

DALI_647_04.lib

CODESYS-V2.3 Modules for the DALI Multi-Master Module 753-647

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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

We wish to point out that the software and hardware names, as well as the trademarks of companies used and/or mentioned in the present manual, are generally protected by trademark or patent.

WAGO-I/O-PRO Library for the DALI Multi-Master Module 753-647

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Important Notes

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

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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.

10 Communication

DALI Multi-Master Module (FbMaster753_647)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbMaster753_647 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| Library used: | | WagoLibMBX_01.lib WagoLibKBUS.lib | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bModule_753_647 | | BYTE | Index of the DALI Multi-Master Module 753-647 addressed at the controller Counting is from left to right. Default setting: 1 |
| xQuit | | BOOL | Error acknowledgement |
| | | | |
| Return Value: | | Data Type: | Comment: |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbMaster753_647</div><div><div>bModule_753_647</div><div>bFeedback</div><div>xQuit</div></div></div> | | | |
| Function Description: | | | |
| <p>The FbMaster753_647 function block is used as the interface for DALI Multi-Master module 753-647. All other function blocks communicate with the DALI Multi-Master module via this function block.</p> <p>The corresponding DALI Multi-Master Module is specified at the “bModule_753_647” input. Counting is from left to right.</p> | | | |

The output “**bFeedback**” outputs a numeric code with the error message. Numeric codes are listed in Table 1 in the appendix.

The error message can be acknowledged via a positive edge at the “**xQuit**” input.

Note:

- The FbMaster753_647” function block must be called in the program sequence before all other DALI function blocks.
- All DALI function blocks that communicate with this master must be called up in the same program task.
- Only one DALI Multi-Master module may be called up with each DALI module.
- The function block switches the DALI Multi-Master module automatically into the “full mode”.
- With the DALI_647_04.lib this function block uses the addresses %IW499 - %IW511 and %QW499 - %QW511 in the MODBUS input/output area.
- To ensure that the “WAGO DALI Configurator” functions properly with the PFC200 controller, the “DALI_647_PFC_04.lib” library must be used.
- With DALI_647_PFC_04.lib this function block uses the addresses %IW1987 - %IW1999 and %QW1987 - %QW1999 in the MODBUS input/output area.
- The DALI function blocks in the PLC program must be run at least every 60 ms for communication with the DALI configurator.

20 ECGs

01 Configuration


DALI Configuration (PrgDALIConfig)

| WAGO-I/O-PRO Library Elements | | | |
|---|---------------------------------------|---|---|
| Category: | Building technology | | |
| Name: | PrgDALIConfig | | |
| Type: | Function <input type="checkbox"/> | Function block <input type="checkbox"/> | Program <input checked="" type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| Visualization templates: | DALI_647_04.exp | | |
| Graphical Illustration: | | | |
| <div style="border: 1px solid black; padding: 5px; display: inline-block;">PrgDALIConfig</div> | | | |
| Visualization: | | | |
| <div style="border: 1px solid black; padding: 10px;"> <div style="display: flex;"> <div style="flex: 1; border-right: 1px solid black; padding-right: 10px;"> <p style="text-align: center; margin-bottom: 5px;">Menu</p> <div style="margin-bottom: 5px; border: 1px solid black; padding: 2px; text-align: center;">Addressing</div> <div style="margin-bottom: 5px; border: 1px solid black; padding: 2px; text-align: center;">Identify</div> <div style="margin-bottom: 5px; border: 1px solid black; padding: 2px; text-align: center;">Settings</div> <div style="margin-bottom: 5px; border: 1px solid black; padding: 2px; text-align: center;">Groups</div> <div style="margin-bottom: 5px; border: 1px solid black; padding: 2px; text-align: center;">Scenes</div> <div style="margin-bottom: 5px; border: 1px solid black; padding: 2px; text-align: center;">Status</div> <div style="margin-bottom: 5px; border: 1px solid black; padding: 2px; text-align: center;">Operating hours</div> <div style="margin-bottom: 5px; border: 1px solid black; padding: 2px; text-align: center;">Device Type</div> </div> <div style="flex: 2; padding-left: 10px;"> <p style="text-align: center; margin-bottom: 20px;">DALI Configurator</p> <div style="border: 1px solid black; padding: 20px; text-align: center; background-color: #f0f0f0;"> <p style="color: blue; font-size: 1.2em;">Please select Configuration Menu on the left</p> </div> </div> </div> </div> | | | |
| Function Description: | | | |
| <p>For the DALI configuration tool, the PrgDALIConfig program must be called once in the project. In addition, the associated visualization pages can be imported into the project via the DALI_647_04.exp export file.</p> | | | |

Addressing of Electronic Control Gears¹ (FbAddressingControlGears)

| WAGO-I/O-PRO Library Elements | | |
|-------------------------------|---------------------------------------|--|
| Category: | Building technology | |
| Name: | FbAddressingControlGears | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| Input Parameter: | Data Type: | Comment: |
| xStartRandomAddressing | BOOL | A positive edge starts the random addressing of the DALI electronic control gears. |
| xStartPhysicalSelection | BOOL | A positive edge starts the addressing of the electronic control gears via the physical selection. |
| xStopAddressing | BOOL | A positive edge ends the addressing of the electronic control gears prematurely. |
| typConfigAddressing | typConfigAddressing | Selection of the different addressing options |
| .xRandomSetReset Value | BOOL | With random addressing, all newly addressed electronic control gears are set to their "reset values". Default: TRUE |
| .xRandomUnaddressed | BOOL | With random addressing, only electronic control gears with no short address are readdressed. Default: TRUE |
| .xRandomChangeActual Level | BOOL | With random addressing, the current dimming level remains unchanged. |
| .xPhysicalSetReset Value | BOOL | With physical selection, all newly addressed electronic control gears are set to their "reset values". |
| .xPhysicalUnaddressed | BOOL | With physical selection, only electronic control gears with no short address are readdressed. Default: TRUE |
| 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 edge sets the electronic control gear with the short address "bResetValues" to its "reset values". |
| bResetValues | BYTE | Selection of the electronic control gears to be reset |
| xSyncDataBase | BOOL | A positive edge synchronizes the I/O-module-internal database. |

¹ ECG = Electronic control gear (ballast unit)

| WAGO-I/O-PRO Library Elements | | |
|---|------------|---|
| xCentralOn | BOOL | A positive edge switches all electronic control gears on. |
| xCentralOff | BOOL | A positive edge switches all electronic control gears off. |
| xQuit | BOOL | A positive edge acknowledges the fault message at the "bFeedback" output. |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 |
| Return Value: | Data Type: | Comment: |
| xReady | BOOL | TRUE: Module ready FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |
| Graphical Illustration: | | |
|  | | |

Function Description:

The **FbAddressingControlGears** function block is used to address the connected DALI electronic control gears. In addition, the short addresses can be deleted or the settings reset to the “reset values” via the module.

Random addressing with the following parameters is started with a positive edge on the **“xStartRandomAddressing”** input:

“typConfigAddressing.xRandomSetResetValue”

TRUE: Each newly addressed electronic control gear is set to its “reset values”.

FALSE: All electronic control gears retain their original configuration.

“typConfigAddressing.xRandomUnaddressed”

TRUE: Only electronic control gears without short addresses are re-addressed.

FALSE: All electronic control gears are re-addressed.

“typConfigAddressing.xRandomChangeActualLevel”

TRUE: The dimming level is not changed during addressing.

FALSE: The dimming level is changed during addressing.

Addressing with the following parameters is started with a positive edge at the **“xStartPhysicalSelection”** input:

“typConfigAddressing.xPhysicalSetResetValue”

TRUE: Each newly addressed electronic control gear is set to its “reset” value.

FALSE: All electronic control gears retain their original configuration.

“typConfigAddressing.xPhysicalUnaddressed”

TRUE: Only electronic control gears without short addresses are re-addressed.

FALSE: All electronic control gears are re-addressed.

The addressing routine is terminated prematurely with a positive edge on the **“xStopAddressing”** input.

If a positive edge is detected on the **“xDeleteShortAddress”** input, the short address is then deleted for the electronic control gears selected on the **“bDeleteShortAddress”** input.

If a positive edge is detected at the **“xResetValues”** input, the electronic control gear is reset to its “reset values” at the **“bResetValues”** input.

The I/O module database is synchronized in the event of a positive edge on the **“xSyncDataBase”** input.

The entire lighting is switched on or off in the event of a positive edge on the **“xCentralOn”** or **“xCentralOff”** inputs.

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

If there is fault message at the **“bFeedback”** output, it can be acknowledged by a positive edge on the **“xQuit”** input. Only after the fault is acknowledged can the module execute a new action.

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.
- Upon completion of addressing, the database is synchronized in the I/O module and the sensors switched to the “Active” mode (sensors transmit their values only to the DALI Multi-Master Module).

Locating the Electronic Control Gears (FbIdentifyControlGear)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbIdentifyControlGear | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xReplaceShortAddress | | BOOL | A positive edge replaces the “ <i>bCurrentShortAddress</i> ” short address with the “ <i>bNewShortAddress</i> ” short address. |
| bCurrentShortAddress | | BYTE | Short address for locating the electronic control gears |
| bNewShortAddress | | BYTE | New address when replacing the short addresses Default setting: 63 |
| xCentralOn | | BOOL | A positive edge switches all electronic control gears on. |
| xCentralOff | | BOOL | A positive edge switches all electronic control gears off. |
| xIdentify | | BOOL | The electronic control gear flashes with the “ <i>bActualShortAddress</i> ” short address as long as the input is active. |
| blIdentifyPeriod | | BYTE | Flash period for the detection of the electronic control gears Value range: 1 ... 51 s Default setting: 1 |
| xQueryShortAddress | | BOOL | A positive edge determines the existing short addresses from the I/O module database. |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “ <i>bFeedback</i> ” output. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| axShortAddress | | ARRAY [0..63] OF BOOL | Indication of the existing electronic control gear short addresses |
| | | | |

Graphical Illustration:**Function Description:**

The **FbIdentifyControlGear** function block is used to identify and replace the electronic control gear short addresses.

With a positive edge on the **“xReplaceShortAddress”** input, the **“bCurrentShortAddress”** short address is replaced with the **“bNewShortAddress”** short address. The **“bCurrentShortAddress”** short address must be available at least.

The entire lighting is switched on or off in the event of a positive edge on the **“xCentralOn”** or **“xCentralOff”** inputs.

If the **“xIdentify”** input is activated, the electronic control gear selected on the **“bCurrentShortAddress”** flashes for the **“bIdentifyPeriod”** flash period.

With a positive edge on the **“xQueryShortAddress”** input, the existing short addresses are queried from the I/O module database and displayed at the **“axShortAddress”** output.

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

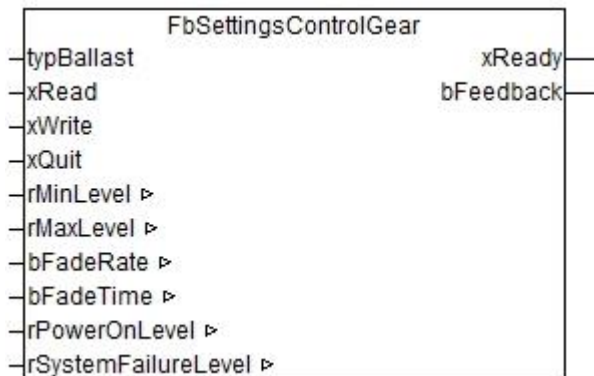
The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

If there is fault message at the **“bFeedback”** output, it can be acknowledged by a positive edge on the **“xQuit”** input. Only after the fault is acknowledged can the module execute a new action.

Electronic Control Gear Settings (FbSettingsControlGear)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbSettingsControlGear | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 |
| 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 electronic control gear. |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| | | | |
| Input/Output Parameter: | | Data Type: | Comment: |
| rMinLevel | | REAL | Input of min dimming level [%] Value range: 0 ... 100 % |
| rMaxLevel | | REAL | Input of max dimming level [%] Value range: 0 ... 100 % |
| bFadeRate | | BYTE | Input of fade rate Value range: 1 ... 15 |
| bFadeTime | | BYTE | Input of fade time Value range: 0 ... 15 |
| rPowerOnLevel | | REAL | Input of power on level [%] Value range: 0 ... 100 % 101: No change |
| rSystemFailureLevel | | REAL | Input of system failure brightness level [%] Value range: 0 ... 100 % 101: No change |

| Return Value: | Data Type: | Comment: |
|---------------|------------|--|
| xReady | BOOL | TRUE: Module ready FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |

Graphical Illustration:

Function Description:

The **FbSettingsControlGear** function block can read and write the parameters from an electronic control gear.

The data type “**typBallast**” defines the devices which are to be addressed via this module. The following inputs are required for this:

- “**.bAddress**” defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- “**.xIsGroup**” defines whether the address given in “**.bAddress**” is to be used as a short or as a group address.
(FALSE: Short address; TRUE: Group address).
- “**.bModule_753_647**” defines the DALI Multi-Master Module with which this function block must communicate.

The following parameters are read or written from the electronic control gear with a positive edge at the **"xRead"** or **"xRead"** inputs:

- The minimum or maximum dimming level of the electronic control gear can be limited by the **"rMinLevel"** and **"rMaxLevel"** parameters.
- The **"bFadeRate"** parameter determines the fade rate for dimming. The input is done according to IEC 62386 in level values 1 ... 15. Number 1 means coarse grading and number 15 fine grading. This value is only effective with relative dimming commands.
- The **"bFadeTime"** parameter determines the fade rate of the electronic control gear when sending defined dimming levels. The input is done according to IEC 62386 in level values 0 ... 15. Number 0 means the new value is reached quickly and number 15 that the new value is reached slowly.
- The **"rPowerOnLevel"** determines the brightness value after power recovery. At a **"rPowerOnLevel"** of 101%, the last value before the power failure is recalled.

The **"rSystemFailureLevel"** parameter determines the brightness value in the event of a bus fault. At a **"rSystemFailureLevel"** of 101%, the brightness value remains unchanged.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

If there is fault message at the **"bFeedback"** output, it can be acknowledged by a positive edge on the **"xQuit"** input. Only after the fault is acknowledged can the module execute a new action.

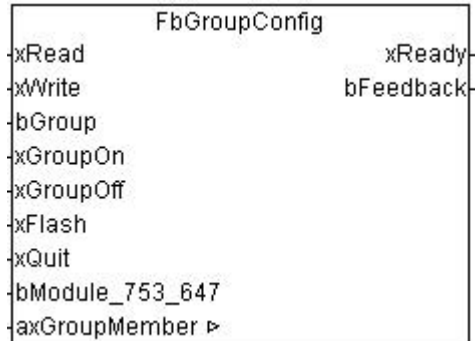
Note:

- The **"typBallast"** structure can be created using the export function in the "WAGO DALI Configurator" and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

Group Configuration (FbGroupConfig)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbGroupConfig | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xRead | | BOOL | A positive edge causes the group configuration to be read out. |
| xWrite | | BOOL | A positive edge results in writing of the group configuration to the electronic control gear. |
| bGroup | | BYTE | Selection of the DALI group Value range: 0 ... 31 |
| xGroupOn | | BOOL | A positive edge causes the selected group to be switched on. |
| xGroupOff | | BOOL | A positive edge causes the selected group to be switched off. |
| xFlash | | BOOL | The selected group flashes as long as the input is active. |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 |
| | | | |
| Input/Output Parameter: | | Data Type: | Comment: |
| axGroupMember | | ARRAY [0..63] OF BOOL | The array is used on the one hand to display the current group configuration. The array can be used on the other to redefine group members. |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |

Graphical Illustration:



Function Description:

The **FbGroupConfig** function block is used to configure the DALI groups. In addition to the 16 DALI groups, this function block can be used to define an additional 16 virtual groups.

With a positive edge at the “**xRead**” input, all electronic control gears are queried if they belong to the “**bGroup**” group. Group members appear in the “**axGroupMember**” array.

With a positive edge at the “**xWrite**” input, all electronic control gears that have been set to TRUE in the “**axGroupMember**” array are assigned to the “**bGroup**” group.

To check the group configuration, the group can be switched on or off by a positive edge at the “**xGroupOn**” or “**xGroupOff**” inputs.

As long as the “**xFlash**” input is active, the lights from the selected groups flash at a flash period set in the DALI Multi-Master Module.

The DALI Multi-Master Module with which this function block must communicate is selected at input “**bModule_753_647**”.

The “**xReady**” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “**xReady**” is FALSE.

If there is fault message at the “**bFeedback**” output, it can be acknowledged by a positive edge on the “**xQuit**” input. Only after the fault is acknowledged can the module execute a new action.

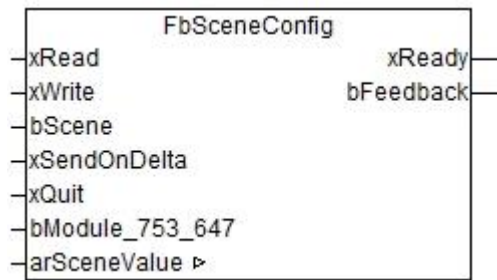
Note:

- The virtual groups are saved to the DALI Multi-Master Module and can have up to 8 members. All other subscribers are rejected.
- For the virtual groups, the I/O module sends the telegrams to all group members one after the other as fast as possible.

Scene Configuration (FbSceneConfig)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbSceneConfig | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xRead | | BOOL | A positive edge causes the scene configuration to be read out. |
| xWrite | | BOOL | A positive edge writes the scene configuration to the electronic control gears. |
| bScene | | BYTE | Selection of the DALI scene Value range: 0 ... 15 |
| xSendOnDelta | | BOOL | The dimming values are called up directly on any change in the values in "arSceneValue". Default: TRUE |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the "bFeedback" output. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 |
| | | | |
| Input/Output Parameter: | | Data Type: | Comment: |
| arSceneValue | | ARRAY[0..63] OF REAL | The array is used to display and configure the selected scene [%] Value range: 0 ... 100 % 101: No scene value |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |

Graphical Illustration:



Function Description:

The **FbSceneConfig** function block is used for configuring DALI scenes.

With a positive edge at the “**xRead**” input or at a value change at the “**bScene**” input, all ballasts are queried as to which scene value they have stored under the “bScene” scene. The scene values are displayed in the “**arSceneValue**” array.

With a positive edge at the “**xWrite**” input, the “bScene” scene is saved to all electronic control gears with the scene value from the “arSceneValue” array.

When the “**xSendOnDelta**” input is activated, changes in the dimming values will be transmitted directly to the electronic control gears. This function is enabled by default.

The DALI Multi-Master Module with which this function block must communicate is selected at input “**bModule_753_647**”.

The “**xReady**” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “xReady” is FALSE.

If there is fault message at the “**bFeedback**” output, it can be acknowledged by a positive edge on the “**xQuit**” input. Only after the fault is acknowledged can the module execute a new action.

Status Query of Electronic Control Gears (FbStatusControlGear)

| WAGO-I/O-PRO Library Elements | | | |
|---|-----------------------|---|---|
| Category: | | Building technology | |
| Name: | | FbStatusControlGear | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| xRead | BOOL | A positive edge causes the status values to be read from the internal I/O module database. | |
| xQuit | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. | |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 | |
| | | | |
| Return Value: | Data Type: | Comment: | |
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation | |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) | |
| axShortAddress | ARRAY [0..63] OF BOOL | Indication of the existing electronic control gear short addresses | |
| axLampPowerOn | ARRAY [0..63] OF BOOL | Indication of the lamps switched on | |
| axStatusControlGear | ARRAY [0..63] OF BOOL | Indication of faults reported by the electronic control gear states | |
| axLampFailure | ARRAY [0..63] OF BOOL | Indication of the defective lamps | |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbStatusControlGear</div><div><div>xRead</div><div>xQuit</div><div>bModule_753_647</div></div><div><div>xReady</div><div>bFeedback</div><div>axShortAddress</div><div>axLampPowerOn</div><div>axStatusControlGear</div><div>axLampFailure</div></div></div> | | | |

Function Description:

The **FbStatusControlGear** function block reads the current status of the electronic control gears from the I/O module database.

With a positive edge at the **“xRead”** input, the status of the electronic control gears is read from the I/O module database and displayed at the following outputs:

- **“axShortAddress”**: Indication of the available electronic control gears (online)
- **“axLampPowerOn”**: Indication of which lamps are on
- **“axStatusControlGear”**: Indication of which electronic control gear state have a reported fault
- **“axLampFailure”**: Indication of which lamps are defective

In this case the ECG state in **“axStatusControlGear”** is reported by the electronic control gear itself. Therefore a black-out can not be determined by the ECG because itself had to report it.

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

If there is fault message at the **“bFeedback”** output, it can be acknowledged by a positive edge on the **“xQuit”** input. Only after the fault is acknowledged can the module execute a new action.

Note:

- The status of the electronic control gears is read out in cycles via the DALI Multi-Master Module. The WAGO DALI configurator can be used to set the refresh rate.

Evaluation of Operating Hours (FbDaliOperatingHours)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDaliOperatingHours | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xEnable | | BOOL | Enable signal for reading of operating hours from the internal I/O module database |
| tCycleTime | | TIME | Interval for reading the operating hours Default setting: t#1h |
| xResetAll | | BOOL | A positive edge causes all the operating hours in the I/O module database to be cleared. |
| xResetSelected | | BOOL | A positive edge causes all the operating hours for the DALI electronic control gear in the “axSelect” array to be cleared. |
| xSetSelected | | BOOL | The operating hours “arOperatingHours” selected using “axSelect” will be written to the I/O module database in the event of a positive edge. This function is supported starting from FW4. |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| | | | |
| Input/Output Parameter: | | Data Type: | Comment: |
| axSelect | | ARRAY [0..63] OF BOOL | Selection of the operating hours to be cleared in the I/O module database |
| arOperatingHours | | ARRAY[0..63] OF REAL | Indication of operating hours [h] |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |

Graphical Illustration:



Function Description:

The **FbDaliOperatingHours** function block reads the operating hours for the individual DALI electronic control gears from the internal database in the I/O module.

When the “**xEnable**” input is set to TRUE, the function block reads the operating hours in cycles from the internal database in the I/O module. The data is written to the “**arOperatingHours**” input/output array.

The cycle interval is specified at the “**tCycleTime**” input.

On a positive edge at the “**xResetAll**” input, all operating hours in the internal database in the I/O module are cleared.

On a positive edge at the “**xResetSelected**” input, all of the operating hours selected in the “**axSelect**” array are cleared. The array index represents the short address for the connected DALI electronic control gears.

The operating hours selected in the “**axSelect**” array are written to the I/O module database in the event of a positive edge at the “**xSetSelected**” input.

The DALI Multi-Master Module with which this function block must communicate is selected at input “**bModule_753_647**”.

The “**xReady**” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “**xReady**” is FALSE.

If there is fault message at the “**bFeedback**” output, it can be acknowledged by a positive edge on the “**xQuit**” input. Only after the fault is acknowledged can the module execute a new action.

Note:

- Application of the values at the “**xSetSelected**” is supported starting from FW4.

Reading and Writing of the ECG Memory Banks (FbDaliMemoryBank)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliMemoryBank | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address of 0 ... 63 Group address from 0 to 15 Broadcast: 255 |
| .xIsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| bMemoryBank | | BYTE | Number of memory bank |
| bStartMemoryLocation | | BYTE | First memory address |
| bNumberOfBytes | | BYTE | Number of memory addresses Value range: 1 ... 64 |
| xRead | | BOOL | A positive edge initiates reading out of the memory bank. |
| xWrite | | BOOL | A positive edge initiates writing of the memory bank. |
| | | | |
| Input/Output Parameter: | | Data Type: | Comment: |
| abValue | | ARRAY [1..64] OF BYTE | Memory bank values |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |

Graphical Illustration:



Function Description:

The **FbDaliMemoryBank** function block can be used to read and write the electronic control gear memory banks.

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **"xIsGroup"** defines whether the address given in **"bAddress"** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).
- **"bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The number of the memory bank into which data is written, or from which data is read is defined via the **"bMemoryBank"** input.

The first memory address that is assigned to the parameter to be edited is defined via the **"bStartMemoryLocation"** input.

The **"bNumberOfBytes"** input defines the number of memory addresses for the parameter.

On a positive edge at the **"xRead"** input, the contents of the memory bank defined via **"bMemoryBank"** are read.

On a positive edge at the **"xWrite"** input, content is written to the memory bank defined via **"bMemoryBank"**.

The memory bank values which are to be either read out via the **"xRead"** input or written via the **"xWrite"** input are saved in the input/output parameter **"abValue"**.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

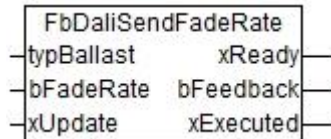
The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Note:

- The "typBallast" structure can be created using the export function in the "WAGO DALI Configurator" and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.
- The password must be set at memory address 16#02 to enable writing of the memory banks. This password is: 16#55

Saving the Fade Rate (FbDaliSendFadeRate)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDaliSendFadeRate | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 |
| bFadeRate | | BYTE | Fade rate Value range: 1 ... 15 (255) Default setting: 255 (unchanged) |
| xUpdate | | BOOL | On a positive edge, the fade rate set at the “bFadeRate” input is transmitted to the electronic control gear. |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| xExecuted | | BOOL | Confirmation signal after proper transmission of the fade rate set at the “bFadeRate” input. |
| | | | |

Graphical Illustration:**Function Description:**

The **FbDaliSendFadeRate** function block can be used to transmit the set fade rate to one or more electronic control gears.

