly on each change in value at the `rColourTemperature` input. The colour is called up again on a positive edge at the `xUpdate` input.	

Function

The function block is used to call up the color temperature Tc.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.5.2 `FbDaliRecallPrimary` (FB)

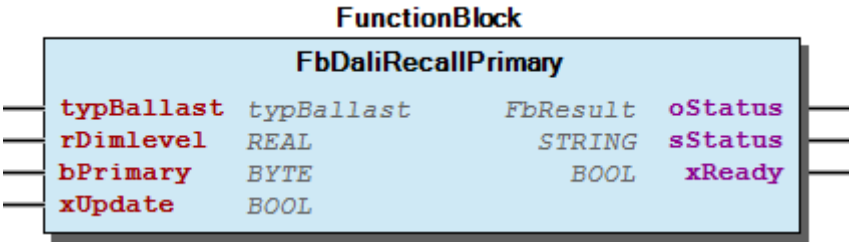
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	rDimlevel	REAL	With this input you set the dim level.	
	bPrimary	BYTE	Set the primary channel between 1 and 5.	
	xUpdate	BOOL	Toggle this input to update the dimlevel.	

Function

The function block sets the temporary primary dimlevel.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.5.3 FbDaliRecallRGBWAF (FB)

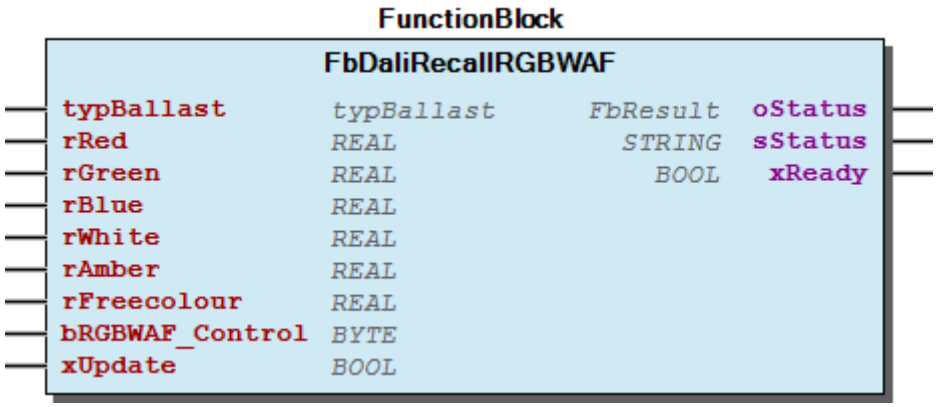
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	rRed	REAL	At this input the red value can be set.	
	rGreen	REAL	At this input the green value can be set.	
	rBlue	REAL	At this input the blue value can be set.	
	rWhite	REAL	At this input the white value can be set.	
	rAmber	REAL	At this input the amber value can be set.	
	rFreecolour	REAL	At this input the free colour value can be set.	
	bRGBWAF_Control	BYTE	At this input the RGBWAF control will be set. See also “Command 251 in IEC 62386-209 norm”.	
	xUpdate	BOOL	Toggle this input to update the dimlevel.	

Function

The function block sends the RGBWAF signal.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.5.4 FbDaliRecall_XY_Coordinate (FB)

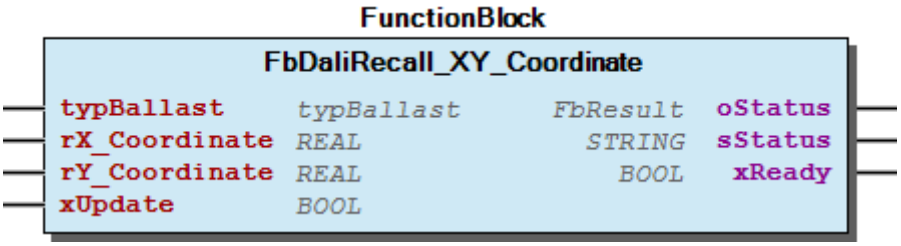
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	rX_Coordinate	REAL	At this input the X-coordinate is set.	
	rY_Coordinate	REAL	At this input the Y-coordinate is set.	
	xUpdate	BOOL	The associated colour is called up directly on each change in value at the `rX_Coordinate` and `rY_Coordinate` inputs. The colour is called up again on a positive edge at the `xUpdate` input.	

Function

The function block is used to call up a color from a “CIE 1931” diagram.

Graphical Illustration



General notes

Note: The X and Y coordinates can be read from a Yxy colour scheme.

Note: Please consider for a correct function the *system properties*.

3.5.5 FbDaliWriteColourTemperatureScene (FB)

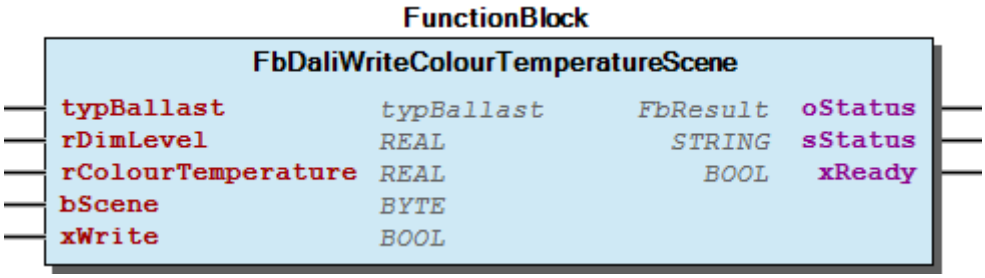
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	rDimLevel	REAL	Dim level for the selected scene	
	rColourTemperature	REAL	At this input the Colour temperature Tc can be set within a range of 1000 - 10000 K.	
	bScene	BYTE	Selection of the DALI scene (0-15).	
	xWrite	BOOL	A positive edge results in writing of the scene values to the control gear (ECG).	

Function

The function block can write the colour temperature scene Tc.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.5.6 FbDaliWrite_XY_CoordinateScene (FB)

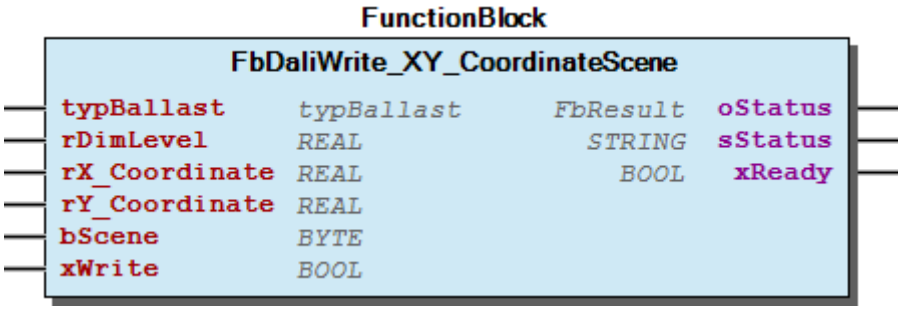
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typBallast	*typBallast*	Definition which control gears will be addressed.	
	rDimLevel	REAL	Dim level for the selected scene	
	rX_Coordinate	REAL	At this input the X-coordinate is set.	
	rY_Coordinate	REAL	At this input the Y-coordinate is set.	
	bScene	BYTE	Selection of the DALI scene (0-15).	
	xWrite	BOOL	A positive edge results in writing of the scene values to the control gear (ECG).	

Function

The function block can write the scene with xy-coordinates.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.6 51 Energy Reporting (device type 51)

3.6.1 80 Data Types

typValidEnergyAndPower (STRUCT)

InOut:

Name	Type	Comment
xEnergy	BOOL	The energy value is valid
xPower	BOOL	The power value is valid

3.6.2 FbDaliActiveEnergyAndPower (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xEnable	BOOL		The input releases the cyclic polling of the values	
	bShortAddress	BYTE		Short address (0–63)	
	tUpdateInterval	TIME	TIME#15m0s0ms	This input defines the update interval for requesting the values.	
Output	typValid	*typValidEnergyAndPower*		Indicates which values are valid	
	rActiveEnergy	REAL		Active Energy [Wh]	
	rActivePower	REAL		Active Power [W]	

Function

The function block reads the energy values Active Energy and Active Power from the control gear(ECG).

Graphical Illustration

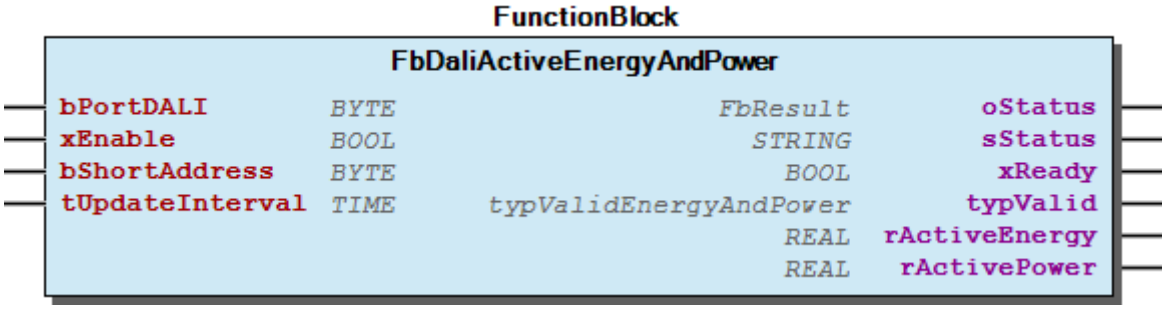


Fig. 3.1: Graphical Interface of FbDaliActiveEnergyAndPower

General notes

Note: To reduce the bus load, only one function block from the category Device Type 49 to 52 can read out the data from the ECG.

Note: Please consider for a correct function the *system properties*.

3.6.3 FbDaliApparentEnergyAndPower (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xEnable	BOOL		The input releases the cyclic polling of the values	
	bShortAddress	BYTE		Short address (0–63)	
	tUpdateInterval	TIME	TIME#15m0s0ms	This input defines the update interval for requesting the values.	
Output	typValid	*typValidEnergyAndPower*		Indicates which values are valid	
	rApparentEnergy	REAL		Apparent Energy [Wh]	
	rApparentPower	REAL		Apparent Power [W]	

Function

The function block reads the energy values Apparent Energy and Apparent Power from the control gear(ECG).

Graphical Illustration

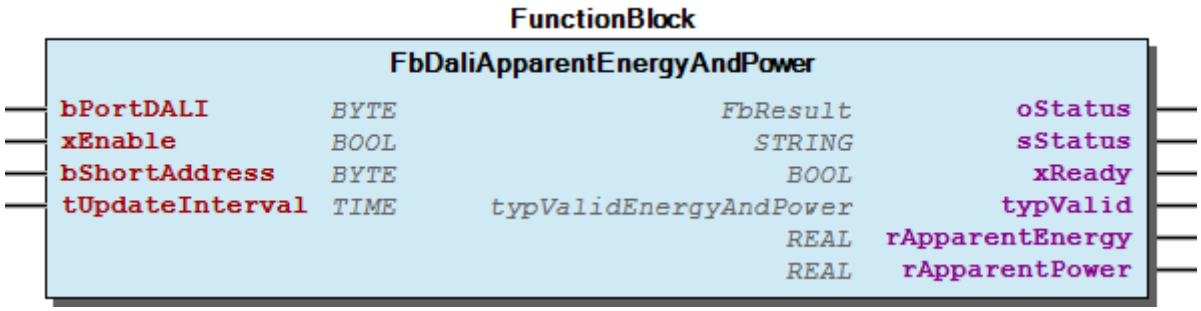


Fig. 3.2: Graphical Interface of FbDaliApparentEnergyAndPower

General notes

Note: To reduce the bus load, only one function block from the category Device Type 49 to 52 can read out the data from the ECG.

Note: Please consider for a correct function the *system properties*.

3.6.4 FbDaliLoadSideEnergyAndPower (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xEnable	BOOL		The input releases the cyclic polling of the values	
	bShortAddress	BYTE		Short address (0–63)	
	tUpdateInterval	TIME	TIME#15m0s0ms	This input defines the update interval for requesting the values.	
Output	typValid	*typValidEnergyAndPower*		Indicates which values are valid	
	rActiveEnergyLoadside	REAL		Active Energy Loadside [Wh]	
	rActivePowerLoadside	REAL		Active Power Loadside[W]	

Function

The function block reads the energy values Active Energy Loadside and Active Power Loadside from the control gear(ECG).

Graphical Illustration

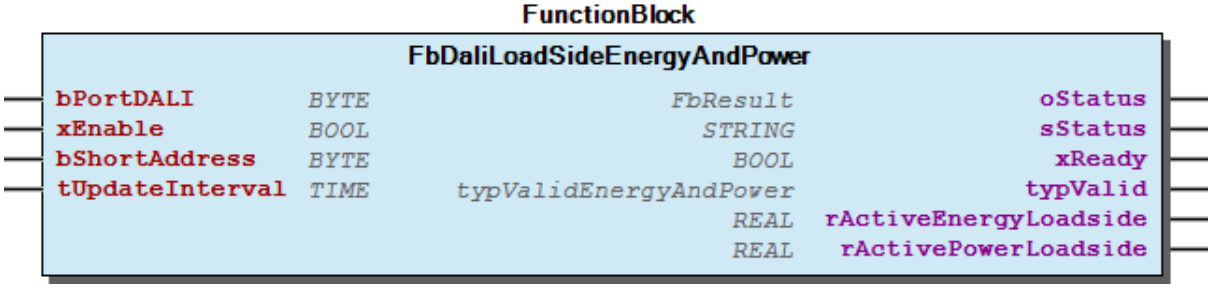


Fig. 3.3: Graphical Interface of FbDaliLoadSideEnergyAndPower

General notes

Note: To reduce the bus load, only one function block from the category Device Type 49 to 52 can read out the data from the ECG.

Note: Please consider for a correct function the *system properties*.

