CiA® 417

Application profile for lift control systems

Part 4: Detailed application object specification

Version: 2.0.0
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HISTORY

Date	Changes
2003-07-15	*Publication of version 1.0* as draft standard proposal
2010-02-01	*Publication of version 2.0* as draft standard proposal NOTE: Version 2.0 is partly incompatible to version 1.0
2011-02-02	*Publication of version 2.0.0* as public specification NOTE: This document has been converted into “docx format”. The conversion caused minor layout differences to the predecessor document in “doc format”. The technical content word-by-word is the very same.

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CONTENTS

1 Scope

This set of CANopen application profile specifications describes the *CANopen Lift* control network system. It specifies the CANopen communication interfaces and the application functionality of several functional elements (virtual devices).

This application profile specification consists of several parts:

- Part 1 provides general definitions
- Part 2 specifies the functionality of the virtual devices
- Part 3 specifies the pre-defined PDOs
- Part 4 specifies the application objects

This part specifies in detail the used process data, configuration parameter, and diagnostic information represented in the object dictionary for the lift 1 application.

2 Normative references

The normative references given in part 1 apply for this part, too.

In addition, the following references apply:

/CiA402-2/ CiA 402-2, CANopen drives and motion control device profile – Part 2: Operation modes and application data

/CiA406/ CiA 406, CANopen device profile encoder

3 Definitions, acronyms, and abbreviations

3.1 General

The definitions, acronyms, and abbreviations given in part 1 apply for this part, too.

3.2 Definitions

3.2.1 field

part of a structured parameter

3.2.2 sub-field

part of a structured field

4 Object dictionary

4.1 General

Most of the application parameters (process data and configuration data) in the object dictionary range 6000_h to $9FFF_h$ dedicated to virtual device functions. Some others are generic for the CANopen device and are not related to any virtual device function. For details see /CiA417-2/.

The attributes used in the *Object description, and* the *Entry description* are specified in /CiA301/. The *Category* and *Entry category* attributes indicate, if the object shall be implemented (Mandatory) or may be implemented (Optional); the detailed specification is given in part 2 of this application profile.

The *Access* attribute is different for a device, which provides this objects by means of producer functionality (*ro* or *const*) or for devices, which consume this object via PDO or SDO (*rw or wo*). The detailed specification is given in part 2 of this application profile.

The *Default value* attribute defines the value of an object with Access attribute of the value *wo, rw or const* after power-on. The detailed specification is given in part 2 of this application profile.

4.2 Complex data type definitions

No profile-specific complex data type is specified.

4.3 General application objects

4.3.1 Object 6000_h: Supported virtual device types

This object shall provide, which virtual devices are implemented in the CANopen device (multiple virtual devices). The object structure and value definition shall be compliant to the additional information field in object 1000_h (see /CiA417-2/). Table 1 specifies the object description, and Table 2 specifies the entry description.

Table 1 – Object description

Attribute	Value
Index	6000_h
Name	Supported virtual device types
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 2 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported virtual devices
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Virtual device type 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA417-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Virtual device type 2
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA417-2/
Default value	See / CiA417-2/

Sub-index	03_h
Description	Virtual device type 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA417-2/
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Virtual device type 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA417-2/
Default value	See /CiA417-2/

4.3.2 Object 6001_h: Lift number

This object shall contain the number of the lifts, to which that device is assigned. A device that represents several lifts shall set the corresponding bits.

Figure 1 specifies the object structure. Table 3 specifies the object description, and Table 4 specifies the entry description.

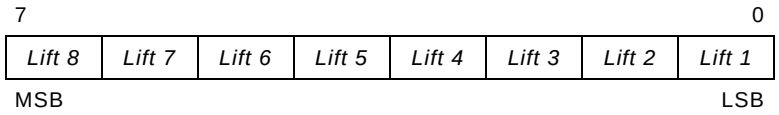

Figure 1 – Object structure of the lift number

If the *lift* field is 0_b, the corresponding lift application is not supported; if the bit is 1_b, the corresponding lift application is supported. This object is normally used only for information purposes.

If this object is used to offset the implemented parameters, the indexes shall be shifted by an offset of minus 1 multiplied by 800_h.

Example: If the *Lift 3* bit is set to 1_b, all parameters are offset by $+1000_h$.

NOTE If a device is connected to a dedicated lift application (e.g. car drive unit), it refuses to set more than one bit to 1_b.

Table 3 – Object description

Attribute	Value
Index	6001_h
Name	Lift number
Object Code	VAR
Data Type	Unsigned8
Category	See /CiA417-2/

Table 4 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO Mapping	No
Value Range	UNSIGNED8
Default Value	See /CiA417-2/

4.3.3 Object 6002_h: Floor number

This object shall indicate if it is a car panel or a floor panel. The object is for information purpose only. The value of 00_h shall indicate car panels, the value of 01_h to FE_h shall indicate the floor 1 to 254, and the value of FF_h shall indicate that this panel is not assigned to any location (not valid/not used).

Table 5 specifies the object description, and Table 6 specifies the entry description.

Table 5 – Object description

Attribute	Value
Index	6002_h
Name	Floor number
Object code	VAR
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 6 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED8
Default value	See /CiA417-2/

4.3.4 Object 6003_h: Car door number

This object shall contain the number of the door the device is assigned to. A device that represents several doors shall set the corresponding *door* bits to 1_b. Figure 2 specifies the object structure.

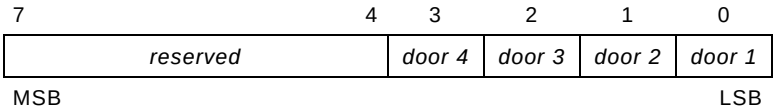

Figure 2 – Object structure of car door number

Table 7 specifies the object description, and Table 8 specifies the entry description.

Table 7 – Object description

Attribute	Value
Index	6003_h
Name	Car door number
Object code	VAR
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 8 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 2 and value definition
Default value	See /CiA417-2/

4.3.5 Object 6005_h: Lock/unlock parameters

This object shall lock sets of parameters against unindended SDO write access. The 16-bit passwords to unlock the parameters are manufacturer-specific. To lock the configuration, the value of $FFFF_h$ shall be written. The sub-index 01_h shall lock and unlock all parameters (e.g. to prohibit/allow firmware updates). The sub-index 02_h shall lock and unlock the basic configuration parameters. The sub-index 03_h shall lock and unlock all parameters, which are necessary for service and maintainance purposes. The sub-index 04_h shall lock and unlock all safety confirguration parameters. The other sub-indexes are used manufacturer-specific.

By SDO read access, all sub-indexes shall provide the information, if the related parameters are locked ($FFFF_h$) or unlocked (0000_h).

Table 9 specifies the object description, and Table 10 specifies the entry description.

Table 9 – Object description

Attribute	Value
Index	6005_h
Name	Lock/unlock parameters
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 10 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of highest sub-index
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h *to* 08_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Firmware update
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	02_h
Description	Basic parameters
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	03_h
Description	Service parameters
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	04_h
Description	Safety parameters
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	05_h
Description	Manufacturer-specific parameter set 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

Sub-index	08_h
Description	Manufacturer-specific parameter set 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.3.6 Object 6008_h: Specification version

This object shall contain the profile specification version, which is implemented. Figure 3 specifies the object structure. The *binary coded decimal (BCD)* code shall be used.