The data type **“typBallast”** defines the devices which are to be configured via this module. The following inputs are required for this:

- **“.bAddress”** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **“.xIsGroup”** defines whether the address given in **“.bAddress”** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).

- **“.bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

The fade rate that is to be transmitted is defined via the **“bFadeRate”** input.

On a positive edge at the **“xUpdate”** input, or on a change of value at the **“bFadeRate”** input, the set fade rate will be transmitted to the electronic control gears.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

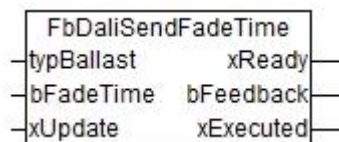
The **“xExecuted”** output signals (in the form of a trigger signal) that transmission of the set fade rate has been completed.

Note:

- The **“typBallast”** structure can be created using the export function in the “WAGO DALI Configurator” and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

Saving the Fade Time (FbDaliSendFadeTime)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliSendFadeTime | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| bFadeTime | | BYTE | Fade time Value range: 0 ... 15 (255) Default setting: 255 (unchanged) |
| xUpdate | | BOOL | On a positive edge, the fade time set at the “bFadeTime” input is transmitted to the electronic control gear. |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| xExecuted | | BOOL | Confirmation signal after proper transmission of the fade time set at the “bFadeTime” input |
| | | | |

Graphical Illustration:

Function Description:

The **FbDaliSendFadeTime** function block can be used to transmit the set fade time to one or more electronic control gears.

The data type **"typBallast"** defines the devices which are to be configured via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **".xlsGroup"** defines whether the address given in **".bAddress"** is to be used as a short address or group address
(FALSE: Short address; TRUE: Group address).
- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The fade time that is to be transmitted is defined via the **"bFadeTime"** input.

On a positive edge at the **"xUpdate"** input, or on a change of value at the **"bFadeTime"** input, the set fade time will be transmitted to the electronic control gears.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

The **"xExecuted"** output signals (in the form of a trigger signal) that transmission of the set fade time has been completed.

Note:

- The **"typBallast"** structure can be created using the export function in the "WAGO DALI Configurator" and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

02 Switching

Latching Relay (FbDaliLatchingRelay)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliLatchingRelay | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 31 Broadcast: 255 |
| .xIsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xButton | | BOOL | Input from switch lighting request |
| rDimmLevelForOff | | REAL | Dimming level for switching off [%] Default setting: 0 % (OFF) |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| rActualLevel | | REAL | Indication of the current dimming level [%] |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliLatchingRelay</div><div><div>typBallast</div><div>xReady</div><div>xButton</div><div>bFeedback</div><div>rDimmLevelForOff</div><div>rActualLevel</div></div></div> | | | |

Function Description:

The **FbDaliLatchingRelay** function block maps the function of a latching relay.

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **".xlsGroup"** defines whether the address given in **".bAddress"** is to be used as a short or as a group address.
(FALSE: Short address; TRUE: Group address).
- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

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.

If **"rDimmLevelForOff"** is greater than zero, the lights are not switched off, but are set instead to the dimming level set at the **"rDimmLevelForOff"** input.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

The **"rActualLevel"** output displays the current dimming level of the selected short address or group.

Note:

- The **"typBallast"** structure can be created using the export function in the "WAGO DALI Configurator" and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

ON/OFF Switch (FbDaliSwitchOnOff)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliSwitchOnOff | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 31 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xOn | | BOOL | A positive edge switches the selected electronic control gears on. |
| xOff | | BOOL | A positive edge switches the selected electronic control gears off. |
| rDimmLevelForOff | | REAL | Dimming level for switching off [%] Default setting: 0 % (OFF) |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| rActualLevel | | REAL | Indication of the current dimming level [%] |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliSwitchOnOff</div><div><div>typBallast</div><div>xOn</div><div>xOff</div><div>rDimmLevelForOff</div></div><div><div>xReady</div><div>bFeedback</div><div>rActualLevel</div></div></div> | | | |

Function Description:

The **FbDaliSwitchOnOff** function block maps the function of a switch.

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **".xlsGroup"** defines whether the address given in **".bAddress"** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).

- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

A rising edge at the **"xOn"** or **"xOff"** inputs causes the light addressed by the short or group address to switch on or off.

If **"rDimmLevelForOff"** is greater than zero, the lights are not switched off, but are set instead to the dimming level set at the **"rDimmLevelForOff"** input.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

The **"rActualLevel"** output displays the current dimming level of the selected short address or group.

Note:

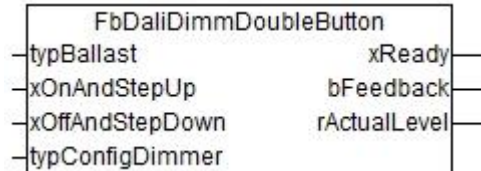
- The **"typBallast"** structure can be created using the export function in the "WAGO DALI Configurator" and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

03 Dimming

Double Dimmer Button (FbDaliDimmDoubleButton)

| WAGO-I/O-PRO Library Elements | | |
|-------------------------------|---------------------------------------|--|
| Category: | Building technology | |
| Name: | FbDaliDimmDoubleButton | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| Input Parameter: | Data Type: | Comment: |
| typBallast | typBallast | Parameter used for addressing |
| .bAddress | BYTE | Short address 0 ... 63 Group addresses 0 ... 31 Broadcast: 255 |
| .xIsGroup | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xOnAndStepUp | BOOL | Button signal for power on and step up brightness. |
| xOffAndStepDown | BOOL | Button signal for power off and step down brightness. |
| typConfigDimmer | typConfig Dimmer | Setting parameter for the dimmer |
| .tShortPushButton | TIME | Maximum time for a brief button press Default setting: t#500ms |
| .xOnlyDimming | BOOL | Dimming can only be performed via the "xOnAndStepUp" and "xOffAndStepDown" inputs. |
| .xSwitchOnLastLevel | BOOL | Switch on with the last dimming level |
| .xUseSwitchOnLevel | BOOL | Switching on with a defined dimming level |
| .bSwitchOnLevel | BYTE | Dimming level when switching on [%] Value range: 0 ... 100 % Default setting: 90 |
| .xMinLevelAsOff | BOOL | Instead of the switch-off command, the lighting is dimmed to the min. level. Default setting: FALSE |
| .xSwitchOnAndStepUp | BOOL | Before dimming, a switch-on command is sent. |
| .xStepDownAndSwitchOff | BOOL | If the minimum dimming level is reached, the lighting is switched off. |
| .rMaxLevelDimUp | BOOL | No function for double button |

| Return Value: | Data Type: | Comment: |
|---------------|------------|---|
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |
| rActualLevel | REAL | Indication of the current dimming level [%] |

Graphical Illustration:

Function Description:

The **FbDaliDimmDoubleButton** 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.

The data type **“typBallast”** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **“bAddress”** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **“xIsGroup”** defines whether the address given in **“bAddress”** is to be used as a short address or group address
(FALSE: Short address; TRUE: Group address).
- **“bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

The lighting is switched on by a brief button press at the **“xButton”** input. The following options determine the dimming value to be used for switching the lighting on:

- **“typConfigDimmer.xSwitchOnLastLevel”**: Switched on at the last dimming level
- **“typConfigDimmer.xUseSwitchOnLevel”**: Switched on at the defined dimming level **“typConfigDimmer.bSwitchOnLevel”**
- If neither of the two options is selected, the lighting is switched on at the maximum dimming level.

The lighting is switched off by a brief button press at the **“xOffAndStepDown”** input. If the **“typConfigDimmer.xMinLevelAsOff”** parameter is activated, the minimum dimming level is called up instead of the switch-off command.

If the **“typConfigDimmer.xOnlyDimming”** parameter is activated, the functions of the “brief button press” are not supported.

The lighting is turned brighter by a long button press at the **“xOnAndStepUp”** input. If the **“typConfigDimmer.xSwitchOnAndStepUp”** option is activated, a switch-on command is sent before dimming.

The lighting is turned darker by a long button press at the **“xOffAndStepDown”** input. If the **“typConfigDimmer.xStepDownAndSwitchOff”** option is activated, the lighting is switched off at the minimum dimming level.

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

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.


The **“rActualLevel”** output displays the current dimming level of the selected short address or group.

Note:

- The **“typBallast”** structure can be created using the export function in the “WAGO DALI Configurator” and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

Single-Button Dimmer (FbDaliDimmSingleButton)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|---------------------------------------|--|----------------------------------|
| Category: | Building technology | | |
| Name: | FbDaliDimmSingleButton | | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> | Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| typBallast | typBallast | Parameter used for addressing | |
| .bAddress | BYTE | Short address 0 ... 63 Group addresses 0 ... 31 Broadcast: 255 | |
| .xIsGroup | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address | |
| .bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 | |
| xButton | BOOL | Short button press: ON/OFF Long button press: brighter/darker | |
| typConfigDimmer | typConfig Dimmer | Setting parameter for the dimmer | |
| .tShortPushButton | TIME | Maximum time for a brief button press Default setting: t#500ms | |
| .xOnlyDimming | BOOL | Using the “xButton” input it is only possible to dim. | |
| .xSwitchOnLastLevel | BOOL | Switch on with the last dimming level | |
| .xUseSwitchOnLevel | BOOL | Switching on with a defined dimming level | |
| .bSwitchOnLevel | BYTE | Dimming level when switching on [%] Value range: 0 ... 100 % Default setting: 90 % | |
| .xMinLevelAsOff | BOOL | The lighting is switched to the minimum dimming level instead of the switch-off command. Default setting: FALSE | |
| .xSwitchOnAndStepUp | BOOL | Before dimming, a switch-on command is sent. | |
| .xStepDownAndSwitchOff | BOOL | If the minimum dimming level is reached, the lighting is switched off. | |
| .rMaxLevelDimUp | REAL | Threshold for determining the dimming direction after switching on Value range: 0 ... 100 % Default setting: 50 % | |
| | | | |

| Return Value: | Data Type: | Comment: |
|---|------------|---|
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |
| rActualLevel | REAL | Indication of the current dimming level [%] |
| Graphical Illustration: | | |
|  | | |
| Function Description: | | |
| <p>The FbDaliDimmSingleButton function block can be used to dim the DALI lighting. The lighting is dimmed or powered on and off by controlling one button.</p> <p>The data type “typBallast” defines the devices which are to be addressed via this module. The following inputs are required for this:</p> <ul style="list-style-type: none"> • “bAddress” defines the short or group address. Alternatively, the broadcast address (255) can also be used to write. • “.xIsGroup” defines whether the address given in “.bAddress” is to be used as a short address or group address (FALSE: Short address; TRUE: Group address). • “bModule_753_647” defines the DALI Multi-Master Module with which this function block must communicate. <p>The lighting is switched on by a brief button press at the “xButton” input. The following options determine the dimming value to be used for switching the lighting on:</p> <ul style="list-style-type: none"> • “typConfigDimmer.xSwitchOnLastLevel”: Switched on at the last dimming level • “typConfigDimmer.xUseSwitchOnLevel”: Switched on at the defined dimming level “typConfigDimmer.bSwitchOnLevel” • If neither of the two options is selected, the lighting is switched on at the maximum dimming level. <p>The lighting is switched off when on by a brief button press at the “xButton” input. If the “typConfigDimmer.xMinLevelAsOff” parameter is activated, the minimum dimming level is called up instead of the switch-off command.</p> <p>If the “typConfigDimmer.xOnlyDimming” parameter is activated, the functions of the “brief button press” are not supported.</p> | | |

The lighting is dimmed by a long button press at the “**xButton**” input. If the switch-on dimming value of the lighting is less than the value of the “**typConfigDimmer.rMaxLevelDimUp**” parameter, the lighting is turned brighter at the first long button press of the “**xButton**” input. If the switch-on dimming value is greater than “**typConfigDimmer.rMaxLevelDimUp**”, the lighting is dimmed at the first long button press.

Starting from the 2nd long button press at the “**xButton**” input, the dimming direction changes from brighter to dimmer or from dimmer to brighter.

If the “**typConfigDimmer.xSwitchOnAndStepUp**” option is activated, a switch-on command is sent before dimming.

If the “**typConfigDimmer.xStepDownAndSwitchOff**” option is activated, the lighting is switched off at the minimum dimming level.

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

The “**xReady**” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “**xReady**” is FALSE.

The output “**bFeedback**” outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

The “**rActualLevel**” output displays the current dimming level of the selected short address or group.

Note:

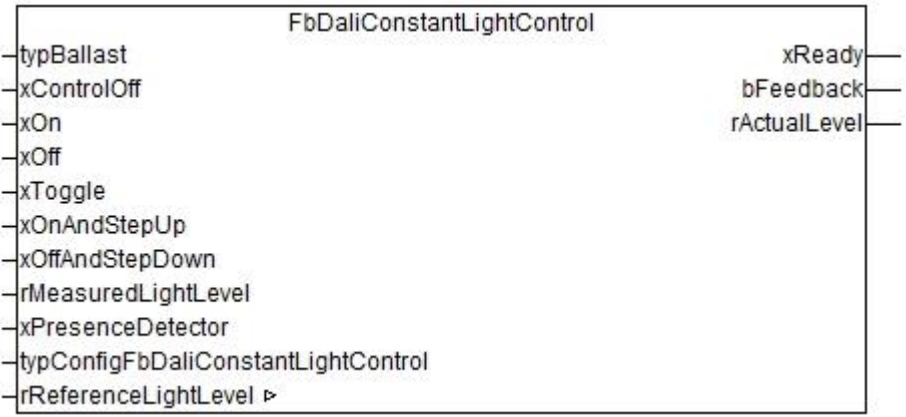
- The “**typBallast**” structure can be created using the export function in the “WAGO DALI Configurator” and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

04 Light Control

Constant Light Control (FbDaliConstantLightControl)

| WAGO-I/O-PRO Library Elements | | |
|-------------------------------------|---------------------------------------|---|
| Category: | Building technology | |
| Name: | FbDaliConstantLightControl | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| Input Parameter: | Data Type: | Comment: |
| typBallast | typBallast | Parameter used for addressing |
| .bAddress | BYTE | Short address 0 ... 63 Group addresses 0 ... 31 Broadcast: 255 |
| .xIsGroup | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 |
| xControlOff | BOOL | A positive edge at the input switches the controller off. |
| xOn | BOOL | The lighting is switched on |
| xOff | BOOL | The lighting is switched off |
| 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 switched brighter by pushing the button longer. (if "xSetpValueShifting" = TRUE) |
| xOffAndStepDown | BOOL | The lighting is switched off by pushing the button briefly; the lighting is dimmed lower by pushing the button longer. (if "xSetpValueShifting" = TRUE) |
| rMeasuredLightLevel | REAL | Input signal of the light sensor [lx] |
| xPresenceDetector | BOOL | Switching signal of the presence detector The lighting and controller are switched off by a falling edge. |
| typConfigFbDaliConstantLightControl | typConfigDaliConstantLightControl | Setting parameter for the constant light control |

| | | |
|------------------------------|------|--|
| .tOffDelayAtMinLevel | TIME | Switch-off delay of the lighting at minimum dimming level Default setting: t#15m (t#0s = No switch-off) |
| .tOffDelayStandby | TIME | Switch-off delay for the lighting in standby mode Default setting: t#30m (t#0s = No standby mode) |
| .bFadeTimeOn | BYTE | Transition time, when the light is turned on Default setting: 4 |
| .bFadeTimeStandby | BYTE | Transition time, when the controller goes into stand-by mode Default setting: 9 |
| .bFadeTimeOff | BYTE | Transition time, when the light is switched off. Default setting: 7 |
| .rPresetReferenceLight Level | REAL | Setpoint value when switching on [lx] Default setting: 500 lx |
| .rGain | REAL | Amplifying of the light sensor measured value Default setting: 3 |
| .rGainAdaption | REAL | Adaptation of the gain depending on the daylight percentage [%] Value range 0 ... 90 % Default setting: 20 % |
| .rSwitchOnDimmLevel | REAL | Dimming level when switching on before the controller is activated [%] Default setting: 50 % |
| .rStandbyLevel | REAL | Dimming level in standby mode [%] Default setting: 3 % |
| .xSetpValueShifting | BOOL | The " <i>rReferenceLightLevel</i> " setpoint value can be raised/lowered using the " <i>xOnAndStepUp</i> " and " <i>xOffAndStepDown</i> " buttons. Default: TRUE |
| .xRememberLastLight Level | BOOL | The lighting is adjusted to the " <i>rReferenceLightLevel</i> " after switching on. Otherwise, it is adjusted to the " <i>rPresetReferenceLightLevel</i> " setpoint value. |
| .xEnableSwitchOnAt Presence | BOOL | The presence detector automatically switches the lighting on. Requirement: actual value < setpoint value Default: TRUE |
| .xDimmingActivate Controller | BOOL | A long button press at the " <i>xOnAndStepUp</i> " and " <i>xOffAndStepDown</i> " inputs activates the controller. Default: TRUE |
| .xDisableShortPress | BOOL | The brief button press is deactivated at both " <i>xOnAndStepUp</i> " and " <i>xOffAndStepDown</i> " button inputs. |

| | | |
|---|-------------------|--|
| .bMinValueLightControl | BYTE | Minimum control variable for the internal controller Default setting: 1 |
| | | |
| Input/output parameter: | Data type: | Comment: |
| rReferenceLightLevel | REAL | Light intensity setpoint [lx] |
| | | |
| Return value: | Data Type: | Comment: |
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |
| rActualLevel | REAL | Indication of the current dimming level [%] |
| | | |
| Graphical Illustration: | | |
|  <pre> graph LR subgraph FbDaliConstantLightControl typBallast xControlOff xOn xOff xToggle xOnAndStepUp xOffAndStepDown rMeasuredLightLevel xPresenceDetector typConfigFbDaliConstantLightControl rReferenceLightLevel end xReady bFeedback rActualLevel </pre> | | |

Function Description:

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

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **".xlsGroup"** defines whether the address given in **".bAddress"** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).

- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The control can be deactivated via a positive edge at the **"xControlOff"** input so that, for example, when selecting a scene of the relevant address, the dimming level will not be immediately overwritten.

Before the controller is activated, the lighting is generally switched on at the **"typConfigFbDaliConstantLightControl.rSwitchOnDimmLevel"** dimming level.

The transition time when switching on the lighting is determined by parameter **"typConfigFbDaliConstantLightControl.bFadeTimeOn"**.

A positive edge at the **"xOn"** and **"xOff"** inputs switches the lighting and controller on or off.

A positive edge at the **“xToggle”** input switches the lighting and controller on or off depending on their current state.

The **“rReferenceLightLevel”** setpoint value for light intensity can be raised or lowered by a long button press at the **“xOnAndStepUp”** and **“xOffAndStepDown”** inputs.

The setpoint offset must be activated with the

“typConfigFbDaliConstantLightControl.xSetpValueShifting” parameter.

Alternatively, the **“xOnAndStepUp”** and **“xOffAndStepDown”** inputs can be used as simple dimmers if **“typConfigFbDaliConstantLightControl.xDimmingActivateController”** is deactivated.

A short button press at the **“xOnAndStepUp”** or **“xOffAndStepDown”** input turns the lighting on or off. This requires that evaluation of the short button press via the **“typConfigFbDaliConstantLightControl.xDisableShortPress”** not be deactivated. The light level is adjusted to the **“rReferenceLightLevel”** when the light is switched on.

The parameter **“typConfigFbDaliConstantLightControl.bMinValueLightControl”** defines the minimum dimming value for the constant light controller while dimming is being adjusted. The **“typConfigFbDaliConstantLightControl.tOffDelayAtMinLevel”** input specifies the time after which the lighting changes to the standby mode at the minimum dimming level. Any change to the dimming level restarts the switch-off delay. The t#0s value can be used to deactivate switching off the lighting at minimum dimming level.

In standby mode, the lighting is dimmed to the

“typConfigFbDaliConstantLightControl.rStandbyLevel” level.

The fade time for transition to the Standby mode is defined by the

“typConfigFbDaliConstantLightControl.bFadeTimeStandby” parameter.

The **“typConfigFbDaliConstantLightControl.tOffDelayStandby”** input specifies 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.

The transition time when switching the lighting off is determined by the parameter **“typConfigFbDaliConstantLightControl.bFadeTimeOff”**.

If **“typConfigFbDaliConstantLightControl.xRememberLastLightLevel”** is activated, the lighting is adjusted to the last setpoint value **“rReferenceLightLevel”** when it is switched on. If the parameter is not activated, the lighting is adjusted to the setpoint value **“typConfigFbDaliConstantLightControl.rPresetReferenceLightLevel”** when switched on.

The **“rMeasuredLightLevel”** input passes the actual value from the light sensor to the module.

With a presence dependent constant light control, the switching contact of the presence detector is connected to the input **“xPresenceDetector”**. The lighting is switched off or set to the standby mode by a falling edge of the presence detector.

If **"typConfigFbDaliConstantLightControl.xEnableSwitchOnAtPresence"** is activated, the **"xPresenceDetector"** input can also switch on the lighting. This can only be done when the actual value is smaller than the setpoint value by 50 lx.

The **"typConfigFbDaliConstantLightControl.rGain"** and **"typConfigFbDaliConstantLightControl.rGainAdaption"** parameters are used to compare the measured value of the light sensor on the ceiling with the light intensity at the workplace.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

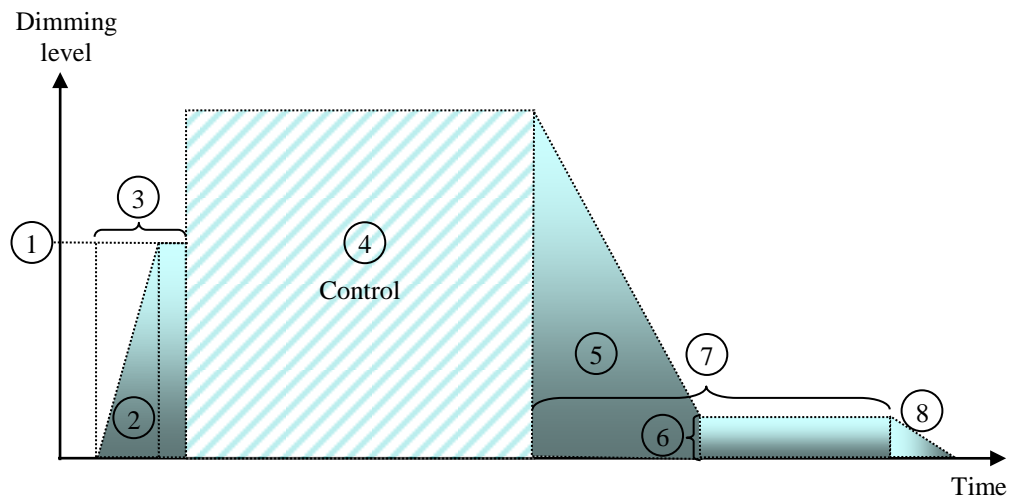
The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

The **"rActualLevel"** output displays the current dimming level of the selected short address or group.

Note:

- The **"rReferenceLightLevel"** variable should be defined as RETAIN.
- 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.
- The fade time shown under items 2, 5 and 8 in the diagram below cannot be set for virtual groups.
- The **"typBallast"** structure can be created using the export function in the "WAGO DALI Configurator" and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

Time Referenced Behavior:



- ① Initial brightness (“rSwitchOnDimmLevel”)
- ② Fade time when switching on (“bFadeTimeOn”)
- ③ On-delay controller (“tOnDelayController”)
- ④ Presence + run time, light control is active, transition time = 0
- ⑤ Transition time when switching to stand-by mode (“bFadeTimeStandby”)
- ⑥ Dimming level in standby mode (“rStandbyLevel”)
- ⑦ Max. run time in standby mode (“tOffDelayStandby”)
- ⑧ Transition time when switching off (“bFadeTimeOff”)

Calibration Requirements:

- 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 $V(\lambda)$ 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.