3.7 52 Diagnostics and Maintenance (device type 52)

3.7.1 80 Data Types

typValidControlGearDiagnosticsAndMaintenance (STRUCT)

InOut:

Name	Type	Comment
xOperatingTime	BOOL	The value dwOperatingTime is valid
xStartCounter	BOOL	The value dwStartCounter is valid
xVoltage	BOOL	The value rExternalSupplyVoltage is valid
xFrequency	BOOL	The value bFrequency is valid
xPowerFactor	BOOL	The value rPowerFactor is valid
xOverallFailureCondition	BOOL	The value xOverallFailureCondition is valid
xOverallFailureConditionCounter	BOOL	The value bOverallFailureConditionCounter is valid
xUndervoltage	BOOL	The value xUndervoltage is valid
xUndervoltageCounter	BOOL	The value bUndervoltageCounter is valid
xOvervoltage	BOOL	The value xOvervoltage is valid
xOvervoltageCounter	BOOL	The value bOvervoltageCounter is valid
xOutputPowerLimitation	BOOL	The value xOutputPowerLimitation is valid
xOutputPowerLimitationCounter	BOOL	The value bOutputPowerLimitationCounter is valid
xThermalDerating	BOOL	The value xThermalDerating is valid
xThermalDeratingCounter	BOOL	The value bThermalDeratingCounter is valid
xThermalShutdown	BOOL	The value xThermalShutdown is valid
xThermalShutdownCounter	BOOL	The value bThermalShutdownCounter is valid
xTemperature	BOOL	The value siTemperature is valid
xOutputCurrentPercent	BOOL	The value bOutputCurrentPercent is valid

typValidLightSourceDiagnosticsAndMaintenance (STRUCT)

InOut:

Name	Type	Comment
xStartCounterResettable	BOOL	The value dwCounterResettable is valid
xStartCounter	BOOL	The value dwStartCounter is valid
xOnTimeResettable	BOOL	The value dwOnTimeResettable is valid
xOnTime	BOOL	The value dwOnTime is valid
xVoltage	BOOL	The value rVoltage is valid
xCurrent	BOOL	The value rCurrent is valid
xOverallFailureCondition	BOOL	The value bOverallFailureCondition is valid
xOverallFailureConditionCounter	BOOL	The value bOverallFailureConditionCounter is valid
xShortCircuit	BOOL	The value xShortCircuit is valid
xShortCircuitCounter	BOOL	The value bShortCircuitCounter is valid
xOpenCricuit	BOOL	The value xOpenCricuit is valid
xOpenCircuitCounter	BOOL	The value bOpenCircuitCounter is valid
xThermalDerating	BOOL	The value xThermalDerating is valid
xThermalDeratingCounter	BOOL	The value bThermalDeratingCounter is valid
xThermalShutdown	BOOL	The value xThermalShutdown is valid
xThermalShutdownCounter	BOOL	The value bThermalShutdownCounter is valid
xTemperature	BOOL	The value siTemperature is valid

3.7.2 FbDaliControlGearDiagnosticsAndMaintenance (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xEnable	BOOL		The input releases the cyclic polling of the values	
	bShortAddress	BYTE		Short address (0–63)	
	tUpdateInterval	TIME	TIME#60m0s0ms	This input defines the update interval for requesting the values.	
Output	typValid	*typValid-ControlGearDiagnosticsAndMaintenance*		Status message from ECG (value is not available or temporary not available)	
	dwOperatingTime	DWORD		Operating Time of the Control Gear (ECG) [min]	
	dwStartCounter	DWORD		Counts the number of control gear starts that are induced by a power cycle of the external supply.	
	rExternalSupplyVoltage	REAL		RMS value of external supply voltage [Vrms]	
	bFrequency	BYTE		Frequency of external supply voltage[Hz]. (0 in case of 0 Hz pure DC or rectified AC voltage).	
	rPowerFactor	REAL		Power Factor	
	xOverallFailureCondition	BOOL		Overall Failure Condition reflects the status of “controlGearFailure”.	
	bOverallFailureCondition	BYTE		Counts the number of OverallFailureCondition	
	xUndervoltage	BOOL		xUndervoltage = 1, if the ExternalSupplyVoltage of the control gear is such that lifetime and/or performance of the control gear could be affected.	
	bUndervoltageCounter	BYTE		Counts the number of ControlGearUndervoltages	
	xOvervoltage	BOOL		xOvervoltage = 1, if the ExternalSupplyVoltage of the control gear is such that lifetime and/or performance of the control gear could be affected.	
	bOvervoltageCounter	BYTE		Counts the number of ControlGearOvervoltages	
	xOutputPowerLimitation	BOOL		xOutputPowerLimitation = 1, if the control gear limits the output current due to its internal power limitation. This is the case if the LED voltage multiplied with the control gear output current is higher than the output power limit of the control gear.	
	bOutputPowerLimitationCounter	BYTE		Counts the number of	

Function

The function block reads diagnostic and maintenace reports from the control gear(ECG).

Graphical Illustration

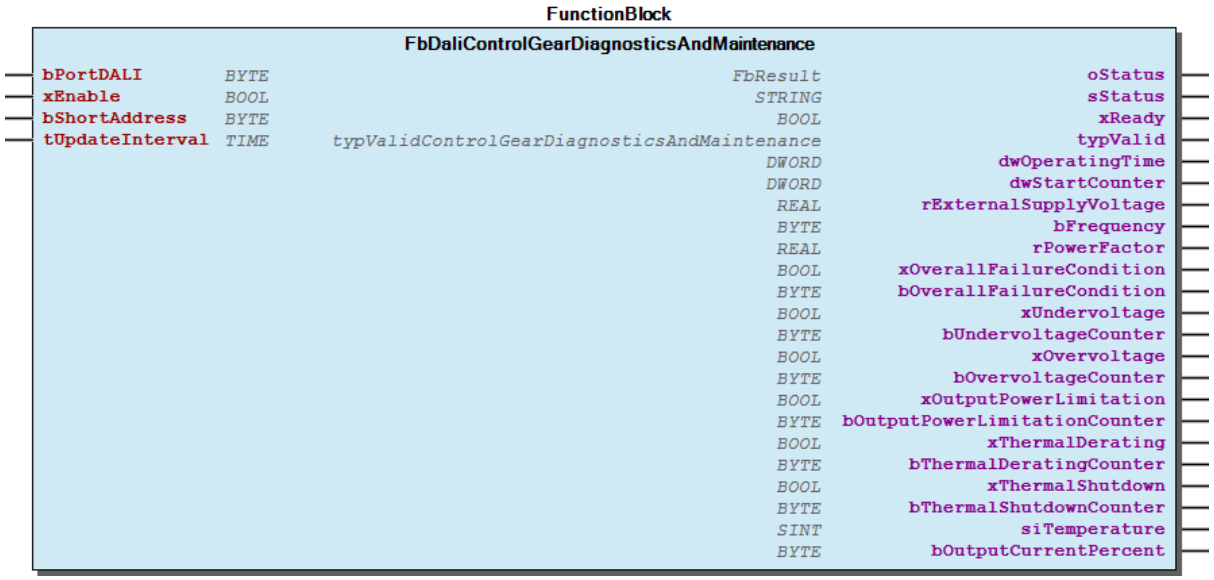


Fig. 3.4: Graphical Interface of FbDaliControlGearDiagnosticsAndMaintenance

General notes

Note: To reduce the bus load, only one function block from the category Device Type 49 to 52 can read out the data from the ECG.

Note: Please consider for a correct function the *system properties*.

3.7.3 FbDaliLightSourceDiagnosticsAndMaintenance (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xEnable	BOOL		The input releases the cyclic polling of the values	
	bShortAddress	BYTE		Short address (0–63)	
	tUpdateInterval	TIME	TIME#60m0s0ms	This input defines the update interval for requesting the values.	
	xSetCounter	BOOL		A positive edge writes the value dwSetCounter to the resetable start counter dwCounterResettable	
	dwSetCounter	DWORD		The value to be written for dwCounterResettable	
	xSetOnTime	BOOL		A positive edge writes the value dwSetOnTime to the resetable operating time dwOnTimeResettable	
	dwSetOnTime	DWORD		The value to be written for dwOnTimeResettable [min]	
Output	typValid	*typValid-Light-SourceDiagnostic-sAndMaintenance*		Status message from ECG (value is not available or temporary not available)	
	dwCounterResettable	DWORD		Resettable counter of the starts of the light source	
	dwStartCounter	DWORD		Counter of the starts of the light source	
	dwOnTimeResettable	DWORD		Resettable Operating Time of the Control Gear (ECG) [min]	
	dwOnTime	DWORD		Light source operating time[min].	
	rVoltage	REAL		Actual control gear output voltage [V]	
	rCurrent	REAL		Light source current	
	xOverallFailureCondition	BOOL		Overall Failure Condition reflects the status of “controlGearFailure”.	
	bOverallFailureCondition	BYTE		Counts the number of OverallFailureCondition	
	xShortCircuit	BOOL		light source has a lamp failure with short circuit	
	bShortCircuitCounter	BYTE		Counts the number of ControlGearShortCircuits	
	xOpenCricuit	BOOL		light source has a lamp failure with open circuit	
	bOpenCircuitCounter	BYTE		Counts the number of LightSourceOpenCircuits	
	xThermalDerating	BOOL		Lifetime AND/OR performance of the light source could be affected if the light source temperature is too high. If xThermalDerating = 1 the output current of the control gear	

Function

The function block reads diagnostic and maintenace reports from the light source.

Graphical Illustration

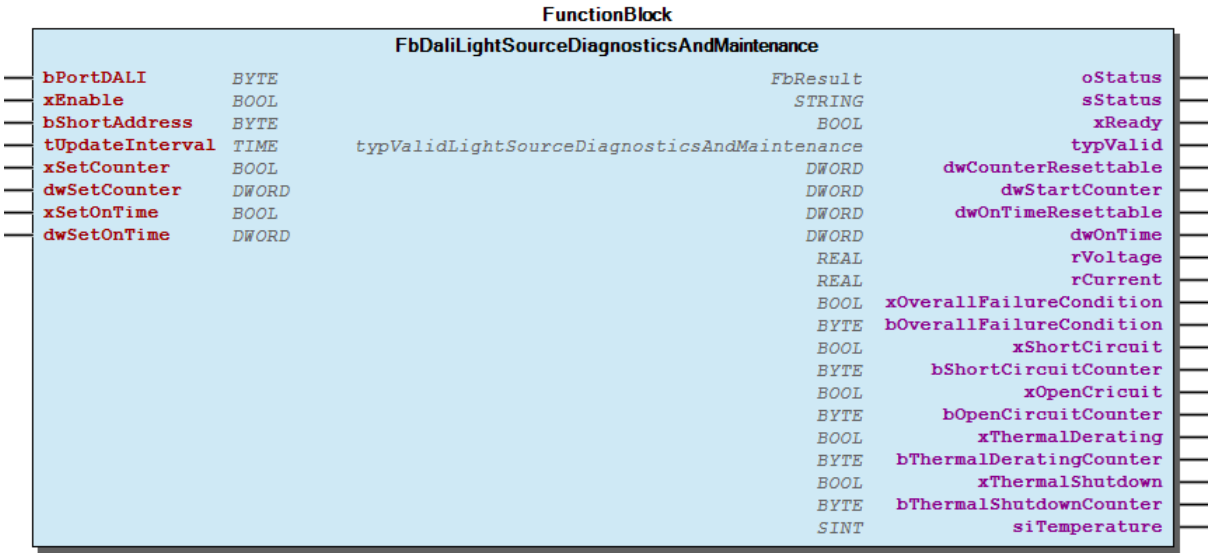


Fig. 3.5: Graphical Interface of FbDaliLightSourceDiagnosticsAndMaintenance

General notes

Note: To reduce the bus load, only one function block from the category Device Type 49 to 52 can read out the data from the ECG.

Note: Please consider for a correct function the *system properties*.

3.8 60 Standard Sensor

3.8.1 01 Configuration

FbDaliAddressingStandardSensor (FB)

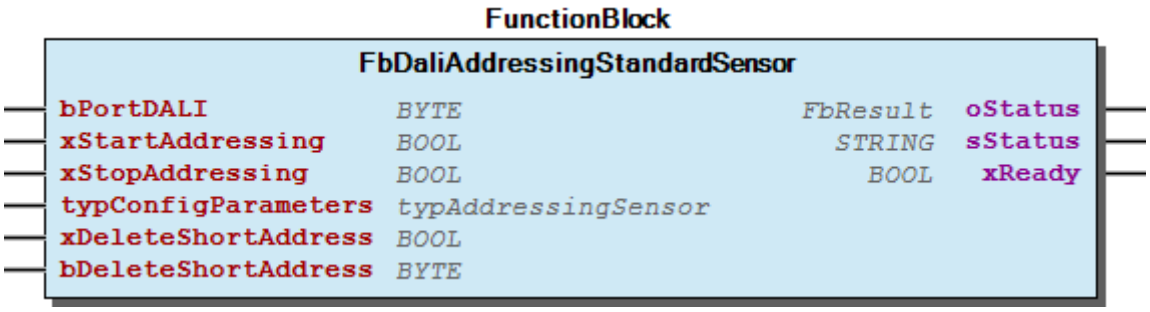
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xStartAddressing	BOOL		A positive edge starts the random addressing of the DALI control devices (sensors).	
	xStopAddressing	BOOL		A positive edge ends the addressing of the control devices (sensors) prematurely.	
	typConfigParameters	*typAddressingSensor*		Selection of the different addressing options.	
	xDeleteShortAddress	BOOL		A positive edge deletes the selected `bDeleteShortAddress` short address.	
	bDeleteShortAddress	BYTE		Selection of the short address to be deleted.	

Function

The function block is used to address the connected DALI control devices (sensors). In addition, the short addresses can be changed or the short addresses can be deleted.

Graphical Illustration



General notes

Note: All sensors connected to the system are switched to the passive-mode (sensors may not transmit DALI telegrams on their own) prior to addressing.

Note: Upon completion of addressing, all sensors can be set to standard configuration defined in *StandardSensorConfiguration*.

Note: Please consider for a correct function the *system properties*.

FbDaliChangeAddressStandardSensor (FB)

Interface variables

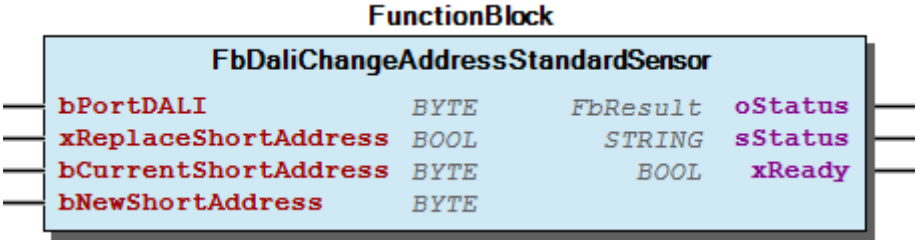
Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xReplaceShortAddress	BOOL		A positive edge replaces the bCurrentShortAddress with the bNewShortAddress. The bCurrentShortAddress must be available at least.	
	bCurrentShortAddress	BYTE		Actual short address of the control device (sensor).	
	bNewShortAddress	BYTE	63	Target short address of the control device (sensor).	

Note: If bNewShortAddress already exists, the addresses will be swapped among each other.

Function

The function block is used to change the control device (sensor) short addresses.

Graphical Illustration



Example

Swap short address 1 with short address 2, so that the control device with short address 1 gets the short address 2 and vice versa.

