DGN/S 1.16.1 Emergency lighting
Test functions and status messages

GPG BUILDING AUTOMATION

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Introduction

With the DGN/S 1.16.1 it is also possible to control devices with emergency converters. This document describes the most important test functions and the related communication objects. General notes on emergency lighting control are also listed in this document.

Objectives of the document

- The following description should help the programmer to use the test and status objects correctly.
- Additional important content like code tables or information about the communication objects are listed in the product manual.

Content

Product: DGN/S1.16.1

DALI Gateway with Emergency Lighting Control, 1-fold, 16Group, MDRC

For controlling DALI devices via the ABB i-bus®. 64 DALI Slaves, self contained emergency converter acc. EN 62386-202 will be supported. The control and status feedback happens via KNX with 16 lighting groups. Scene-, Slave-, Staircase- and Sequence-fct.

1. Emergency test trigger and test status

31	DALI Output	Emergency test trigger	2 Byte

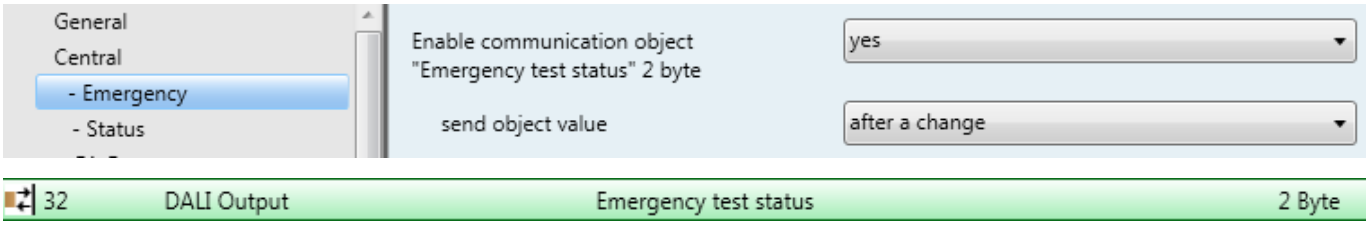
This communication object is always visible. It serves the targeted launch an emergency lighting test. The test is coded directly to a participant and executed.

The communication object consists of two bytes.

- The high byte contains in coded form, which kind of emergency test will be started.
- The low byte contains the number of the participant who should be triggered
  „ address byte „ Value +1 results the Dali participant.

A direct feedback, which test was triggered to which participant, would be reported by the emergency test status.

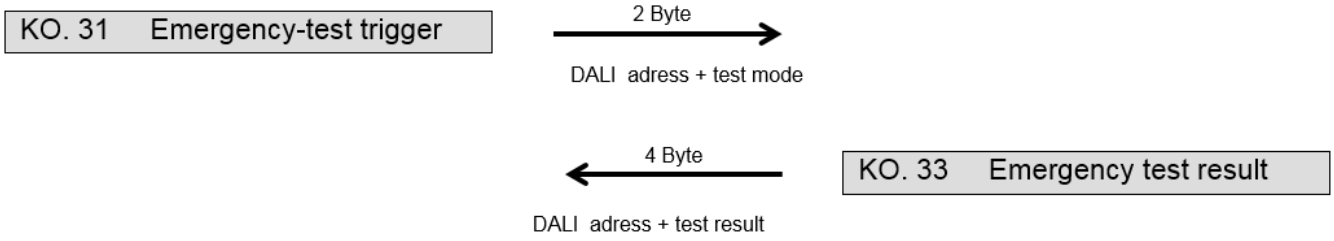
The status was also coded as the emergency test trigger