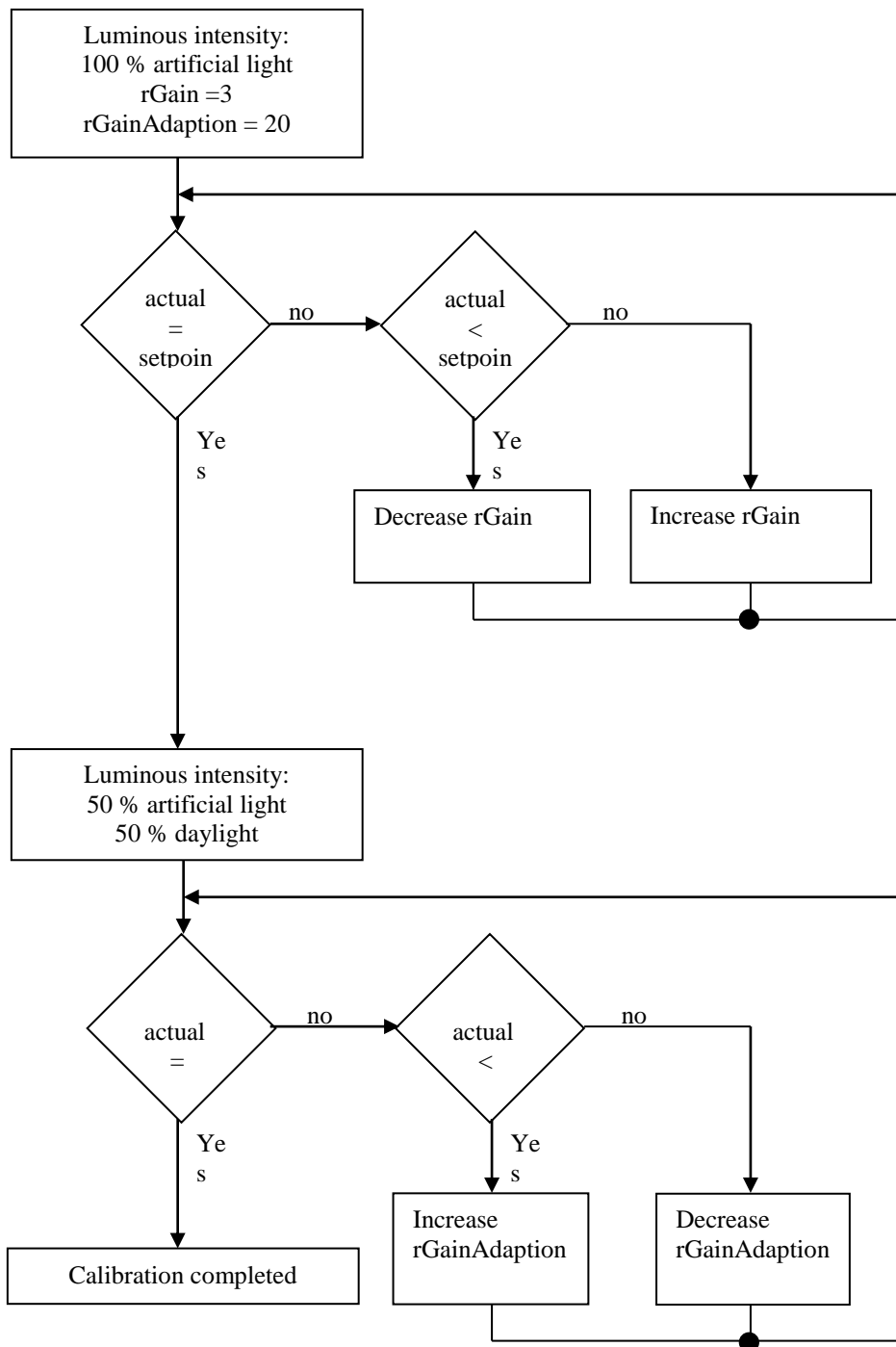
The second calibration measurement is required in order to determine the percentage adaptation of the calibration value. This measurement is performed in a semi-darkened room with residual artificial light.

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 proportion of daylight or artificial light. The actual value of the light intensity can still be lower than the light intensity setpoint.

Calibration:



Settings for Constant Light Control (FbDaliConfigConstantLightControl)

| WAGO-I/O-PRO Library Elements | | | |
|---|---------------------------------------|--|----------------------------------|
| Category: | Building technology | | |
| Name: | FbDaliConfigConstantLightControl | | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> | Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| tDelayAutoSwitchOn | TIME | Switch-on delay when switching on the lighting when the setpoint falls short by a value of "rDeviationAutoSwitchOn" and presence has been detected Default: t#30s | |
| rKp | REAL | Constant light control gain Default setting: 0.002 | |
| rTnGreaterVariance | REAL | Reset time for large setpoint/actual value deviation [s] Default setting: 500 s | |
| rTnSmallVariance | REAL | Reset time for small setpoint/actual value deviation [s] Default setting: 800 s | |
| tOnDelayController | TIME | Switch-on delay of the controller after the lighting has been switched on Default: t#2s | |
| tShortPushButton | TIME | Maximum time for a brief button press Default setting: t#500ms | |
| tDelayReferenceLightLevel | TIME | Delay period for accepting the new setpoint [s] Default setting: 30 s | |
| rDeviationAutoSwitchOn | REAL | Minimum level below the setpoint for automatic switch-on [lx] Default setting: 50 lx | |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliConfigConstantLightControl</div><div><div>-tDelayAutoSwitchOn</div><div>-rKp</div><div>-rTnGreaterVariance</div><div>-rTnSmallVariance</div><div>-tOnDelayController</div><div>-tShortPushButton</div><div>-tDelayReferenceLightLevel</div><div>-rDeviationAutoSwitchOn</div></div></div> | | | |

Function Description:

The **FbDaliConfigConstantLightControl** function block can be used to change any global setting for all DALI constant light controls in the project.

The **“tDelayAutoSwitchOn”** input defines the delay period prior to switching on of the lighting when the setpoint is not reached and based on the offset range defined in **“rDeviationAutoSwitchOn”**. The default setting is 30 s.

The following inputs are control parameters and should not be adjusted:

- The **“rKp”** input is used for setting the gain for the constant light controller. The default value is 0.002.
- The **“rTnGreaterVariance”** input is used for setting the reset time in the event of large setpoint/actual value deviation. The default setting is 500 s.
- The **“rTnSmallVariance”** input is used for setting the reset time in the event of small setpoint/actual value deviation. The default setting is 800 s.

A switch-on delay for the controller can be set at the **“tOnDelayController”** input. When the lighting is switched on, activation of the controller is delayed by this set time. The default setting is 2 s.

The time for differentiating between a short and long button press can be specified via the **“tShortPushButton”** input parameter. Any button pulse that is smaller in value than the set parameter value is interpreted as a short button press. The default setting is 500 ms.

The delay period following an adjustment of the setpoint can be set via the **“tDelayReferenceLightLevel”** input. This delay is necessary because the current sensor value is not always directly available. The default setting is 30 s.

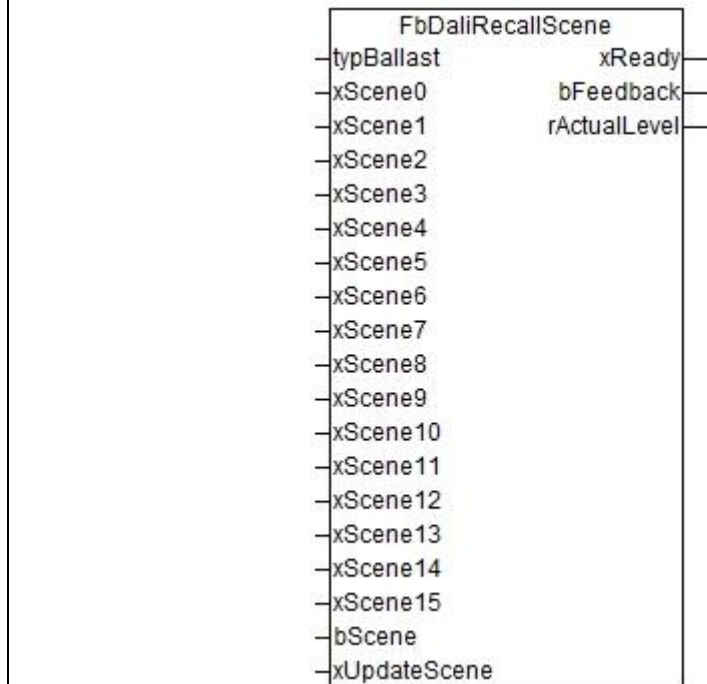
An offset specifying how much lower the Lux level must be below the setpoint before the lighting is switched on automatically can be specified at the **“rDeviationAutoSwitchOn”** input. This parameter is required only for automatic activation via the presence detector.

05 Scenes

Scene Call-Up (FbDaliRecallScene)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliRecallScene | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 31 Broadcast: 255 |
| .xIsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xScene0 | | BOOL | A positive edge calls up scene 0. |
| xScene1 | | BOOL | A positive edge calls up scene 1. |
| ... | | | ... |
| 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. |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| rActual Level | | REAL | Indication of the current dimming level [%] |
| | | | |

Graphical Illustration:



Function Description:

The **FbDaliRecallScene** function block can be used to call up the DALI light scenes defined in the electronic control gear.

The data type **“typBallast”** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **“bAddress”** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **“xIsGroup”** defines whether the address given in **“bAddress”** is to be used as a short or as a group address.
(FALSE: Short address; TRUE: Group address).
- **“bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

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.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

The **“rActualLevel”** output displays the current dimming level of the selected short address or group.

Note:

- The “*typBallast*” structure can be created using the export function in the “WAGO DALI Configurator” and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.
- The **FbDaliSendFadeTime** function block can be situated upstream of the module for the scene call-up to alter the fade time for a scene. The “*xExecuted*” 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.

Saving Scenes (FbDaliStoreActualValueAsScene)

| WAGO-I/O-PRO Library Elements | | | |
|---|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliStoreActualValueAsScene | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xWrite | | BOOL | A positive edge causes the current value to be saved as a scene. |
| bScene | | BYTE | Scene recall when the scene number changes Value range: 0 ... 15 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliStoreActualValueAsScene</div><div><div>typBallast</div><div>xWrite</div><div>bScene</div></div><div><div>xReady</div><div>bFeedback</div></div></div> | | | |

Function Description:

The **FbDaliStoreActualValueAsScene** function block can be used to save the set dimming levels as scenes.

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **".xlsGroup"** defines whether the address given in **".bAddress"** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).

- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The scene numbers in which the set scene values are to be saved are defined via the **"bScene"** input.

On a positive edge at the **"xWrite"** input, the current dimming values are saved with the scene numbers defined via **"bScene"**.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Note:

- The **"typBallast"** structure can be created using the export function in the "WAGO DALI Configurator" and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

06 General

Send Direct Dim Level (FbDaliSendDimmValue)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|---------------------------------------|--|----------------------------------|
| Category: | Building technology | | |
| Name: | FbDaliSendDimmValue | | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> | Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| typBallast | typBallast | Parameter used for addressing | |
| .bAddress | BYTE | Short address 0 ... 63 Group addresses 0 ... 31 Broadcast: 255 | |
| .xIsGroup | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address | |
| .bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 | |
| rDimmValue | REAL | The dimming level specified at the input is sent after each change in value [%]. Value range: 0 ... 100 % | |
| rHysteresis | REAL | Hysteresis Value range: 1 ... 100 % Default setting: 1 % | |
| xUpdate | BOOL | A positive edge sends the “rDimmValue” dimming level again. | |
| | | | |
| Return Value: | Data Type: | Comment: | |
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation | |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) | |
| rActualLevel | REAL | Indication of the current dimming level [%] | |
| | | | |

Graphical Illustration:

Function Description:

The **FbDaliSendDimmValue** function block sends direct dimming levels to the selected DALI electronic control gears.

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **".xlsGroup"** defines whether the address given in **".bAddress"** is to be used as a short or as a group address.
(FALSE: Short address; TRUE: Group address).
- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

If the value change at the **"rDimmValue"** 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 **"rDimmValue"** input.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

The **"rActualLevel"** output displays the current dimming level of the selected short address or group.

Note:

- The **"typBallast"** structure can be created using the export function in the "WAGO DALI Configurator" and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

Send Individual DALI Commands (FbDaliControlGearCommands)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliControlGearCommands | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xDirectArcPowerControl | | BOOL | TRUE: Direct dimming level (raw value) FALSE: DALI command |
| wCommand | | WORD | Command (see Table 2 in the appendix) |
| bSpecialValue | | BYTE | Special values (see Table 2 in the appendix) |
| | | | |
| Input/Output Parameter: | | Data Type: | Comment: |
| xSend | | BOOL | If the input is set, the DALI command is transmitted to the I/O module. After transfer, the input is reset by the function block. |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| bValue | | BYTE | Feedback from the ECG (raw value) |
| | | | |

Graphical Illustration:

Function Description:

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

The data type **“typBallast”** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **“bAddress”** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **“xIsGroup”** defines whether the address given in **“bAddress”** is to be used as a short or as a group address.
(FALSE: Short address; TRUE: Group address).
- **“bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

Address 16#FF (255) can be entered at input **“bAddress”** for the broadcasting commands.

When input **“xDirectArcPowerControl”** is activated, the value at input **“wCommand”** is transmitted as direct lamp value.

If input **“xDirectArcPowerControl”** is deactivate, the values at input **“wCommand”** are interpreted as DALI-commands.

Some DALI commands require additional information, which can be set via input **“bSpecialValue”** (see Table 2 in the appendix).

The DALI commands are transmitted when input **“xSend”** is set to TRUE. After transmitting the DALI command to the I/O module, input **“xSend”** is automatically reset.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Output **“bValue”** delivers the reply from the ECGs at query commands.

Note:

- The **“typBallast”** structure can be created using the export function in the “WAGO DALI Configurator” and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.

Calling Up Macros in the I/O Module (FbDaliMacroCommands)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDaliMacroCommands | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bMacro | | BYTE | Macro number |
| abParameter | | ARRAY [0...6] OF BYTE | Parameter for the macros (see Table 3 in the appendix) |
| xStop | | BOOL | A positive flank terminates the addressing macro. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| Input/Output Parameter: | | Data Type: | Comment: |
| xSend | | BOOL | If the input is set, the call-up of the macro is transmitted to the I/O module. After transfer, the input is reset by the function block. |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| abValues | | ARRAY [0..66] OF BYTE | Feedback from the respective macros |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliMacroCommands</div><div><div>bMacro</div><div>abParameter</div><div>xStop</div><div>bModule_753_647</div><div>xSend</div></div><div><div>xReady</div><div>bFeedback</div><div>abValues</div></div></div> | | | |

Function Description:

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

The macro number is selected at input "**bMacro**". The related parameters are set via the array "**abParameter**".

Addressing can be prematurely terminated for the addressing macros via the input "**xStop**".

The macros are called up when input "**xSend**" is set to TRUE. After transmitting the macro parameters to the I/O module, input "**xSend**" is automatically reset.

The DALI Multi-Master Module with which this function block must communicate is selected at input "**bModule_753_647**".

The "**xReady**" output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as "**xReady**" is FALSE.

The output "**bFeedback**" outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Output "**abValues**" delivers the appropriate results depending on the macro.

Display of Short Addresses and Dimming Values (FbDaliShowActualValue)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDaliShowActualValue | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| axShortAddress | | ARRAY [0..63] OF BOOL | Available short addresses |
| arActualValue | | ARRAY[0..96] OF REAL | Current dimming values of the ECGs |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliShowActualValue</div><div><div>bModule_753_647</div><div>bFeedback</div><div>axShortAddress</div><div>arActualValue</div></div></div> | | | |
| Function Description: | | | |
| <p>The available short addresses and the current dimming values for the electronic control gears can be read out using the FbDaliShowActualValue function block.</p> <p>The “bModule_753_647” input defines the DALI Multi-Master Module with which this function block must communicate.</p> <p>The output “bFeedback” outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.</p> <p>The available short addresses are output at the “axShortAddress” output.</p> <p>The current dimming values for the electronic control gears are output at the “arActualValue” output.</p> | | | |

Activation of Internal Power Supply (FbDaliSwitchPowerSupply)

| WAGO-I/O-PRO Library Elements | | | |
|---|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDaliSwitchPowerSupply | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xEnablePowerSupply | | BOOL | Enabling of the internal DALI power supply |
| xWrite | | BOOL | On a positive edge, the internal power supply is activated/deactivated as a function of the “xEnablePowerSupply” input. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliSwitchPowerSupply</div><div><div>xEnablePowerSupply</div><div>xReady</div><div>xWrite</div><div>bFeedback</div><div>bModule_753_647</div></div></div> | | | |

Function Description:

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

The “**xEnablePowerSupply**” input specifies whether the internal power supply is to be activated or deactivated.

On a positive edge the setting specified at the “xEnablePowerSupply” input is applied to the “**xWrite**” input.

The “**.bModule_753_647**” input defines the DALI Multi-Master Module with which this function block must communicate.

The “**xReady**” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “xReady” is FALSE.


The output “**bFeedback**” outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Saving the Dimming Values (FbDaliRestoreLastDimmValue)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDaliRestoreLastDimmValue | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xRestore | | BOOL | On a positive edge, the most recently saved dimming value from the database is transmitted to the electronic control gear. |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FDaliRestoreLastDimmValue</div><div><div>bModule_753_647</div><div>xReady</div><div>xRestore</div><div>bFeedback</div></div></div> | | | |
| Function Description: | | | |
| <p>The last known dimming value can be restored using the FbDaliRestoreLastDimmValue function block.</p> <p>The “bModule_753_647” input defines the DALI Multi-Master Module with which this function block must communicate.</p> <p>The “xRestore” input activates transmitting of the most recently saved dimming value from the database to the electronic control gear on a positive edge.</p> <p>The “xReady” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “xReady” is FALSE.</p> <p>The output “bFeedback” outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.</p> | | | |

07 Conversions

DALI Dimming Level -> Dimming Level Percent (FuPercentDimmValue)

| WAGO-I/O-PRO Library Elements | | |
|---|--|--|
| Category: | Building technology | |
| Name: | FuPercentDimmValue | |
| Type: | Function <input checked="" type="checkbox"/> | Function block <input type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| Input Parameter: | Data Type: | Comment: |
| bRawValue | BYTE | DALI dimming level 0 ... 255 |
| Return Value: | Data Type: | Comment: |
| FuPercentDimmValue | REAL | Output of dimming level [%] |
| Graphical Illustration: | | |
|  | | |
| Function Description: | | |
| <p>This function is used for converting the DALI dimming level (0 ... 254) to a 0 ... 100 % dimming level. The raw value 255 means MASK and will be displayed as 101 %.</p> | | |

Dimming Level Percent -> DALI Dimming Level (FuDaliDimmValue)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|--|----------------------------------|
| Category: | Building technology | | |
| Name: | FuDaliDimmValue | | |
| Type: | Function <input checked="" type="checkbox"/> | Function block <input type="checkbox"/> | Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| rPercent | REAL | Input of dimming level [%] | |
| Return Value: | Data Type: | Comment: | |
| FuDaliDimmValue | BYTE | Output of the DALI dimming level (0 ... 255) | |
| Graphical Illustration: | | | |
| <div><div></div><div>FuDaliDimmValue</div><div>rPercent</div></div> | | | |
| Function Description: | | | |
| This function is used for converting the 0 ... 100 % dimming level to a DALI dimming level (0 ... 254). The value 101 % will be displayed with 255 (MASK). | | | |

Short/Group Address -> typBallast (FuTypBallast)

| WAGO-I/O-PRO Library Elements | | | |
|---|--|--|----------------------------------|
| Category: | Building technology | | |
| Name: | FuTypBallast | | |
| Type: | Function <input checked="" type="checkbox"/> | Function block <input type="checkbox"/> | Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| bAddress | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 | |
| xlsGroup | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address | |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 | |
| | | | |
| Return Value: | Data Type: | Comment: | |
| typBallast | typBallast | Parameter used for addressing | |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FuTypBallast</div><div><div>bAddress</div><div>xlsGroup</div><div>bModule_753_647</div></div></div> | | | |
| | | | |
| Function Description: | | | |
| This function describes the parameters in “typBallast” . | | | |

21 Emergency Light Supply Device

01 Configuration

Configuration of Emergency Lighting (PrgDaliConfigEmergencyLighting)

| WAGO-I/O-PRO Library Elements | | | |
|---|---------------------------------------|---|---|
| Category: | Building technology | | |
| Name: | PrgDaliConfigEmergencyLighting | | |
| Type: | Function <input type="checkbox"/> | Function block <input type="checkbox"/> | Program <input checked="" type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| Graphical Illustration: | | | |
| <div style="border: 1px solid black; padding: 5px; display: inline-block;">PrgDaliConfigEmergencyLighting</div> | | | |
| Visualization: | | | |
| <div style="display: flex; border: 1px solid gray; padding: 10px;"> <div style="flex: 1; border-right: 1px solid gray; padding-right: 10px;"> <p>Menu</p> <ul style="list-style-type: none"> Addressing Identify Settings Groups Scenes Status Operating hours Device Type </div> <div style="flex: 1; border-right: 1px solid gray; padding-right: 10px;"> <p>Device type 1</p> <ul style="list-style-type: none"> Device Type 2 Device Type 3 Device Type 4 Device type 5 Device Type 6 Device Type 7 Device Type 8 Device Type 9 Device Type 10 </div> <div style="flex: 2; padding-left: 10px;"> <p>Device Type 1: Emergency Lighting</p> <div style="display: flex; justify-content: space-between; border: 1px solid gray; padding: 5px; margin-bottom: 5px;"> Group Configuration, Device Identification Identify / Groups </div> <div style="display: flex; justify-content: space-between; border: 1px solid gray; padding: 5px; margin-bottom: 5px;"> Timming Setting Settings </div> <div style="display: flex; justify-content: space-between; border: 1px solid gray; padding: 5px; margin-bottom: 5px;"> Function Test Function Test </div> <div style="display: flex; justify-content: space-between; border: 1px solid gray; padding: 5px;"> Duration Test Duration Test </div> </div> </div> | | | |

Identification and Status Query (Fb_ConfigEmergencyLighting)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | Fb_ConfigEmergencyLighting | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xEnable | | BOOL | Enables the function block; emergency lighting identification is initiated by a positive edge. Default setting = TRUE |
| xUpdateStatus | | BOOL | At a positive edge, the emergency mode, failure status and emergency status of all emergency lighting devices are read out on the DALI line. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | Communication status TRUE = OK FALSE = communication activated |
| abFeedback | | ARRAY [0..64] OF BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) [64] = Status of short address independent commands [0..63] = Status of short address dependent commands |
| abEmergencyMode | | ARRAY [0...63] OF BYTE | The array index denotes the short address. The corresponding byte has the following meaning: Bit 0 = reset mode Bit 1 = standard operation Bit 2 = emergency operation mode Bit 3 = extended emergency after mains power return Bit 4 = function test in progress Bit 5 = duration test in progress Bit 6 = hardwired inhibit active Bit 7 = hardwired switched mains power on |

| | | |
|-------------------|------------------------------|---|
| abFailureStatus | ARRAY [0...63] OF BYTE | <p>The array index denotes the short address. The corresponding byte has the following meaning:</p> <p>Bit 0 = circuit failure</p> <p>Bit 1 = battery duration failure</p> <p>Bit 2 = battery failure</p> <p>Bit 3 = emergency lamp failure</p> <p>Bit 4 = function test max. delay exceeded failure</p> <p>Bit 5 = duration test max. delay exceeded failure</p> <p>Bit 6 = function test failed</p> <p>Bit 7 = duration test failed</p> |
| abEmergencyStatus | ARRAY [0...63] OF BYTE | <p>The array index denotes the short address. The corresponding byte has the following meaning:</p> <p>Bit 0 = inhibit mode</p> <p>Bit 1 = function test done and result valid</p> <p>Bit 2 = duration test done and result valid</p> <p>Bit 3 = battery charging 100 % complete</p> <p>Bit 4 = function test request pending</p> <p>Bit 5 = operating time test request pending</p> <p>Bit 6 = identification active</p> <p>Bit 7 = selected</p> |

Graphical Illustration:

```

Fb_ConfigEmergencyLighting
-xEnable                      xReady-
-xUpdateStatus                abFeedback-
-bModule_753_647             abEmergencyMode-
                              abFailureStatus-
                              abEmergencyStatus-

```

Function Description:

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

The **“xEnable”** input enables this function block. A rising edge at the **“xEnable”** input tests short addresses available for emergency lighting devices (Device type 1).

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

The **“xReady”** output signals whether the function block has completed the status query or whether it is still connected to one of the emergency lighting devices.

The output **“abFeedback”** outputs a numeric code with the communication status. The array index [0..63] denotes the status of communication via short addresses; the array index [64] denotes the status of the short address independent communication. The numeric codes are listed in the function block description for the DALI_647_02.lib in the appendix.

A positive edge at the **“XUpdateStatus”** input reads out the “emergency mode”, “failure status”, and “emergency status” of the emergency lighting devices identified.

Depending on the short address, the status is entered in the corresponding array index of the **“abEmergencyMode”**, **“abFailureStatus”**, and **“abEmergencyStatus”** outputs.

Control Commands for Emergency Lighting (Fb_ControlEmergencyLighting)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|---------------------------------------|---|----------------------------------|
| Category: | Building technology | | |
| Name: | Fb_ControlEmergencyLighting | | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> | Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| bAddress | BYTE | Short address 0 ... 63 or Group addresses 0 ... 15 Broadcast = 255 | |
| xGroup | BOOL | Selects short or group address: FALSE = short address or broadcast TRUE = group address Default setting = FALSE | |
| xRest | BOOL | The emergency lighting is switched off by a positive edge at the input in emergency operation. | |
| xInhibit | BOOL | Emergency operation is inhibited for 15 minutes by a positive edge. | |
| xResetInhibit | BOOL | The inhibit mode is reset by a positive edge. | |
| xResetLampTime | BOOL | The operation times of the lamp are reset by a positive edge in standard and emergency operation. | |
| xStartIdentification | BOOL | The identification procedure of the emergency lighting device is initiated by a positive edge. | |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 | |
| | | | |
| Return Value: | Data Type: | Comment: | |
| bFeedback | BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) | |
| | | | |

Graphical Illustration:

Function Description:

The function block **Fb_ControlEmergencyLighting** sends different control or reset commands to the emergency lighting devices.