Example: *PDO mapping* – $0001\ 0000_b$ = version 1.0
Parameters – $0010\ 0000_b$ = version 2.0

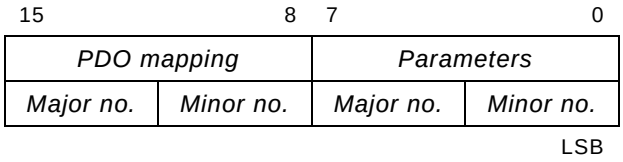

Figure 3 – Object structure of the specification version

Table 11 specifies the object description, and Table 12 specifies the entry description.

Table 11 – Object description

Attribute	Value
Index	6008_h
Name	Specification version
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 12 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See value definition
Default value	See /CiA417-2/

4.3.7 Object $600A_h$: Virtual terminal interface

This object shall produce and/or consume four characters. It is intended to transmit the sub-objects in MPDOs. Figure 4 specifies the object structure. The *characters* shall be as defined in /CiA417-1/.

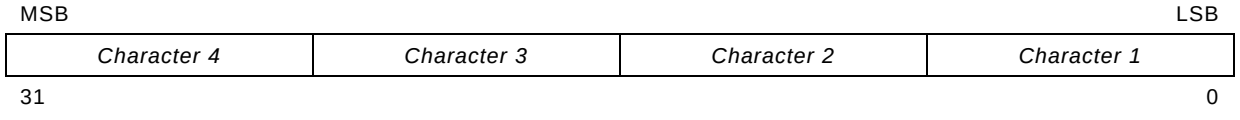

Figure 4 – Object structure of virtual terminal interface

Table 13 specifies the object description, and Table 14 specifies the entry description.

Table 13 – Object description

Attribute	Value
Index	$600A_h$
Name	Virtual terminal interface
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 14 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of highest sub-index
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Virtual terminal input (consumes characters e.g. from keyboards)
Entry category	See /CiA417-2/
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA417-1/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Virtual terminal output (provides characters e.g. for displays)
Entry category	See /CiA417-2/
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA417-1/
Default value	See /CiA417-2/

4.3.8 Object 6010_h: Virtual input mapping

This object shall contain the input data from one of the digital input group objects, which shall be transmitted as the very next.

This object shall use the very same object structure and values as defined for the input group objects (6100_h *to* $611F_h$).

Table 15 specifies the object description, and Table 16 specifies the entry description.

Table 15 – Object description

Attribute	Value
Index	6010_h
Name	Virtual input mapping
Object code	VAR
Data type	UNSIGNED48
Category	See /CiA417-2/

Table 16 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See object 6100_h
Default value	See /CiA417-2/

4.3.9 Object 6011_h: Virtual output mapping

This object shall contain the output data to be mapped into the digital output group objects, which has been received last.

This object shall use the very same object structure and values as defined for the output group objects (6200_h *to* $621F_h$).

Table 17 specifies the object description, and Table 18 specifies the entry description.

Table 17 – Object description

Attribute	Value
Index	6011_h
Name	Virtual output mapping
Object code	VAR
Data type	UNSIGNED48
Category	See /CiA417-2/

Table 18 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See object 6200_h
Default value	See /CiA417-2/

4.3.10 Object 6020_h: Enable and disable objects

This object shall be used to enable or to disable application parameters in the range of 6000_h to $9FFF_h$. An attempt to enable an application parameter that is not supported by the device shall be aborted (SDO abort code: 0609 0030_h or 0800 0000_h). An attempt to enable an application parameter while no more resources are left shall be aborted (SDO abort code: 0504 0005_h or 0800 0000_h). The enabled and disabled objects shall be activated respectively deactivated after NMT application reset.

A read access shall return the last successful enabled or disabled object. An *index* field value of 0 shall indicate that no application parameter has been enabled or disabled.

Figure 5 specifies the object structure. Table 19 specifies the *access* field values, and Table 20 specifies the *action* field values.

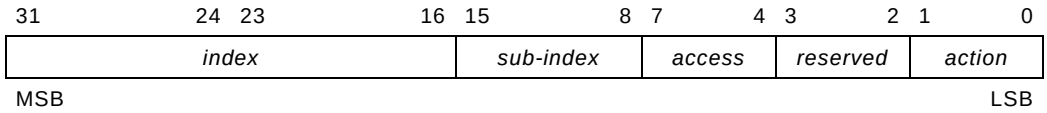

Figure 5 – Object structure of object creation

Table 19 – Value definition of the *access* field

Value	Definition
0000_b	access as specified in the specification (default)
0100_b	read only (ro)
1000_b	write only (wo)
1100_b	read/write (rw)
1101_b	constant (const)

Table 20 – Value definition of the *action field*

Value	Definition
00_b	reserved
01_b	Enable object at given index/sub-index
10_b	Disable object at given index sub-index
11_b	reserved

Table 21 specifies the object description, and Table 22 specifies the entry description.

Table 21 – Object description

Attribute	Value
Index	6020_h
Name	Object creation
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 22 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 5, Table 19, and Table 20
Default value	See /CiA417-2/

4.4 Virtual device specific objects

4.4.1 Object 6100_h *to* $611F_h$: Input group 1 *to* 32

These objects shall contain data of the state, the assigned function and the function-depended parameters of a digital input group. Every sub-index represents a single digital input. Every input group comprises up to 254 inputs. There may be addressed up to 32 x 254

digital inputs per lift-control application. If eight lift-control applications are implemented, there are available system-wide 65024 digital inputs.

If the input changes, the application shall store the state of the virtual input in the corresponding sub-index and shall map the input data into the virtual input mapping object (6010_h).

Figure 6 specifies the object structure.

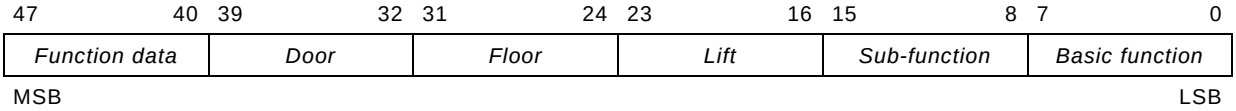

Figure 6 – Object structure

- ***Basic function* field description**

Table 23 specifies the *basic function* field values.

Table 23 – Value definition of the *basic function* field

Value	Description
00_h	reserved
01_h	Generic input
02_h	Standard hall call request
03_h	Low priority hall call request
04_h	High priority hall call request
05_h	Standard car call request
06_h	Low priority car call request
07_h	High priority car call request
08_h	Standard destination call
09_h	Low priority destination call
$0A_h$	High priority destination call
$0B_h$	Standard call to destination floor
$0C_h$	Low priority call to destination floor
$0D_h$	High priority call to destination floor
$0E_h$	Special function
$0F_h$	Access code upload request
10_h	Speech connection request
11_h	Area monitoring connection request
12_h	Fire detector
13_h *to* $1F_h$	reserved
20_h	Guest call
21_h *to* $7F_h$	reserved
80_h *to* FF_h	Manufacturer-specific

- ***Sub-function* field description**

The *sub-function* field is interpreted depending of the *basic function* field value. If the *basic function* field = 01_h, the values of the *sub-function* field shall indicate generic inputs (01_h = input 1, 02_h = input 2, etc.). The values 00_h and FF_h shall be reserved.