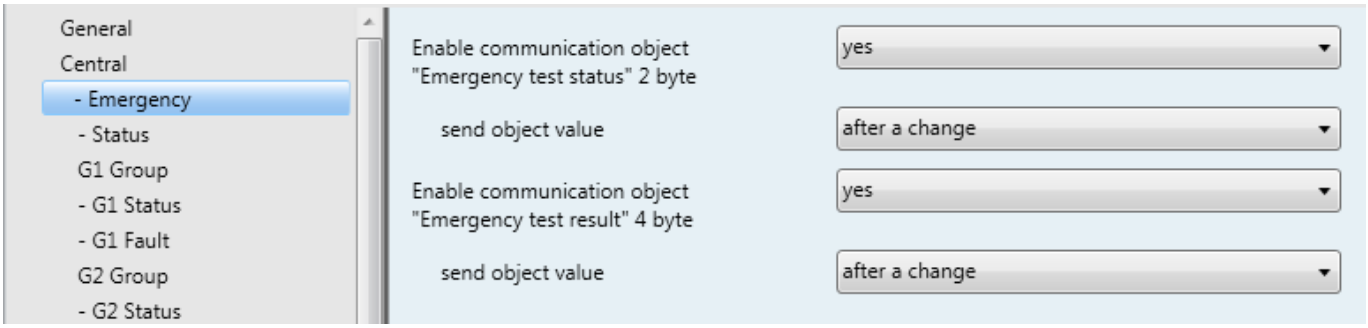


It is also possible to query an emergency light test status. The bit no.7 must be set to 1 in the low byte (address byte).

2. Result of the participant in detail after emergency test

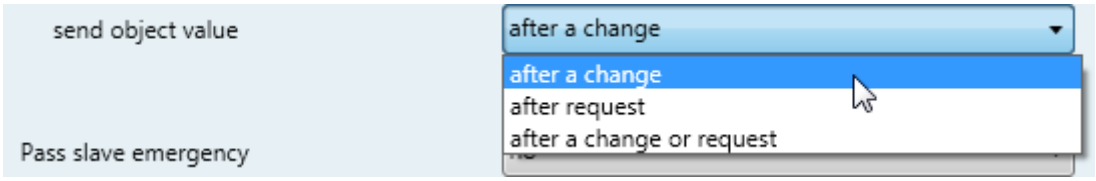
The ultimate result of the triggered emergency test, could be reported detailed for the addressed participant by enabling the 4 byte results of emergency lighting test.





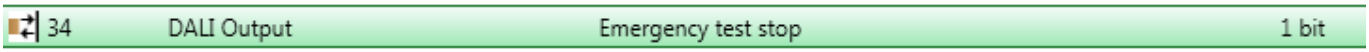
This kind of test result consists of a 4 byte object. Very detailed information concerning the actual converter are included in these 4 bytes. This applies once the latest triggered emergency test mode as well as the detailed test result of the appropriate converter.

The send behavior from object 32 „emergency test status“ and object 33 „emergency test result“ can be influenced by a parameter setting.



3. Manually ending of an emergency lighting test

Emergency tests can be stopped also targeted.



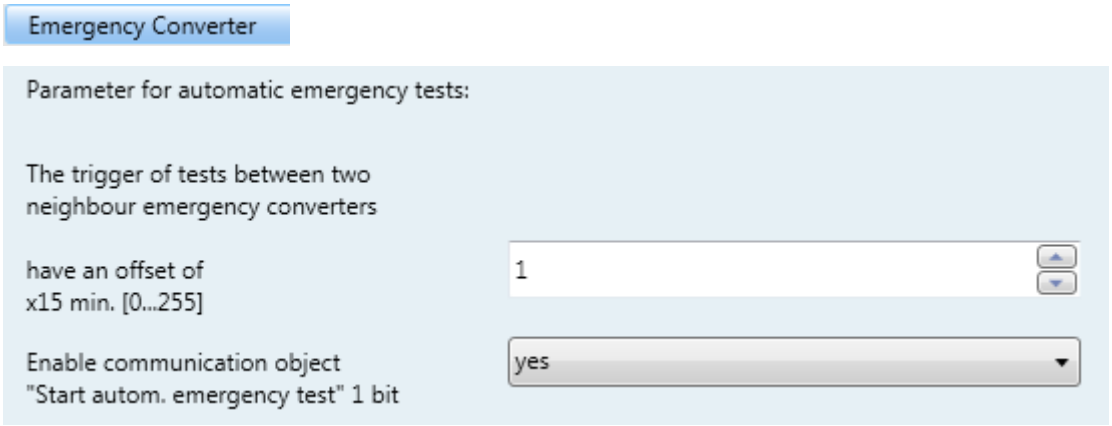
This object provides the possibility to stop all active and pending emergency lighting tests with the value = 1

A restart of stopped emergency lighting tests, is not supported on this object.