The short or group address to which the DALI commands are to be sent is specified at the input **"bAddress"**. The value at the **"xGroup"** input determines whether the address entered is interpreted by the function block as a short or group address (FALSE = short address; TRUE = group address).

The emergency lighting can be switched off during emergency operation via the **"xRest"** input.

Emergency operation is inhibited for 15 minutes by a positive edge at the **"xInhibit"** input. The inhibit mode can be reset via the **"xResetInhibit"** input.

The record of the operation time in both standard and emergency operation can be reset via the **"xResetLampTime"** input.

An identification procedure of the emergency lighting device is started for ten seconds via the **"xStartIdentification"** input.

The DALI Multi-Master Module with which this function block must communicate is selected at input **"bModule_753_647"**.

The output **"bFeedback"** outputs a numeric code as response. The numeric codes are listed in the module description for the DALI_647_02.lib in the appendix.

Emergency Lighting Settings(Fb_SettingEmergencyLighting)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|------|---|---|
| Category: | | Building technology | |
| Name: | | Fb_SettingEmergencyLighting | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bAddress | BYTE | Short address 0 ... 63 or Group addresses 0 ... 15 Broadcast = 255 | |
| xGroup | BOOL | Selects short or group address: FALSE = short address or broadcast TRUE = group address Default setting = FALSE | |
| xRead | BOOL | A positive edge causes the parameters to be read from the selected emergency lighting devices. | |
| xWrite | BOOL | A positive edge writes the parameters into the selected emergency lighting devices. | |
| xQuit | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. | |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 | |
| | | | |
| Input/Output Parameter: | | Data Type: | Comment: |
| rEmergencyLevel | REAL | Emergency light level [%] Value range = 0 ... 100 % | |
| bFunctionTestInterval | BYTE | The function test is regularly carried out in this time interval [days]. Value range= 1 ... 255 0 -> Automatic function test switched off | |
| wFunctionTestDelayTime | WORD | After the set time has elapsed, the function test is carried out for the first time [min]. | |
| bDurationTestInterval | BYTE | Interval for duration test [weeks] Value range = 1 ... 97 0 -> Automatic duration test switched off. | |
| wDurationTestDelayTime | WORD | After the set time has elapsed, the duration test is carried out for the first time [min]. | |

| | | |
|---|-------------------|---|
| bTestExecutionTimeout | BYTE | Maximum execution time during which the respective test must be completed [days] Value range = 0 ... 255 |
| wProlongTime | WORD | The switch-off delay of the emergency operation following restoration of line voltage [s] Value range = 0 ... 7650 |
| | | |
| Return Value: | Data Type: | Comment: |
| xReady | BOOL | Communication status TRUE = OK FALSE = communication activated |
| bFeedback | BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) |
| | | |
| Graphical Illustration: | | |
| <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p style="text-align: center;">Fb_SettingEmergencyLighting</p> <div style="display: flex; justify-content: space-between;"> <div> bAddress xGroup xRead xWrite xQuit bModule_753_647 rEmergencyLevel ▶ bFunctionTestInterval ▶ wFunctionTestDelayTime ▶ bDurationTestInterval ▶ wDurationTestDelayTime ▶ bTestExecutionTimeout ▶ wProlongTime ▶ </div> <div> xReady bFeedback </div> </div> </div> | | |

Function Description:

The function block **Fb_SettingEmergencyLighting** can read and write the time setting for the emergency lighting device.

The short or group address to which the DALI commands are to be sent is specified at the input **"bAddress"**. The value at the **"xGroup"** input determines whether the address entered is interpreted by the function block as a short or group address (FALSE = short address; TRUE = group address).

A positive edge at the **"xRead"** or **"xWrite"** inputs respectively reads or writes the following parameters from the emergency lighting device.

- The **"rEmergencyLevel"** parameter determines the emergency light level.
- The **"bFunctionTestInterval"** parameter determines the time intervals at which the function test is regularly carried out.
- The **"wFunctionTestDelayTime"** parameter determines the time delay, following which the function test is carried out for the first time.
- The **"bDurationTestInterval"** parameter determines the time intervals at which the duration test is regularly carried out.
- The **"wDurationTestDelayTime"** parameter determines the time delay following which the duration test is carried out for the first time.
- The **"bTestExecutionTimeout"** parameter determines the maximum execution time during which the respective test must be completed.
- The **"wProlongTime"** parameter determines the switch-off delay of the emergency operation following restoration of line voltage.

The DALI Multi-Master Module with which this function block must communicate is selected at input **"bModule_753_647"**.

The **"xReady"** output signals whether the module is active. As long as this output is FALSE, no further action is taken by the function block.

The output **"bFeedback"** outputs a numeric code as response. The numeric codes are listed in the module description for the DALI_647_02.lib in the appendix.

02 Function Test

Manual Function Test (Fb_FunctionTest)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | Fb_FunctionTest | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bAddress | | BYTE | Short address of 0 ... 63 or Group addresses 0 ... 15 Broadcast = 255 |
| xGroup | | BOOL | Selects short or group address: FALSE = short address or broadcast TRUE = group address Default setting = FALSE |
| xStartFunctionTest | | BOOL | Function test is initiated by a positive edge. |
| xStopFunctionTest | | BOOL | Function test is stopped by a positive edge. |
| xResetFunctionTestDone Flag | | BOOL | The "Function Test Done" flag is reset by a positive edge |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| bFeedback | | BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>Fb_FunctionTest</div><div><div>bAddress</div><div>bFeedback</div><div>xGroup</div><div>xStartFunctionTest</div><div>xStopFunctionTest</div><div>xResetFunctionTestDoneFlag</div><div>bModule_753_647</div></div></div> | | | |

Function Description:

The **Fb_FunctionTest** function block allows the function test for emergency lighting devices to be started or stopped manually.

The short or group address to which the DALI commands are to be sent is specified at the input **"bAddress"**. The value at the **"xGroup"** input determines whether the address entered is interpreted by the function block as a short or group address (FALSE = short address; TRUE = group address).

A positive edge at the **"xStartFunctionTest"** input starts the function test. The function test can be stopped early via the **"xStopFunctionTest"** input.

The **"xResetFunctionTestDoneFlag"** input resets the *"Function Test Done and Valid Value"* bit in the emergency lighting device.

The DALI Multi-Master Module with which this function block must communicate is selected at input **"bModule_753_647"**.

The output **"bFeedback"** outputs a numeric code as response. The numeric codes are listed in the module description for the DALI_647_02.lib in the appendix.

Selected Function Test (Fb_SelectedFunctionTest)

| WAGO-I/O-PRO Library Elements | | |
|---|---------------------------------------|--|
| Category: | Building technology | |
| Name: | Fb_SelectedFunctionTest | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| | | |
| Input Parameter: | Data Type: | Comment: |
| axSelectedAddress | ARRAY [0..63] OF BOOL | Selected short address(es) TRUE = device is tested. |
| xStartFunctionTest | BOOL | A positive edge initiates the function test for the selected devices. |
| xStopFunctionTest | BOOL | A positive edge stops the function test for the selected devices. |
| xResetFunctionTestDone Flag | BOOL | A positive edge resets the “Function Test Done” flag for the selected devices. |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 |
| | | |
| Return Value: | Data Type: | Comment: |
| xReady | BOOL | Communication status TRUE = OK FALSE = communication activated |
| abFeedback | ARRAY [0..64] OF BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) [64] = Status of short address independent commands [0..63] = Status of short address dependent commands |
| | | |
| Graphical Illustration: | | |
| <div><div>Fb_SelectedFunctionTest</div><div><div>axSelectedAddress</div><div>xStartFunctionTest</div><div>xStopFunctionTest</div><div>xResetFunctionTestDoneFlag</div><div>bModule_753_647</div></div><div><div>xReady</div><div>abFeedback</div></div></div> | | |

Function Description:

The **Fb_SelectedFunctionTest** function block allows the function test for selected emergency lighting devices to be started or stopped manually.

The emergency lighting devices are selected via the Boolean array element **“axSelected Address”**. The array index [0..63] denotes the short address.

Example: *axSelectedAddress[2] = TRUE -> Short address 2 is selected.*

A positive edge at the **“xStartFunctionTest”** input starts the function test for the selected short addresses. The function test can be stopped early via the **“xStopFunctionTest”** input.

The **“xResetFunctionTestDoneFlag”** input resets the *“Function Test Done and Valid Value”* bit in the emergency lighting device.

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

The **“xReady”** output signals whether the function block has completed the command or whether it is still connected to one of the emergency lighting devices.

The output **“abFeedback”** outputs a numeric code with the communication status. The array index [0..63] denotes the status of communication via short addresses; the array index [64] denotes the status of the short address independent communication. The numeric codes are listed in the function block description for the DALI_647_02.lib in the appendix.

Manual Duration Test (Fb_DurationTest)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | Fb_DurationTest | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bAddress | | BYTE | Short address of 0 ... 63 or Group addresses 0 ... 15 Broadcast = 255 |
| xGroup | | BOOL | Selects short or group address: FALSE = short address or broadcast TRUE = group address Default setting = FALSE |
| xStartDurationTest | | BOOL | Duration test is started by a positive edge. |
| xStopDurationTest | | BOOL | Duration test is stopped by a positive edge. |
| xResetDurationTestDone Flag | | BOOL | The "Duration Test Done" flag is reset by a positive edge. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| bFeedback | | BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>Fb_DurationTest</div><div><div>bAddress</div><div>bFeedback</div><div>xGroup</div><div>xStartDurationTest</div><div>xStopDurationTest</div><div>xResetDurationTestDoneFlag</div><div>bModule_753_647</div></div></div> | | | |

Function Description:

The **Fb_DurationTest** function block allows the duration test for emergency lighting devices to be started or stopped manually.

The short or group address to which the DALI commands are to be sent is specified at the input **"bAddress"**. The value at input **"xGroup"** determines whether the entered address is interpreted by the function block as a short or group address (FALSE = short address; TRUE = group address).

A positive edge at the **"xStartDurationTest"** input starts the duration test. The duration test can be stopped early via the **"xStopDurationTest"** input.

The **"xResetDurationTestDoneFlag"** input resets the *"Duration Test Done and Valid Value"* bit in the emergency lighting device.

The DALI Multi-Master Module with which this function block must communicate is selected at input **"bModule_753_647"**.

The output **"bFeedback"** outputs a numeric code as response. The numeric codes are listed in the module description for the DALI_647_02.lib in the appendix.

Selected Duration Test (Fb_SelectedDurationTest)

| WAGO-I/O-PRO Library Elements | | |
|---|---------------------------------------|--|
| Category: | Building technology | |
| Name: | Fb_SelectedDurationTest | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| | | |
| Input Parameter: | Data Type: | Comment: |
| axSelectedAddress | ARRAY [0..63] OF BOOL | Selected short address(es) TRUE = device is tested |
| xStartDurationTest | BOOL | Duration test for the selected device(s) is started by a positive edge. |
| xStopDurationTest | BOOL | Duration test for the selected device(s) is ended by a positive edge. |
| xResetDurationTestDone Flag | BOOL | A positive edge resets the “Duration Test Done” flag for the selected devices. |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 |
| | | |
| Return Value: | Data Type: | Comment: |
| xReady | BOOL | Communication status TRUE = OK FALSE = communication activated |
| abFeedback | ARRAY [0..64] OF BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) [64] = Status of short address independent commands [0..63] = Status of short address dependent commands |
| | | |
| Graphical Illustration: | | |
| <div><div>Fb_SelectedDurationTest</div><div><div>axSelectedAddress</div><div>xStartDurationTest</div><div>xStopDurationTest</div><div>xResetDurationTestDoneFlag</div><div>bModule_753_647</div></div><div><div>xReady</div><div>abFeedback</div></div></div> | | |

Function Description:

The **Fb_SelectedDurationTest** function block allows the duration test for selected emergency lighting devices to be started or stopped manually.

The emergency lighting devices are addressed individually via the Boolean array element **“axSelectedAddress”**. The array index [0..63] denotes the short address.

Example: *axSelectedAddress[2] = TRUE -> Short address 2 is selected.*

A positive edge at the **“xStartDurationTest”** input starts the duration test for the selected short address. The duration test can be stopped early via the **“xStopDurationTest”** input.

The **“xResetDurationTestDoneFlag”** input resets the *“Duration Test Done and Valid Value”* bit in the emergency lighting device.

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

The **“xReady”** output signals whether the function block has completed the command or whether it is still connected to one of the emergency lighting devices.

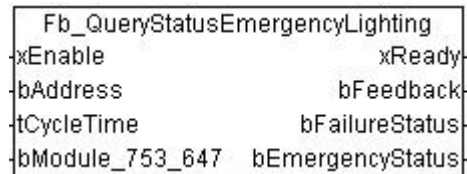
The output **“abFeedback”** outputs a numeric code with the communication status. The array index [0..63] denotes the status of communication via short addresses; the array index [64] denotes the status of the short address independent communication. The numeric codes are listed in the function block description for the DALI_647_02.lib in the appendix.

03 Status Messages

Query Status Emergency Lighting (Fb_QueryStatusEmergencyLighting)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | Fb_QueryStatusEmergencyLighting | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xEnable | | BOOL | Activation of cyclic query Default setting = TRUE |
| bAddress | | BYTE | DALI short address 0 ... 63 |
| tCycleTime | | TIME | Time interval for the status query of the emergency lighting device. Minimum cycle time = t#1s Default setting: t#10s |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | Communication status TRUE = OK FALSE = communication activated |
| bFeedback | | BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) |
| bFailureStatus | | BYTE | Bit 0 = circuit failure Bit 1 = battery duration failure Bit 2 = battery failure Bit 3 = emergency lamp failure Bit 4 = function test max. delay exceeded failure Bit 5 = duration test max. delay exceeded failure Bit 6 = function test failed Bit 7 = duration test failed |

| | | |
|------------------|------|--|
| bEmergencyStatus | BYTE | Bit 0 = inhibit mode Bit 1 = function test done and result valid Bit 2 = duration test done and result valid Bit 3 = battery charging 100 % complete Bit 4 = function test request pending Bit 5 = duration test request pending Bit 6 = identification active Bit 7 = selected |
|------------------|------|--|

Graphical Illustration:**Function Description:**

Both the failure status and the general status of an emergency lighting device are read out using the **Fb_QueryStatusEmergencyLighting** function block.

Cyclic polling of the addressed emergency lighting device is carried out if the **“xEnable”** input is TRUE. The **“tCycleTime”** input parameter determines the cycle time.

The emergency lighting devices are individually addressed via the **“bAddress”** short address. Group addressing is not possible.

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

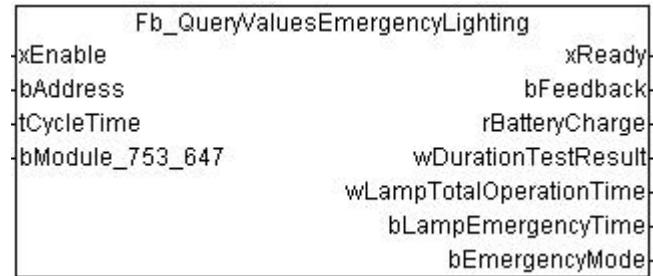
The **“xReady”** output signals whether the function block has completed the status query or whether it is still connected to one of the emergency lighting devices.

The output **“bFeedback”** outputs a numeric code as response. The numeric codes are listed in the module description for the DALI_647_02.lib in the appendix.

The **“bFailureStatus”** output indicates the failure status and the **“bEmergencyStatus”** output indicates the general status of the emergency lighting device. The status feedbacks are bit coded.

Emergency Lighting Data Evaluation (Fb_QueryValuesEmergencyLighting)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|------------|--|---|
| Category: | | Building technology | |
| Name: | | Fb_QueryValuesEmergencyLighting | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| xEnable | BOOL | Activation of cyclic query Default setting = TRUE | |
| bAddress | BYTE | DALI short address 0 ... 63 | |
| tCycleTime | TIME | Time interval for the status query of the emergency lighting device. Minimum cycle time = t#1s Default setting: t#10s | |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 | |
| | | | |
| Return Value: | Data Type: | Comment: | |
| xReady | BOOL | Communication status TRUE = OK FALSE = communication activated | |
| bFeedback | BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) | |
| rBatteryCharge | REAL | Charge condition of battery [%] | |
| wDurationTestResult | WORD | Result of the duration test [min] | |
| wLampTotalOperation Time | WORD | Lamp total operation time [h] | |
| bLampEmergencyTime | BYTE | Lamp emergency operation time [h] | |
| bEmergencyMode | BYTE | Bit 0 = reset mode Bit 1 = standard operation Bit 2 = emergency operation mode Bit 3 = extended emergency after mains power return Bit 4 = function test in progress Bit 5 = duration test in progress Bit 6 = hardwired inhibit active Bit 7 = hardwired switched mains power on | |
| | | | |

Graphical Illustration:**Function Description:**

The measured values of an emergency lighting device are read out using the **Fb_QueryValuesEmergencyLighting** function block.

Cyclic polling of the addressed emergency lighting device is carried out if the **“xEnable”** input is TRUE. The **“tCycleTime”** input parameter determines the cycle time.

The emergency lighting devices are individually addressed via the **“bAddress”** short address. Group addressing is not possible.

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

The **“xReady”** output signals whether the function block has completed the status query or whether it is still connected to one of the emergency lighting devices.

The output **“bFeedback”** outputs a numeric code as response. The numeric codes are listed in the module description for the DALI_647_02.lib in the appendix.

The **“rBatteryCharge”** output indicates the charge condition of the battery.

The duration of the current or last duration test is indicated at the **“wDurationTestResult”** output.

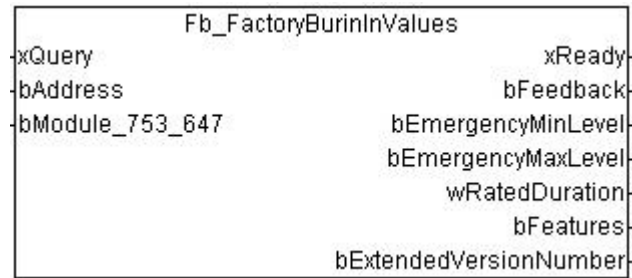
The **“wLampTotalOperationTime”** output indicates the total operation time of the emergency lighting device.

The emergency operation time is indicated at the **“bLampEmergencyTime”** output.

The current mode is indicated in a bit-coded way at the **“bEmergencyMode”** output.

Reading the Factory Settings (Fb_FactoryBurnInValues)

| WAGO-I/O-PRO Library Elements | | |
|-------------------------------|---------------------------------------|--|
| Category: | Building technology | |
| Name: | Fb_FactoryBurnInValues | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| | | |
| Input Parameter: | Data Type: | Comment: |
| xQuery | BOOL | Query is initiated by a positive edge at the input. |
| bAddress | BYTE | DALI short address 0 ... 63 |
| bModule_750_641 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default setting = 1 |
| | | |
| Return Value: | Data Type: | Comment: |
| xReady | BOOL | Communication status TRUE = OK FALSE = communication activated |
| bFeedback | BYTE | Communication status (for numeric code, see attachment DALI_647_02_d.pdf) |
| bEmergencyMinLevel | BYTE | Minimum emergency light level Value range = 0 ... 255 255 = Not supported |
| bEmergencyMaxLevel | BYTE | Maximum emergency light level Value range = 0 ... 255 255 = Not supported |
| wRatedDuration | WORD | Rated duration [min] |
| bFeatures | BYTE | Features of the controller Bit 0 = integrated emergency converter Bit 1 = maintained converter Bit 2 = switched maintained Bit 3 = auto test capability Bit 4 = adjustable emergency light level Bit 5 = hardwired inhibit supported. Bit 6 = physical selection supported. Bit 7 = reserved |
| bExtendedVersionNumber | BYTE | Extended version number |
| | | |

Graphical Illustration:**Function Description:**

The function block **Fb_FactoryBurnInValues** reads out all parameters that are stored in the electronic control gear by the manufacturer of the emergency lighting device.

A positive edge at the “**xQuery**” input starts the query of the factory set parameters in the emergency lighting device.

The emergency lighting devices are individually addressed via the “**bAddress**” short address. Group addressing is not possible.

The DALI Multi-Master Module with which this function block must communicate is selected at input “**bModule_753_647**”.

The “**xReady**” output signals whether the function block has completed the status query or whether it is still connected to one of the emergency lighting devices.

The output “**bFeedback**” outputs a numeric code as response. The numeric codes are listed in the module description for the DALI_647_02.lib in the appendix.

The factory set values of the emergency lighting device are indicated at the “**bEmergencyMinLevel**”, “**bEmergencyMaxLevel**”, “**wRatedDuration**”, “**bFeatures**” and “**bExtendedVersionNumber**” outputs.

28 Color Control

01 Color Temperature

Recall Color Temperature (FbDaliRecallColourTemperature)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliRecallColourTemperature | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| rColourTemperature | | REAL | Color temperature Tc Value range: 1000 ... 10000 K |
| xUpdate | | BOOL | Signal for sending the color temperature |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliRecallColourTemperature</div><div><div>typBallast</div><div>rColourTemperature</div><div>xUpdate</div></div><div><div>xReady</div><div>bFeedback</div></div></div> | | | |

Function Description:

The **FbDaliRecallColourTemperature** function block is used to call up the color temperature T_c .

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **".xlsGroup"** defines whether the address given in **".bAddress"** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).

- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The color temperature can be set within a range of 1000 ... 10000 Kelvin at the **"rColourTemperature"** input.

The associated color is called up directly on each change in value at the **"rColourTemperature"** input. The color is called up again on a positive edge at the **"xUpdate"** input.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Color Temperature Scene (FbDaliWriteColourTemperatureScene)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliWriteColourTemperatureScene | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group address from 0 to 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| rDimLevel | | REAL | Dimming level [%] |
| rColourTemperature | | REAL | Color temperature T _c Value range: 1000 ... 10000 K |
| bScene | | BYTE | Scene number |
| xWrite | | BOOL | Saves the scene |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliWriteColourTemperatureScene</div><div><div>typBallast</div><div>rDimLevel</div><div>rColourTemperature</div><div>bScene</div><div>xWrite</div></div><div><div>xReady</div><div>bFeedback</div></div></div> | | | |

Function Description:

The function block **FbDaliWriteColourTemperatureScene** serves to save color temperature scenes.

The data type **“typBallast”** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **“bAddress”** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **“xIsGroup”** defines whether the address given in **“bAddress”** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).
- **“bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

The percentage dimming value is set at the **“rDimLevel”** input.

The color temperature can be set within a range of 1000 ... 10000 Kelvin at the **“rColourTemperature”** input.

The scene is saved in the event of a positive edge at the **“xWrite”** input.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

02 Primary

Primary Color Call (FbDaliRecallPrimary)

| WAGO-I/O-PRO Library Elements | | | |
|---|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliRecallPrimary | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group address from 0 to 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| rDimLevel | | REAL | Dimming level of the primary colour Value range: 0 ... 0.99997 |
| bPrimary | | BYTE | Number of the the primary colour Value range: 0 ... 5 |
| xUpdate | | BOOL | Signal for sending the color values |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliRecallPrimary</div><div><div>typBallast</div><div>xReady</div><div>rDimLevel</div><div>bFeedback</div><div>bPrimary</div><div>xUpdate</div></div></div> | | | |

Function Description:

The **FbDaliRecallPrimary** function block is for direct control of the dimming level of an individual output channel.

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **"xIsGroup"** defines whether the address given in **"bAddress"** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).
- **"bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The percentage dimming level is set at the **"rDimLevel"** input in the range 0 ... 0.99997.

The number of the output channel is set on the **"bPrimary"** input.

The associated color is called up directly on each change in value at the **"rDimLevel"** and **"bPrimary"** inputs. The color is called up again on a positive edge at the **"xUpdate"** input.

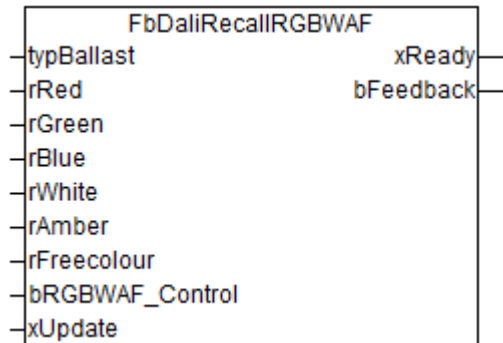
The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

03 RGBWAF

Color Call-Up as RGBWAF (FbDaliRecallRGBWAF)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliRecallRGBWAF | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| rRed | | REAL | Red dimming level [%] |
| rGreen | | REAL | Green dimming level [%] |
| rBlue | | REAL | Blue dimming value [%] |
| rWhite | | REAL | White dimming value [%] |
| rAmber | | REAL | Amber dimming value [%] |
| rFreecolour | | REAL | Free color dimming value [%] |
| bRGBWAF_Control | | BYTE | Configures the transfer |
| xUpdate | | BOOL | Signal for sending the color values |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |

Graphical Illustration:**Function Description:**

The **FbDaliRecallRGBWAF** function serves to call up a colour with RGBWAF.

The data type “**typBallast**” defines the devices which are to be addressed via this module. The following inputs are required for this:

- “**.bAddress**” defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- “**.xIsGroup**” defines whether the address given in “**.bAddress**” is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).
- “**.bModule_753_647**” defines the DALI Multi-Master Module with which this function block must communicate.