If the *basic function* field = 02_h *to* 04_h (hall call), the *sub-function* field shall use the definition given in Table 24.

Table 24 – Value definition of the *sub-function* field for hall calls

Value	Description
00_h	reserved
01_h	Hall call up
02_h	Hall call down
03_h	Hall call
04_h	Hall call extra up
05_h	Hall call extra down
06_h	Hall call extra
07_h *to* FF_h	reserved

If the *basic function* field = 05_h to $0D_h$, the *sub-function* field value shall use the definition given in Table 25.

Table 25 – Value definition of the *sub-function* field for calls

Value	Description
00_h	reserved
01_h *to* FE_h	Floor number 1 *to* 254
FF_h	Reserved

If the *basic function* field = $0E_h$, the *sub-function* field shall use the definition given in Table 26.

Table 26 – Value definition of the *sub-function* field for special functions

Value	Description
00_h	reserved
01_h	Request fan 1
02_h	Request fan 2
03_h	Request load time 1
04_h	Request load time 2
05_h	Key lock 1
06_h	Key lock 2
07_h	Key lock 3
08_h	Key lock 4
09_h	Request door open
$0A_h$	Request door close
$0B_h$	Fire service enable
$0C_h$	Fire service
$0D_h$	Hall call disable

Value	Description
$0E_h$	Attendant service
$0F_h$	VIP service
10_h	Out of order
11_h	Bed passenger service
12_h	Special service
13_h	Service run
14_h	Dogging service enable
15_h	Dogging service up
16_h	Dogging service down
17_h	Case of fire
18_h	Provide priority
19_h	Lift attendant start button
$1A_h$	Lift attendant drive through button
$1B_h$	Security run
$1C_h$	Second call panel
$1D_h$	Door enable
$1E_h$	Call cancel button fire operation
$1F_h$	Case of fire reset
$1F_h$ *to* FF_h	reserved

If the *basic function* field = $0F_h$ *to* 11_h, the values of the *sub-function* field are not yet defined, it shall be set to FF_h.

If the *basic function* field = 12_h (fire detector), the *sub-function* field shall use the definition given in Table 27.

Table 27 – Value definition of the *sub-function* field for fire detectors

Value	Description
00_h	reserved
01_h *to* FE_h	Fire detector 1 *to* 254
FF_h	reserved

If the *basic function* field = 20_h (guest call), the *sub-function* field shall use the definition given in Table 28.

Table 28 – Value definition of the *sub-function* field for guest calls

Value	Description
00_h	reserved
01_h *to* FE_h	Guest call 1 *to* 254
FF_h	reserved

- ***Function data* field description**

The value of the *function data* field shall provide the input state of a virtual input.

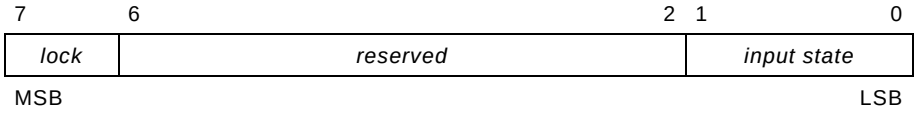

Figure 7 – Structure of the *function data* field

The *input state* sub-field shall use the values given in Table 29.

Table 29 – Value definition of the *input state* sub-field

Value	Description
00_b	Input not set
01_b	Input set
10_b	Function is defect
11_b	Function is not installed

Bit 7 of the *function data* field shall be set to 1, if the button or key-button has a locking function and shall be set to 0, if the button or key-button has not a locking function.

- ***Lift* field description**

The *lift* field structure is specified in Figure 8. The values of the sub-fields are specified in Table 30. If the virtual device is assigned to the inside of a car, only one bit shall be set.

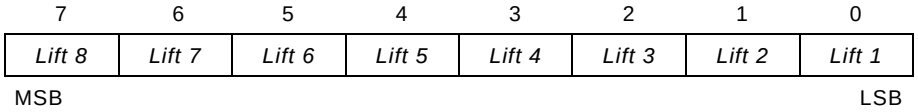

Figure 8 – Object structure of *lift* field

Table 30 – Value definition of the *lift 1 to 8* sub-fields

Value	Description
0	no request
1	request

- ***Floor* field description**

The value of the *floor* field shall provide the floor number to which the virtual device is assigned. Table 31 specifies the values.

Table 31 – Value definition of the *floor* field

Value	Description
00_h	Car panel
01_h *to* FE_h	Panel of floor 1 *to* 254
FF_h	reserved

- ***Door* field description**

The value of the *door* field shall provide the door number to which the virtual device is assigned. It depends on the *basic function* field.

If the *basic function* field = 08_h *to* $0D_h$, the *door* field structure specified in Figure 9 shall be used. If a sub-field is set to 1_b, the corresponding door shall be assigned; if it is set to 0_b this door shall not be assigned.

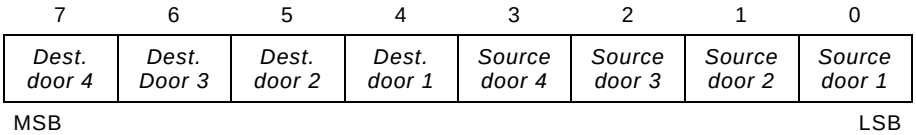

Figure 9 – Structure of the *door* field (*basic function* = 08_h *to* $0D_h$)

If the *basic function* field ≠ 08_h *to* $0D_h$, the *door* field structure specified in Figure 10 shall be used. If the sub-field is set to 1_b, this door shall be assigned; if it is set to 0_b this door shall be not assigned.

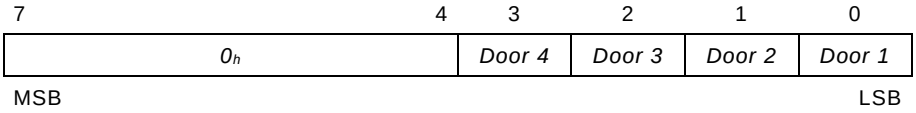

Figure 10 – Other structure of the *door* field (*basic function* ≠ 08_h *to* $0D_h$)

Table 32 specifies the object description, and Table 33 specifies the entry description.