1. Set bCurrentShortAddress to “1”.
2. Set bNewShortAddress to “2”.
3. Set xReplaceShortAddress to “TRUE”.

Note: Please consider for a correct function the *system properties*.

FbDaliIdentifyStandardSensor (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.	
	xIdentify	BOOL		The selected control device (sensor) identifies as long as the input is active.	
	bShortAddress	BYTE		Selected Short address.	

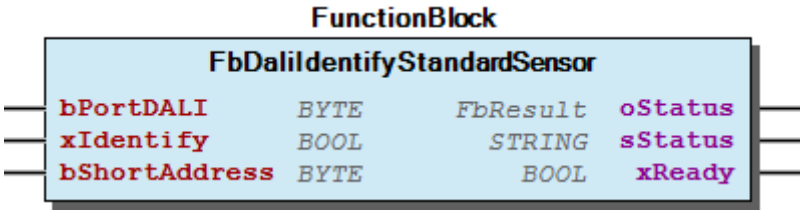
Function

The function block is used to identify the control device (sensor) short addresses.

Function description

As long as `xIdentify` is active the control device, which is selected in `bShortAddress`, is identified. If you change the control device selection, the old address stops identification and the new address starts identification.

Graphical Illustration



Example

Identifying control devices (sensor) 1 and 2:

1. Set `bShortAddress` to short address “1”.
2. Set `xIdentify` to “TRUE”.
3. Now control device (sensor) with short address “1” is flashing.
4. Set `bShortAddress` to short address “2”.
5. Now control device (sensor) with short address “2” is flashing. (Control device (sensor) with short address “1” stops flashing.)
6. Set `xIdentify` to “FALSE” to stop the identification.

Note: Please consider for a correct function the *system properties*.

StandardSensorConfiguration (GVL)

Global parameter for standard sensors (control devices), written by *FbDaliMaster* or when addressing sensors. All parameters are written broadcast.

3.8.2 02 Sensor Values

FbDaliSensorLight (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReadyBase
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReadyBase
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReadyBase
Input	typSensor	*typSensor*		Sensor address to be read.	FbDaliSensorValues
	tWatchdog	TIME	TIME#5m0s0ms		FbDaliSensorValues
	xReadSensorParameter	BOOL		A positive edge restarts reading sensor parameters to inpertrete sensor events.	FbDaliSensorValues
Output	rLightLevel	REAL		Minimum measured light level [lx] of any instance of the sensor.	

Note: With program start the function block reads nesseccary sensor configuration via DALI bus. Until it is done the status is “busy”.

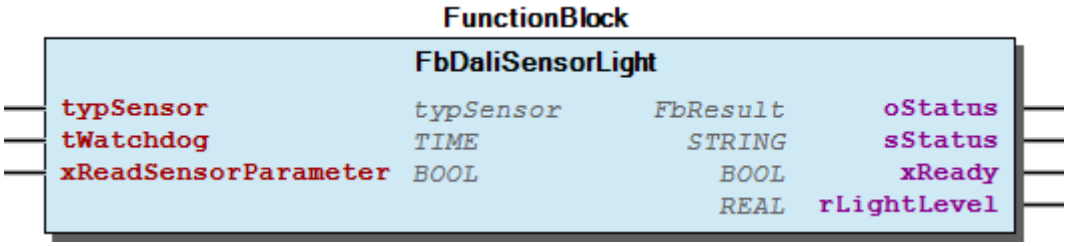
Function

The function block outputs the event based light level signals from a standard sensor (DALI-2).

Note: Presence holding time for movement based sensors is configured in sensor configuration *StandardSensor-*

Configuration.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbDaliSensorLightPresence` (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReadyBase
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReadyBase
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReadyBase
Input	typSensor	*typSensor*		Sensor address to be read.	FbDaliSensorValues
	tWatchdog	TIME	TIME#5m0s0ms		FbDaliSensorValues
	xReadSensorParameter	BOOL		A positive edge restarts reading sensor parameters to inpertrete sensor events.	FbDaliSensorValues
Output	xPresence	BOOL		Presence detection of any instance of the sensor.	
	rLightLevel	REAL		Minimum measured light level [lx] of any instance of the sensor.	

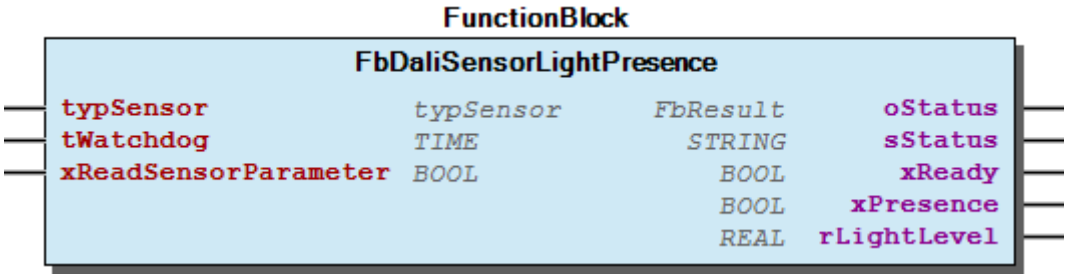
Note: With program start the function block reads nesseccary sensor configuration via DALI bus. Until it is done the status is “busy”.

Function

The function block outputs the event based data signals from a standard sensor (DALI-2) for presence and light level.

Note: Presence holding time for movement based sensors is configured in sensor configuration *StandardSensorConfiguration*.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbDaliSensorPresence (FB)

Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReadyBase
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReadyBase
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReadyBase
Input	typSensor	*typSensor*		Sensor address to be read.	FbDaliSensorValues
	tWatchdog	TIME	TIME#5m0s0ms		FbDaliSensorValues
	xReadSensorParameter	BOOL		A positive edge restarts reading sensor parameters to inpertrete sensor events.	FbDaliSensorValues
Output	xPresence	BOOL		Presence detection of any instance of the sensor.	

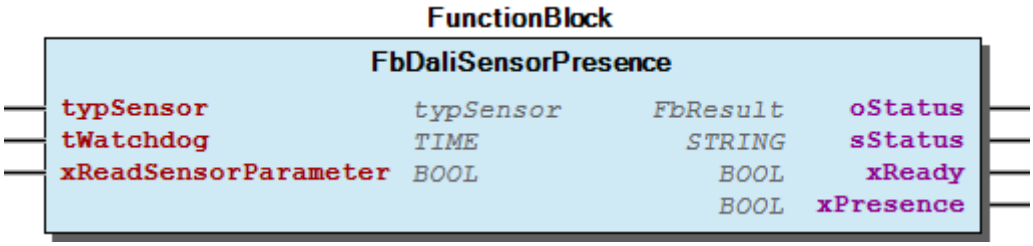
Note: With program start the function block reads nesseccary sensor configuration via DALI bus. Until it is done the status is “busy”.

Function

The function block outputs the event based presence signals from a standard sensor (DALI-2).

Note: Presence holding time for movement based sensors is configured in sensor configuration *StandardSensor-Configuration*.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbDaliSensorPushbutton4` (FB)

Interface variables

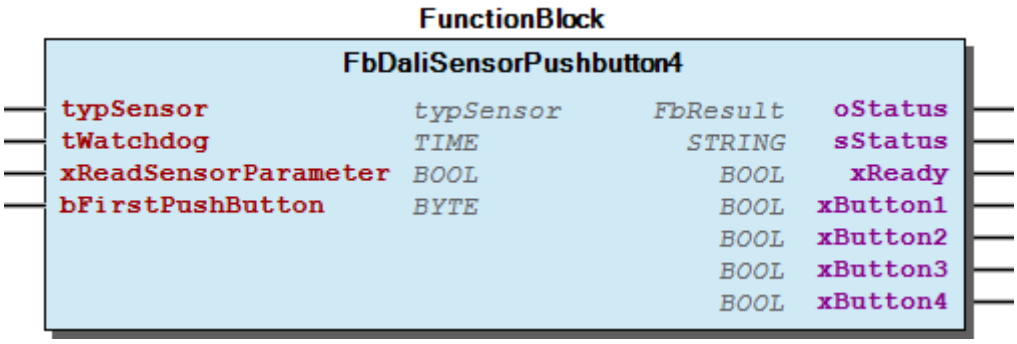
Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReadyBase
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReadyBase
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReadyBase
Input	typSensor	*typSensor*		Sensor address to be read.	FbDaliSensorValues
	tWatchdog	TIME	TIME#5m0s0ms		FbDaliSensorValues
	xReadSensorParameter	BOOL		A positive edge restarts reading sensor parameters to inpertrete sensor events.	FbDaliSensorValues
	bFirstPushButton	BYTE		Defines the first utilized push button instance. Range: 1-27	
Output	xButton1	BOOL		Indicates that button 1 is pressed.	
	xButton2	BOOL		Indicates that button 2 is pressed.	
	xButton3	BOOL		Indicates that button 3 is pressed.	
	xButton4	BOOL		Indicates that button 4 is pressed.	

Note: With program start the function block reads nesseccary sensor configuration via DALI bus. Until it is done the status is “busy”.

Function

The function block outputs the event based data signals from a standard sensor (DALI2) for 4 push button instances.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.8.3 03 Advanced Sensor Values

FbDaliAbsoluteInputSensorIT2 (FB)

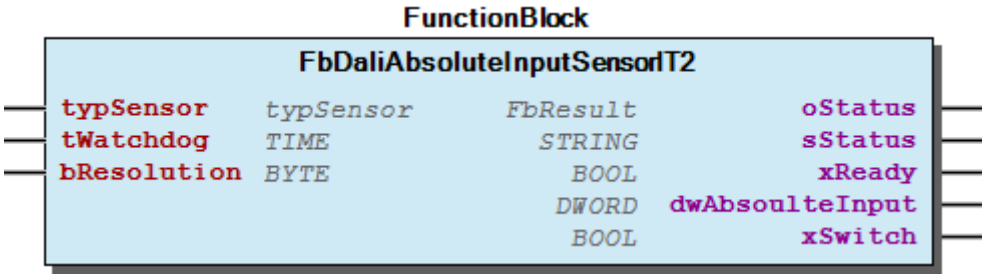
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typSensor	*typSensor*		DALI sensor address parameter for brightness measurement.	
	tWatchdog	TIME	TIME#5m0s0ms	This input defines the time period within a refresh signal must be transmitted by the sensor. The function can be deactivated by using the value t#0s.	
	bResolution	BYTE	10	Resolution of the absolute input sensor	
Output	dwAbsoulteInput	DWORD		Measured absolute input value.	
	xSwitch	BOOL		Displays switch status if switch mode is active.	

Function

The function block outputs the raw data for the signals transmitted by a standard sensor absolute input instance.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbDaliLightSensorIT4` (FB)

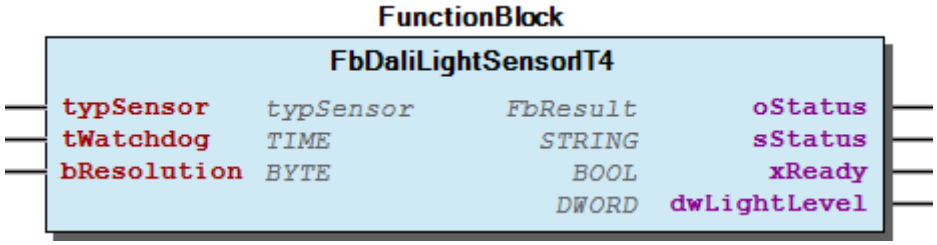
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`		Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`typSensor`	*typSensor*		DALI sensor address parameter for brightness measurement.	
	`tWatchdog`	`TIME`	TIME#5m0s0ms	This input defines the time period within a refresh signal must be transmitted by the sensor. The function can be deactivated by using the value t#0s.	
	`bResolution`	`BYTE`	10	Resolution of the light sensor	
Output	`dwLightLevel`	`DWORD`		Measured light Level [lx].	

Function

The function block outputs the raw data for the signals transmitted by a standard sensor light instance.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbDaliPresenceSensorIT3 (FB)

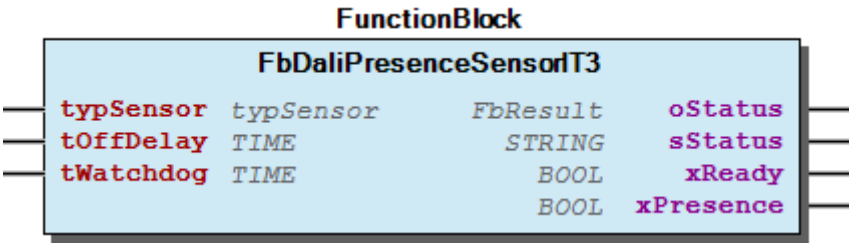
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typSensor	*typSensor*		DALI sensor address parameter for presence detection.	
	tOffDelay	TIME	TIME#10m0s0ms	This input defines the switch-off delay for the presence detection. If tOffDelay = t#0s, then only the holding time of the presence sensor will be evaluated.	
	tWatchdog	TIME	TIME#5m0s0ms	This input defines the time period within a refresh signal must be transmitted by the sensor. The function can be deactivated by using the value t#0s.	
Output	xPresence	BOOL		Presence detected.	

Function

The function block outputs the raw data for the signals transmitted by a standard sensor presence instance.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbDaliPushButtonSensorIT1 (FB)

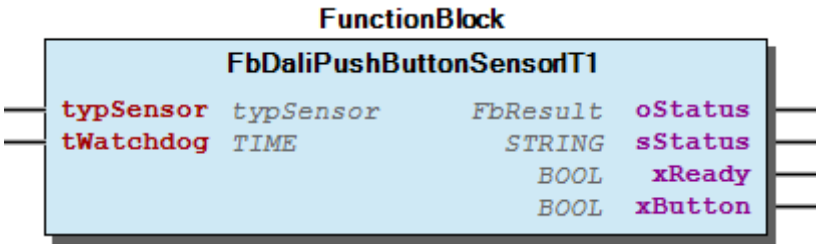
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typSensor	*typSensor*		DALI sensor address parameter for push button.	
	tWatchdog	TIME	TIME#5m0s0ms	This input defines the time period within a refresh signal must be transmitted by the sensor. The function can be deactivated by using the value t#0s.	
Output	xButton	BOOL		Indicates that button is pressed.	