The percentage dimming level of the respective color is specified on the “**rRed**”, “**rGreen**”, “**rBlue**”, “**rWhite**”, “**rAmber**”, and “**rFreecolour**” inputs.

The transfer is configured on the “**bRGBWAF_Control**” input. The bit assignment is structured as follows:

| | Name | State Description |
|-----------|---------------------------|--|
| Bit 0 | Output channel red | 0: unlinked; dimming level is transferred. 1: linked; dimming level is not transferred. |
| Bit 1 | Output channel green | 0: unlinked; dimming level is transferred. 1: linked; dimming level is not transferred. |
| Bit 2 | Output channel blue | 0: unlinked; dimming level is transferred. 1: linked; dimming level is not transferred. |
| Bit 3 | Output channel white | 0: unlinked; dimming level is transferred. 1: linked; dimming level is not transferred. |
| Bit 4 | Output channel amber | 0: unlinked; dimming level is transferred. 1: linked; dimming level is not transferred. |
| Bit 5 | Output channel free color | 0: unlinked; dimming level is transferred. 1: linked; dimming level is not transferred. |
| Bits 7..6 | Control type | 00: Channel control 01: Color control 10: Normalized color control 11: Reserved |

The associated dimming level is called up directly with each change in value on the **“rRed”**, **“rGreen”**, **“rBlue”**, **“rWhite”**, **“rAmber”**, and **“rFreecolour”** inputs. The colors are called up again on a positive edge at the **“xUpdate”** input.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the Appendix

04 X-Y Coordinates

Color Call-Up as a X/Y Coordinate (FbDaliRecall_XY_Coordinate)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliRecall_XY_Coordinate | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group addresses 0 ... 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| rX_Coordinate | | REAL | X coordinate |
| rY_Coordinate | | REAL | Y coordinate |
| xUpdate | | BOOL | Signal for sending the X/Y coordinates |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliRecall_XY_Coordinate</div><div><div>typBallast</div><div>rX_Coordinate</div><div>rY_Coordinate</div><div>xUpdate</div></div><div><div>xReady</div><div>bFeedback</div></div></div> | | | |

Function Description:

The **FbDaliRecall_XY_Coordinate** function block is used to call up a color from a "CIE 1931" diagram.

The data type "**typBallast**" defines the devices which are to be addressed via this module. The following inputs are required for this:

- "**bAddress**" defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- "**xlsGroup**" defines whether the address given in "**bAddress**" is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).
- "**bModule_753_647**" defines the DALI Multi-Master Module with which this function block must communicate.

The X coordinate is set at the "**rX_Coordinate**" input.

The Y coordinate is set at the "**rY_Coordinate**" input.

The associated color is called up directly on each change in value at the "**rX_Coordinate**" and "**rY_Coordinate**" inputs. The color is called up again on a positive edge at the "**xUpdate**" input.

The X and Y coordinates can be read from a Yxy color scheme.

The "**xReady**" output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as "**xReady**" is FALSE.

The output "**bFeedback**" outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Color Scene (FbDaliWrite_XY_CoordinateScene)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliWrite_XY_CoordinateScene | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typBallast | | typBallast | Parameter used for addressing |
| .bAddress | | BYTE | Short address 0 ... 63 Group address from 0 to 15 Broadcast: 255 |
| .xlsGroup | | BOOL | Selects short or group address: FALSE: Short address or broadcast TRUE: Group address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| rDimLevel | | REAL | Dimming level [%] |
| rX_Coordinate | | REAL | X coordinate |
| rY_Coordinate | | REAL | Y coordinate |
| bScene | | BYTE | Scene number |
| xWrite | | BOOL | Saves the scene |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliWrite_XY_CoordinateScene</div><div><div>typBallast</div><div>rDimLevel</div><div>rX_Coordinate</div><div>rY_Coordinate</div><div>bScene</div><div>xWrite</div></div><div><div>xReady</div><div>bFeedback</div></div></div> | | | |

Function Description:

The function block **FbDaliWrite_XY_CoordinateScene** serves to save color scenes.

The data type **"typBallast"** defines the devices which are to be addressed via this module. The following inputs are required for this:

- **"bAddress"** defines the short or group address. Alternatively, the broadcast address (255) can also be used to write.
- **".xlsGroup"** defines whether the address given in **".bAddress"** is to be used as a short address or group address

(FALSE: Short address; TRUE: Group address).

- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The percentage dimming value is set at the **"rDimLevel"** input.

The X coordinate is set at the **"rX_Coordinate"** input.

The Y coordinate is set at the **"rY_Coordinate"** input.

The scene is saved in the event of a positive edge at the **"xWrite"** input.

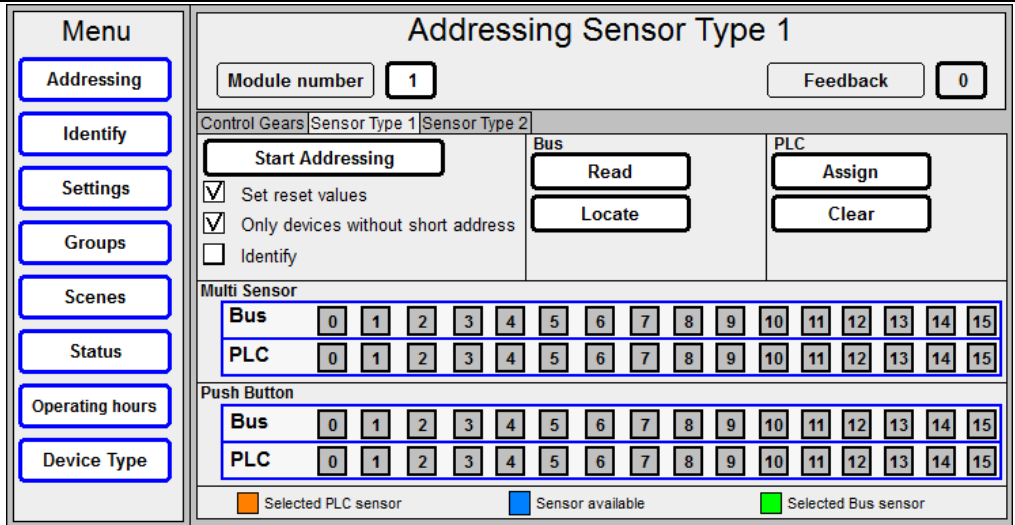
The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

The output **"bFeedback"** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

31 Sensor Type 1

01 Configuration

Configuration Visualization (PrgDALIConfigSensorType1)

| WAGO-I/O-PRO Library Elements | | |
|--|---|--|
| Category: | Building technology | |
| Name: | PrgDALIConfigSensorType1 | |
| Type: | Function <input type="checkbox"/> Function block <input type="checkbox"/> Program <input checked="" type="checkbox"/> | |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| Input/Output Parameter | Data Type: | Comment: |
| aMultiSensorType1_PLC | typAllMulti Sensor1 | Array with the DALI addresses assigned under PLC for type 1 multi-sensor. |
| aPushButtonSensorType1_PLC | typAllPush ButtonSensor1 | Array with the DALI addresses assigned under PLC for push-button sensor type 1 |
| Graphical Illustration: <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <div style="text-align: center; color: blue; font-weight: bold;">PrgDALIConfigSensorType1</div> <ul style="list-style-type: none"> - aMultiSensorType1_PLC ▶ - aPushButtonSensorType1_PLC ▶ </div> | | |
| Visualization:  | | |

Function Description:

For the DALI Sensor Type 1 Configuration Tool, the **PrgDALIConfigSensorType1** program must be called up once in the project. In addition, the associated visualization pages can be imported into the project via the **DALI_647_04.EXP** export file.

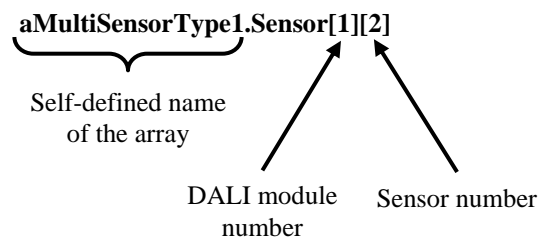
The **“aMultiSensorType1_PLC”** input/output parameters contain the PLC configuration for the multi-sensor, which was previously created in the visualization. The array contains the addresses of all attached multi-sensors per DALI Multi-Master Module.

The **“aPushbuttonSensorType1_PLC”** input/output parameters contain the PLC configuration for the touch sensor, which was previously created in the visualization. The array contains the addresses of all attached touch sensors per DALI Multi-Master Module.

Up to 16 sensors per DALI Multi-Master Module can be operated.

Example:

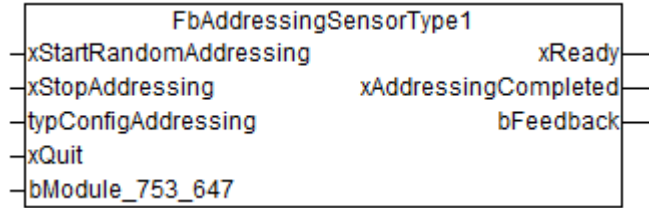
The array is called up as follows:


Note:

- A detailed application note for integrating the module and the related visualization is available at <http://www.wago.de> → Downloads.

Sensor Addressing (FbAddressingSensorType1)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbAddressingSensorType1 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xStartRandomAddressing | | BOOL | Start random addressing |
| xStopAddressing | | BOOL | Stop random addressing |
| typConfigAddressing | | typConfigAddressing | Select addressing options |
| .xRandomSetReset Value | | BOOL | With random addressing, all newly addressed sensors are set to their “reset values”. Default setting: TRUE |
| .xRandomUnaddressed | | BOOL | With random addressing, only sensors with no short address are readdressed. Default setting: TRUE |
| .xRandomChangeActual Level | | BOOL | With random addressing, the sensor to be addressed flashes. |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| xAddressingCompleted | | BOOL | TRUE: Addressing completed successfully. FALSE: Addressing not completed. |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |

Graphical Illustration:

Function Description:

The **FbAddressingSensorType1** function block is used to address type 1 sensors.

Random addressing with the parameters from “*typConfigAddressing*” is started with a positive edge at the “*xStartRandomAddressing*” input.

Random addressing is interrupted with a positive edge at the “*xStopRandomAddressing*” input.

The “*typConfigAddressing*” data type defines the parameters for addressing:

- “*.xRandomSetResetValue*” enables the sensor parameter reset for the newly addressed sensors.
- “*.xRandomUnaddressed*” enables addressing of unaddressed sensors only. Existing addresses are not changed.
- “*.xRandomChangeActualLevel*” enables identification of sensors during addressing. The sensor being addressed can be identified by regular flashing.

The DALI Multi-Master Module with which this function block must communicate is selected at input “*bModule_753_647*”.

The “*xReady*” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “*xReady*” is FALSE.

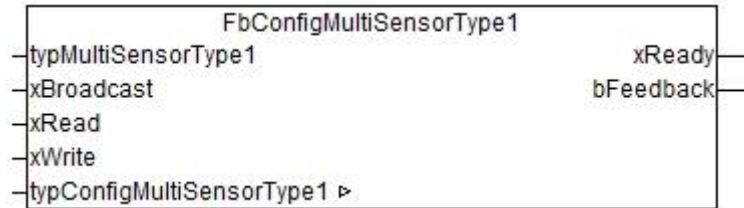
The “*xAddressingCompleted*” output signals when addressing is completed.

If there is fault message at the “*bFeedback*” output, it can be acknowledged by a positive edge at the “*xQuit*” input. Only after the fault is acknowledged can the module execute a new action.

Configuration of the Multi-Sensor (FbConfigMultiSensorType1)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbConfigMultiSensorType1 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typMultiSensorType1 | | typMulti Sensor Type1 | Multi-sensor address parameters |
| .bAddressPresence | | BYTE | Presence detector address |
| .bAddressLightLevel | | BYTE | Light intensity sensor address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xBroadcast | | BOOL | Send the DALI command as a broadcast (the set sensor addresses are ignored). |
| xRead | | BOOL | Reading the configuration |
| xWrite | | BOOL | Writing the configuration |
| | | | |
| Input/Output Parameter | | Data Type | Comment |
| typConfigMultiSensorType1 | | typConfig Multi Sensor Type1 | Multi-sensor configuration parameters |
| .typConfigLightSensorType1 | | typConfig Light Sensor Type1 | Light intensity sensor function configuration parameters |
| .bMinSendTime | | BYTE | Minimum time until a new measured value may be sent 0 = Function not active 1 = 250 ms 2 = 500 ms ... 63 = 15.75 s Value range: 0 ... 63 Default setting: 20 |

| | | |
|-----------------------------------|--|--|
| .bMaxSendTime | BYTE | Maximum time until a new measured value may be sent 0 = Function not active 1 = 5 s 2 = 10 s ... 31 = 155 s Value range: 0 ... 31 Default setting: 5 |
| .bSendOnDelta | BYTE | Percentage deviation of the current measured value from the most recently sent measured value until a new measured value is transmitted 0 = 3 % 1 = 6 % 2 = 9 % 3 = 12 % 4 = 15 % 5 = 18 % 6 = 21 % 7 = 24 % Value range: 0 ... 7 Default setting: 2 |
| .xActiveMode | BOOL | Enable signal for transmitting a light intensity event Default: TRUE |
| .typConfigPresence SensorType1 | typConfig Presence Sensor Type1 | Presence detection configuration parameters |
| .bRepetitionTime | BYTE | Time period between two presence events when the sensor detects presence. 1 = 1 s 2 = 2 s ... 255 = 255 s Value range: 1 ... 255 Default setting: 10 |
| .xActiveMode | BOOL | Enable signal for transmitting presence events Default: TRUE |
| | | |
| Return Value: | Data Type: | Comment: |
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |
| | | |

Graphical Illustration:**Function Description:**

The **FbConfigMultiSensorType1** function block is used for configuring the type 1 multi-sensor

The data type **"typMultiSensorType1"** defines the addresses with which the "Presence detection" and "Brightness measurement" functions can be integrated.

The following inputs are required for this:

- **"bAddressPresence"** defines the address for presence detection.
- **"bAddressLightLevel"** defines the address for light intensity measurement.
- **"bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

When the **"xBroadcast"** input is set, 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.

The configuration reading process from the multi-sensor is started on a positive edge at the **"xRead"** input.

The configuration writing process in the multi-sensor is started on a positive edge at the **"xWrite"** input.

The **"typConfigMultiSensorType1"** input/output parameter contains the following communication parameters for the multi-sensor:

- **"typConfigLightSensorType1"** contains the following configuration parameters for the light intensity sensor:
 - **"bMinSendTime"** 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 5 s.
 - **"bMaxSendTime"** 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.
 - **"bSendOnDelta"** 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 9 %.
 - **"xActiveMode"** defines the enable signal for transmitting of light intensity events.

- **“.typConfigPresenceSensorType1”** contains the following configuration parameters for presence detection:
 - **“.bRepetitionTime”** defines the time period between two presence events when the sensor detects presence.
 - **“.xActiveMode”** defines the enable signal for transmitting presence events.

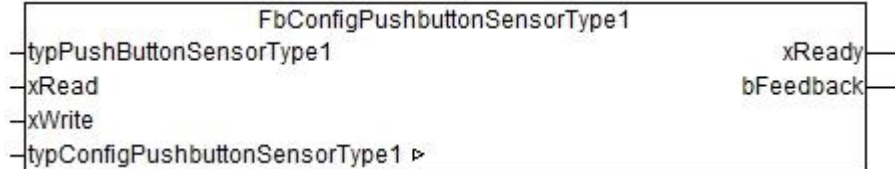
The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Configuration of the Key Coupler (FbConfigPushbuttonSensorType1)

| WAGO-I/O-PRO Library Elements | | | |
|---------------------------------|-----------------------------|---|---|
| Category: | | Building technology | |
| Name: | | FbConfigPushbuttonSensorType1 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typPushButtonSensorType1 | typPush Button Sensor Type1 | Key coupler address parameters | |
| .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” | |
| .bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 | |
| xRead | BOOL | Read the key coupler configuration | |
| xWrite | BOOL | Write the key coupler configuration | |
| | | | |
| Input/Output Parameter | | Data Type | Comment |
| typConfigPushbutton SensorType1 | | typConfig Push button Sensor Type1 | Key coupler configuration parameters |
| .typConfigChannel | | ARRAY [1..4] of typPush button Features Type1 | Configuration of the key coupler inputs |
| .xSwitch | | BOOL | Definition of whether the inputs are to be interpreted as a switch or as a key (pushbutton) |
| .xShortPress Supported | | BOOL | Evaluation of brief button press Default: TRUE |
| .xLongPress Supported | | BOOL | Evaluation of long button press Default: TRUE |
| .xDoublePress Supported | | BOOL | Evaluation of double button press |
| .xSwitchOpenClose Supported | | BOOL | Evaluation of status change when configured as a switch |
| | | | |

| Return Value: | Data Type: | Comment: |
|---------------|------------|---|
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |

Graphical Illustration:

Function Description:

The **FbConfigPushbuttonSensorType1** function block is used for configuring the type 1 multi-sensor.

The data type **"typPushButtonSensorType1"** defines the addresses at which the button inputs can be addressed. The following inputs are required for this:

- **"bAddressButton1"** defines the address for the first button input "A".
- **"bAddressButton2"** defines the address for the second button input "B".
- **"bAddressButton3"** defines the address for the third button input "C".
- **"bAddressButton4"** defines the address for the fourth button input "D".
- **"bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The configuration reading process from the key coupler is started on a positive edge at the **"xRead"** input.

The configuration writing process in the key coupler is started on a positive edge at the **"xWrite"** input.

The **"typConfigPushbuttonSensorType1"** input/output parameter contains the following communication parameters for the key coupler:

- **"typConfigChannel"** contains the following communication parameters for the key coupler inputs:
 - **"xSwitch"** defines whether the inputs are to be interpreted as a switch or as a key (pushbutton).
 - **"xShortPressSupported"** defines whether evaluation of a brief press of the button is to be executed.
 - **"xLongPressSupported"** defines whether evaluation of a long press of the button is to be executed.
 - **"xDoublePressSupported"** defines whether a double press of the button is to be evaluated.
 - **"xSwitchOpenCloseSupported"** defines whether a change in status is to be evaluated for the switch configuration.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Locating Sensors (FbLocateSensorType1)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbLocateSensorType1 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bAddress | | BYTE | Short address for locating the sensors |
| xIdentify | | BOOL | TRUE: Enable locate. FALSE: Disable locate. |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbIdentifySensorType1</div><div><div>bAddress</div><div>xReady</div><div>xIdentify</div><div>bFeedback</div><div>xQuit</div><div>bModule_753_647</div></div></div> | | | |

Function Description:

The **FbLocateSensorType1** function block is used to locate type 1 sensors.

The address of the sensor to be located is specified at the **"bAddress"** input.

Locate is started with a positive signal at the **"xIdentify"** input. The sensor with the address defined at the **"bAddress"** input flashes. All other type 1 sensors are disabled and the status LED lights up continuously.

The DALI Multi-Master Module with which this function block must communicate is selected at input **"bModule_753_647"**.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

If there is fault message at the **"bFeedback"** output, it can be acknowledged by a positive edge on the **"xQuit"** input. Only after the fault is acknowledged can the module execute a new action.

02 Measured Values

Integration of the Multi-Sensor (FbMultiSensorType1)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbMultiSensorType1 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typMultiSensorType1 | | typMulti Sensor Type1 | Multi-sensor address parameters |
| .bAddressPresence | | BYTE | Presence detector address |
| .bAddressLightLevel | | BYTE | Light intensity sensor address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tOffDelay | | TIME | Switch-off delay for the presence detector Default setting: 10 min |
| tWatchdog | | TIME | Light intensity sensor time monitoring Default setting: 5 min (t#0s = No watchdog monitoring) |
| | | | |
| Return Value: | | Data Type: | Comment: |
| rLightLevel | | REAL | Current value from light intensity sensor [lx] Value range = 0 ... 1020 lx |
| xPresence | | BOOL | Signal for presence detected |
| xError | | BOOL | Error message for missing sensor signal |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbMultiSensorType1</div><div><div>typMultiSensorType1</div><div>tOffDelay</div><div>tWatchdog</div><div>rLightLevel</div><div>xPresence</div><div>xError</div></div></div> | | | |

Function Description:

The **FbMultiSensorType1** function block outputs the values transferred from a multi-sensor.

The data type **"typMultiSensorType1"** defines the addresses with which the "Presence detection" and "Brightness measurement" functions can be integrated.

The following inputs are required for this:

- **"bAddressPresence"** defines the address for presence detection.
- **"bAddressLightLevel"** defines the address for light intensity measurement.
- **"bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The switch-off delay for the presence detector is given at the **"tOffDelay"** input. The default setting for this is 10 minutes.

The **"tWatchdog"** input is monitored to detect a light intensity sensor. If no refresh signal is transmitted by the sensor within the set time period, an error message is issued at the **"xError"** output. The watchdog function can be deactivated using the value t#0s.

The measured light intensity is signaled at the **"rLightLevel"** output.

A detected presence is signaled as the status at the **"xPresence"** output.

The **"xError"** output is activated when the watchdog routine has been triggered.

Integration of the Key Coupler (FbPushbuttonSensorType1)

| WAGO-I/O-PRO Library Elements | | | |
|---|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbPushbuttonSensorType1 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typPushButtonSensorType1 | | typPush Button Sensor Type1 | Key coupler address parameters |
| .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" |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tTimeOut | | TIME | Time limit for pressed button Default setting 15 s (t#0s = Time limit disabled) |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xButton1 | | BOOL | Signal for button 1 |
| xButton2 | | BOOL | Signal for push-button 2 |
| xButton3 | | BOOL | Signal for push-button 3 |
| xButton4 | | BOOL | Signal for push-button 4 |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbPushbuttonSensorType1</div><div><div>typPushButtonSensorType1</div><div>tTimeOut</div></div><div><div>xButton1</div><div>xButton2</div><div>xButton3</div><div>xButton4</div></div></div> | | | |

Function Description:

The **FbPushButtonSensorType1** function block outputs the values transferred from a key coupler.

The data type **"typPushButtonSensorType1"** defines the addresses at which the button inputs can be addressed. The following inputs are required for this:

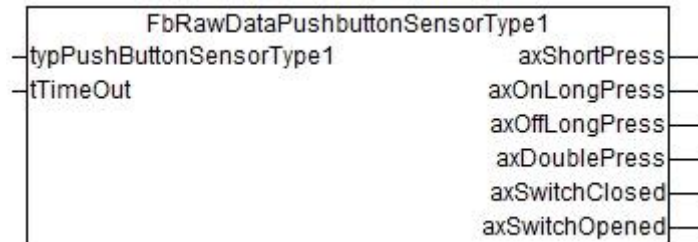
- **".bAddressButton1"** defines the address for the first button input "A".
- **".bAddressButton2"** defines the address for the second button input "B".
- **".bAddressButton3"** defines the address for the third button input "C".
- **".bAddressButton4"** defines the address for the fourth button input "D".
- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The maximum time for pressing a push-button can be defined at the **"tTimeout"** input. When a switch is used, the timeout function can be deactivated via the value t#0s.

Signals for the connected push-buttons are output at the **"xButton1..4"** outputs.

Indication of Key Coupler Events (FbRawDataPushbuttonSensorType1)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbRawDataPushbuttonSensorType1 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typPushButtonSensorType1 | | typPush Button Sensor Type1 | Key coupler address parameters |
| .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" |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tTimeOut | | TIME | Time limit for pressed button Default setting 15 s |
| | | | |
| Return Value: | | Data Type: | Comment: |
| axShortPress | | ARRAY [1..4] OF BOOL | Short button press |
| axOnLongPress | | ARRAY [1..4] OF BOOL | Beginning of long button press. |
| axOffLongPress | | ARRAY [1..4] OF BOOL | End of long button press. |
| axDoublePress | | ARRAY [1..4] OF BOOL | Double button press |
| axSwitchClosed | | ARRAY [1..4] OF BOOL | Switch closed |
| axSwitchOpened | | ARRAY [1..4] OF BOOL | Switch opened |
| | | | |

Graphical Illustration:**Function Description:**

The **FbRawDataPushbuttonSensorType1** function block outputs the raw data for the signals transmitted by the key coupler.

The data type **"typPushbuttonSensorType1"** defines the addresses at which the button inputs can be addressed. The following inputs are required for this:

- **"bAddressButton1"** defines the address for the first button input "A".
- **"bAddressButton2"** defines the address for the second button input "B".
- **"bAddressButton3"** defines the address for the third button input "C".
- **"bAddressButton4"** defines the address for the fourth button input "D".
- **"bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The maximum time for pressing a push-button can be defined at the **"tTimeOut"** input.

It is indicated for one cycle in an array as a Boolean condition at the **"axShortPress"** output whether a brief press of the button has begun.

It is indicated for one cycle in an array as a Boolean condition at the **"axOnLongPress"** output whether a long press of the button has begun.

It is indicated for one cycle in an array as a Boolean condition at the **"axOffLongPress"** output whether a long press of the button has ended.

It is indicated for one cycle in an array as a Boolean condition at the **"axDoublePress"** output whether a double press of the button has begun.

It is indicated for one cycle in an array as a Boolean condition at the **"axSwitchClosed"** output whether a switch is being closed.