Table 32 – Object description

Attribute	Value
Index	6100_h *to* $611F_h$
Name	Input group 1 *to* input group 32
Object code	ARRAY
Data type	UNSIGNED48
Category	See /CiA417-2/

Table 33 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported inputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Virtual input 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 6 to Figure 10, and Table 23 to Table 31
Default value	See /CiA417-2/

Sub-index	02_h
Description	Virtual input 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 6 to Figure 10, and Table 23 to Table 31
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Virtual input 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 6 to Figure 10, and Table 23 to Table 31
Default value	See /CiA417-2/

4.4.2 Object 6120_h *to* $613F_h$: Input parameter 1 group 1 *to* 32

These objects shall contain configuration parameter defining the system behavior of the digital inputs. Object 6120_h shall correspond to input group 1, object 6121_h shall correspond to input group 2, etc. Figure 11 specifies the object structure.

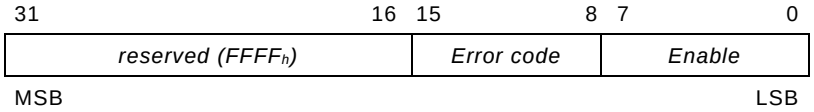

Figure 11 – Object structure of the input parameter 1

- ***Enable* field description**

Figure 12 specifies the structure of the *enable* field.

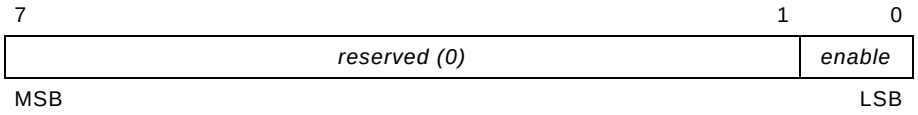

Figure 12 – Structure of the *enable* field

If the *enable* sub-field (bit 0) is set to 1_b the corresponding virtual input shall be enabled, if it is set to 0_b the input shall be disabled.

- ***Error code* field description**

The *error code* field shall provide the error status of the virtual input. The values are manufacturer-specific; if the field is not used, it shall contain FF_h.

Table 34 specifies the object description, and Table 35 specifies the entry description.

Table 34 – Object description

Attribute	Value
Index	6120_h *to* $613F_h$
Name	Parameter 1 group 1 *to* Parameter 1 group 32
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 35 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported inputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Parameter 1 input 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 11 to Figure 12
Default value	See /CiA417-2/
Sub-index	02_h
Description	Parameter 1 input 2
Entry category	Mandatory, if input 2 is implemented
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 11 to Figure 12
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Parameter 1 input 254
Entry category	Mandatory, if input 254 is implemented
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 11 to Figure 12
Default value	See /CiA417-2/

4.4.3 Object 6140_h *to* $615F_h$: Input parameter 2 group 1 *to* 32

These objects shall contain configuration parameter defining the logical behavior of the digital inputs. Object 6140_h shall correspond to input group 1, object 6141_h shall correspond to input group 2, etc.

Figure 13 specifies the object structure.

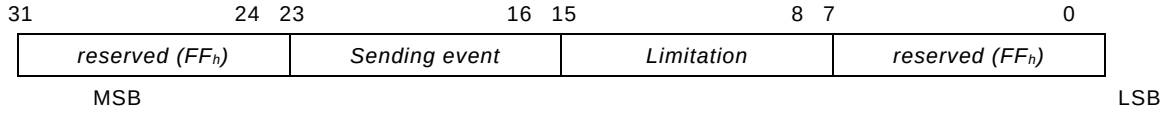

Figure 13 – Object structure of input parameter 2

- ***Limitation* field description**

The *limitation* field shall provide the allowed number of input events per second. The value 00_h is reserved; if the field is not used, the value shall be FF_h.

- ***Sending event* field description**

The *sending event* field shall provide the number of input events per second, which is necessary to start a message. The value 00_h is reserved; if the sub-field is not used the value shall be FF_h.

Table 36 specifies the object description, and Table 37 specifies the entry description.

Table 36 – Object description

Attribute	Value
Index	6140_h *to* $615F_h$
Name	Parameter 2 group 1 *to* Parameter 2 group 32
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 37 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported inputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Parameter 2 input 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 13
Default value	See /CiA417-2/

Sub-index	02_h
Description	Parameter 2 input 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 13
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Parameter 2 input 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 13
Default value	See /CiA417-2/

4.4.4 Object 6160_h *to* $617F_h$: Input parameter 3 group 1 *to* 32

These objects shall contain configuration parameter defining the physical behavior of the digital inputs. Object 6160_h shall correspond to input group 1, object 6161_h shall correspond to input group 2, etc. Figure 14 specifies the object structure.

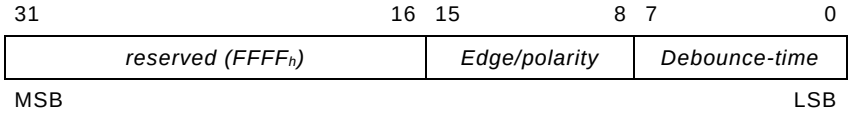

Figure 14 – Object structure of the input parameter 3

- ***Debounce-time*** **field description**

The *debounce-time* shall be given in multiples of ms. The value of FF_h shall indicate that the *debounce-time* is not used.

- ***Edge/polarity*** **field description**

Figure 15 specifies the *edge/priority* field.

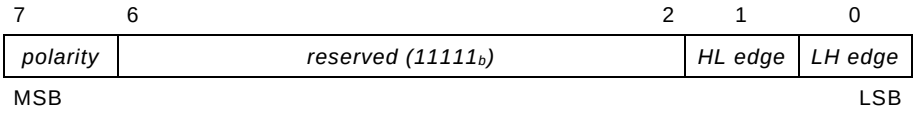

Figure 15 – Structure of *edge/polarity* field

If the *LH edge* bit is set to 1, a low-to-high edge shall cause a mapping of the corresponding input to object 6010_h. If the *HL edge* bit is set to 1, a high-to-low edge shall cause a mapping of the corresponding input to object 6010_h. The *polarity* bit shall be set to 1, if the corresponding input is inverted and shall be set to 0, if it is not inverted.

Table 38 specifies the object description, and Table 39 specifies the entry description.

Table 38 – Object description

Attribute	Value
Index	6160_h *to* $617F_h$
Name	Parameter 3 group 1 *to* Parameter 3 group 32
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 39 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported inputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Parameter 3 input 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 14 to Figure 15
Default value	See /CiA417-2/
Sub-index	02_h
Description	Parameter 3 input 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 14 to Figure 15
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Parameter 3 input 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 14 to Figure 15
Default value	See /CiA417-2/

4.4.5 Object 6180_h *to* $619F_h$: Input parameter 4 group 1 *to* 32

These objects are reserved.

4.4.6 Object 6200_h *to* $621F_h$: Output group 1 *to* 32

These objects shall contain the output status, the assigned function, and the function-depended parameters. Every sub-index represents a single digital output. Every output group comprises up to 254 outputs. It is possible to address up to 32 x 254 digital outputs per lift-control application. If eight lift-control applications are implemented, there are available system-wide 65024 digital outputs.

Figure 16 specifies the object structure.