Function

The function block outputs the raw data for the signals transmitted by a standard sensor push button instance.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbDaliStandardSensor` (FB)

Interface variables

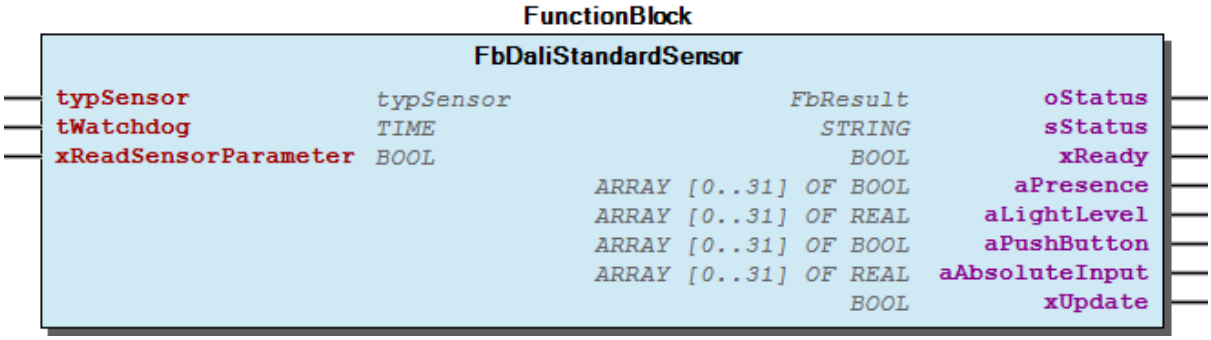
Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReadyBase
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReadyBase
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReadyBase
Input	typSensor	*typSensor*		Sensor address to be read.	FbDaliSensorValues
	tWatchdog	TIME	TIME#5m0s0ms		FbDaliSensorValues
	xReadSensorParameter	BOOL		A positive edge restarts reading sensor parameters to inpertrete sensor events.	FbDaliSensorValues
Output	aPresence	ARRAY [0..31] OF BOOL		Presence detection of the sensor.	
	aLightLevel	ARRAY [0..31] OF REAL		Measured light Level [lx].	
	aPushButton	ARRAY [0..31] OF BOOL		Signals pressed Pushbutton.	
	aAbsoluteInput	ARRAY [0..31] OF REAL		Measured absolute input level.	
	xUpdate	BOOL		New Event from the sensor received.	

Note: With program start the function block reads nesseccary sensor configuration via DALI bus. Until it is done the status is “busy”.

Function

The function block outputs the values transferred from a standard sensor (DALI2). The outputs are sorted by instance types.

Graphical Illustration



`FbDaliStandardSensorHighResolution` (FB)

Interface variables

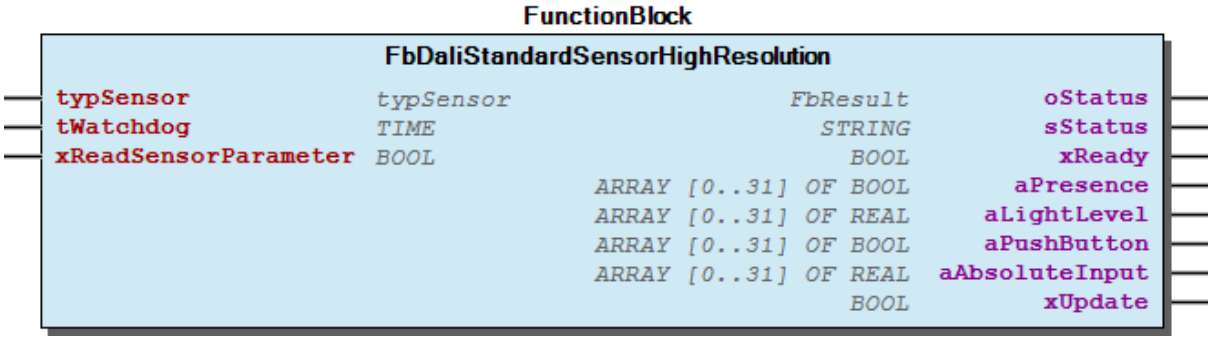
Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReadyBase
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReadyBase
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReadyBase
Input	typSensor	*typSensor*		Sensor address to be read.	FbDaliSensorValues
	tWatchdog	TIME	TIME#5m0s0ms		FbDaliSensorValues
	xReadSensorParameter	BOOL		A positive edge restarts reading sensor parameters to inpertrete sensor events.	FbDaliSensorValues
Output	aPresence	ARRAY [0..31] OF BOOL		Presence detection of the sensor.	*FbDaliStandardSensor*
	aLightLevel	ARRAY [0..31] OF REAL		Measured light Level [lx].	*FbDaliStandardSensor*
	aPushButton	ARRAY [0..31] OF BOOL		Signals pressed Pushbutton.	*FbDaliStandardSensor*
	aAbsoluteInput	ARRAY [0..31] OF REAL		Measured absolute input level.	*FbDaliStandardSensor*
	xUpdate	BOOL		New Event from the sensor received.	*FbDaliStandardSensor*

Note: With program start the function block reads nesseccary sensor configuration via DALI bus. Until it is done the status is “busy”.

Function

The function block outputs the values transferred from a standard sensor (DALI2). The outputs are sorted by instance types. The function block shell be used for sensors with high resolution of light instances. After a light event, the value gets querried up to a resolution of 32.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbDaliUniversalSensorIT0` (FB)

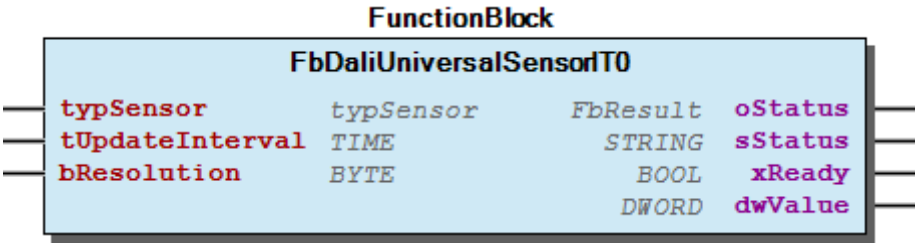
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`		Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`typSensor`	*typSensor*		DALI sensor address parameter.	
	`tUpdateInterval`	`TIME`	TIME#10s0ms	This input defines the update interval for measured value. Value t#0s deactivats updates; miminum interval t#1s.	
	`bResolution`	`BYTE`	10	Resolution of the sensor	
Output	`dwValue`	`DWORD`		Measured value	

Function

The function block outputs the raw data for the signals querried from a standard sensor universal instance.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.8.4 08 Additional Functions

FbButtonStuck (FB)

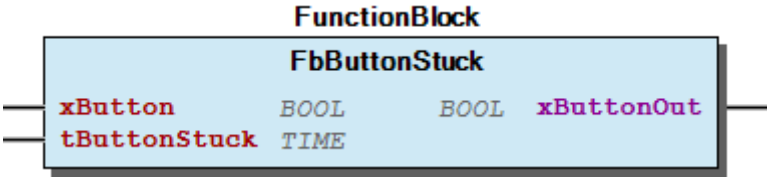
Interface variables

Scope	Name	Type	Initial	Comment
Input	xButton	BOOL		Received sensor signal from standard sensor.
	tButtonStuck	TIME	TIME#20s0ms	Button stuck time. If it is expected while xButton is TRUE, the output will be set to FALSE.
Output	xButtonOut	BOOL		Output signal with handled button stuck functionality.

Function

The function block is used to be the button stuck funtionality for push button standard sensors while it is deactivated by event filter in *StandardSensorConfiguration*.

Graphical Illustration



Function Description

If xButton is pressed until the time tButtonStuck expires, the xButtonOut will set to FALSE until a negative and new positive edge of the xButton input. Otherwise the output xButtonOut follows the input signal xButton.

3.8.5 80 Data Types

typAddressingSensor (STRUCT)

InOut:

Name	Type	Initial	Comment
xOnlyUnadressedDevices	BOOL	TRUE	Only control devices (sensors) with no short address are readdressed.
xWriteGlobalConfiguration	BOOL	TRUE	Writes the configuration for all control devices (sensors). The configuration values can be changed in *StandardSensorConfiguration*.
xIdentify	BOOL	TRUE	The dimming level is changed during addressing

typEnableConfigurationCommands (STRUCT)

InOut:

Name	Type	Initial	Comment
ApplicationControllers	BOOL		Enable/Disable other application controllers
OperatingMode	BOOL		Set the operating mode
DeleteDeviceGroups	BOOL		Delete configured groups in control devices
PowerCycleNotification	BOOL		Enable/Disable power cycle notification
EnableInstance	BOOL	TRUE	Enable/Disable sensor instances
DeleteInstanceGroups	BOOL		Delete configured groups in sensor instances
EventSheme	BOOL	TRUE	Set event sheme
LightEventFilter	BOOL	TRUE	Enable/Disable illuminence level events
LightEventPriority	BOOL		Event priority for illuminence level events
LightReportTime	BOOL	TRUE	Inverval in which the input value will be repeated even the input value has not changed
LightHysteresis	BOOL	TRUE	Hysteresis
LightHysteresisMin	BOOL	TRUE	Hysteresis Min
LightDeadTime	BOOL	TRUE	Defines minimum deadtime between two events
PresenceEventFilter	BOOL	TRUE	Set presence event filter
PresenceEventPriority	BOOL		Event priority for presence events
PresenceHoldTime	BOOL	TRUE	Hold timer is used to derive occupency for movement based sensors
PresenceReportTime	BOOL	TRUE	Inverval in which the input value will be repeated even the input value has not changed
PresenceDeadTime	BOOL	TRUE	Defines minimum deadtime between two events
AbsoluteInputEventFilter	BOOL	TRUE	Enable/Disable linear level events
AbsoluteInputEventPriority	BOOL		Event priority for linear events
AbsoluteInputReportTime	BOOL	TRUE	Inverval in which the input value will be repeated even the input value has not changed
AbsoluteInputDeadTime	BOOL	TRUE	Defines minimum deadtime between two events
PushButtonEventFilter	BOOL	TRUE	Set presence event filter
PushButtonEventPriority	BOOL		Event priority for push button events
PushButtonShortTimer	BOOL	TRUE	Set time for short pushed button events
PushButtonDoubleTimer	BOOL		Set time for double pushed button events
PushButtonRepeatTimer	BOOL	TRUE	Set the repetition interval of long press repeat events
PushButtonStuckTimer	BOOL		If a button is pressed or bouncing for the set time it is considered broken
SavePersistent	BOOL		Set save persistent command after writing the configuration. (Multiple writing can leads to damages in the control devices)

typSensor (STRUCT)

InOut:

Name	Type	Initial	Comment
bAddress	BYTE		Short Address (0 - 63)
bInstanceType	BYTE		Instance Type of the sensor
bInstanceNumber	BYTE		Instance Number of the instance type
bPortDali	BYTE	1	Specifies which DALI master module is to be addressed at the controller. Counting is from left to right.

3.9 70 Sensor type 1

3.9.1 01 Configuration

FbCfgMultiSensorType1 (FB)

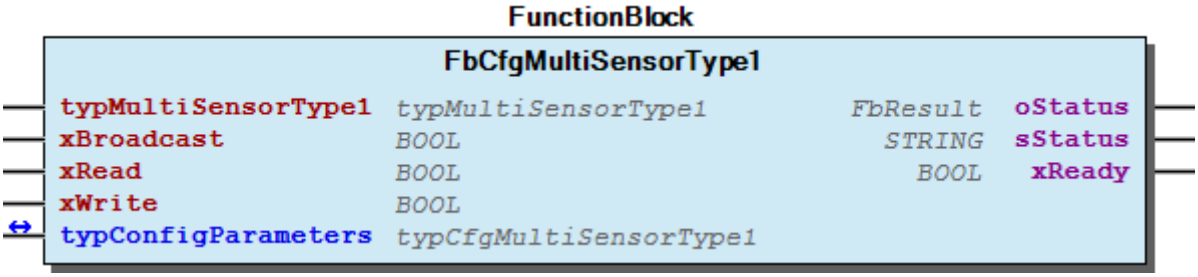
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typMultiSensorType1	*typMultiSensorType1*	Multi-sensor addresses for presence detection and brightness measurement.	
	xBroadcast	BOOL	By a positive edge on this input, the addresses defined by typMultiSensorType1 will be disregarded and the commands transmitted as a broadcast to all multi-sensors. Only one connected multi-sensor is meaningful in this case when reading the configuration.	
	xRead	BOOL	On a positive edge on this input, the configuration reading process from the multi-sensor is started.	
	xWrite	BOOL	On a positive edge on this input, the configuration writing process to the multi-sensor is started.	
Inout	typConfigParameters	*typCfgMultiSensorType1*	Configuration parameters	

Function

The function block is used for configuring the multi-sensor type 1.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbCfgPushbuttonSensorType1 (FB)

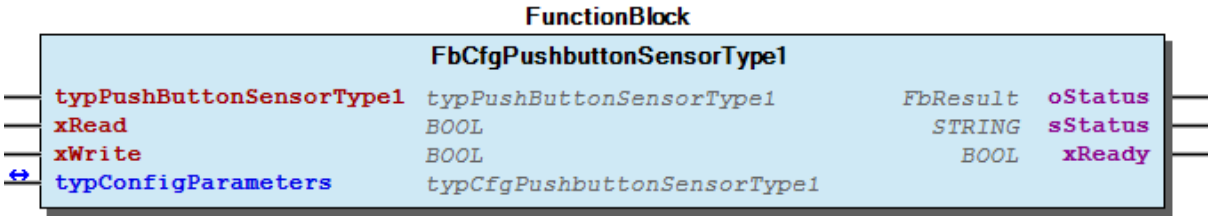
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typPushButtonSensorType1	*typPushBut-tonSen-sorType1*	Pushbutton sensor addresses	
	xRead	BOOL	A positive edge starts the configuration reading process from the key coupler.	
	xWrite	BOOL	A positive edge starts the configuration writing process in the key coupler.	
Inout	typConfigParameters	*typCfgPush-buttonSen-sorType1*	Configuration parameters	

Function

The function block is used for configuring the pushbutton sensor type 1.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.9.2 02 Sensor Values

FbMultiSensorType1 (FB)

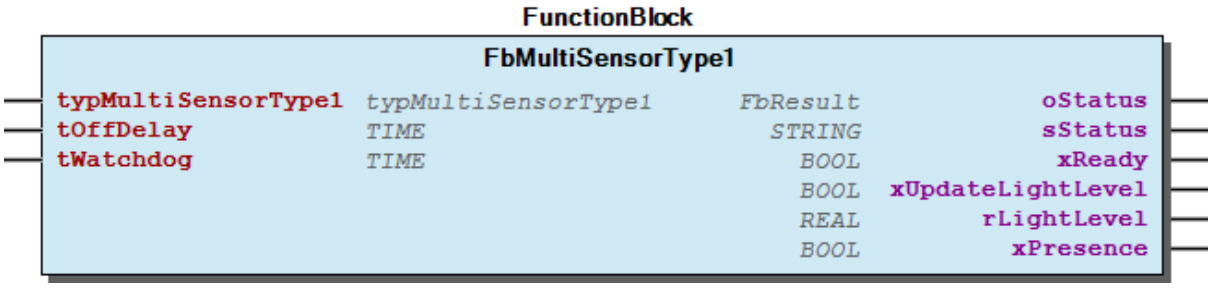
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typMultiSensorType1	*typMultiSensorType1*		Multi-sensor addresses for presence detection and brightness measurement.	
	tOffDelay	TIME	TIME#10m0s0ms	This input defines the switch-off delay for the presence detection.	
	tWatchdog	TIME	TIME#5m0s0ms	This input defines the time period within a refresh signal must be transmitted by the sensor. The function can be deactivated by using the value t#0s.	
Output	xUpdateLightLevel	BOOL		New Event from the Light Sensor.	
	rLightLevel	REAL		Measured light Level [lx].	
	xPresence	BOOL		Presence detected.	