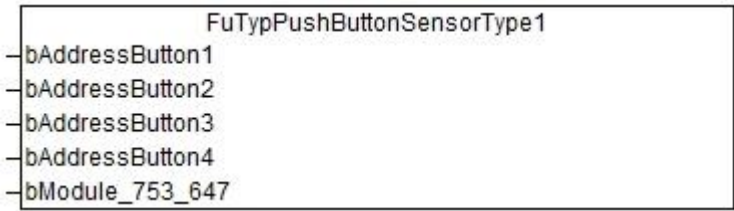
It is indicated for one cycle in an array as a Boolean condition at the **"axSwitchOpened"** output whether a switch is being opened.

03 Conversions

Multi-Sensor Address Parameters (FuTypMultiSensorType1)

| WAGO-I/O-PRO Library Elements | | | |
|---|--|--|---|
| Category: | | Building technology | |
| Name: | | FuTypMultiSensorType1 | |
| Type: | | Function <input checked="" type="checkbox"/> | Function block <input type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| bAddressPresence | | BYTE | Presence detector address |
| bAddressLightLevel | | BYTE | Light intensity sensor address |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller. Counting is from left to right. Default setting: 1 |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FuTypMultiSensorType1</div><div><div>-bAddressPresence</div><div>-bAddressLightLevel</div><div>-bModule_753_647</div></div></div> | | | |
| Function Description: | | | |
| The FuTypMultiSensorType1 function converts the multi-sensor addresses to the data type <i>"typMultiSensorType1"</i> . | | | |

Key Coupler Address Parameters (FuTypPushButtonSensorType1)

| WAGO-I/O-PRO Library Elements | | |
|--|--|---|
| Category: | Building technology | |
| Name: | FuTypPushbuttonSensorType1 | |
| Type: | Function <input checked="" type="checkbox"/> | Function block <input type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| Input Parameter: | Data Type: | Comment: |
| 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" |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| Graphical Illustration: | | |
|  | | |
| Function Description: | | |
| <p>The function FuTypMultiSensorType1 converts the key coupler addresses to the data type "typPushbuttonSensorType1".</p> | | |

32 Sensor Type 2

01 Configuration

Configuration Visualization (PrgDALIConfigSensorType2)

| WAGO-I/O-PRO Library Elements | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|------------------------|------------|----------|-----------------------|--------------------|--|----------------------------|--------------------------|--|----|----|----|----|----|----|----|----|-----|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|-----|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|-----|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| Category: | Building technology | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name: | PrgDALIConfigSensorType2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type: | Function <input type="checkbox"/> Function block <input type="checkbox"/> Program <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Applicable to: | See Release Note | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Input/Output Parameter</th> <th style="width: 20%;">Data Type:</th> <th style="width: 50%;">Comment:</th> </tr> </thead> <tbody> <tr> <td>aMultiSensorType2_PLC</td> <td>typAllMultiSensor2</td> <td>Array with the DALI addresses assigned under PLC for multi-sensor type 2</td> </tr> <tr> <td>aPushButtonSensorType2_PLC</td> <td>typAllPush ButtonSensor2</td> <td>Array with the DALI addresses assigned under PLC for push-button sensor type 2</td> </tr> </tbody> </table> | | | Input/Output Parameter | Data Type: | Comment: | aMultiSensorType2_PLC | typAllMultiSensor2 | Array with the DALI addresses assigned under PLC for multi-sensor type 2 | aPushButtonSensorType2_PLC | typAllPush ButtonSensor2 | Array with the DALI addresses assigned under PLC for push-button sensor type 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input/Output Parameter | Data Type: | Comment: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| aMultiSensorType2_PLC | typAllMultiSensor2 | Array with the DALI addresses assigned under PLC for multi-sensor type 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| aPushButtonSensorType2_PLC | typAllPush ButtonSensor2 | Array with the DALI addresses assigned under PLC for push-button sensor type 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Graphical Illustration: <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <div style="text-align: center; color: blue; font-weight: bold;">PrgDALIConfigSensorType2</div> <ul style="list-style-type: none"> - aMultiSensorType2_PLC ▶ - aPushButtonSensorType2_PLC ▶ </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Visualization: <div style="border: 1px solid gray; padding: 5px; margin-top: 5px;"> <div style="display: flex; justify-content: space-between;"> <div style="width: 20%;"> <p style="text-align: center; margin-bottom: 5px;">Menu</p> <div style="border: 1px solid blue; padding: 2px; margin-bottom: 2px;">Addressing</div> <div style="border: 1px solid blue; padding: 2px; margin-bottom: 2px;">Identify</div> <div style="border: 1px solid blue; padding: 2px; margin-bottom: 2px;">Settings</div> <div style="border: 1px solid blue; padding: 2px; margin-bottom: 2px;">Groups</div> <div style="border: 1px solid blue; padding: 2px; margin-bottom: 2px;">Scenes</div> <div style="border: 1px solid blue; padding: 2px; margin-bottom: 2px;">Status</div> <div style="border: 1px solid blue; padding: 2px; margin-bottom: 2px;">Operating hours</div> <div style="border: 1px solid blue; padding: 2px;">Device Type</div> </div> <div style="width: 80%;"> <p style="text-align: center; margin-bottom: 5px;">Addressing Sensor Type 2</p> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <div>Module number 1</div> <div>Feedback 0</div> </div> <div style="display: flex; border-bottom: 1px solid gray; margin-bottom: 5px;"> Control Gears Sensor Type 1 Sensor Type 2 </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <p style="text-align: center; margin-bottom: 5px;">Start Addressing</p> <div style="margin-bottom: 5px;"> <input checked="" type="checkbox"/> Set reset values <input checked="" type="checkbox"/> Only devices without short address </div> <div> <input type="checkbox"/> Identify </div> </div> <div style="width: 30%;"> <div style="border: 1px solid gray; padding: 2px; margin-bottom: 5px; text-align: center;">Read</div> <div style="border: 1px solid gray; padding: 2px; text-align: center;">Locate</div> </div> <div style="width: 30%;"> <div style="border: 1px solid gray; padding: 2px; margin-bottom: 5px; text-align: center;">Assign</div> <div style="border: 1px solid gray; padding: 2px; text-align: center;">Clear</div> </div> </div> <div style="margin-top: 5px;"> <p>Multi Sensor</p> <table style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="border: 1px solid gray; padding: 2px;">Bus</td> <td style="border: 1px solid gray; padding: 2px;">0</td><td style="border: 1px solid gray; padding: 2px;">1</td><td style="border: 1px solid gray; padding: 2px;">2</td><td style="border: 1px solid gray; padding: 2px;">3</td><td style="border: 1px solid gray; padding: 2px;">4</td><td style="border: 1px solid gray; padding: 2px;">5</td><td style="border: 1px solid gray; padding: 2px;">6</td><td style="border: 1px solid gray; padding: 2px;">7</td><td style="border: 1px solid gray; padding: 2px;">8</td><td style="border: 1px solid gray; padding: 2px;">9</td><td style="border: 1px solid gray; padding: 2px;">10</td><td style="border: 1px solid gray; padding: 2px;">11</td><td style="border: 1px solid gray; padding: 2px;">12</td><td style="border: 1px solid gray; 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padding: 2px;">14</td><td style="border: 1px solid gray; padding: 2px;">15</td> </tr> </table> <p>Push Button</p> <table style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="border: 1px solid gray; padding: 2px;">Bus</td> <td style="border: 1px solid gray; padding: 2px;">0</td><td style="border: 1px solid gray; padding: 2px;">1</td><td style="border: 1px solid gray; padding: 2px;">2</td><td style="border: 1px solid gray; padding: 2px;">3</td><td style="border: 1px solid gray; padding: 2px;">4</td><td style="border: 1px solid gray; padding: 2px;">5</td><td style="border: 1px solid gray; padding: 2px;">6</td><td style="border: 1px solid gray; padding: 2px;">7</td><td style="border: 1px solid gray; padding: 2px;">8</td><td style="border: 1px solid gray; padding: 2px;">9</td><td style="border: 1px solid gray; padding: 2px;">10</td><td style="border: 1px solid gray; padding: 2px;">11</td><td style="border: 1px solid gray; padding: 2px;">12</td><td style="border: 1px solid gray; 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padding: 2px;">14</td><td style="border: 1px solid gray; padding: 2px;">15</td> </tr> </table> <div style="display: flex; justify-content: space-around; font-size: small; margin-top: 5px;"> Selected PLC sensor Sensor available Selected Bus sensor </div> </div> </div> </div> </div> | | | Bus | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | PLC | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Bus | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | PLC | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Bus | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLC | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bus | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLC | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Function Description:

For the DALI Sensor Type 2 Configuration Tool, the **PrgDALIConfigSensorType2** program must be called up once in the project. In addition, the associated visualization pages can be imported into the project via the **DALI_647_04.EXP** export file.

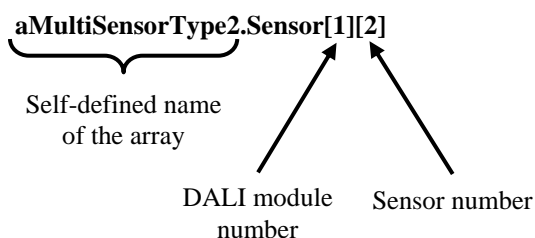
The **“aMultiSensorType2_PLC”** input/output parameters contain the PLC configuration for the multi-sensor, which was previously created in the visualization. The array contains the addresses of all attached multi-sensors per DALI Multi-Master Module.

The **“aPushbuttonSensorType2_PLC”** input/output parameters contain the PLC configuration for the touch sensor, which was previously created in the visualization. The array contains the addresses of all attached touch sensors per DALI Multi-Master Module.

Up to 16 sensors per DALI Multi-Master Module can be operated.

Example:

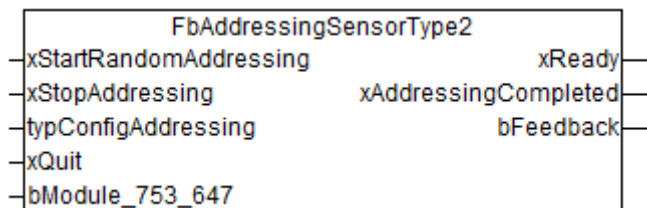
The array is called up as follows:

**Note:**

- A detailed application note for integrating the module and the related visualization is available at <http://www.wago.de> → Downloads.

Sensor Addressing (FbAddressingSensorType2)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|---------------------------------------|--|----------------------------------|
| Category: | Building technology | | |
| Name: | FbAddressingSensorType2 | | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> | Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| xStartRandomAddressing | BOOL | Start random addressing | |
| xStopAddressing | BOOL | Stop random addressing | |
| typConfigAddressing | typConfigAddressing | Select addressing options | |
| .xRandomSetReset Value | BOOL | With random addressing, all newly addressed sensors are set to their “reset values”. Default setting: TRUE | |
| .xRandomUnaddressed | BOOL | With random addressing, only sensors with no short address are readdressed. Default setting: TRUE | |
| .xRandomChangeActual Level | BOOL | With random addressing, the sensor to be addressed flashes. | |
| xQuit | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. | |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 | |
| | | | |
| Return Value: | Data Type: | Comment: | |
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation | |
| xAddressingCompleted | BOOL | TRUE: Addressing completed successfully. FALSE: Addressing not completed. | |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) | |
| | | | |

Graphical Illustration:**Function Description:**

The **FbAddressingSensorType2** function block is used to address type 2 sensors.

Random addressing with the parameters from “*typConfigAddressing*” is started with a positive edge at the “*xStartRandomAddressing*” input.

Random addressing is interrupted with a positive edge at the “*xStopRandomAddressing*” input.

The “*typConfigAddressing*” data type defines the parameters for addressing:

- “*xRandomSetResetValue*” enables the sensor parameter reset for the newly addressed sensors.
- “*xRandomUnaddressed*” enables addressing of unaddressed sensors only. Existing addresses are not changed.
- “*xRandomChangeActualLevel*” enables identification of sensors during addressing. The sensor being addressed can be identified by regular flashing.

The DALI Multi-Master Module with which this function block must communicate is selected at input “*bModule_753_647*”.

The “*xReady*” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “*xReady*” is FALSE.

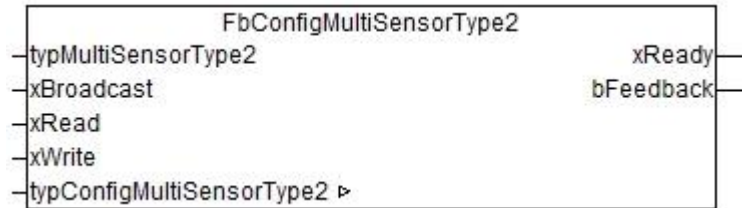
The “*xAddressingCompleted*” output signals when addressing is completed.

If there is fault message at the “*bFeedback*” output, it can be acknowledged by a positive edge at the “*xQuit*” input. Only after the fault is acknowledged can the module execute a new action.

Configuration of the Multi-Sensor (FbConfigMultiSensorType2)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbConfigMultiSensorType2 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typMultiSensorType2 | | typMulti Sensor Type2 | Multi-sensor address parameters |
| .bAddressPresence | | BYTE | Presence detector address |
| .bAddressLightLevel | | BYTE | Light intensity sensor address |
| .bAddressRemote Control | | BYTE | Infrared receiver address for integration of a remote control |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xBroadcast | | BOOL | Send the DALI command as a broadcast (the set sensor addresses are ignored). |
| xRead | | BOOL | Reading the configuration |
| xWrite | | BOOL | Writing the configuration |
| | | | |
| Input/Output Parameter | | Data Type | Comment |
| typConfigMultiSensorType2 | | typConfig Multi Sensor Type2 | Multi-sensor configuration parameters |
| .typConfigLightSensor Type2 | | typConfig Light Sensor Type2 | Light intensity sensor function configuration parameters |
| .bMinSendTime | | BYTE | Minimum time until a new measured value may be sent 3 = 300 ms 4 = 400 ms ... 255 = 25.5 s Value range: 3 ... 255 Default setting: 20 |

| | | |
|-----------------------------------|--|---|
| .bMaxSendTime | BYTE | Maximum time until a new measured value is transmitted 0 = Function not active 3 = 300 ms 4 = 400 ms ... 255 = 25.5 s Value range: 0; 3 ... 255 Default setting: 250 |
| .bSendOnDelta | BYTE | Percentage deviation of the current measured value from the most recently sent measured value until a new measured value is transmitted 0 = Function not active 1 = 3 % 2 = 6 % 3 = 9 % 4 = 12 % 5 = 18 % 6 = 25 % 7 = 31 % 8 = 37 % 9 = 50 % Value range = 0 – 9% Default setting: 2 |
| .typConfigPresence SensorType2 | typConfig Presence Sensor Type2 | Presence detection configuration parameters |
| .bRepetitionTime | BYTE | Time period between two presence events when the sensor detects presence. 1 = 1 s 2 = 2s ... 255 = 255 s Value range: 1 ... 255 Default setting: 10 |
| .xActiveMode | BOOL | Enable signal for transmitting presence events |
| .xActiveMode | BOOL | Enable signal for transmitting of events from the entire multi-sensor Default: TRUE |
| | | |
| Return Value: | Data Type: | Comment: |
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |
| | | |

Graphical Illustration:

Function Description:

The **FbConfigMultiSensorType2** function block is used for configuring the multi-sensor type 2.

The data type **"typMultiSensorType2"** defines the addresses with which the "Presence detection", "Brightness measurement" and "Control" functions can be integrated via remote control. The following inputs are required for this:

- **"bAddressPresence"** defines the address for presence detection.
- **"bAddressLightLevel"** defines the address for light intensity measurement.
- **"bAddressRemoteControl"** defines the address for the infrared receiver for integration of a remote control.
- **"bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

When the **"xBroadcast"** input is set, 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.

The configuration reading process from the multi-sensor is started on a positive edge at the **"xRead"** input.

The configuration writing process in the multi-sensor is started on a positive edge at the **"xWrite"** input.

The **"typConfigMultiSensorType2"** input/output parameter contains the following communication parameters for the multi-sensor:

- **"typConfigLightSensorType2"** contains the following configuration parameters for the light intensity sensor function:
 - **"bMinSendTime"** defines the minimum time until a new measured value may be sent. This function cannot be deactivated. Times between 300 ms and 25.5 s can be set. The default setting is 2 s.
 - **"bMaxSendTime"** 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.

- **“*bSendOnDelta*”** defines the percentage deviation of the current light intensity from the most recently transmitted light intensity level until a new measured value is transmitted. This ensures that data is transmitted only when required. This function may be deactivated when requested. When activated, deviation levels between 3 % and 50 % can be set. The default setting is 6 %.
- **“*typConfigPresenceSensorType2*”** contains the following configuration parameters for presence detection:
 - **“*bRepetitionTime*”** defines the time period between two presence events when the sensor detects presence.
 - **“*xActiveMode*”** defines the enable signal for transmitting presence events.
- **“*xActiveMode*”** defines the enable signal for transmitting events from the entire sensor.

The **“*xReady*”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“*xReady*”** is FALSE.

The output **“*bFeedback*”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

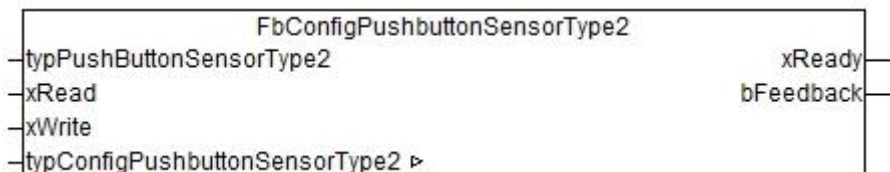
Note:

- When the parameters **“*typConfigLightSensorType2.bMaxSendTime*”** and **“*typConfigLightSensorType2.bSendOnDelta*”** are set to zero, no event will be transmitted by the light intensity sensor.

Configuration of the Key Coupler (FbConfigPushbuttonSensorType2)

| WAGO-I/O-PRO Library Elements | | | |
|--------------------------------|--|--|---|
| Category: | | Building technology | |
| Name: | | FbConfigPushbuttonSensorType2 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typPushButtonSensorType2 | | typPushButtonSensorType2 | Key coupler address parameters |
| .bAddress | | BYTE | Key coupler address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xRead | | BOOL | Read the key coupler configuration |
| xWrite | | BOOL | Write the key coupler configuration |
| | | | |
| Input/Output Parameter | | Data Type | Comment |
| typConfigPushbuttonSensorType2 | | typConfigPushButtonSensorType2 | Key coupler configuration parameters |
| .typConfigChannel | | ARRAY [1..4] OF typConfigPushButtonSensorType2 | Configuration of the key coupler inputs |
| .xSwitch | | BOOL | Definition of whether the inputs are to be interpreted as a switch or as a key (pushbutton) |
| .xShortPressSupported | | BOOL | Evaluation of brief button press Default: TRUE |
| .xLongPressSupported | | BOOL | Evaluation of long button press Default: TRUE |
| .xDoublePressSupported | | BOOL | Evaluation of double button press |
| .xSwitchOpenCloseSupported | | BOOL | Evaluation of status change when configured as a switch |
| .xActiveMode | | BOOL | Enable signal for transmitting of events from the entire key coupler Default: TRUE |
| | | | |

| Return Value: | Data Type: | Comment: |
|---------------|------------|---|
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |

Graphical Illustration:**Function Description:**

The **FbConfigPushbuttonSensorType2** function block is used for configuring the key coupler type 2.

The data type **“typPushButtonSensorType2”** defines the address at which the key coupler can be addressed. The following inputs are required for this:

- **“bAddress”** defines the key coupler address.
- **“bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

The configuration reading process from the key coupler is started on a positive edge at the **“xRead”** input.

The configuration writing process in the key coupler is started on a positive edge at the **“xWrite”** input.

The **“typConfigPushbuttonSensorType2”** input/output parameter contains the following communication parameters for the key coupler:

- **“typConfigChannel”** contains the following communication parameters for the key coupler inputs:
 - **“xSwitch”** defines whether the inputs are to be interpreted as a switch or as a key (pushbutton).
 - **“xShortPressSupported”** defines whether evaluation of a brief press of the button is to be executed. This function is enabled by default.
 - **“xLongPressSupported”** defines whether evaluation of a long press of the button is to be executed. This function is enabled by default.
 - **“xDoublePressSupported”** defines whether a double press of the button is to be evaluated.
 - **“xSwitchOpenCloseSupported”** defines whether a change in status is to be evaluated for the switch configuration.
- **“xActiveMode”** defines the enable signal for transmitting events from the entire sensor.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

The output **“bFeedback”** outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Locating Sensors (FbLocateSensorType2)

| WAGO-I/O-PRO Library Elements | | |
|--|---------------------------------------|--|
| Category: | Building technology | |
| Name: | FbLocateSensorType2 | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| | | |
| Input Parameter: | Data Type: | Comment: |
| bAddress | BYTE | Short address for locating the sensors |
| xIdentify | BOOL | TRUE: Enable locate. FALSE: Disable locate. |
| xQuit | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| | | |
| Return Value: | Data Type: | Comment: |
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |
| | | |
| Graphical Illustration: | | |
| <div><div>FbIdentifySensorType2</div><div><div>bAddress</div><div>xReady</div><div>xIdentify</div><div>bFeedback</div><div>xQuit</div><div>bModule_753_647</div></div></div> | | |

Function Description:

The **FbLocateSensorType2** function block is used to locate type 2 sensors.

The address of the sensor to be located is specified at the **"bAddress"** input.

Locate is started with a positive signal at the **"xIdentify"** input. The sensor with the address defined at the **"bAddress"** input beeps (key coupler) or flashes (sensor coupler). All other type 2 sensors are disabled.

The DALI Multi-Master Module with which this function block must communicate is selected at input **"bModule_753_647"**.

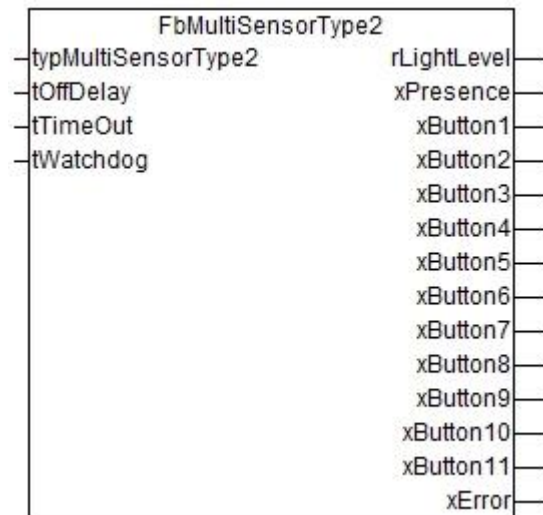
The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

If there is fault message at the **"bFeedback"** output, it can be acknowledged by a positive edge on the **"xQuit"** input. Only after the fault is acknowledged can the module execute a new action.

02 Measured Values

Integration of the Multi-Sensor (FbMultiSensorType2)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbMultiSensorType2 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typMultiSensorType2 | | typMulti Sensor Type2 | Multi-sensor address parameters |
| .bAddressPresence | | BYTE | Presence detector address |
| .bAddressLightLevel | | BYTE | Light intensity sensor address |
| .bAddressRemote Control | | BYTE | Infrared receiver address for integration of a remote control |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tOffDelay | | TIME | Switch-off delay for the presence detector Default setting: 10 min |
| tTimeOut | | TIME | Time limit for pressed button Default setting 15 s |
| tWatchdog | | TIME | Light intensity sensor time monitoring Default setting: 5 min (t#0s = No watchdog monitoring) |
| | | | |
| Return Value: | | Data Type: | Comment: |
| rLightLevel | | REAL | Current value from light intensity sensor [lx] Value range = 0 ... 1008 lx |
| xPresence | | BOOL | Signal for presence detected |
| xButton1 | | BOOL | Signal for button 1 |
| xButton2 | | BOOL | Signal for push-button 2 |
| ... | | | |
| xButton 11 | | BOOL | Signal for push-button 11 |
| xError | | BOOL | Error message for missing sensor signal |
| | | | |

Graphical Illustration:

Function Description:

The **FbMultiSensorType2** function block outputs the values transferred from a multi-sensor.

The data type **"typMultiSensorType2"** defines the addresses with which the "Presence detection", "Brightness measurement" and "Control" functions can be integrated via remote control. The following inputs are required for this:

- **"*.bAddressPresence*"** defines the address for presence detection.
- **"*.bAddressLightLevel*"** defines the address for light intensity measurement.
- **"*.bAddressRemoteControl*"** defines the address for the infrared receiver for integration of a remote control.
- **"*.bModule_753_647*"** defines the DALI Multi-Master Module with which this function block must communicate.

The switch-off delay for the presence detector is given at the **"tOffDelay"** input. The default setting for this is 10 minutes.

The maximum time for pressing a push-button can be defined at the **"tTimeOut"** input.

The **"tWatchdog"** input is monitored to detect a light intensity sensor. If no refresh signal is transmitted by the sensor within the set time period, an error message is issued at the **"xError"** output. The watchdog function can be deactivated using the value t#0s.