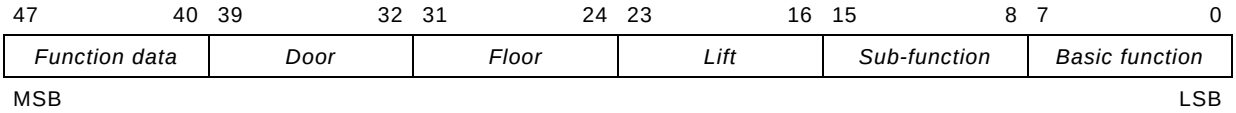

Figure 16 – Object structure of output groups

- ***Basic function* field description**

Table 40 specifies the *basic function* field values.

Table 40 – Value definition of the *basic function* field

Value	Description
00_h	Call controller commands
01_h	Generic output
02_h	Standard hall call acknowledgement
03_h	Low priority hall call acknowledgement
04_h	High priority hall call acknowledgement
05_h	Standard car call acknowledgement
06_h	Low priority car call acknowledgement
07_h	High priority car call acknowledgement
08_h	Standard destination call acknowledgement
09_h	Low priority destination call acknowledgement
$0A_h$	High priority destination call acknowledgement
$0B_h$	Standard call *to* destination floor acknowledgement
$0C_h$	Low priority call *to* destination floor acknowledgement
$0D_h$	High priority call *to* destination floor acknowledgement
$0E_h$	Special function acknowledgement
$0F_h$	Access code upload acknowledgement
10_h	Speech connection acknowledgement
11_h	Area monitoring connection acknowledgement
12_h *to* $1F_h$	reserved
20_h	Guest call acknowledgement
21_h *to* $3F_h$	reserved
40_h	Position indication
41_h	Hall lantern
42_h	Direction indication
43_h	Special indication
44_h	Arrival indication
45_h	Operation data
46_h	Publicity indication

Value	Description
47_h	Speech synthesis
48_h *to* 49_h	reserved
$4A_h$	Miscellaneous outputs
$4B_h$ *to* $7F_h$	reserved
80_h *to* FF_h	Manufacturer-specific

- ***Sub-function* field description**

The *sub-function* field depends on the *basic function*.

If the *sub-function* field is interpreted as a bit-mask (e. g. the *basic function* = 41_h), it is possible to OR the bits in order to create a combination of sub-functions. Otherwise, the *sub-function* field is treated as enumeration.

Table 41 specifies the *sub-function* field values, if the *basic function* = 00_h (call controller commands).

Table 41 – Value definition of the *sub-function* field (*basic function* = 00_h)

Value	Description
00_h	reserved
01_h	Request all active hall calls
02_h	Request all special inputs (basic functions $0E_h$ and 12_h)
03_h *to* FF_h	reserved

If the *basic function* = 01_h, the *sub-function* field is reserved for future use.

Table 42 specifies the *sub-function* field values, if the *basic function* = 02_h *to* 04_h.

Table 42 – Value definition of the *sub-function* field (*basic function* = 02_h *to* 04_h)

Value	Description
00_h	reserved
01_h	Hall call up acknowledgement
02_h	Hall call down acknowledgement
03_h	Hall call acknowledgement
04_h	Hall call extra up acknowledgement
05_h	Hall call extra down acknowledgement
06_h	Hall call extra acknowledgement
07_h *to* FF_h	reserved

If the *basic function* = 05_h *to* $0D_h$, the *sub-function* field shall provide the number of the virtual output, which shall process the received data. Table 43 specifies the *sub-function* field values, if the *basic function* = 05_h *to* $0D_h$.

Table 43 – Value definition of the *sub-function* field (*basic function* = 05_h *to* $0D_h$)

Value	Description
00_h	reserved
01_h *to* FE_h	Target stop acknowledgement 1 *to* 254
FF_h	All target stop buttons

If the *basic function* = $0E_h$, the *sub-function* field shall be used as specified in Table 44.

Table 44 – Value definition of the *sub-function* field (*basic function* = $0E_h$)

Value	Description
00_h	reserved
01_h	Request fan 1 acknowledgement
02_h	Request fan 2 acknowledgement
03_h	Request load time 1 acknowledgement
04_h	Request load time 2 acknowledgement
05_h	Request key lock 1 acknowledgement
06_h	Request key lock 2 acknowledgement
07_h	Request key lock 3 acknowledgement
08_h	Request key lock 4 acknowledgement
09_h	Request door open acknowledgement
$0A_h$	Request door close acknowledgement
$0B_h$	Fire service enable acknowledgement
$0C_h$	Fire service acknowledgement
$0D_h$	Hall call disable acknowledgement
$0E_h$	Attendant service acknowledgement
$0F_h$	VIP service acknowledgement
10_h	Out of order acknowledgement
11_h	Bed passenger service acknowledgement
12_h	Special service acknowledgement
13_h	Service run acknowledgement
14_h	Dogging service enable acknowledgement
15_h	Dogging service up acknowledgement
16_h	Dogging service down acknowledgement
17h	Case of fire acknowledgement
18h	Provide priority acknowledgement
19h	Lift attendant start button acknowledgement
1Ah	Lift attendant drive through button acknowledgement
1Bh	Security run acknowledgement
1Ch	Second call panel acknowledgement
1Dh	Door enable acknowledgement
1Eh	Call cancel button fire operation
1Fh	Case of fire reset acknowledgement
1Fh *to* FFh	reserved acknowledgement

If the *basic function* = $0F_h$ *to* 11_h, the *sub-function* field is reserved for future use.

If the *basic function* = 20_h (guest call), the *sub-function* field shall be used as specified in Table 45.

Table 45 – Value definition of the *sub-function* field (*basic function* = 20_h)

Value	Description
00_h	reserved
01_h *to* FE_h	Guest call acknowledgement 1 *to* 254
FF_h	reserved

If the *basic function* = 40_h, the *sub-function* field shall be used as specified in Table 46.

Table 46 – Value definition of the *sub-function* field (*basic function* = 40_h)

Value	Description
00_h	Clear the floor data
01_h *to* FE_h	Floor number 1 *to* 254
FF_h	reserved

If the *basic function* = 41_h (hall lantern), the *sub-function* field shall use the structure as specified in Figure 17.

7	6	5	4	3	2	1	0
-	-	-	-	-	-	*down*	*up*
MSB							LSB

Figure 17 – Structure of the *sub-function* field (*basic function* = 41_h)

The *down* and *up* bits shall indicate the direction of an arrow, which is displayed (1_b = display arrow; 0_b = don't display).

If the *basic function* = 42_h (direction indication), the *sub-function* field use the structure as specified in Figure 18.

7	6	5	4	3	2	1	0
reserved (0)	*reserved (0)*	*moving down*	*moving up*	*reserved (0)*	*reserved (0)*	*down*	*up*
MSB							LSB

Figure 18 – Structure of the *sub-function* field (*basic function* = 42_h)

The *up* and *down* bits shall indicate the direction of an arrow, which is displayed (1_b = display arrow; 0_b = don't display).

The *moving up* and *moving down* bits shall indicate the direction, the car is currently moving to (1_b = moving; 0_b = not moving).

NOTE If the display supports scrolling arrows, the following behavior is recommended:

If the arrow "up" should scroll on a display, the *up* bit and at least one of the *moving* bits are set to 1_b (IF Bit 0 AND (Bit 4 OR Bit 5) = TRUE THAN "SCROLL ARROW UP)".