Function

The function block outputs the raw data for the signals transmitted by the key coupler.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbPushbuttonSensorType1 (FB)

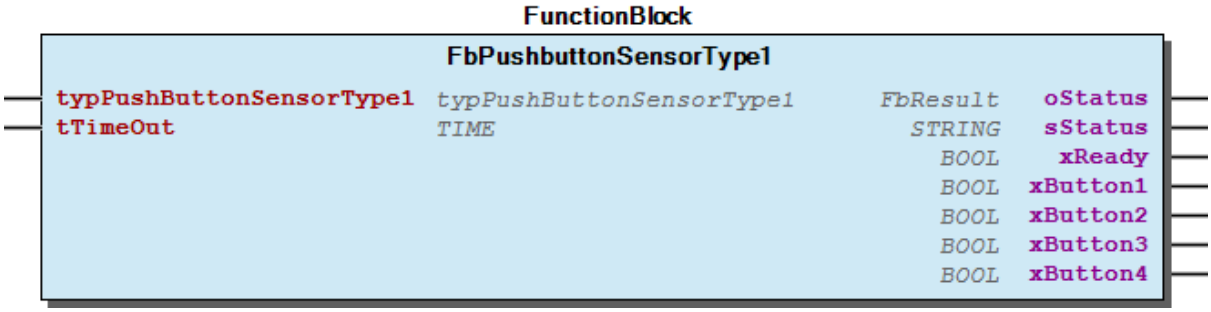
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typPushButtonSensorType1	*typPushBut-tonSen-sorType1*		Pushbutton sensor addresses	
	tTimeOut	TIME	TIME#15s0ms	This input defines the maximum time for pressing a pushbutton. When a switch is used, the time-out function can be deactivated by the value t#0s.	
Output	xButton1	BOOL		Signal if Button A is pressed.	
	xButton2	BOOL		Signal if Button B is pressed.	
	xButton3	BOOL		Signal if Button C is pressed.	
	xButton4	BOOL		Signal if Button D is pressed.	

Function

The function block outputs the values transferred from a key coupler.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbRawDataPushbuttonSensorType1 (FB)

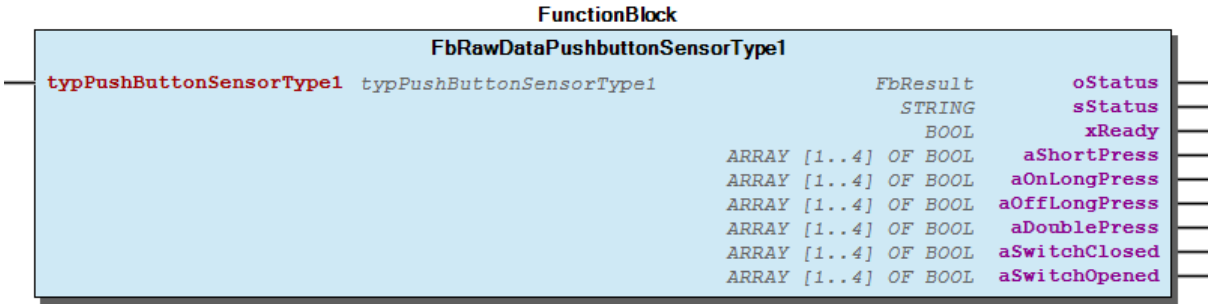
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typPushButtonSensorType1	*typPushButtonSensorType1*	Pushbutton sensor addresses	
Output	aShortPress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a short press at a button has begun.	
	aOnLongPress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a long press at a button has begun.	
	aOffLongPress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a long press at a button has ended.	
	aDoublePress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a double press at a button has begun.	
	aSwitchClosed	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a switch is being closed.	
	aSwitchOpened	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a switch is being opened.	

Function

The function block outputs the raw data for the signals transmitted by the key coupler.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.9.3 03 Conversion

FuTypMultiSensorType1 (FUN)

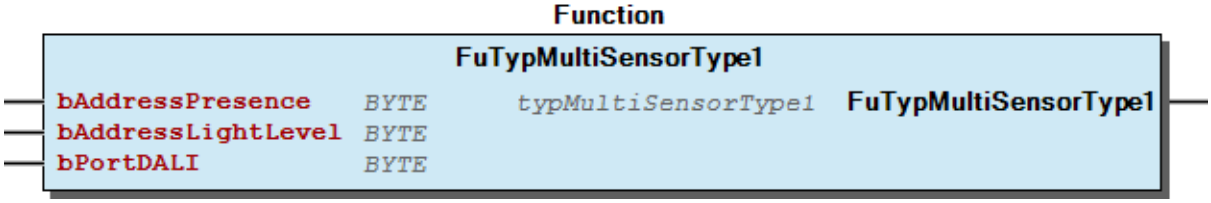
Interface variables

Scope	Name	Type	Initial	Comment
Return	FuTypMultiSensorType1	*typMultiSensorType1*		
Input	bAddressPresence	BYTE		Presence detector address
	bAddressLightLevel	BYTE		Light intensity sensor address
	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.

Function

The function converts the multi-sensor addresses to the data type `typMultiSensorType1`.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FuTypPushButtonSensorType1 (FUN)

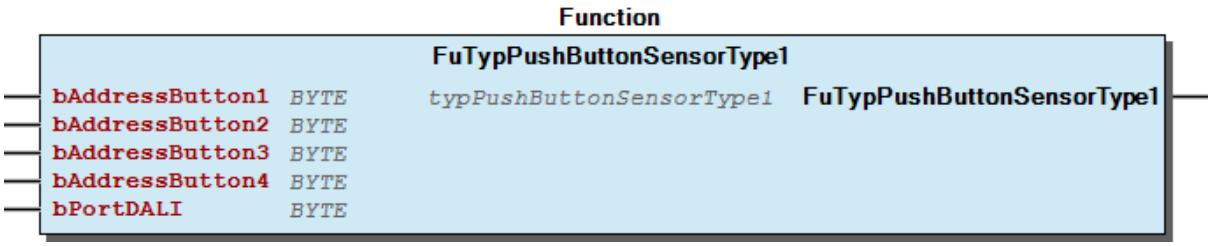
Interface variables

Scope	Name	Type	Initial	Comment
Return	FuTypPushButtonSensorType1	*typPushButtonSensorType1*		
Input	bAddressButton1	BYTE		Address of first button input “A”
	bAddressButton2	BYTE		Address of second button input “B”
	bAddressButton3	BYTE		Address of third button input “C”
	bAddressButton4	BYTE		Address of fourth button input “D”
	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.

Function

The function converts the key coupler addresses to the data type `typPushbuttonSensorType1`.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.9.4 80 Data Types

Addresses

typMultiSensorType1 (STRUCT)

InOut:

Name	Type	Initial	Comment
bAddressPresence	BYTE		Presence detector address
bAddressLightLevel	BYTE		Light intensity sensor address
bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.

typPushButtonSensorType1 (STRUCT)

InOut:

Name	Type	Initial	Comment
bAddressButtonA	BYTE		Address of first button input “A”
bAddressButtonB	BYTE		Address of second button input “B”
bAddressButtonC	BYTE		Address of third button input “C”
bAddressButtonD	BYTE		Address of fourth button input “D”
bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.

Configuration

typCfgLightSensorType1 (STRUCT)

InOut:

Name	Type	Initial	Comment
bMinSendTime	BYTE	8	This parameter defines the minimum time until a new measured value may be sent. This function may be deactivated when requested. When activated, times between 250 ms and 15.75 s can be set. The default setting is 2 s. (0 = disable; 1 = 250 ms; 2 = 500ms; ... 63 = 15,75s)
bMaxSendTime	BYTE	5	This parameter defines the maximum time until a new measured value may be sent. This function may be deactivated when requested. When activated, times between 5 s and 155 s can be set. The default setting is 25 s. (0 = disable; 1= 5s; 2 = 10s; ... 31 = 155s)
bSendOnDelta	BYTE	1	This parameter defines the percentage deviation of the current measured value from the most recently transmitted measured value until a new measured value is transmitted. This ensures that data is transmitted only when required. This function cannot be deactivated. When activated, deviation levels between 3% and 24% can be set. The default setting is 6%. (0 = 3%; 1 = 6 %; ...7 = 24%)
xActiveMode	BOOL	TRUE	This parameter defines the enable signal for transmitting of light intensity events.

typCfgMultiSensorType1 (STRUCT)

InOut:

Name	Type	Comment
typCfgLightSensorType1	*typCfgLightSensorType1*	Configuration paramters light sensor
typCfgPresenceSensorType1	*typCfgPresenceSensorType1*	Configuration paramters presence detector

typCfgPresenceSensorType1 (STRUCT)

InOut:

Name	Type	Initial	Comment
bRepetitionTime	BYTE	10	This parameter defines the time period between two presence events when the sensor detects presence. (1 = 1s; 2 = 2s; ... 255 = 255s)
xActiveMode	BOOL	TRUE	This parameter defines the enable signal for transmitting of presence events.

typCfgPushbuttonSensorType1 (STRUCT)

InOut:

Name	Type	Comment
typCfgChannel	ARRAY [1..4] OF *typPushbuttonFeaturesType1*	Channel

typPushbuttonFeaturesType1 (STRUCT)

InOut:

Name	Type	Initial	Comment
xShortPressSupported	BOOL	TRUE	Short press will be evaluated
xLongPressSupported	BOOL	TRUE	Long press will be evaluated
xDoublePressSupported	BOOL		Double press will be evaluated
xSwitchSupported	BOOL		Toggle event will be evaluated
xActiveMode	BOOL	TRUE	Pushbutton-Sensor in active mode

3.10 80 Sensor type 2

3.10.1 01 Configuration

FbCfgMultiSensorType2 (FB)

Interface variables

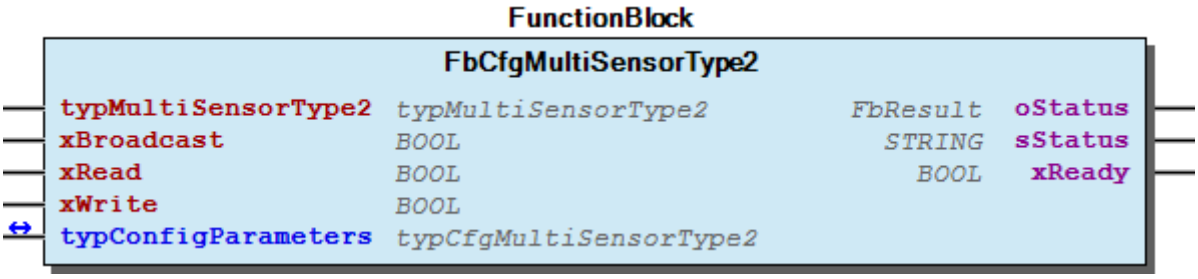
Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typMultiSensorType2	*typMultiSensorType2*	Multi-sensor addresses for presence detection, brightness measurement and remote control.	
	xBroadcast	BOOL	By a positive edge on this input, the addresses defined by typMultiSensorType2 will be disregarded and the commands transmitted as a broadcast to all multi-sensors. Only one connected multi-sensor is meaningful in this case when reading the configuration.	
	xRead	BOOL	On a positive edge on this input, the configuration reading process from the multi-sensor is started.	
	xWrite	BOOL	On a positive edge on this input, the configuration writing process to the multi-sensor is started.	
Inout	typConfigParameters	*typCfgMultiSensorType2*	Configuration paramters	

Note: When the parameters `typCfgLightSensorType2.bMaxSendTime` and `typCfgLightSensorType2.bSendOnDelta` are set to zero, no event will be transmitted by the light intensity sensor.