4. Activate automatic emergency lighting test

An automatic emergency lighting test for all to the gateway connected participants can be activated by object 36.

Parameters:



36	Converter 1...64	Start autom. emergency test	1 bit

1 = automatic emergency test start

0 = automatic emergency test stop

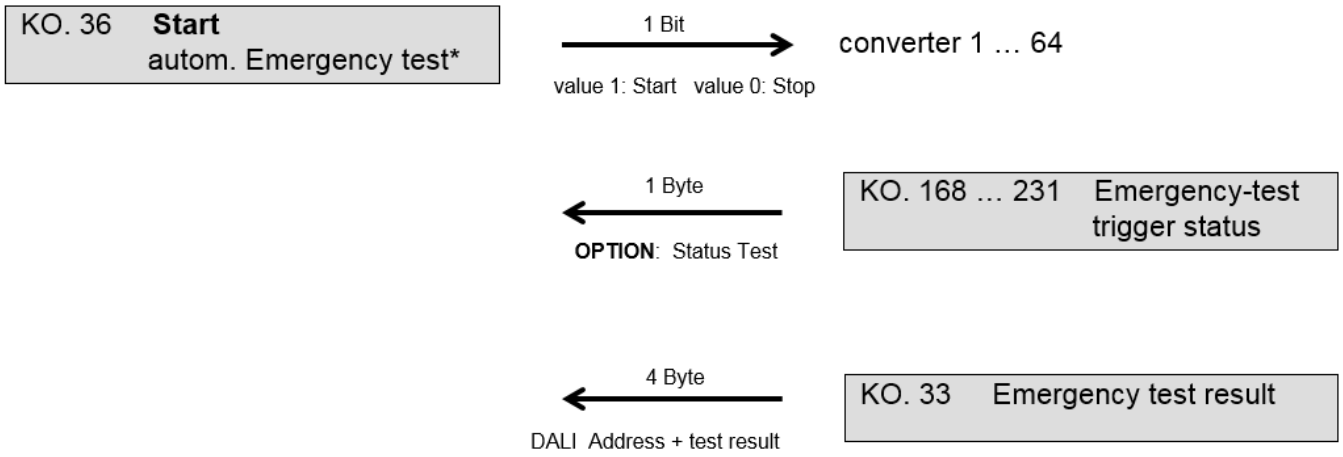
There is only the possibility to start an automatic emergency lighting test.

The start of the actual emergency lighting test is performed by the converters itself. The converter itself will decide depending on the internal conditions (e.g. battery status) when the test is started.