If the arrow "down" should scroll on a display, the *down* bit and at least one of *moving* bits are set to 1_b (IF Bit 1 AND (Bit 4 OR Bit 5) = TRUE THAN "SCROLL ARROW DOWN)".

If the *basic function* = 43_h (special indication), the *sub-function* field shall be used as specified in Table 47.

Table 47 – Value definition of the *sub-function* field (*basic function* = 43_h)

Value	Description
00_h	Used for instruction -> all displays off
01_h	No load
02_h	Full load
03_h	Over load
04_h	Fire
05_h	Fire brigade service
06_h	Help is coming
07_h	Special service
08_h	Load time
09_h	Occupied
$0A_h$	Out of order
$0B_h$	Close door
$0C_h$	Case of fire
$0D_h$	Hall call disable
$0E_h$	Travel *to* evacuation floor
$0F_h$	Travel *to* fire recall floor
10_h *to* FF_h	reserved

If the *basic function* = 44_h, the *sub-function* field shall use the structure as specified in Figure 19.

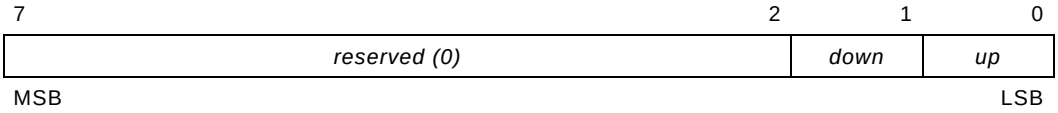

Figure 19 – Structure of the sub-function field (*basic function* = 44_h)

If the *up* and *down* bits are set to 1_b (gong value), the output signal shall cause an appropriate action. The tone of this output signal is manufacturer-specific.

If the *basic function* = 45_h *to* 46_h, the *sub-function* field is reserved for future use.

If the *basic function* = 47_h, the *sub-function* field shall be used as specified Table 48.

Table 48 – Value definition of the *sub-function* field (*basic function* = 47_h)

Value	Description
00_h	Switch off speech synthesis on all output panels
01_h *to* FE_h	Announce floor number “1” *to* “254”
FF_h	Announce current floor number

If the *basic function* = $4A_h$ (miscellaneous outputs), the sub-function field shall be used as specified in Table 49.

Table 49 – Value definition of the *sub-function* field (*basic function* = $4A_h$)

Value	Description
00_h	reserved
01_h	Hall call enable
02_h	Lift operational
03_h *to* FF_h	reserved

- ***Function data* field description**

The value of this field shall provide the output-state of a virtual output. Figure 20 specifies the *function data* field value.

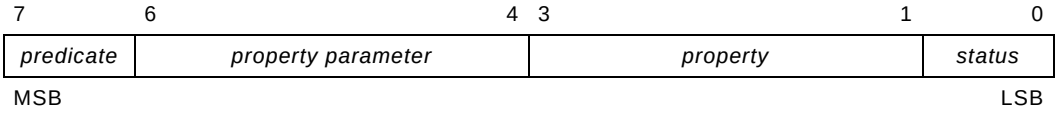

Figure 20 – Structure of *function data* field

The values of the *status* bit are specified in Table 50.

Table 50 – Value definition of the *status* bit

Value	Description
0	no data indicated (NOTE)
1	data indicated
NOTE Does not apply for basic function = 40_h.	

The *property* bits shall indicate, how the output shall behave; the values are specified in Table 51.

Table 51 – Value definition of the *property* bits

Value	Description
000_b	No action (default)
001_b	Output continuously
010_b	Output pulsed
011_b	Output flashing
100_b	Output colored
101_b	Output with volume
110_b	Output with scroll rate
111_b	reserved

The *property parameter* bits depend on the *property* bits. Table 52 specifies the value definition. A line shall be 1/7 of the height of a character.

Table 52 – Value definition of the *property parameter* bits

Value	Property						
	no action	continuous	pulsed	flashing	color	volume	scroll rate
000_b	n. a.	reserved	<0,5 s	10 Hz	white	minimum	automatic
001_b	n. a.	reserved	1 s	7,5 Hz	yellow	vary	1 line/s
010_b	n. a.	reserved	1,5 s	5 Hz	reserved	vary	2 lines/s
011_b	n. a.	reserved	2 s	2 Hz	green	vary	3 lines/s

Value	Property						
	no action	**continuous**	**pulsed**	**flashing**	**color**	**volume**	**scroll rate**
100_b	n. a.	reserved	3 s	1,5 Hz	reserved	vary	4 lines/s
101_b	n. a.	reserved	5 s	1 Hz	red	vary	5 lines/s
110_b	n. a.	reserved	10 s	0,5 Hz	reserved	vary	6 lines/s
111_b	n. a.	reserved	>15 s	0,25 Hz	blue	maximum	7 lines/s

The *predicate* bit shall indicate if an acknowledgement is affirmed or not. Table 53 specifies the values.

Table 53 – Value definition of the *predicate* bit

Value	Description
0	Acknowledgement is not affirmed
1	Acknowledgement is affirmed

- ***Lift* field description**

This field shall provide the number of the lift or the group of lifts, to which the output is assigned. The assignment of the lift number is application-specific. Figure 21 specifies the *lift* field value.

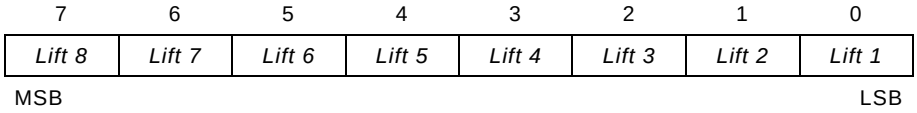

Figure 21 – Structure of the *lift* field

NOTE If the output is assigned to a car panel, only one bit is set to 1.

- ***Floor* field description**

This field shall provide the floor number, to which the output is assigned. The values are specified in Table 54.

Table 54 – Value definition of the *sub-function* field (*basic function* = 40_h)

Value	Description
00_h	Car panel
01_h *to* FE_h	Floor number 1 *to* 254
FF_h	All floor panels

- ***Door* field description**

This field shall provide the door number, to which the output is assigned. The value depends on the *basic function* field. If the bits of the *door* field are set to 1_b, this shall indicate an assignment of the output to this door.

If the *basic function* = 08_h *to* $0D_h$, the *door* field shall use the structure as defined in Figure 22.

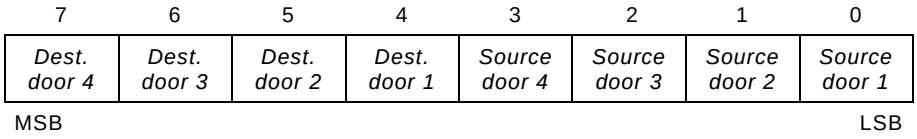

Figure 22 – Structure of the *door* field (*basic function* = 08_h *to* $0D_h$)

If the *basic function* ≠ 08_h *to* $0D_h$, the *door* field shall use the structure as defined in Figure 23.