Function

The function block is used for configuring the multi-sensor type 2.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

`FbCfgPushbuttonSensorType2` (FB)

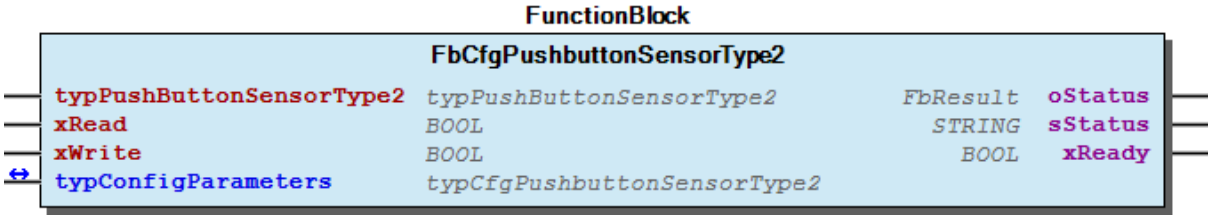
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	`oStatus`	`WagoSysErrorBase.FbResult`	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	`sStatus`	`STRING`	Error description as string (Listed in *eStatus*)	FbReady-Base
	`xReady`	`BOOL`	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	`typPushButtonSensorType2`	*typPushbuttonSensorType2*	Pushbutton sensor addresses	
	`xRead`	`BOOL`	A positive edge starts the configuration reading process from the key coupler.	
	`xWrite`	`BOOL`	A positive edge starts the configuration writing process in the key coupler.	
Inout	`typConfigParameters`	*typCfgPushbuttonSensorType2*	Configuration paramters	

Function

The function block is used for configuring the key coupler type 2.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.10.2 02 Sensor Values

FbMultiSensorType2 (FB)

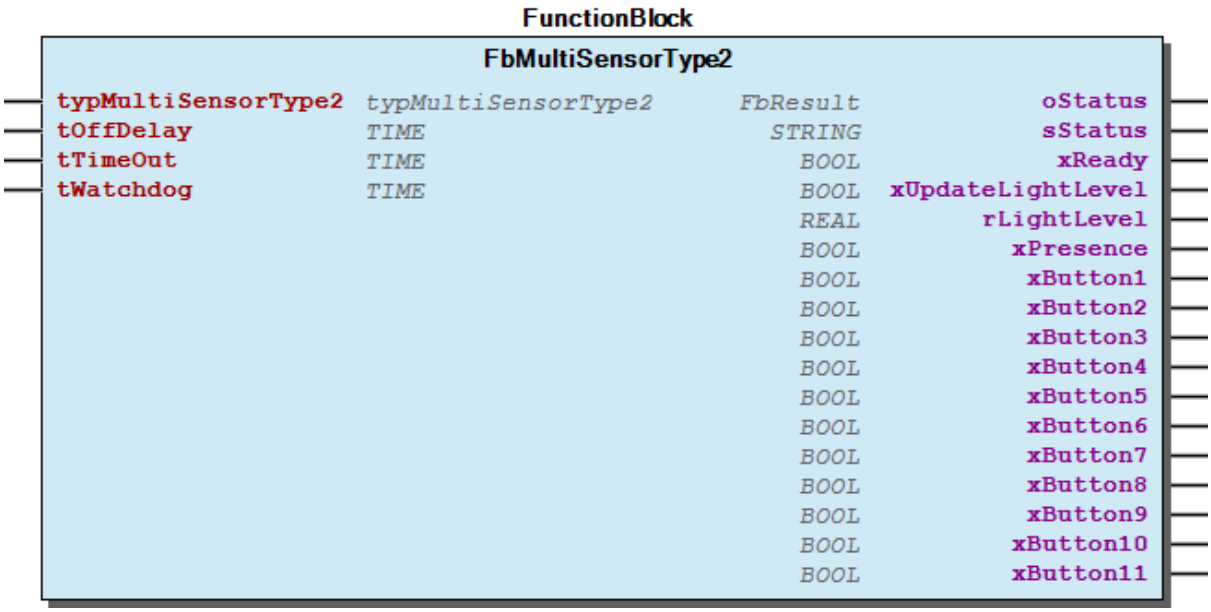
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typMultiSensorType2	*typMultiSensorType2*		Multi-sensor addresses for presence detection, brightness measurement and remote control.	
	tOffDelay	TIME	TIME#10m0s0ms	This input defines the switch-off delay for the presence detection.	
	tTimeOut	TIME	TIME#15s0ms	This input defines the maximum time for pressing a pushbutton.	
	tWatchdog	TIME	TIME#5m0s0ms	This input defines the time period within a refresh signal must be transmitted by the sensor. The function can be deactivated by using the value t#0s.	
Output	xUpdateLightLevel	BOOL		New event from the light sensor	
	rLightLevel	REAL		Current value from light intensity sensor [lx]	
	xPresence	BOOL		Presence detected	
	xButton1	BOOL		Button 1 pressed	
	xButton2	BOOL		Button 2 pressed	
	xButton3	BOOL		Button 3 pressed	
	xButton4	BOOL		Button 4 pressed	
	xButton5	BOOL		Button 5 pressed	
	xButton6	BOOL		Button 6 pressed	
	xButton7	BOOL		Button 7 pressed	
	xButton8	BOOL		Button 8 pressed	
	xButton9	BOOL		Button 9 pressed	
	xButton10	BOOL		Button 10 pressed	
	xButton11	BOOL		Button 11 pressed	

Function

The function block outputs the values transferred from a multi-sensor.

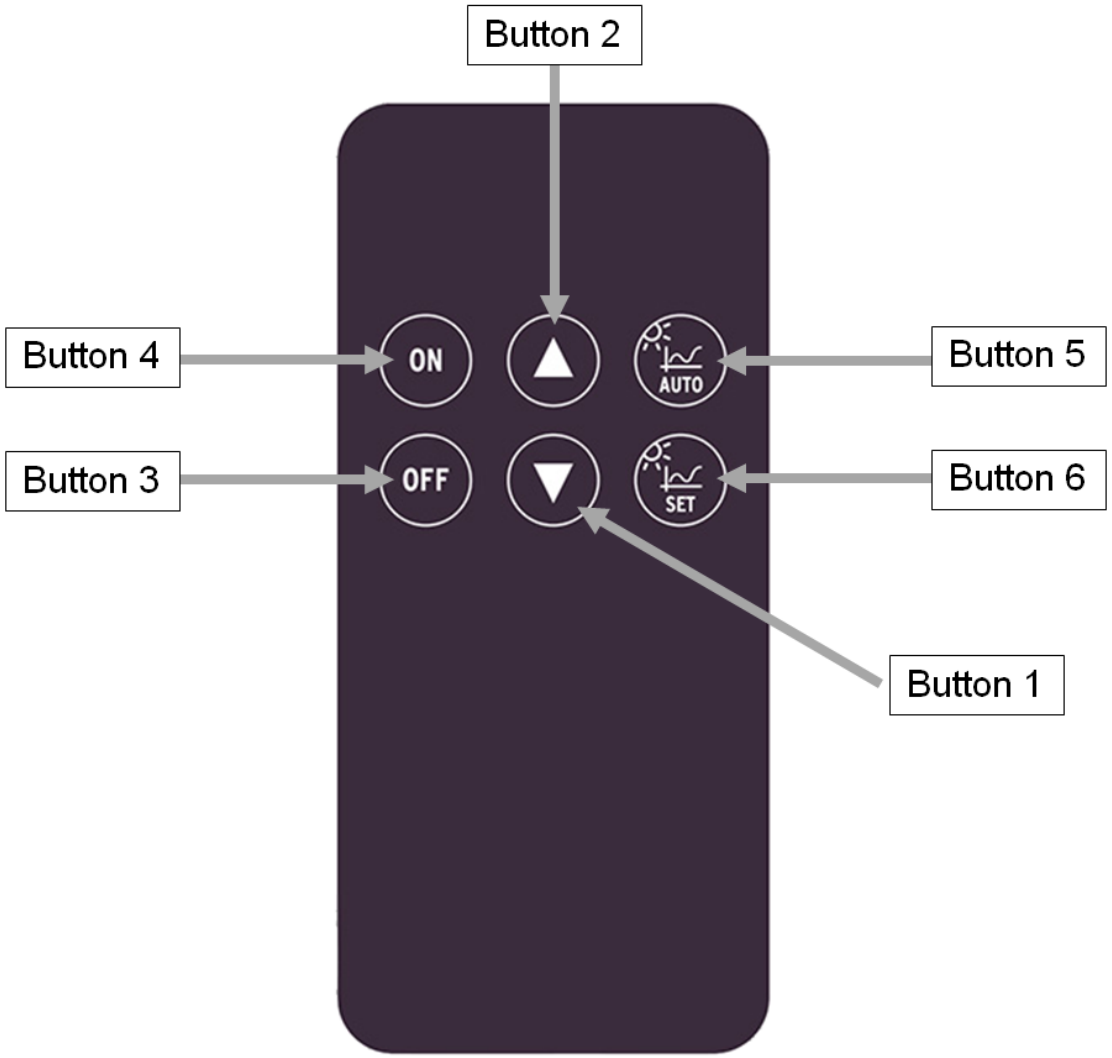
Graphical Illustration



Example

Remote Control

Example 1:



Note: Please consider for a correct function the *system properties*.

`FbPushbuttonSensorType2` (FB)

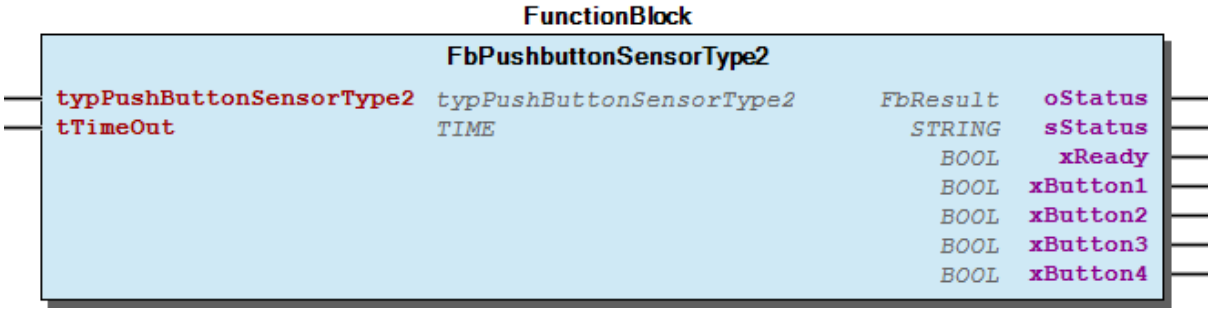
Interface variables

Scope	Name	Type	Initial	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult		Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING		Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL		TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typPushButtonSensorType2	*typPushBut-tonSen-sorType2*		Pushbutton sensor addresses	
	tTimeOut	TIME	TIME#15s0ms	This input defines the maximum time for pressing a pushbutton. When a switch is used, the time-out function can be deactivated by the value t#0s.	
Output	xButton1	BOOL		Signal if Button A is pressed.	
	xButton2	BOOL		Signal if Button B is pressed.	
	xButton3	BOOL		Signal if Button C is pressed.	
	xButton4	BOOL		Signal if Button D is pressed.	

Function

The function block outputs the values transferred from a key coupler.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FbRawDataPushbuttonSensorType2 (FB)

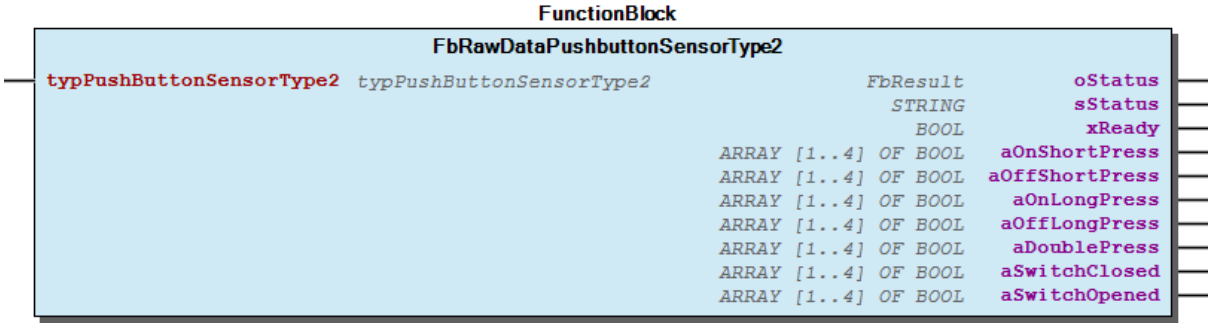
Interface variables

Scope	Name	Type	Comment	Inherited from
Output	oStatus	WagoSysErrorBase.FbResult	Error object. (Listed in *eStatus*) The content of the error object could be displayed via the *FbShowResult* from the *WagoSysErrorBase* library.	FbReady-Base
	sStatus	STRING	Error description as string (Listed in *eStatus*)	FbReady-Base
	xReady	BOOL	TRUE: Module is ready for operation. ; FALSE: Ongoing operation or no communication.	FbReady-Base
Input	typPushButtonSensorType2	*typPushButtonSensorType2*	Pushbutton sensor addresses	
Output	aOnShortPress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a short press at a button has begun.	
	aOffShortPress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a short press at a button has ended.	
	aOnLongPress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a long press at a button has begun.	
	aOffLongPress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a long press at a button has ended.	
	aDoublePress	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a double press at a button has begun.	
	aSwitchClosed	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a switch is being closed.	
	aSwitchOpened	ARRAY [1..4] OF BOOL	This array indicates for one cycle as an Boolean condition if a switch is being opened.	

Function

The function block outputs the raw data for the signals transmitted by the key coupler.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.10.3 03 Conversion

FuLuxLevelSensorType2 (FUN)

Interface variables

Scope	Name	Type	Comment
Return	FuLuxLevelSensorType2	REAL	
Input	bLightLevel	BYTE	Raw Value from the Multi-Sensor

Function

The function converts the measured light intensity from the multi-sensor to a Lux value [lx].

Graphical Illustration

Note: Please consider for a correct function the *system properties*.

FuTypMultiSensorType2 (FUN)

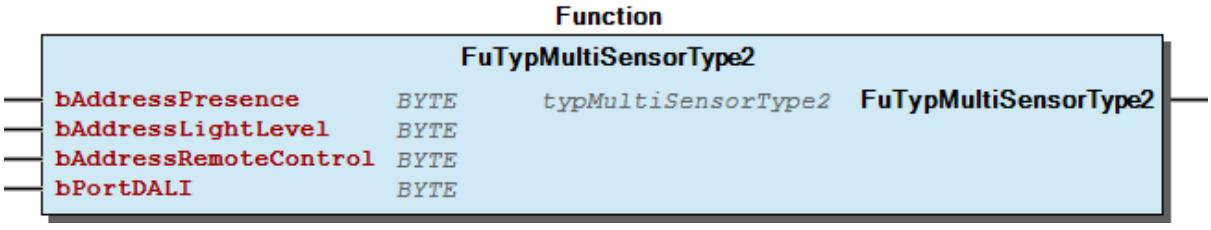
Interface variables

Scope	Name	Type	Initial	Comment
Return	FuTypMultiSensorType2	*typMultiSensorType2*		
Input	bAddressPresence	BYTE		Presence detector address
	bAddressLightLevel	BYTE		Light intensity sensor address
	bAddressRemoteControl	BYTE		Infrared receiver address for integration of a remote control
	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.

Function

The function converts the multi-sensor addresses to the data type `typMultiSensorType2`.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

FuTypPushbuttonSensorType2 (FUN)

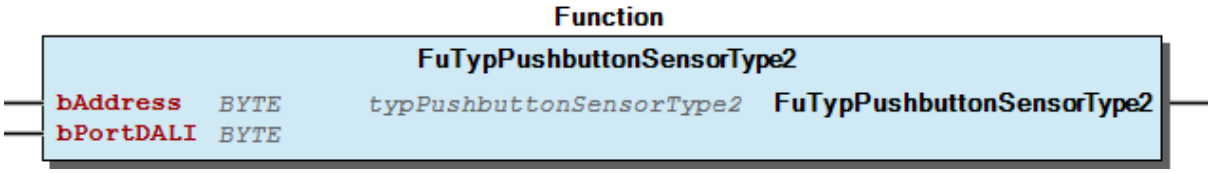
Interface variables

Scope	Name	Type	Initial	Comment
Return	FuTypPushbuttonSensorType2	*typPushbuttonSensorType2*		
Input	bAddress	BYTE		Key coupler address
	bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.

Function

The function converts the key coupler addresses to the data type typPushbuttonSensorType2.

Graphical Illustration



Note: Please consider for a correct function the *system properties*.