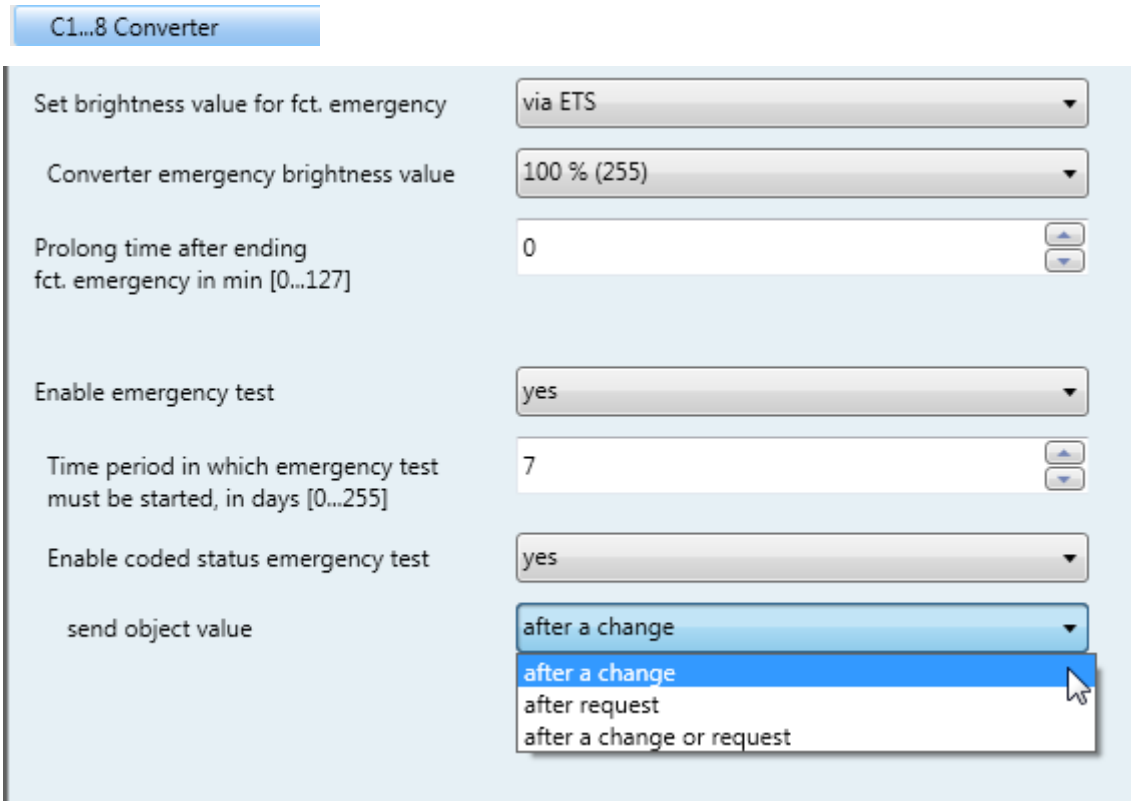
The emergency lighting converter itself, never together conduct an emergency lighting test. The test will always run according to a particular algorithm.

„Dali short address multiplied with the offset in 15 minutes steps“

Note! By using value = 0 for the offset, all converters are able to start the emergency lighting test at the same time.



5. Details of converter



Several settings are required in the parameters of the emergency lighting converters.

Prolong Time:

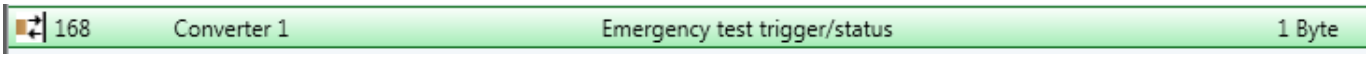
Overrun time in minutes in which the converter remains in the emergency test with the set value of brightness before it is for KNX commands released again.

Time period in which emergency test must be started:

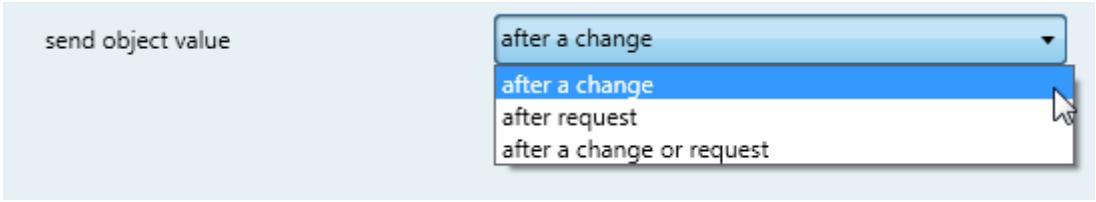
The emergency lighting test can't be guaranteed. The start of the testing is only a flag that the test should be started as soon as possible by the converter itself. Is this not possible, because of a technical reason the request remains unchanged. The test begins at the earliest possible date. Time period is entered in days!