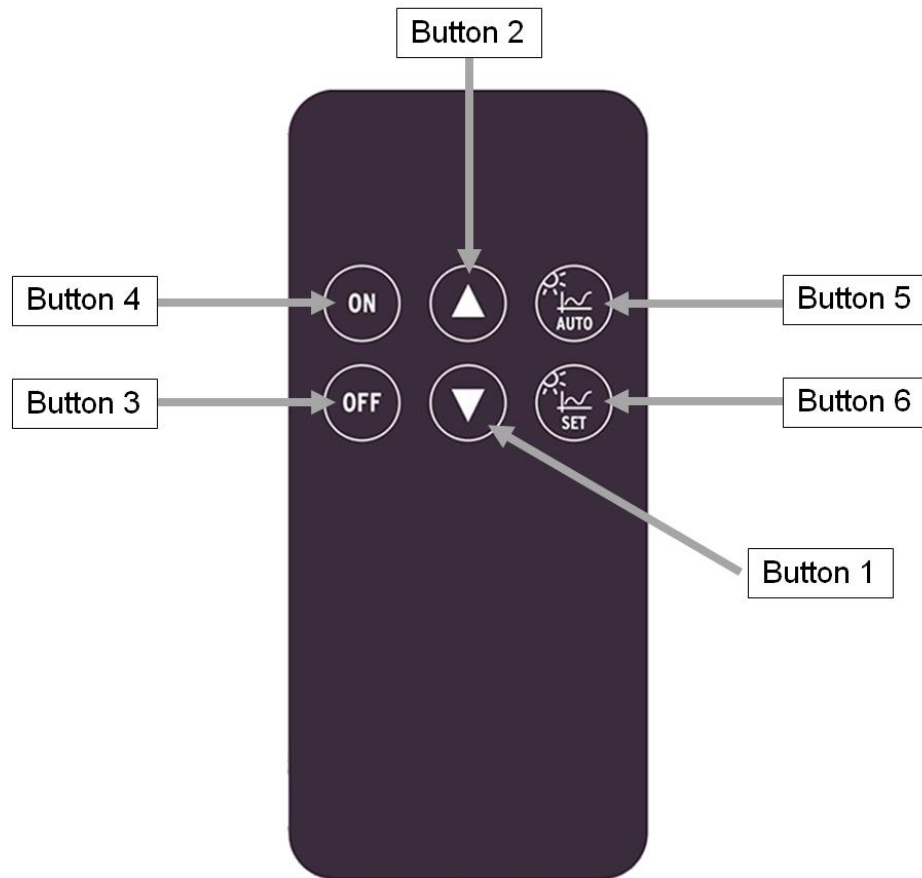
The measured light intensity is signaled at the **"rLightLevel"** output.

A detected presence is signaled as the status at the **"xPresence"** output.

The remote control signals are output at the **"xButton1..11"** outputs. One output is provided for each button.

The **"xError"** output is activated when the watchdog routine has been triggered.

Push-button numbering for the two possible remote controls is defined as follows:



Integration of the Key Coupler (FbPushbuttonSensorType2)

| WAGO-I/O-PRO Library Elements | | |
|---|---------------------------------------|---|
| Category: | Building technology | |
| Name: | FbPushbuttonSensorType2 | |
| Type: | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| | | |
| Input Parameter: | Data Type: | Comment: |
| typPushButtonSensorType2 | typPush Button Sensor Type2 | Key coupler address parameters |
| .bAddress | BYTE | Key coupler address |
| .bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tTimeOut | TIME | Time limit for pressed button Default setting 15 s (t#0s = Time limit disabled) |
| | | |
| Return Value: | Data Type: | Comment: |
| xButton1 | BOOL | Signal for button 1 |
| xButton2 | BOOL | Signal for push-button 2 |
| xButton3 | BOOL | Signal for push-button 3 |
| xButton 4 | BOOL | Signal for push-button 4 |
| | | |
| Graphical Illustration: | | |
| <div><div>FbPushbuttonSensorType2</div><div><div>typPushButtonSensorType2</div><div>tTimeOut</div></div><div><div>xButton1</div><div>xButton2</div><div>xButton3</div><div>xButton4</div></div></div> | | |

Function Description:

The **FbPushButtonSensorType2** function block outputs the values transferred from a key coupler.

The data type **"typPushButtonSensorType2"** defines the address at which the key coupler can be addressed. The following inputs are required for this:

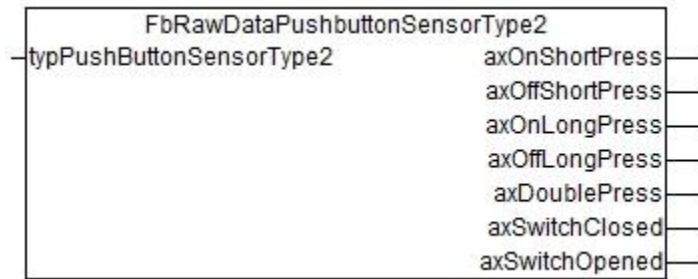
- **".bAddress"** defines the key coupler address.
- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

The maximum time for pressing a push-button can be defined at the **"tTimeOut"** input. When a switch is used, the timeout function can be deactivated via the value t#0s.

Signals for the connected push-buttons are output at the **"xButton1..4"** outputs.

Indication of Key Coupler Events (FbRawDataPushbuttonSensorType2)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbRawDataPushbuttonSensorType2 | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typPushButtonSensorType2 | | typPush Button Sensor Type2 | Key coupler address parameters |
| .bAddress | | BYTE | Key coupler address |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| axOnShortPress | | ARRAY [1..4] OF BOOL | Beginning of brief button press. |
| axOffShortPress | | ARRAY [1..4] OF BOOL | End of brief button press. |
| axOnLongPress | | ARRAY [1..4] OF BOOL | Beginning of long button press. |
| axOffLongPress | | ARRAY [1..4] OF BOOL | End of long button press. |
| axDoublePress | | ARRAY [1..4] OF BOOL | Double button press |
| axSwitchClosed | | ARRAY [1..4] OF BOOL | Switch closed |
| axSwitchOpened | | ARRAY [1..4] OF BOOL | Switch opened |
| | | | |

Graphical Illustration:**Function Description:**

The **FbRawDataPushbuttonSensorType2** function block outputs the raw data for the signals transmitted by the key coupler.

The data type ***“typPushbuttonSensorType2”*** defines the address at which the key coupler can be addressed. The following inputs are required for this:

- ***“.bAddress”*** defines the key coupler address.
- ***“.bModule_753_647”*** defines the DALI Multi-Master Module with which this function block must communicate.

It is indicated for one cycle in an array as a Boolean condition at the ***“axOnShortPress”*** output whether a brief press of the button has begun.

It is indicated for one cycle in an array as a Boolean condition at the ***“axOffShortPress”*** output whether a brief press of the button has ended.

It is indicated for one cycle in an array as a Boolean condition at the ***“axOnLongPress”*** output whether a long press of the button has begun.

It is indicated for one cycle in an array as a Boolean condition at the ***“axOffLongPress”*** output whether a long press of the button has ended.

It is indicated for one cycle in an array as a Boolean condition at the ***“axDoublePress”*** output whether a double press of the button has begun.

It is indicated for one cycle in an array as a Boolean condition at the ***“axSwitchClosed”*** output whether a switch is being closed.


It is indicated for one cycle in an array as a Boolean condition at the ***“axSwitchOpened”*** output whether a switch is being opened.

MSensor Light Level (FuMSensorLuxLevel)

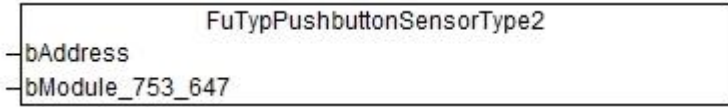
| WAGO-I/O-PRO Library Elements | | | |
|--|--|---|----------------------------------|
| Category: | Building technology | | |
| Name: | FuMSensorLuxLevel | | |
| Type: | Function <input checked="" type="checkbox"/> | Function block <input type="checkbox"/> | Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| bLuxLevel | BYTE | Raw data from multi-sensor | |
| | | | |
| Return Value: | Data Type: | Comment: | |
| | REAL | Light level [lx] | |
| | | | |
| Graphical Illustration: | | | |
| <div><div></div><div>FuMSensorLuxLevel</div><div>-bLuxlevel</div></div> | | | |
| Function Description: | | | |
| The function FuMSensorLuxLevel converts the measured light intensity from the multi-sensor to a Lux value [lx]. | | | |

03 Conversions

Multi-Sensor Address Parameters (FuTypMultiSensorType2)

| WAGO-I/O-PRO Library Elements | | |
|--|--|---|
| Category: | Building technology | |
| Name: | FuTypMultiSensorType2 | |
| Type: | Function <input checked="" type="checkbox"/> | Function block <input type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| Input Parameter: | Data Type: | Comment: |
| bAddressPresence | BYTE | Presence detector address |
| bAddressLightLevel | BYTE | Light intensity sensor address |
| bAddressRemoteControl | BYTE | Infrared receiver address for integration of a remote control |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| Graphical Illustration: | | |
|  | | |
| Function Description: | | |
| The FuTypMultiSensorType2 function converts the multi-sensor addresses to the data type " <i>typMultiSensorType2</i> ". | | |

Key Coupler Address Parameters (FuTypMultiSensorType2)

| WAGO-I/O-PRO Library Elements | | |
|---|--|---|
| Category: | Building technology | |
| Name: | FuTypPushbuttonSensorType2 | |
| Type: | Function <input checked="" type="checkbox"/> | Function block <input type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | See Release Note | |
| Input Parameter: | Data Type: | Comment: |
| bAddress | BYTE | Key coupler address |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| Graphical Illustration: | | |
|  | | |
| Function Description: | | |
| The function FuTypMultiSensorType2 converts the key coupler addresses to the data type "typPushbuttonSensorType2". | | |

33 Standard Sensor

01 Configuration

Configuration Visualization (PrgDALIConfigSensor)

| WAGO-I/O-PRO Library Elements | | | |
|---|---------------------------------------|---|---|
| Category: | Building technology | | |
| Name: | PrgDALIConfigSensor | | |
| Type: | Function <input type="checkbox"/> | Function block <input type="checkbox"/> | Program <input checked="" type="checkbox"/> |
| Name of library: | DALI_647_04.lib / DALI_647_PFC_04.lib | | |
| Applicable to: | See Release Note | | |
| | | | |
| Graphical Illustration: | | | |
| <div style="border: 1px solid black; padding: 5px; display: inline-block;">PrgDALIConfigSensor</div> | | | |
| Visualization: | | | |
| <div style="border: 1px solid black; padding: 5px;"> <div style="display: flex;"> <div style="width: 20%; border-right: 1px solid black; padding-right: 5px;"> <p style="text-align: center; margin: 0;">Menu</p> <div style="margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Addressing</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Identify</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Settings</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Groups</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Scenes</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Status</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Operating hours</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Device Type</div> </div> </div> <div style="width: 80%; padding-left: 5px;"> <p style="text-align: center; margin: 0;">Addressing Standard sensors</p> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <div>Module number <input style="width: 40px;" type="text" value="1"/></div> <div>Feedback <input style="width: 40px;" type="text" value="0"/></div> </div> <div style="border-bottom: 1px solid black; display: flex; margin-bottom: 5px;"> <div style="flex: 1; text-align: center;">Control Gears</div> <div style="flex: 1; text-align: center;">Standard sensor</div> <div style="flex: 1; text-align: center;">Sensor Type 1</div> <div style="flex: 1; text-align: center;">Sensor Type 2</div> </div> <div style="display: flex;"> <div style="flex: 1; padding-right: 10px;"> <div style="border: 1px solid black; padding: 5px; text-align: center; margin-bottom: 5px;">Random Addressing</div> <div style="margin-bottom: 5px;"> <input type="checkbox"/> Set reset values <input checked="" type="checkbox"/> Only devices without short address </div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Stop Addressing</div> </div> <div style="flex: 1; padding-left: 10px;"> <div style="margin-bottom: 10px;"> <p style="text-align: right; margin: 0;">Short address <input style="width: 40px;" type="text" value="0"/></p> <div style="border: 1px solid black; padding: 2px; text-align: center; margin-bottom: 2px;">Delete short address</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">Reset values</div> </div> <div> <p style="text-align: right; margin: 0;">Read operating mode <input style="width: 40px;" type="text" value="0"/></p> <div style="border: 1px solid black; padding: 2px; text-align: center; margin-bottom: 2px;">Write operating mode</div> </div> </div> </div> </div> </div> </div> | | | |

WAGO-I/O-PRO Library Elements

Menu

Addressing

Identify

Settings

Groups

Scenes

Status

Operating hours

Device Type

Identify Short Address

Module number

Feedback

Control Gears

Standard sensor

Current address

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |
| 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 |
| 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 |

New address

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |
| 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 |
| 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 |

Read Short Addresses

Replace Short Address

Identification

New short address
 Short address available
 Selected short address

Settings

Module number

Feedback

Control Gears

Standard sensor

Short Address

Broadcast

PIR Configuration

Instance

Occupied trigger ☐

Vacant trigger ☐

Repeat trigger ☐

Movement trigger ☐

No movement trigger ☐

Holdtime [s]

Reporttime [s]

Deadtime [s]

Read Write

Light Sensor Configuration

Instance

Illuminance Level Event ☐

Hysteresis Min

Hysteresis

Reporttime [s]

Deadtime [s]

Read Write

Function Description:

For the DALI configuration tool, the **PrgDALIConfigSensor** program must be called once in the project. In addition, the associated visualization pages can be imported into the project via the **DALI_647_04.exp** export file.

Subject to design changes
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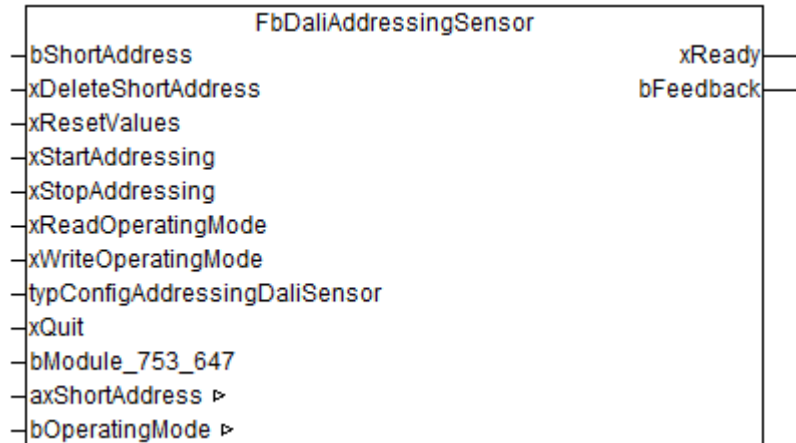
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Sensor Addressing (FbDaliAddressingSensor)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|-------------------------------|--|---|
| Category: | | Building technology | |
| Name: | | FbDaliAddressingSensor | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | Data Type: | Comment: | |
| bShortAddress | BYTE | Selected short address | |
| xDeleteShortAddress | BOOL | Deletes the selected short address | |
| xResetValues | BOOL | Resets the device with the selected short address | |
| xStartAddressing | BOOL | Start random addressing | |
| xStopAddressing | BOOL | Stop random addressing | |
| xReadOperatingMode | BOOL | Read the operating mode | |
| xWriteOperatingMode | BOOL | Write the operating mode | |
| typConfigAddressingDaliSensor | typConfigAddressingDaliSensor | Select addressing options | |
| .xSetResetValue | BOOL | With random addressing, all newly addressed sensors are set to their “reset values”. | |
| .xOnlyUnaddressed | BOOL | With random addressing, only sensors with no short address are readdressed. Default: TRUE | |
| xQuit | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. | |
| bModule_753_647 | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 | |
| | | | |
| Input/Output Parameter | Data Type | Comment | |
| axShortAddress | ARRAY[0..63] OF BOOL | Displays available short addresses | |
| bOperatingMode | BYTE | Operating mode | |
| | | | |
| Return Value: | Data Type: | Comment: | |
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation | |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) | |
| | | | |

Graphical Illustration:

Function Description:

The **FbDaliAddressingSensor** function block serves to address DALI standard sensors according to the DALI-2 standard.

The short address of the sensor that should be addressed by the functions below is provided on the **“bShortAddress”** input.

The short address selected on the **“bShortAddress”** input is deleted in the event of a positive edge on the **“xDeleteShortAddress”** input.

The configuration of the sensor with the short address selected on the **“bShortAddress”** input is reset in the event of a positive edge on the **“xResetValues”** input.

Random addressing with the parameters from **“typConfigAddressingDaliSensor”** is started with a positive edge at the **“xStartAddressing”** input.

Random addressing is interrupted with a positive edge at the **“xStopAddressing”** input.

The operating mode setting is read out and output on the **“bOperatingMode”** output in the event of a positive edge on the **“xReadOperatingMode”** input.

The operating mode set on the **“bOperatingMode”** input/output is written to the sensor in the event of a positive edge on the **“xWriteOperatingMode”** input.

The **“typConfigAddressingDaliSensor”** data type defines the parameters for addressing:

- **“xSetResetValue”** enables parameter reset for the newly addressed sensors.
- **“xOnlyUnaddressed”** enables addressing of unaddressed sensors only. Existing addresses are not changed.

The DALI Multi-Master Module with which this function block must communicate is selected at input **"bModule_753_647"**.

The short addresses of the available DALI standard sensors are listed on the **"axShortAddress"** input/output.

The operating mode that is either read out on the **"xReadOperatingMode"** input or written to the **"xWriteOperatingMode"** output is indicated on the **"bOperatingMode"** input/output.

The **"xReady"** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **"xReady"** is FALSE.

If there is fault message at the **"bFeedback"** output, it can be acknowledged by a positive edge on the **"xQuit"** input. Only after the fault is acknowledged can the module execute a new action.

Configuration of the Standard Light Sensor (FbDaliConfigLightSensor)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDaliConfigLightSensor | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | Instance number of the function to be configured |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xRead | | BOOL | Reading the configuration |
| xWrite | | BOOL | Writing the configuration |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| | | | |
| Input/Output Parameter | | Data Type | Comment |
| typConfigDaliLightSensor | | typConfigDaliLightSensor | Configuration parameter for the DALI light sensor |
| .bEventScheme | | BYTE | “Event schema” of the light instance of the sensor |
| .xIlluminanceLevelEvent | | BOOL | Enable signal for transmitting of events by the selected instance |
| .rDeadtime | | REAL | Dead time between two successive events in s Value range: 0 ... 12.75 s in 0.05 s steps |
| .bReportTime | | BYTE | Interval at which an event is repeated in the event of an unchanged value, in s Value range: 1 ... 255s in 1s steps |
| .bHysteresisMin | | BYTE | Minimum value for calculating the hysteresis in % Value range: 1..15 % in 1 % steps |
| .bHysteresis | | BYTE | Value for calculating the hysteresis in % Value range: 0 ... 25 % in 1 % steps |

| Return Value: | Data Type: | Comment: |
|---------------|------------|---|
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |

Graphical Illustration:**Function Description:**

The **FbDaliConfigLightSensor** function block serves to configure the light sensor instance of the DALI standard sensor.

The “**typSensor**” data type specifies the communication parameter of the light instance that is to be configured. The following inputs are required for this:

- “**.bAddress**” defines the address of the sensor.
- “**.bInstanceType**” specifies the instance type of the light instance. This parameter is not currently used and can be ignored!
- “**.bInstanceNumber**” specifies the number of the light instance that is to be configured.
- “**.bModule_753_647**” defines the DALI Multi-Master Module with which this function block must communicate.

The configuration reading process from the sensor is started on a positive edge at the “**xRead**” input.

The configuration writing process in the sensor is started on a positive edge at the “**xWrite**” input.

The “**typConfigDaliLightSensor**” input/output parameter contains the following configuration parameters for the sensor:

- “**.bEventScheme**” defines the event schema according to which the light instance of the sensor works.
- “**.xIlluminanceLevelEvent**” specifies whether the light instance of the sensor is allowed to send events.
- “**.rDeadtime**” specifies the dead time between two events.
- “**.bReportTime**” specifies the interval at which an event is repeated.
- “**.bHysteresisMin**” specifies the minimum value for calculating the hysteresis.
- “**.bHysteresis**” specifies the value for calculating the hysteresis.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

If there is fault message at the **“bFeedback”** output, it can be acknowledged by a positive edge on the **“xQuit”** input. Only after the fault is acknowledged can the module execute a new action.

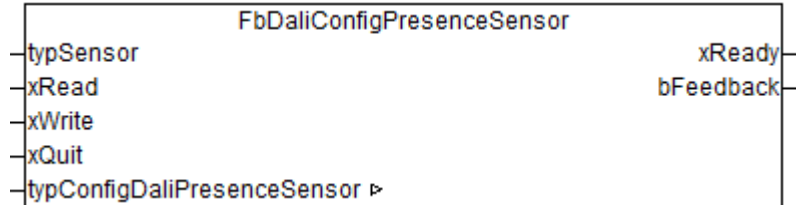
Note:

- It is advisable to read the configuration values out once before writing in order to make changes to the values provided.
- The *“typConfigDaliLightSensor.bEventScheme”* parameter is set to “2” during addressing. This value should not be modified in order to function correctly with WAGO components.

Configuration of the Standard Presence Sensor (FbDaliConfigPresenceSensor)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliConfigPresenceSensor | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | Instance number of the function to be configured |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| xRead | | BOOL | Reading the configuration |
| xWrite | | BOOL | Writing the configuration |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| | | | |
| Input/Output Parameter | | Data Type | Comment |
| typConfigDaliPresenceSensor | | typConfigDaliPresenceSensor | Configuration parameter for the DALI presence sensor |
| .bEventScheme | | BYTE | “Event schema” of the presence instance of the sensor |
| .xOccupiedTrigger | | BOOL | Activates the “occupied” event |
| .xVacantTrigger | | BOOL | Activates the “not occupied” event |
| .xRepeatTrigger | | BOOL | Activates the repetition of permanently active events |
| .xMovementTrigger | | BOOL | Activates the “movement” event |
| .xNoMovementTrigger | | BOOL | Activates the “no movement” event |
| .rDeadtime | | REAL | Dead time between two successive events in s Value range: 0 ... 12.75 s in 0.05 s steps |
| .wHoldTime | | WORD | Only for movement: Hold time in s since movement was last detected Value range: 1 ... 2540s in 10 s steps |
| .bReportTime | | BYTE | Interval at which an event is repeated in the event of an unchanged value, in s Value range: 1 ... 255 s in 1 s steps |

| Return Value: | Data Type: | Comment: |
|---------------|------------|---|
| xReady | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | BYTE | Response byte (see Table 1 in the appendix) |

Graphical Illustration:

Function Description:

The **FbDaliConfigPresenceSensor** function block serves to configure the presence sensor instance of the DALI standard sensor.

The “**typSensor**” data type specifies the communication parameter of the presence instance that is to be configured. The following inputs are required for this:

- “**.bAddress**” defines the address of the sensor.
- “**.bInstanceType**” specifies the instance type of the presence instance. This parameter is not currently used and can be ignored!
- “**.bInstanceNumber**” specifies the number of the presence instance that is to be configured.
- “**.bModule_753_647**” defines the DALI Multi-Master Module with which this function block must communicate.

The configuration reading process from the sensor is started on a positive edge at the “**xRead**” input.

The configuration writing process in the sensor is started on a positive edge at the “**xWrite**” input.

The “**typConfigDaliPresenceSensor**” input/output parameter contains the following configuration parameters for the sensor:

- “**.bEventScheme**” defines the event schema according to which the presence instance of the sensor works.
- “**.xOccupiedTrigger**” specifies whether the sensor sends an event when occupation is detected.
- “**.xVacantTrigger**” specifies whether the sensor sends an event when the detected occupation ceases.
- “**.xRepeatTrigger**” specifies whether the sensor sends a regular repetition of an event (dependent on “**bReportTime**”) when the state does not change. It is advisable to set this parameter so watchdog monitoring of the module will work.
- “**.xMovementTrigger**” specifies whether the sensor sends an event when a movement is detected.
- “**.xNoMovementTrigger**” specifies whether the sensor sends an event when no movement is detected.
- “**.rDeadtime**” specifies the dead time between two events.
- “**.wHoldTime**” specifies how long a movement signal should persist after the last detected movement.
- “**.bReportTime**” specifies the interval at which an event is repeated.

The “**xReady**” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “**xReady**” is FALSE.

If there is fault message at the “**bFeedback**” output, it can be acknowledged by a positive edge on the “**xQuit**” input. Only after the fault is acknowledged can the module execute a new action.

Note:

- It is advisable to read the configuration values out once before writing in order to make changes to the values provided.
- The “**typConfigDaliPresenceSensor.bEventScheme**” parameter is set to “2” during addressing. This value should not be modified in order to function correctly with WAGO components.