3.10.4 80 Data Types

Addresses

typMultiSensorType2 (STRUCT)

InOut:

Name	Type	Initial	Comment
bAddressPresence	BYTE		Presence detector address
bAddressLightLevel	BYTE		Light intensity sensor address
bAddressRemoteControl	BYTE		Infrared receiver address for integration of a remote control
bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.

typPushButtonSensorType2 (STRUCT)

InOut:

Name	Type	Initial	Comment
bAddress	BYTE		Pushbutton coupler address
bPortDALI	BYTE	1	Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right.

Configuration

typCfgLightSensorType2 (STRUCT)

InOut:

Name	Type	Initial	Comment
bMinSendTime	BYTE	20	This parameter defines the minimum time until a new measured value may be sent. This function may be deactivated when requested. When activated, times between 300 ms and 25.5 s can be set. The default setting is 2 s. (3 = 300ms; 4 = 400ms; ... 255 = 25,5s)
bMaxSendTime	BYTE	250	This parameter defines the maximum time until a new measured value may be sent. This function may be deactivated when requested. When activated, times between 300 ms and 25,5 s can be set. The default setting is 25 s. (0 = disable; 3 = 300ms; 4 = 400ms; ... 255 = 25,5s)
bSendOnDelta	BYTE	2	This parameter defines the percentage deviation of the current measured value from the most recently transmitted measured value until a new measured value is transmitted. This ensures that data is transmitted only when required. This function cannot be deactivated. When activated, deviation levels between 3% and 50% can be set. The default setting is 6%. (0 = disable; 1 = 3%; 2 = 6 %; ...9 = 50%)

typCfgMultiSensorType2 (STRUCT)

InOut:

Name	Type	Initial	Comment
typCfgLightSensorType2	*typCfgLightSensorType2*		Configuration parameters light sensor
typCfgPresenceSensorType2	*typCfgPresenceSensorType2*		Configuration parameters presence detector
xActiveMode	BOOL	TRUE	Mulit-Sensor in active mode

typCfgPresenceSensorType2 (STRUCT)

InOut:

Name	Type	Initial	Comment
bRepetitionTime	BYTE	10	This parameter defines the time period between two presence events when the sensor detects presence. (1 = 1s; 2 = 2s; ... 255 = 255s)
xActiveMode	BOOL	TRUE	This parameter defines the enable signal for transmitting of presence events.

typCfgPushbuttonSensorType2 (STRUCT)

InOut:

Name	Type	Initial	Comment
typCfgChannel	ARRAY [1..4] OF *typPushbuttonFeaturesType2*		Channel
xActiveMode	BOOL	TRUE	This parameter defines the enable signal for transmitting of pushbutton events.

typPushbuttonFeaturesType2 (STRUCT)

InOut:

Name	Type	Initial	Comment
xSwitch	BOOL		Function as switch or button
xShortPressSupported	BOOL	TRUE	Short press will be evaluated
xLongPressSupported	BOOL	TRUE	Long press will be evaluated
xDoublePressSupported	BOOL		Double press will be evaluated
xSwitchOpenCloseSupported	BOOL		Toggle switch will be evaluated

3.11 Common (GVL)

{attribute 'qualified_only'}

CHAPTER 4

80 Status

4.1 Status (GVL)

Value	Level	Description
eStatus.Ok	WagoSysErrorBase.WagoTypes.eSeverity.none	'OK'
eStatus.CommandNotSupported	WagoSysErrorBase.WagoTypes.eSeverity.error	'Command is not supported by t
eStatus.InvalidParameter	WagoSysErrorBase.WagoTypes.eSeverity.error	'Command has not vaild parame
eStatus.OutOfRange	WagoSysErrorBase.WagoTypes.eSeverity.error	'Value out of range'
eStatus.FrameStatus	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Collision on the backward fram
eStatus.DeniedBusy	WagoSysErrorBase.WagoTypes.eSeverity.warning	'No answer from the device or th
eStatus.InternalErrorSequenceID	WagoSysErrorBase.WagoTypes.eSeverity.error	'Internal error of the sequence ID
eStatus.Continued	WagoSysErrorBase.WagoTypes.eSeverity.info	'New device addressed'
eStatus.FunctionAborted	WagoSysErrorBase.WagoTypes.eSeverity.info	'Function is aborted'
eStatus.PlausibilityCheckFailed	WagoSysErrorBase.WagoTypes.eSeverity.info	'Plausibility check failed'
eStatus.CollisionDetected	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Collision detected'
eStatus.InvalidModuleDatabase	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Invaild module database'
eStatus.CopyErrorModuleDatabase	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Error copying database'
eStatus.ModuleResponseBufferFull	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Response buffer of the module i
eStatus.ModuleStatus	WagoSysErrorBase.WagoTypes.eSeverity.info	'Status message'
eStatus.NonAddressedDeviceFound	WagoSysErrorBase.WagoTypes.eSeverity.info	'Found devices without short ad
eStatus.AddressingFoult	WagoSysErrorBase.WagoTypes.eSeverity.info	'Error addressing'
eStatus.ModuleTransmitBufferFull	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Transmit buffer of the module i
eStatus.UndefinedError	WagoSysErrorBase.WagoTypes.eSeverity.error	'Error in "leading" controller'
eStatus.ErrorSequenceID	WagoSysErrorBase.WagoTypes.eSeverity.error	'Incorrect sequence ID'
eStatus.WorkflowErrorTransmit	WagoSysErrorBase.WagoTypes.eSeverity.error	'Internal communication error b
eStatus.UnadressedDevicesNotFound	WagoSysErrorBase.WagoTypes.eSeverity.info	'Unaddressed devices could not
eStatus.ShortCircuit	WagoSysErrorBase.WagoTypes.eSeverity.error	'The DALI bus is short-circuited
eStatus.QuiescentMode	WagoSysErrorBase.WagoTypes.eSeverity.error	'Quiescent mode is active'
eStatus.ErrorWriteSerialNumber	WagoSysErrorBase.WagoTypes.eSeverity.error	'Serial number could not be writ
eStatus.NumberReadEntriesInvalid	WagoSysErrorBase.WagoTypes.eSeverity.error	'Number of read entries is invali
eStatus.ApplControllerDisabled	WagoSysErrorBase.WagoTypes.eSeverity.error	'Application Controller is disabl
eStatus.MasterNotAvailable	WagoSysErrorBase.WagoTypes.eSeverity.error	'Interface to the DALI module is
eStatus.UndefinedInterface	WagoSysErrorBase.WagoTypes.eSeverity.error	'No interface connected'

Table 4.1 – continued from previous page

Value	Level	Description
eStatus.UnknownFirmware	WagoSysErrorBase.WagoTypes.eSeverity.info	'Unknown firmware'
eStatus.WatchdogTriggered	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Watchdog has triggered'
eStatus.InvalidAddress	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Invalid DALI address'
eStatus.UnsupportedFeature	WagoSysErrorBase.WagoTypes.eSeverity.info	'Module firmware does not supp
eStatus.SystemFailureBus	WagoSysErrorBase.WagoTypes.eSeverity.error	'System failure on the DALI bus
eStatus.FatalError	WagoSysErrorBase.WagoTypes.eSeverity.error	'Power down > 40 ms'
eStatus.LampAlreadySelected	WagoSysErrorBase.WagoTypes.eSeverity.info	'Lamp is already selected'
eStatus.ExternalAccess	WagoSysErrorBase.WagoTypes.eSeverity.warning	'DALI-Configurator has access t
eStatus.NetworkQueryActive	WagoSysErrorBase.WagoTypes.eSeverity.info	'DALI module is updating the da
eStatus.MailboxNotInit	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Mailbox is not initialise'
eStatus.NotEnoughGroups	WagoSysErrorBase.WagoTypes.eSeverity.error	'Not enough groups'
eStatus.InvalidCommand	WagoSysErrorBase.WagoTypes.eSeverity.warning	'The module does not support th
eStatus.ModuleBufferOverflow	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Buffer overflow in the module'
eStatus.InvalidFadeTime	WagoSysErrorBase.WagoTypes.eSeverity.error	'Fade time is out of range (0 - 15
eStatus.InvalidFadeRate	WagoSysErrorBase.WagoTypes.eSeverity.error	'Fade rate is out of range (1 - 15
eStatus.InvalidGroup	WagoSysErrorBase.WagoTypes.eSeverity.error	'Group is out of range (0 - 31)'
eStatus.InvalidScene	WagoSysErrorBase.WagoTypes.eSeverity.error	'Scene is out of range (0 - 15)'
eStatus.InvalidValues	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Query groups or broadcast not s
eStatus.NoGroup	WagoSysErrorBase.WagoTypes.eSeverity.info	'No short address is defined in th
eStatus.FirmwareNotSupported	WagoSysErrorBase.WagoTypes.eSeverity.error	'The library does not support the
eStatus.TimeoutSensor	WagoSysErrorBase.WagoTypes.eSeverity.error	'The distance between two senso
eStatus.InvalidMinSendTime	WagoSysErrorBase.WagoTypes.eSeverity.error	'Min. send time is out of range'
eStatus.InvalidMaxSendTime	WagoSysErrorBase.WagoTypes.eSeverity.error	'Max send time is out of range'
eStatus.InvalidSendOnDelta	WagoSysErrorBase.WagoTypes.eSeverity.error	'Send on delta is out of range'
eStatus.ButtonStuck	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Button gets stuck'
eStatus.InvalidMemoryBankValues	WagoSysErrorBase.WagoTypes.eSeverity.warning	'The memory bank values are in
eStatus.NoInstance	WagoSysErrorBase.WagoTypes.eSeverity.warning	'The control device has no instan
eStatus.InvalidInstance	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Invalid instance address'
eStatus.InvalidEventSheme	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Invalid event sheme'
eStatus.InvalidSensorConfig	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Invalid sensor configuration'
eStatus.Busy	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Busy while operating'
eStatus.ModuleDatabaseFromEEPROM	WagoSysErrorBase.WagoTypes.eSeverity.info	'Module database read from EEI
eStatus.AddressedDevicesAvailable	WagoSysErrorBase.WagoTypes.eSeverity.info	'Addressed devices available'
eStatus.DeviceError	WagoSysErrorBase.WagoTypes.eSeverity.error	'Device error'
eStatus.NoLightInstance	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Sensor without light sensor inst
eStatus.NoPresenceInstance	WagoSysErrorBase.WagoTypes.eSeverity.warning	'Sensor without presence instanc
eStatus.FunctionNotSupported	WagoSysErrorBase.WagoTypes.eSeverity.error	'The function is not supported by

4.2 `eStatus` (ENUM)

InOut:

Name	Initial	Comment
Ok	0	(none) Ok
CommandNotSupported	1	(error) Command is not supported by the module
InvalidParameter	2	(error) Command has not vaild parameters
OutOfRange	3	(error) No answer from the device
FrameStatus	4	(warning) Collision on the backward frame
DeniedBusy	5	(warning) No answer from the device or the command is temporary denied by the m
InternalErrorSequenceID	6	(error) Internal error of the sequence ID

Continued on nex

Table 4.2 – continued from previous page

Name	Initial	Comment
Continued	7	(info) New device addressed
FunctionAborted	8	(info) Addressing is aborted
PlausibilityCheckFailed	9	(info) Plausibility check failed
CollisionDetected	10	(warning) Collision detected
InvalidModuleDatabase	11	(warning) Invaild module database
CopyErrorModuleDatabase	12	(warning) Error copying database
ModuleResponseBufferFull	13	(warning) Response buffer of the module is full
ModuleStatus	14	(info) Status message
NonAddressedDeviceFound	15	(info) Found devices without short address
AddressingFoult	16	(info) Error addressing
ModuleTransmitBufferFull	17	(warning) Transmit buffer of the module is full
UndefinedError	18	(error) Error in “leading” controller
ErrorSequenceID	19	(error) Incorrect sequence ID
WorkflowErrorTransmit	20	(error) Internal communication error between APC and FEC
UnadressedDevicesNotFound	21	(info) Unaddressed devices could not be found
ShortCircuit	22	(error) The DALI bus is short-circuited
QuiescentMode	23	(error) Quiescent mode is active. The DALI module may not send any forward fram
ErrorWriteSerialNumber	24	(error) Serial number could not be written into the register
NumberReadEntriesInvalid	25	(error) Number of read entries is invalid
ApplControllerDisabled	26	(error) Application controller disabled. The DALI module may not send any forward
MasterNotAvailable	100	(error) Interface to the DALI module is missing
UndefinedInterface	101	(error) No interface connected
UnknownFirmware	102	(info) Unknown firmware
WatchdogTriggered	103	(warning) Watchdog has triggered
InvalidAddress	104	(warning) Invalid DALI address
UnsupportedFeature	105	(info) Module firmware does not support the feature
SystemFailureBus	106	(error) System failure on the DALI bus (power down > 550 ms)
FatalError	107	(error) < FW 20 = Fatal error / > FW 19 = power down > 40 ms
LampAlreadySelected	108	(info) Lamp is already selected
ExternalAccess	109	(warning) DALI-Configurator has access to the DALI module
NetworkQueryActive	110	(info) DALI module is updating the database
MailboxNotInit	111	(warning) Mailbox is not initialise
NotEnoughGroups	112	(error) Not enough groups
InvalidCommand	113	(warning) The module does not support the command
ModuleBufferOverflow	114	(warning) Buffer overflow in the module
InvalidFadeTime	115	(error) Fade time is out of range (0 - 15)
InvalidFadeRate	116	(error) Fade rate is out of range (1 - 15)
InvalidGroup	117	(error) Group is out of range (0 - 31)
InvalidScene	118	(error) Scene is out of range (0 - 15)
InvalidValues	119	(warning) Query groups or broadcast not supported
NoGroup	120	(info) No short address is defined in the group
FirmwareNotSupported	121	(error) The library does not support the module firmware
TimeoutSensor	122	(error) The distance between two sensor events was to high
InvalidMinSendTime	123	(error) Min. send time is out of range
InvalidMaxSendTime	124	(error) Max send time is out of range
InvalidSendOnDelta	125	(error) Send on delta is out of range
ButtonStuck	126	(warning) Button gets stuck
InvalidMemoryBankValues	127	(warning) The memory bank values are invalid
NoInstance	128	(warning) The control device has no instance
InvalidInstance	129	(warning) Invalid instance address

Continued on nex

Table 4.2 – continued from previous page

Name	Initial	Comment
InvalidEventSheme	130	(warning) Invalid event sheme
InvalidSensorConfig	131	(warning) Invalid sensor configuration
Busy	132	(warning) Busy while operating
ModuleDatabaseFromEEPROM	133	(info) Module database read from EEPROM
AddressedDevicesAvailable	134	(info) Addressed devices available
DeviceError	135	(error) Device error
NoLightInstance	136	(warning) Sensor without light instance
NoPresenceInstance	137	(warning) Sensor without presence instance
FunctionNotSupported	138	(error) The function is not supported by the device

CHAPTER 5

ParameterList (PARAMS)

InOut:

Scope	Name	Type	Initial	Comment
Constant	MAX_RX_BUFFER	WORD	300	Receive buffer size
	MAX_MODULES	BYTE	25	Max. number of DALI modules

CHAPTER 6

VersionHistory (GVL)

SetDisableSendFadeTime ============ =========== ====================== ==================================== **date version author change** DisableController ——— — ——— ———————- ———————————— 22.09.2020 1.3.0.28 u015842 FbDaliUniversalSensorIT0: Bugfix internal xUpdate-Trigger 14.09.2020 1.3.0.27 u015842 FbDaliSensorValues: Limiting bPortDali and return status "InvalidAddress"; improved initally parameter reading by waiting GlobalVariables.g_RetryWaitTime (T#1s) between retries. 24.07.2020 1.3.0.26 u015842 FbDaliConstantLightControl: Bugfix Send one dimm down command after dim up commands; new Property: SetDisableSendFadeTime 22.06.2020 1.3.0.25 u010729 FbDaliMaster method SetBehaviorAfterShortCircuit added and bugfix method SetReceiverBitTiming. (internal methods) 31.03.2020 1.3.0.24 u015842 FbDaliConstantLightControl: Properties EnableController and DisableController added to deactivate the controller and reactivate after xControlOff. 30.03.2020 1.3.0.23 u010729 Text List update in Japanese (Text: Instances) 30.03.2020 1.3.0.22 u010729 Text list updated in Japanese; FbDaliConfigurator alignment ribbon optimized. 24.02.2020 1.3.0.21 u015842 FbDaliSensorValues: Bugfix with retriggered xReadSensorParameter while reading the sensor parameters. FbDaliConstantLightControl: better behavior with xOnPresenceBelowSetpoint combined with bad calibration.