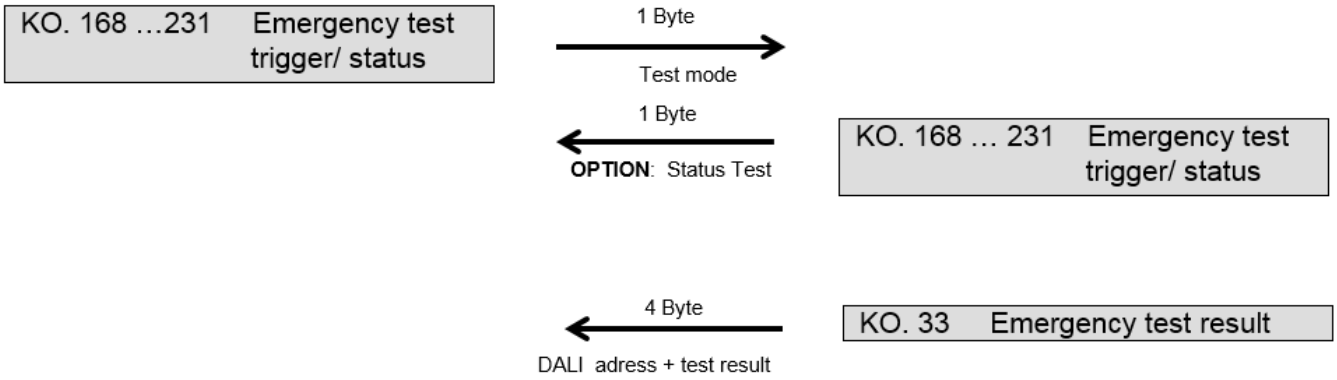
Coded status message for Emergency lighting test "Converter":

This status message refers to individual converters in 1 byte code. The emergency lighting test for each converter could be triggered separately.
„Starting the converters together and get individual status for each converter"
Practically, this can be implemented with another group address standing at the sending point on object.



The sending behavior by e.g. object 168 „ converter 1 emergency test trigger/status“ can be influenced by parameter settings.





6. Differences between the test types

Function test:

The function test is undertaken by the emergency lighting converter itself. The function test is requested at a parameterizable interval in the emergency lighting converter or by a KNX communication object. The functional security of the emergency lighting converter electronics and correct operation of a lamp and a switch-over device for an individual battery are tested.

Duration test:

The duration test is implemented on the basis of the IEC 62 386-202 and is used to determine whether the individual battery of the system is within the limits of the rated operating duration in emergency lighting operation.

Partial duration test:

The partial duration test is controlled with the aid of the duration test of the DALI device by the Gateway.

This is possible as a partial duration test is not stipulated or described by the standards. It simply offers an additional and enhanced possibility for operation readiness of emergency lighting in a simple and time efficient way without completely discharging the battery.

7. Important instructions

In order to guarantee correct evaluation of a ballast fault, the DGN/S has to know how many ballasts are to be monitored. This is implemented by one-time activation of the communication object Detect ballasts (no. 28). Using this function, the DGN/S independently determines which ballasts (DALI devices / DALI addresses) are connected and uses this state as a reference value. Here not only the number but also the address of the DALI device is registered. If this system has to be modified, the option Detect ballasts should be activated.

The process does not need to be repeated when exchanging a DALI device with the same address.

The new DALI device receives the old DALI address and assumes the position of the DALI device it replaced. All parameters from the ballast side will be also assumed.

The function Detect ballasts can be triggered not only via the communication object “Detect ballasts” but also manually by pressing the button on the front side of the device for more than five seconds. Furthermore, this function can be triggered by the DALI-Software-Tool via button Detect ballasts in the window Options.

8. Application note:

A management level is essential to ensure a detailed evaluation of this emergency information and to provide a temporal test cycle. Usually visualizations can provide this level of management.

In advance, it is imperative to check whether the used DALI emergency lighting converter match the Type 1 part 202 of the DALI Norm. Only then, it can be guaranteed that all reports and tests are also be supported.

References to other documents

- Home and Building Automation
- FAQ Home and Building Automation
- FAQ DALI
- Engineering Guide Database