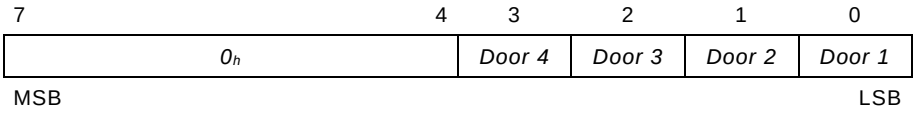

Figure 23 – Structure of the door field (*basic function* ≠ 08_h to $0D_h$)

Table 55 specifies the object description, and Table 56 specifies the entry description.

Table 55 – Object description

Attribute	Value
Index	6200_h *to* 621F
Name	Output group 1 *to* Output group 32
Object code	ARRAY
Data type	UNSIGNED48
Category	See /CiA417-2/

Table 56 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported outputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
to	
Sub-index	01_h
Description	Virtual output 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 16 to Figure 23 and Table 40 to Table 54
Default value	See /CiA417-2/
Sub-index	02_h
Description	Virtual output 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 16 to Figure 23 and Table 40 to Table 54
Default value	See /CiA417-2/
to	

Sub-index	FE_h
Description	Virtual output 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 16 to Figure 23 and Table 40 to Table 54
Default value	See /CiA417-2/

4.4.7 Object 6220_h *to* $623F_h$: Output parameter 1 group 1 *to* 32

These objects shall contain configuration parameter defining the system behavior of the digital outputs. Object 6220_h shall correspond to output group 1, object 6221_h shall correspond to output group 2, etc. Figure 24 specifies the object structure. If one of the fields is not used, the value shall be FF_h.

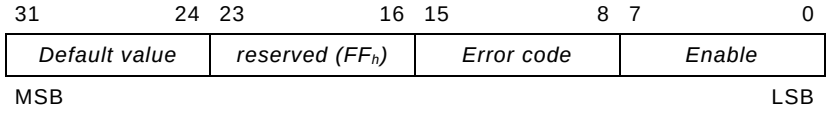

Figure 24 – Object structure of output parameter 1

- ***Enable* field description**

Figure 25 specifies the *enable* field structure.

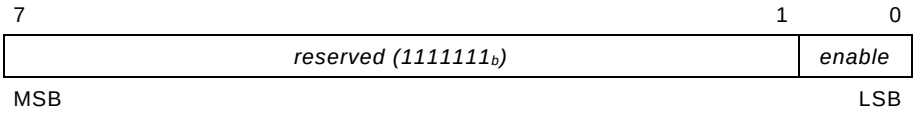

Figure 25 – Structure of the *enable* field

If the *enable* bit is set to 1, the corresponding virtual output shall be enabled. If it is set to 0, the corresponding virtual output shall be disabled.

- ***Error code* field description**

The *error code* field shall contain the error status of the corresponding output. The values are not defined yet; the value FF_h shall be used indicating no error.

- ***Default value* field description**

The *default value* field shall contain the value of the function *data* field in the corresponding sub-index of the output group object (6200_h to $621F_h$) after power-on or NMT application reset.

Table 57 specifies the object description, and Table 58 specifies the entry description.

Table 57 – Object description

Attribute	Value
Index	6220_h *to* $623F_h$
Name	Parameter 1 group 1 *to* Parameter 1 group 32
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 58 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported outputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Parameter 1 output 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 24 to Figure 25
Default value	See /CiA417-2/
Sub-index	02_h
Description	Parameter 1 output 2
Entry category	Mandatory, if output 2 is implemented
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 24 to Figure 25
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Parameter 1 output 254
Entry category	Mandatory, if output 254 is implemented
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 24 to Figure 25
Default value	See /CiA417-2/

4.4.8 Object 6240_h *to* $625F_h$: Output parameter 2 group 1 *to* 32

These objects shall contain configuration parameter defining the logical behavior of the digital outputs. Object 6240_h corresponds to output group 1, object 6241_h corresponds to output group 2, etc. Figure 26 specifies the object structure. If a field is not used, the value shall be FF_h.

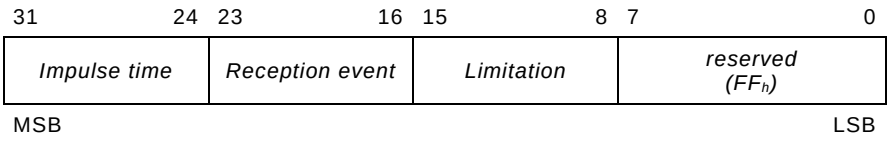

Figure 26 – Object structure of output parameter 2

- ***Limitation* field description**

The *limitation* field shall contain the value, how many output events per second are allowed. The value 00_h is reserved.

- ***Reception event* field description**

The *reception event* shall contain the value, how many messages are necessary to start an output event. The value 00_h is reserved.

- ***Impulse time* field description**

The *impulse time* field shall contain the time, how long an output is activated after a message was processed. The value shall be given in multiples of 0,1 s. Within this time no message shall be processed at this output.

Table 59 specifies the object description, and Table 60 specifies the entry description.

Table 59 – Object description

Attribute	Value
Index	6240_h *to* $625F_h$
Name	Parameter 2 group 1 *to* Parameter 2 group 32
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 60 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported outputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Parameter 2 output 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 26 and field value descriptions
Default value	See /CiA417-2/
Sub-index	02_h
Description	Parameter 2 output 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 26 and field value descriptions
Default value	See /CiA417-2/

to	
Sub-index	FE_h
Description	Parameter 2 output 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 26 and field value descriptions
Default value	See /CiA417-2/

4.4.9 Object 6260_h *to* $627F_h$: Output parameter 3 group 1 *to* 32

These objects shall contain configuration parameter defining the physical behavior of the digital outputs. Object 6260_h shall correspond to output group 1, object 6261_h shall correspond to output group 2, etc. Figure 27 specifies the object structure.

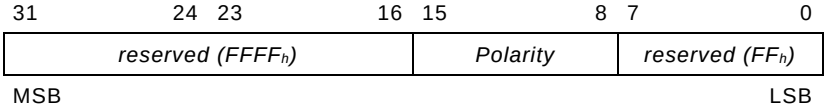

Figure 27 – Object structure of output parameter 3

Figure 28 specifies the structure of the *polarity* field.

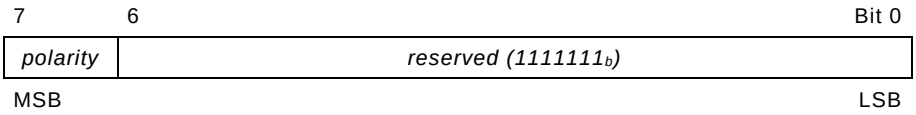

Figure 28 – Structure of *polarity* field

If the *polarity* bit is set to 1 the corresponding output shall be inverted. If the *polarity* bit is set to 0 the corresponding output shall not be inverted.

If the polarity sub-field is not used, the object value shall be FF_h.

Table 61 specifies the object description, and Table 62 specifies the entry description.