Locating the DALI Sensors (FbDalilIdentifySensor)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDalilIdentifySensor | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| xReplaceShortAddress | | BOOL | Replaces a short address with a different one |
| bCurrentShortAddress | | BYTE | Current sensor address |
| bNewShortAddress | | BYTE | New sensor address desired |
| xQueryShortAddresses | | BOOL | Search for available short addresses. |
| xIdentify | | BOOL | TRUE: Enable locate. FALSE: Disable locate. |
| xQuit | | BOOL | A positive edge acknowledges the fault message at the “bFeedback” output. |
| bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| | | | |
| Input/Output Parameter | | Data Type | Comment |
| axShortAddress | | ARRAY[0..63] OF BOOL | Displays available short addresses |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDalilIdentifySensor</div><div><div><div>xReplaceShortAddress</div><div>bCurrentShortAddress</div><div>bNewShortAddress</div><div>xQueryShortAddresses</div><div>xIdentify</div><div>xQuit</div><div>bModule_753_647</div><div>axShortAddress ▶</div></div><div><div>xReady</div><div>bFeedback</div></div></div></div> | | | |

Function Description:

The **FbDalIdentifySensor** function block serves to find available DALI standard sensors, to replace short addresses of DALI standard sensors, and to locate DALI standard sensors.

With a positive edge on the **“xReplaceShortAddress”** input, the short address on the **“bCurrentShortAddress”** input is replaced by the short address on the **“bNewShortAddress”** input.

The short address of the sensor whose address should be replaced or located is indicated on the **“bCurrentShortAddress”** input.

The desired short address that should replace the previous short address is indicated on the **“bNewShortAddress”** input.

In the event of a positive edge on the **“xQueryShortAddresses”** input, the DALI line on the **“.bModule_753_647”** input is checked for available DALI standard sensors. The result is displayed on the **“axShortAddress”** input.

Locate is started with a positive signal at the **“xIdentify”** input. The sensor with the address specified on the **“bCurrentShortAddress”** input draws attention to itself in a manufacturer-specific way.

The DALI Multi-Master Module with which this function block must communicate is selected at input **“bModule_753_647”**.

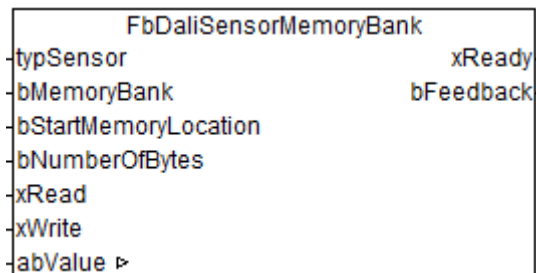
The short addresses of the available DALI standard sensors are listed on the **“axShortAddress”** input/output.

The **“xReady”** output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as **“xReady”** is FALSE.

If there is fault message at the **“bFeedback”** output, it can be acknowledged by a positive edge on the **“xQuit”** input. Only after the fault is acknowledged can the module execute a new action.

Reading and Writing of the Sensor Memory Banks (FbDaliSensorMemoryBank)

| WAGO-I/O-PRO Library Elements | | | |
|-------------------------------|--|---------------------------------------|---|
| Category: | | Building technology | |
| Name: | | FbDaliSensorMemoryBank | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | [Not used currently] Instance number of the function to be configured |
| bMemoryBank | | BYTE | Number of memory bank |
| bStartMemoryLocation | | BYTE | First memory address |
| bNumberOfBytes | | BYTE | Number of memory addresses Value range: 1 ... 64 |
| xRead | | BOOL | A positive edge initiates reading out of the memory bank. |
| xWrite | | BOOL | A positive edge initiates writing of the memory bank. |
| | | | |
| Input/Output Parameter: | | Data Type: | Comment: |
| abValue | | ARRAY [1..64] OF BYTE | Memory bank values |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xReady | | BOOL | TRUE: Module ready. FALSE: Module not ready, e.g., ongoing operation |
| bFeedback | | BYTE | Response byte (see Table 1 in the appendix) |
| | | | |

Graphical Illustration:**Function Description:**

The **FbDaliSensorMemoryBank** function block can be used to read and write the sensor (input device) memory banks.

The “**typSensor**” data type specifies the address of the sensor. The following inputs are required for this:

- “**.bAddress**” defines the address of the sensor.
- “**.bInstanceType**” specifies the instance type of the presence instance. This parameter is not currently used and can be ignored!
- “**.bInstanceNumber**” specifies the number of the presence instance that is to be configured. This parameter is not currently used and can be ignored!
- “**.bModule_753_647**” defines the DALI Multi-Master Module with which this function block must communicate.

The number of the memory bank into which data is written, or from which data is read is defined via the “**bMemoryBank**” input.

The first memory address that is assigned to the parameter to be edited is defined via the “**bStartMemoryLocation**” input.

The “**bNumberOfBytes**” input defines the number of memory addresses for the parameter.

On a positive edge at the “**xRead**” input, the contents of the memory bank defined via “**bMemoryBank**” are read.

On a positive edge at the “**xWrite**” input, content is written to the memory bank defined via “**bMemoryBank**”.

The memory bank values which are to be either read out via the “**xRead**” input or written via the “**xWrite**” input are saved in the input/output parameter “**abValue**”.

The “**xReady**” output signals whether the module is ready for operation. It can be assumed that no action will be performed by the function block as long as “**xReady**” is FALSE.

The output “**bFeedback**” outputs a numeric code with the response. Numeric codes are listed in Table 1 in the appendix.

Note:

- The “typSensor” structure can be created using the export function in the “WAGO DALI Configurator” and imported into WAGO I/O-PRO. This import function also ensures that the structure is automatically assigned the correct default settings.
- The password must be set at memory address 16#02 to enable writing of the memory banks. This password is: 16#55

02 Measured Values

DALI-2 Absolute Sensor with Query after Timeout (FbDaliAbsoluteSensorQuery)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliAbsoluteSensorQuery | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | Instance number of the function to be configured |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tWatchdog | | TIME | Absoulte sensor time monitoring Default setting: 5 min (t#0s = No watchdog monitoring) |
| bResolution | | BYTE | Bit resolution of the brightness value Default setting: 10 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| wAbsoluteLevel | | WORD | Current value from absoulte sensor |
| xError | | BOOL | Error message for missing sensor signal |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliAbsoluteSensorQuery</div><div><div>typSensor</div><div>wAbsoluteLevel</div><div>tWatchdog</div><div>bResolution</div><div>xError</div></div></div> | | | |

Function Description:

The **FbDaliAbsoluteSensorQuery** function block outputs the absolute value transmitted by a DALI standard sensor. The resolution of the sensor is taken into account by this function block.

The **"typSensor"** data type specifies the communication parameter of the absolute instance that is to be configured. The following inputs are required for this:

- **"bAddress"** defines the address of the sensor.
- **".bInstanceType"** specifies the instance type of the absolute instance. This parameter is not currently used and can be ignored!
- **".bInstanceNumber"** specifies the number of the absolute instance that is to be read out.
- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

On the **"tWatchdog"** input the presence of a absolute sensor is monitored. If no refresh signal is transmitted by the sensor within the set time period, an error message is issued at the **"xError"** output. The watchdog function can be deactivated using the value t#0s.

At the input **"bResolution"** the resolution of the absolute value is set (for example 16 bit)

The measured absolute value is signaled at the **"wAbsoluteLevel"** output.

The **"xError"** output is activated when the watchdog routine has been triggered.

DALI-2 Light Sensor (FbDaliLightSensor)

| WAGO-I/O-PRO Library Elements | | | |
|---|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliLightSensor | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | Instance number of the function to be configured |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tWatchdog | | TIME | Light sensor time monitoring Default setting: 5 min (t#0s = No watchdog monitoring) |
| | | | |
| Return Value: | | Data Type: | Comment: |
| wLightLevel | | WORD | Current row value from light intensity sensor |
| xError | | BOOL | Error message for missing sensor signal |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliLightSensor</div><div><div>typSensor</div><div>wLightLevel</div><div>tWatchdog</div><div>xError</div></div></div> | | | |

Function Description:

The **FbDaliLightSensor** function block outputs the light value transmitted by a DALI standard sensor. The resolution of the sensor is not taken into account in this function block.

The **“typSensor”** data type specifies the communication parameter of the light instance that is to be configured. The following inputs are required for this:

- **“bAddress”** defines the address of the sensor.
- **“bInstanceType”** specifies the instance type of the light instance. This parameter is not currently used and can be ignored!
- **“bInstanceNumber”** specifies the number of the light instance that is to be read out.
- **“bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

On the **“tWatchdog”** input the presence of a light sensor is monitored. If no refresh signal is transmitted by the sensor within the set time period, an error message is issued at the **“xError”** output. The watchdog function can be deactivated using the value t#0s.

The measured raw light value is signaled at the **“wLightLevel”** output.

The **“xError”** output is activated when the watchdog routine has been triggered.

DALI-2 Light Sensor with Query after Timeout (FbDaliLightSensorQuery)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliLightSensor | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | Instance number of the function to be configured |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tWatchdog | | TIME | Light sensor time monitoring Default setting: 5 min (t#0s = No watchdog monitoring) |
| bResolution | | BYTE | Bit resolution of the brightness value Default setting: 10 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| wLightLevel | | WORD | Current value from light intensity sensor [lx] |
| xError | | BOOL | Error message for missing sensor signal |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliLightSensorQuery</div><div><div>typSensor</div><div>wLightLevel</div><div>tWatchdog</div><div>xError</div><div>bResolution</div></div></div> | | | |

Function Description:

The **FbDaliLightSensorQuery** function block outputs the light value transmitted by a DALI standard sensor. The resolution of the sensor is taken into account by this function block.

The **"typSensor"** data type specifies the communication parameter of the light instance that is to be configured. The following inputs are required for this:

- **"bAddress"** defines the address of the sensor.
- **".bInstanceType"** specifies the instance type of the light instance. This parameter is not currently used and can be ignored!
- **".bInstanceNumber"** specifies the number of the light instance that is to be read out.
- **".bModule_753_647"** defines the DALI Multi-Master Module with which this function block must communicate.

On the **"tWatchdog"** input the presence of a light sensor is monitored. If no refresh signal is transmitted by the sensor within the set time period, an error message is issued at the **"xError"** output. The watchdog function can be deactivated using the value t#0s.

At the input **"bResolution"** the resolution of the brightness value is set (for example 16 bit)

The measured light value is signaled at the **"wLightLevel"** output.

The **"xError"** output is activated when the watchdog routine has been triggered.

DALI-2 Presence Sensor (FbDaliPresenceSensor)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliPresenceSensor | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | Instance number of the function to be configured |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tOffDelay | | TIME | Switch-off delay for the presence detector in the event that “STOP” event does not occur Default setting: 10 min |
| tWatchdog | | TIME | Light sensor time monitoring Default setting: 5 min (t#0s = No watchdog monitoring) |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xPresence | | BOOL | Current value of presence sensor |
| xError | | BOOL | Error message for missing sensor signal |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliPresenceSensor</div><div><div>typSensor</div><div>xPresence</div><div>tOffDelay</div><div>xError</div><div>tWatchdog</div></div></div> | | | |

Function Description:

The **FbDaliPresenceSensor** function block outputs the presence value transmitted by a DALI standard sensor.

The **“typSensor”** data type specifies the communication parameter of the presence instance that is to be configured. The following inputs are required for this:

- **“.bAddress”** defines the address of the sensor.
- **“.bInstanceType”** specifies the instance type of the presence instance. This parameter is not currently used and can be ignored!
- **“.bInstanceNumber”** specifies the number of the presence instance that is to be read out.
- **“.bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

The switch-off delay of the **“xPresence”** output after which the module is deactivated at the latest is given at the **“tOffDelay”** input. If the presence event is repeated within this period, the time monitoring starts again. The **“xPresence”** output is deactivated prematurely if there is a **“STOP”** event from the sensor. The default setting for this is 10 minutes.

On the **“tWatchdog”** input the presence of a presence sensor is monitored. If no refresh signal is transmitted by the sensor within the set time period, an error message is issued at the **“xError”** output. The watchdog function can be deactivated using the value **t#0s**.

The presence value transmitted is output on the **“xPresence”** output.

The **“xError”** output is activated when the watchdog routine has been triggered.

DALI-2 Push Button Sensor (FbDaliPushbuttonSensor)

| WAGO-I/O-PRO Library Elements | | | |
|---|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliPushbuttonSensor | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | Instance number of the function to be configured |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tWatchdog | | TIME | Light sensor time monitoring Default setting: 5 min (t#0s = No watchdog monitoring) |
| | | | |
| Return Value: | | Data Type: | Comment: |
| xButton | | BOOL | Current value of push button sensor instance |
| xError | | BOOL | Error message for missing sensor signal |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliPushbuttonSensor</div><div><div>typSensor</div><div>xButton</div></div><div><div>tWatchdog</div><div>xError</div></div></div> | | | |

DALI-2 Universal Sensor (FbDaliUniversalSensorQuery)

| WAGO-I/O-PRO Library Elements | | | |
|--|--|---------------------------------------|--|
| Category: | | Building technology | |
| Name: | | FbDaliUniversalSensorQuery | |
| Type: | | Function <input type="checkbox"/> | Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/> |
| Name of library: | | DALI_647_04.lib / DALI_647_PFC_04.lib | |
| Applicable to: | | See Release Note | |
| | | | |
| Input Parameter: | | Data Type: | Comment: |
| typSensor | | typSensor | DALI sensor address parameters |
| .bAddress | | BYTE | Address of the sensor |
| .bInstanceType | | BYTE | [Not used currently] Instance type of the function to be configured |
| .bInstanceNumber | | BYTE | Instance number of the function to be configured |
| .bModule_753_647 | | BYTE | Specifies which DALI Multi-Master Module is to be addressed at the controller; counting is performed from left to right. Default: 1 |
| tUpdateInterval | | TIME | Update interval for measured value Default setting: 10 s (t#1s = minimum t#0s = No watchdog monitoring) |
| bResolution | | BYTE | Bit resolution of the brightness value Default setting: 10 |
| | | | |
| Return Value: | | Data Type: | Comment: |
| wAbsoluteLevel | | WORD | Current value from sensor |
| xError | | BOOL | Error message for missing sensor signal |
| | | | |
| Graphical Illustration: | | | |
| <div><div>FbDaliUniversalSensorQuery</div><div><div>typSensor</div><div>dwValue</div><div>tUpdateInterval</div><div>xError</div><div>bResolution</div></div></div> | | | |

Function Description:

The **FbDaliUniversalSensorQuery** function block outputs the measured universal value transmitted by a DALI standard sensor. The resolution of the sensor is taken into account by this function block.

The **“typSensor”** data type specifies the communication parameter of the universal instance that is to be configured. The following inputs are required for this:

- **“bAddress”** defines the address of the sensor.
- **“bInstanceType”** specifies the instance type of the universal instance. This parameter is not currently used and can be ignored!
- **“bInstanceNumber”** specifies the number of the universal instance that is to be read out.
- **“bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

On the **“tUpdateInterval”** input the interval time for updating the universal sensor is monitored. The lower interval limit is t#1s. The update function can be deactivated using the value t#0s.

At the input **“bResolution”** the resolution of the universal value is set (for example 16 bit)

The measured universal value is signaled at the **“dwValue”** output.

The **“xError”** output is activated when the sensor did not answer.

Function Description:

The **FbDaliPushbuttonSensor** function block outputs the push button value transmitted by a DALI standard sensor.

The **“typSensor”** data type specifies the communication parameter of the light instance that is to be configured. The following inputs are required for this:

- **“.bAddress”** defines the address of the sensor.
- **“.bInstanceType”** specifies the instance type of the push button instance. This parameter is not currently used and can be ignored!
- **“.bInstanceNumber”** specifies the number of the push button instance that is to be read out.
- **“.bModule_753_647”** defines the DALI Multi-Master Module with which this function block must communicate.

On the **“tWatchdog”** input the presence of a light sensor is monitored. If no refresh signal is transmitted by the sensor within the set time period, an error message is issued at the **“xError”** output. The watchdog function can be deactivated using the value t#0s.

The transmitted push button value is signaled at the **“xButton”** output.

The **“xError”** output is activated when the watchdog routine has been triggered.

Appendix

Numeric code “bFeedback”

Table 1

| Feedback from the I/O module | |
|-----------------------------------|---|
| 0 | OK |
| 1 | The last command sent is not supported by the I/O module. |
| 2 | Invalid command |
| 3 | No virtual group exists, or the maximum number of slaves has been exceeded |
| 4 | Several devices respond at the same time (frame error). |
| 5 | No response from the electronic control gear (timeout) / I/O module is temporarily unable to execute the command (overlapping processes). |
| 6 | Internal error in the sequence number |
| 7 | Intermediate messages (e.g. Specify new short address). |
| 8 | Function aborted. (e.g. addressing terminated prematurely). |
| 9 | The I/O module has checked the command for plausibility and rejected the command. |
| 10 | Command couldn't be transmitted. |
| 11 | Internal database is invalid. |
| 12 | Error when copying to the I/O module database |
| 13 | Input buffer in the I/O module is full |
| 14 | Status signal from the I/O module |
| 15 | Non-addressed devices on the DALI bus |
| 16 | Not all electronic control gears could be addressed. Addressing must be restarted. |
| 17 | Transmission buffer in the I/O module is full |
| 18 | Error in “leading” controller |
| 19 | Incorrect sequence ID |
| 20 | Modul identification failed (e.g. no DALI module found) |
| 21 | Unaddressed device couldn't be addressed |
| 22 | Command couldn't be transmitted due to a short circuit on the DALI bus. |
| 23 | Quiescent Mode active. The DALI module may not send any command. |
| 24 | Error during writing the serial number |
| 25 | Number of read values is invalid. |
| 26 | Application controller disabled. The DALI module may not send any command. |
| 50 | Communication error inside the DALI module |
| Feedback from the function blocks | |
| 100 | Wrong address (short or group address) |
| 101 | Global reset, or “Watchdog” has triggered. |
| 102 | Mailbox error |
| 103 | DALI Multi-Master Module not recognized (e.g. master module was not called up, no DALI Multi-Master Module connected) |
| 105 | Short circuit on the DALI line |
| 106 | Power down > 40 ms |
| 107 | Electronic control gears already selected (physical selection). |
| 108 | Mailbox could not be initialized. |
| 109 | Invalid command |
| 110 | External access by the WAGO DALI Configurator |
| 111 | Unknown firmware |
| 112 | Function not supported by the I/O module. |

| | |
|---------------------------|--|
| 113 | Power down > 550 ms (System Failure Level) |
| 114 | DALI network query active |
| 150 | Instance 0 error |
| 151 | Instance 1 error |
| 152 | Instance 2 error |
| 153 | Instance 3 error |
| 154 | Instance 4 error |
| 155 | Instance 5 error |
| 156 | Instance 6 error |
| 157 | Instance 7 error |
| 158 | Instance 8 error |
| 159 | Instance 9 error |
| 160 | Instance 10 error |
| 161 | Instance 11 error |
| 162 | Instance 12 error |
| 163 | Instance 13 error |
| 164 | Instance 14 error |
| 165 | Instance 15 error |
| 166 | Instance 16 error |
| 167 | Instance 17 error |
| 168 | Instance 18 error |
| 169 | Instance 19 error |
| 170 | Instance 20 error |
| 171 | Instance 21 error |
| 172 | Instance 22 error |
| 173 | Instance 23 error |
| 174 | Instance 24 error |
| 175 | Instance 25 error |
| 176 | Instance 26 error |
| 177 | Instance 27 error |
| 178 | Instance 28 error |
| 179 | Instance 29 error |
| 180 | Instance 30 error |
| 181 | Instance 31 error |
| Feedback from the mailbox | |
| 200 | OK |
| 201 | Mailbox is not ready yet. |
| 202 | Invalid command |
| 203 | Invalid configuration |
| 204 | Service rejected |
| 205 | Buffer full |
| 206 | Unexpected error on the I/O module side |
| 207 | General error |

Command Set for FbDaliControlGearCommands

Table 2

| Indirect control commands of the lamp power | | |
|---|-------------|----------------|
| Command | wCommand | bSpecial Value |
| OFF | 0 | - |
| UP | 1 | - |
| DOWN | 2 | - |
| STEP UP | 3 | - |
| 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 | - |
| RESERVED | 10 - 15 | - |
| GO TO SCENE | 16 - 31 | - |
| Configuration commands | | |
| RESET | 32 | - |
| STORE ACTUAL LEVEL IN THE DTR | 33 | - |
| RESERVED | 34 - 41 | - |
| STORE THE DTR AS MAX LEVEL | 42 | - |
| STORE THE DTP 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 | - |
| RESERVED | 48 ... 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 | - |
| QUERY CONTROL GEAR | 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 | - |
| RESERVED | 158 ... 159 | - |
| QUERY ACTUAL LEVEL | 160 | - |
| QUERY MAX LEVEL | 161 | - |
| QUERY MIN LEVEL | 162 | - |
| QUERY POWER ON LEVEL | 163 | - |
| QUERY SYSTEM FAILURE LEVEL | 164 | - |
| Query commands | | |

| | | |
|---------------------------------|-------------|-------------|
| QUERY FADE TIME / FADE RATE | 165 | - |
| RESERVED | 166 ... 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 commands | | |
| 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 | - |
| RESERVED | 262 ... 263 | - |
| SEARCHADDRH | 264 | VALUE |
| SEARCHADDRM | 265 | VALUE |
| SEARCHADDRL | 266 | VALUE |
| PROGRAM SHORT ADDRESS | 267 | - |
| VERIFY SHORT ADDRESS | 268 | - |
| QUERY SHORT ADDRESS | 269 | - |
| PHYSICAL SELECTION | 270 | - |
| RESERVED | 271 | VALUE |
| 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 |

Command Set for FbDaliMacroCommands

Table 3

| 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). |
| 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] | Reserve |
| abParameter[3] | Address of second command (based on IEC 62386) |
| abParameter[4] | Second DALI command |
| abParameter[5] | Reserve |
| 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 I/O 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 |
| 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 when 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 = No check of values 1 = Check whether min./max. values have been reached. |
| | 6.7 Reserve |
| 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] | Short address status 0 ... 7 (bit coded) | |
| abValues[2] | Short address status 8 ... 15 (bit coded) | |
| abValues[3] | Short address status 16 ... 23 (bit coded) | |
| abValues[4] | Short address status 24 ... 31 (bit coded) | |
| abValues[5] | Short address status 32 ... 39 (bit coded) | |
| abValues[6] | Short address status 40 ... 47 (bit coded) | |
| abValues[7] | Short address status 48 ... 55 (bit coded) | |
| abValues[8] | Short address status 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] | 64th 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 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 I/O module database to EEPROM | |
| Send | |
| abParameter[0] | No significance |
| Receive | |
| abValues[0] | Macro used |
| Macro 16 | |
| Read I/O 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 out I/O module registers | |
| Send | |
| abParameter[0] | First register to read |
| abParameter[1] | Number of registers to read (max. 16) |
| Receive | |
| abValues[0] | Macro used |
| abValues[1] | Register value 1 (MSB) |
| abValues[2] | Register value 1 (LSB) |
| | And more... |
| abValues[31] | Register 16 (MSB) |
| abValues[32] | Register 16 (LSB) |
| | |
| Macro 24 Write I/O module registers | |
| 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] | Reserve |
| 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 = Reserve 1 = Software Reset 2 = Bus Reset | |
| 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] | Length (max. 64) | |
| abParameter[2] | Index | |
| | 0 | Short address of electronic control gear |
| | 1 | Group 0 ... 7 of the electronic control gear (bit-encoded ² response) |
| | 2 | Group 8 ... 15 of the electronic control gear (bit-encoded ² response) |
| | 3 | Current status of the electronic control gear |
| | 4 | Current dimming value for the electronic control gear |
| | 5 | Dimming value of the electronic control gear on loss of the DALI bus |
| | 6 | Switch-on dimming value of the electronic control gear |
| | 7 | Minimum dimming value for the electronic control gear |
| | 8 | Maximum dimming value for the electronic control gear |
| | 9 | Minimum physical dimming value for the electronic |
| | 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 ³ |
| | 28 | Operating hours for a light, Middle Byte |
| | 29 | Operating hours for a light, High Byte |
| | 30 | Virtual groups 24 ... 31 for the electronic control gear |
| 31 | Virtual groups 16 ... 23 for the electronic control gear | |

² Response byte: "00000111" → Example of Index 1: The electronic control gear contains groups "0", "1" and "2".

³ DWORD: Undef. High byte Middle Byte Low byte

| Receive | |
|-----------------|----------------------|
| abValues[0] | Number of bytes read |
| abValues[1..65] | Data |
| | |

Factory Set Device Parameters

Table 4

| Parameters | Default Value |
|-------------------------------------|---------------------------|
| Min. value | Physically smallest value |
| Max. value | 100 % |
| Fade rate | 7 |
| Fade time | 0 |
| Switch-on value of the power supply | 100 % |
| System failure level | 100 % |
| Group assignment | All deleted |
| Scene values | No scene defined |

Fade Time and Fade Rate

Table 5

| Value | Fade time [s] | Fade rate [fades/s] |
|-------|---------------|---------------------|
| 0 | < 0.707 | not applicable |
| 1 | 0.707 | 357.796 |
| 2 | 1.000 | 253.000 |
| 3 | 1.414 | 178.898 |
| 4 | 2.000 | 126.500 |
| 5 | 2.828 | 89.449 |
| 6 | 4.000 | 63.250 |
| 7 | 5.657 | 44.725 |
| 8 | 8.000 | 31.625 |
| 9 | 11.314 | 22.362 |
| 10 | 16.000 | 15.813 |
| 11 | 22.627 | 11.181 |
| 12 | 32.000 | 7.906 |
| 13 | 45.255 | 5.591 |
| 14 | 64.000 | 3.953 |
| 15 | 90.510 | 2.795 |



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