Documentation of tOffDelay from FbDaliPresenceSensorIT3 extended. HideFbBaseDiiA

05.12.2019 1.3.0.19 u010729 New function blocks for Device Type 51 (Energy Reporting) and Device Type 52 (Diagnostics and Maintenance) added. 28.10.2019 1.3.0.18 u015842 Link to fixed versioned WagoVisuIcons removed. 11.10.2019 1.3.0.17 u015842 FbDaliConstantLightControl: stay in controlling state after mailbox was not ready (e.g. Dali Configurator connected), Bugfix cyclic sending while control was disabled, rActualLightLevel now is calculated in all control states. 01.10.2019 1.3.0.16 u010729 Image pool deleted and linked with WagoVisuIcons. 24.09.2019 1.3.0.15 u010729 Bugfix FbDaliMaster, when reading telegrams from the mailbox. Revision of the global token, so that only one sensor module can query the configuration. The FbDaliStandardSensor tries to read the configuration of the sensor up to five times. FbDaliSensorLight and FbDaliSensorPresence added. 15.08.2019 1.3.0.14 u015842 Changing FbDaliUniversalSensorIT0 to update intervals because instance type do not send events. 14.08.2019 1.3.0.13 u010729 Bugfix PrgDaliConfigurator when reading Fade Time/Fade Rate; Automatic adjustment of the registers when downgrading the firmware. 27.06.2019 1.3.0.12 u010729 Bugfix FbDali_xxx_SensorIT1-4: A new event resets the error message 24.06.2019 1.3.0.11 u010729 Presence and button signals are reset in the event of a fault. Light level and analog value remains. Status sensor function blocks "No answer" has changed to "Watchdog has triggered". FbDaliSensorValues evaluates, if switch or analogue value. 17.06.2019 1.3.0.10 u010729 Link to WagoVisuIcons removed 22.05.2019 1.3.0.9 u010729 Tolerances adapted to the FuDaliDimmValue 14.05.2019 1.3.0.8 u010729 FbDaliWriteColourTemperatureScene and FbDaliWrite_XY_CoordinateScene added.

Interpretation of input values corrected for DALI-2 sensors. FbStatusEmergencyLighting extended with wDurationTestResult and FbQueryEmergencyLighting added. Bugfix FbMultiSensorType1 LightLevel. Plausibility check FbDaliActualLevelControlGears. FbDaliMaster cyclic query "Query

Status module" added; Bugfix "xReady" for Advanced Sensor Values. New event "Application Controller disabled" and "System failure bus" added.

06.02.2019 1.3.0.0 u010729 Enable variable for each global sensor parameter to be written to the input devices. Renamed the function blocks FbDaliSensorLightInstances, FbDaliSensorPresenceInstances and FbDaliSensorPushbuttonInstances 23.01.2019 1.2.1.2 u010729 Bugfix FbPushbuttonSensorType1 and g_PresenceHoldTime changed from 30 to 3. 08.01.2019 1.2.1.0 u015842 Properties: free placeholder added 05.12.2018 1.2.0.1 u015842 Bugfix: Dali module BitTiming by firmware version 22.11.2018 1.2.0.0 u010729 New functions of the firmware 20 integrated; Return code changed incompatibly 10.10.2018 1.1.0.13 u015842 Library profile to SP11 Patch1; Bugfix FbMacroControlDevice.ChangeAddress 08.10.2018 1.1.0.11 u015842 Through Bugfix, FW04 didnt understand some sensor macro commands of FW05. 02.10.2018 1.1.0.9 u015842 minor Bugfix FbWriteBroadcastConfigStandardSensor, Master got new property DeactLevelAfterScene, eStatus changed number range caused by firmeware update 18.08.2018 1.1.0.8 u018088 Pictures DALI Remote control (Sensortype 2) updated to new Tridonic REMOTECONTROL IR6 15.08.2018 1.1.0.7 u010729 Language jp and fr added 06.08.2018 1.1.0.6 u015842 Bugfix Bitshifting with different resolutions 01.08.2018 1.1.0.5 u015842 Minor Bugfix Outputs from DALISensorInstance FBs 23.07.2018 1.1.0.4 u015842 Minor Redesign: Configuration Standard Sensors from single commands to DALI module macros 17.07.2018 1.1.0.2 u015842 Minor Bugfixes: Doku, Constantlightcontrol and Standard Sensors 06.06.2018 1.1.0.0 u015842 Integration of Standard Sensors (DALI2 Sensors) 05.06.2018 1.0.0.21 u015842 Master automatically sets ReceiverBitTiming in FW04, 05 and 06. 16.10.2017 1.0.0.19 u010729 New icon for emergency lighting 28.09.2017 1.0.0.18 u010729 Cycle time for the calculation of the dim value optimized 07.06.2017 1.0.0.14 u010729 [Fixed] FbConstant Light Control Auto switch on, when presence and light level below setpoint. 25.10.2016 1.0.0.10 u010729 FbDaliMaster Statuswechsel FW not supported / Mailbox not init behoben 17.08.2016 1.0.0.9 u010729 Severity for Interface missing changed from warning to error 17.07.2016 1.0.0.8 u010729 1. Release ========== ========== ========== ==========

Release Notes

-
- IEC 62386 Part 102 (Control Gears) is supported
- IEC 62386 Part 103 (Control devices) is supported
- IEC 62386 Part 202 (Self-contained emergency lighting) is supported
- IEC 62386 Part 209 (Colour Contol) is supported
- IEC 62386 Part 301 Push buttons
- IEC 62386 Part 302 Absolute input devices
- IEC 62386 Part 303 Occupancy sensor
- IEC 62386 Part 304 Light sensor
- Sensor Type 1 (Multi-Sensor and Pushbutton Sensor) is supported
- Sensor Type 2 (Multi-Sensor and Pushbutton Sensor) is supported

CHAPTER 7

Library Reference

This is a dictionary of all referenced libraries and their name spaces.

7.1 Standard

7.1.1 Library Identification

Placeholder: Standard
Default Resolution: Standard, * (System)
Namespace: Standard

7.1.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: Standard
- SystemLibrary: False
- Optional: False

7.2 Util

7.2.1 Library Identification

Placeholder: Util
Default Resolution: Util, * (System)
Namespace: Util

7.2.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: Util
- SystemLibrary: False
- Optional: False

7.2.3 Library Parameter

Parameter: IBLOCKSIZE = 22800

7.3 VisuDialogs

7.3.1 Library Identification

Placeholder: VisuDialogs
Default Resolution: VisuDialogs, * (System)
Namespace: VisuDialogs

7.3.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: VisuDialogs
- SystemLibrary: False
- Optional: False

7.4 VisuElem3DPath

7.4.1 Library Identification

Placeholder: System_VisuElem3DPath
Default Resolution: VisuElem3DPath, 3.5.10.0 (System)
Namespace: VisuElem3DPath

7.4.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElem3DPath
- SystemLibrary: True
- Optional: False

7.4.3 Library Parameter

Parameter: GC_POINTS_PER_POLYGON = 100

7.5 VisuElemCamDisplayer

7.5.1 Library Identification

Placeholder: System_VisuElemCamDisplayer
Default Resolution: VisuElemCamDisplayer, 3.5.10.0 (System)
Namespace: VisuElemCamDisplayer

7.5.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemCamDisplayer

- SystemLibrary: True
- Optional: False

7.5.3 Library Parameter

Parameter: GC_POINTS_PER_CAM = 100

7.6 VisuElemMeter

7.6.1 Library Identification

Placeholder: System_VisuElemMeter
Default Resolution: VisuElemMeter, 3.5.10.0 (System)
Namespace: VisuElemMeter

7.6.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemMeter
- SystemLibrary: True
- Optional: False

7.7 VisuElemTextEditor

7.7.1 Library Identification

Placeholder: System_VisuElemTextEditor
Default Resolution: VisuElemTextEditor, 3.5.10.0 (System)
Namespace: VisuElemTextEditor

7.7.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemTextEditor
- SystemLibrary: True
- Optional: False

7.8 VisuElemTrace

7.8.1 Library Identification

Placeholder: System_VisuElemTrace
Default Resolution: VisuElemTrace, 3.5.10.0 (System)
Namespace: VisuElemTrace

7.8.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemTrace
- SystemLibrary: True

- Optional: False

7.9 VisuElemXYChart

7.9.1 Library Identification

Placeholder: System_VisuElemXYChart
Default Resolution: VisuElemXYChart, 3.5.15.0 (System)
Namespace: VisuElemXYChart

7.9.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemXYChart
- SystemLibrary: True
- Optional: False

7.10 VisuElems

7.10.1 Library Identification

Placeholder: System_VisuElems
Default Resolution: VisuElems, 3.5.10.0 (System)
Namespace: VisuElems

7.10.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElems
- SystemLibrary: True
- Optional: False

7.11 VisuElemsAlarm

7.11.1 Library Identification

Placeholder: System_VisuElemsAlarm
Default Resolution: VisuElemsAlarm, 3.5.10.0 (System)
Namespace: VisuElemsAlarm

7.11.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemsAlarm
- SystemLibrary: True
- Optional: False

7.12 VisuElemsDateTime

7.12.1 Library Identification

Placeholder: System_VisuElemsDateTime
Default Resolution: VisuElemsDateTime, 3.5.10.0 (System)
Namespace: VisuElemsDateTime

7.12.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemsDateTime
- SystemLibrary: True
- Optional: False

7.13 VisuElemsSpecialControls

7.13.1 Library Identification

Placeholder: System_VisuElemsSpecialControls
Default Resolution: VisuElemsSpecialControls, 3.5.10.0 (System)
Namespace: VisuElemsSpecialControls

7.13.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemsSpecialControls
- SystemLibrary: True
- Optional: False

7.14 VisuElemsWinControls

7.14.1 Library Identification

Placeholder: System_VisuElemsWinControls
Default Resolution: VisuElemsWinControls, 3.5.10.0 (System)
Namespace: VisuElemsWinControls

7.14.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuElemsWinControls
- SystemLibrary: True
- Optional: False

7.15 VisuInputs

7.15.1 Library Identification

Placeholder: system_visuinputs
Default Resolution: VisuInputs, 3.5.15.0 (System)

Namespace: visuinputs

7.15.2 Library Properties

- LinkAllContent: False
- Optional: False
- QualifiedOnly: False
- Key: system_visuinputs
- SystemLibrary: True
- PublishSymbolsInContainer: True

7.16 VisuNativeControl

7.16.1 Library Identification

Placeholder: System_VisuNativeControl
Default Resolution: VisuNativeControl, 3.5.10.0 (System)
Namespace: VisuNativeControl

7.16.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: System_VisuNativeControl
- SystemLibrary: True
- Optional: False

7.17 WagoSysErrorBase

7.17.1 Library Identification

Placeholder: WagoSysErrorBase
Default Resolution: WagoSysErrorBase, * (WAGO)
Namespace: WagoSysErrorBase

7.17.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: WagoSysErrorBase
- SystemLibrary: False
- Optional: False

7.18 WagoSysVersion

7.18.1 Library Identification

Name: WagoSysVersion
Version: 1.0.0.0
Company: WAGO
Namespace: WagoSysVersion

7.18.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: WagoSysVersion, 1.0.0.0 (WAGO)
- SystemLibrary: False
- Optional: False

7.19 WagoTypesCommon

7.19.1 Library Identification

Placeholder: WagoTypesCommon
Default Resolution: WagoTypesCommon, * (WAGO)
Namespace: WagoTypes

7.19.2 Library Properties

- LinkAllContent: False
- Optional: False
- QualifiedOnly: True
- Key: WagoTypesCommon
- SystemLibrary: False
- PublishSymbolsInContainer: True

7.20 WagoTypesErrorBase

7.20.1 Library Identification

Placeholder: WagoTypesErrorBase
Default Resolution: WagoTypesErrorBase, * (WAGO)
Namespace: WagoTypesErrorBase

7.20.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: True
- Key: WagoTypesErrorBase
- SystemLibrary: False
- Optional: False

7.21 WagoTypesModule_753_647

7.21.1 Library Identification

Placeholder: WagoTypesModule_753_647
Default Resolution: WagoTypesModule_753_647, * (WAGO)
Namespace: WagoTypesModule_753_647

7.21.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: WagoTypesModule_753_647

- SystemLibrary: False
- Optional: False

7.21.3 Library Parameter

Parameter: GP_MAXRESPONSEDATA = 70

Parameter: GP_MAXRESPONSES = 2

7.22 WagoVisuIcons

7.22.1 Library Identification

Placeholder: WagoVisuIcons
Default Resolution: WagoVisuIcons, * (WAGO)
Namespace: WagoVisuIcons

7.22.2 Library Properties

- LinkAllContent: False
- QualifiedOnly: False
- Key: WagoVisuIcons
- SystemLibrary: False
- Optional: False