Table 61 – Object description

Attribute	Value
Index	6260_h *to* $627F_h$
Name	Parameter 3 group 1 *to* Parameter 3 group 32
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 62 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported outputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Parameter 3 output 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 27 to Figure 28
Default value	See /CiA417-2/
Sub-index	02_h
Description	Parameter 3 output 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 27 to Figure 28
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Parameter 3 output 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 27 to Figure 28
Default value	See /CiA417-2/

4.4.10 Object 6280_h *to* $629F_h$: Output parameter 4 group 1 *to* 32

These objects shall contain configuration parameter defining the basic setting of the digital outputs. Object 6280_h shall correspond to output group 1, object 6281_h shall correspond to output group 2, etc. Figure 29 specifies the object structure. If a sub-field is not used, the value shall be FF_h.

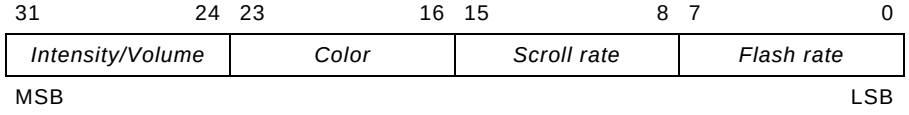

Figure 29 – Object structure of output parameter 4

- ***Flash rate* field description**

The *flash rate* field shall contain the frequency of an output or of an indication at a display. The value shall be given multiples of 0,1 Hz. The value of 00_h shall indicate that the indication is always set.

- ***Scroll rate* field description**

The *scroll rate* field shall contain the speed of an indication at a display. The value shall be given in multiples of 1/7 of the character height per second.

- ***Color* field description**

The *color* field is reserved for future use and not yet defined.

- ***Volume/intensity* field description**

The *volume/intensity* field shall contain the range of volume of acoustical indicators or the intensity of an optical indicator. The values range from 01_h (minimal volume or intensity) to FE_h (maximum volume or intensity). The value 00_h is reserved.

Table 63 specifies the object description, and Table 64 specifies the entry description.

Table 63 – Object description

Attribute	Value
Index	6280_h *to* $629F_h$
Name	Parameter 4 group 1 *to* Parameter 4 group 32
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 64 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of supported outputs
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Parameter 4 output 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 29
Default value	See /CiA417-2/
Sub-index	02_h
Description	Parameter 4 output 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 29
Default value	See /CiA417-2/
to	

Sub-index	FE_h
Description	Parameter 4 output 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 29
Default value	See /CiA417-2/

4.4.11 Object $62B0_h$: Text position indication

This object shall contain the string to display the floor name on any kind of display. The current floor name is indicated by the virtual output position indication (basic function = 40_h). Table 65 specifies the object description, and Table 66 specifies the entry description.

Table 65 – Object description

Attribute	Value
Index	$62B0_h$
Name	Text position indication
Object code	ARRAY
Data type	VISIBLE_STRING
Category	See /CiA417-2/

Table 66 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of highest sub-index
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Text for floor 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	VISIBLE_STRING
Default value	See /CiA417-2/

Sub-index	02_h
Description	Text for floor 2
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	VISIBLE_STRING
Default value	See /CiA417-2/
to	
Sub-index	10_h
Description	Text for floor 254
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	VISIBLE_STRING
Default value	See /CiA417-2/

4.4.12 Object $62B1_h$: Text special indication

This object shall contain the string to display special virtual outputs on any kind of display. Every text entry corresponds to one virtual output (objects 6200_h to $621F_h$) and is manufacturer-specific. Table 67 specifies the object description, and Table 68 specifies the entry description.

Table 67 – Object description

Attribute	Value
Index	$62B1_h$
Name	Text special indication
Object code	ARRAY
Data type	VISIBLE_STRING
Category	See /CiA417-2/

Table 68 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of highest sub-index
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Special text 1
Entry category	Optional
Access	rw
PDO mapping	No
Value range	VISIBLE_STRING
Default value	See /CiA417-2/
Sub-index	02_h
Description	Special text 2
Entry category	Optional
Access	rw
PDO mapping	No
Value range	VISIBLE_STRING
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Special text 254
Entry category	Optional
Access	rw
PDO mapping	No
Value range	VISIBLE_STRING
Default value	See /CiA417-2/

4.4.13 Object 6300_h: Door controlword

This object shall contain the door commands and other control data for the car door units. Figure 30 specifies the object structure.

15 … 12	11 … 10	9 … 8	7 … 6	5 … 4	3 … 2	1 … 0
Command	*Door velocity*	*Motion detector*	*Finger protector*	*Door lock*	*Battery power*	*reserved (11_b)*
MSB						LSB

Figure 30 – Object structure of the door controlword

- ***Battery power* field description**

The *battery power* field shall enable or disable the battery power function. Table 69 specifies the *battery power* field values.

Table 69 – Value definition of the *Battery power* field

Bit 3	Bit 2	Description
0	0	Battery power supply disabled
0	1	Battery power supply enabled
1	0	reserved
1	1	Do not care / take no action

- ***Door lock* field description**

The *door lock* field shall enable or disable the door lock function. Table 70 specifies the *door lock* field values.

Table 70 – Value definition of the *door lock* field

Bit 5	Bit 4	Description
0	0	Enable door lock
0	1	Disable door lock
1	0	reserved
1	1	Do not care / take no action

- ***Finger protector* field description**

The *finger protector* field shall enable or disable the finger protector function. Table 71 specifies the *finger protector* field values.

Table 71 – Value definition of the *finger protector* field

Bit 7	Bit 6	Description
0	0	Enable finger protector
0	1	Disable finger protector
1	0	reserved
1	1	Do not care / take no action

- ***Motion detector* field description**

The *motion detector* field shall enable or disable the motion detector function. Table 72 specifies the *motion detector* field values.

Table 72 – Value definition of the *motion detector* field

Bit 9	Bit 8	Description
0	0	Enable motion detector
0	1	Disable motion detector
1	0	reserved
1	1	Do not care / take no action

- ***Door velocity* field description**

The *door velocity* field shall contain the configured door velocity. Table 73 specifies the *door velocity* field values.

Table 73 – Value definition of the *door velocity* field

Bit 11	Bit 10	Description
0	0	Move door with standard speed
0	1	Move door with reduced speed
1	0	reserved
1	1	Do not care / take no action

- ***Command* field description**

The *command* field shall contain the command to be performed by the car door virtual device. Table 74 specifies the *command* field values.

Table 74 – Value definition of the *command* field

Bit 15	Bit 14	Bit 13	Bit 12	Description
0	0	0	0	Close door without limit force (NOTE 1)
0	0	0	1	Close door with limit force
0	0	1	0	Nudging (NOTE 2)
0	0	1	1	Open door without limit force (NOTE 1)
0	1	0	0	Open door with limit force
0	1	0	1	reserved
0	1	1	0	reserved
0	1	1	1	Stop door without torque
1	0	0	0	Stop door with torque
1	0	0	1	reserved
to				
1	1	0	0	reserved
1	1	0	1	Tech-in drive
1	1	1	0	Reset door
1	1	1	1	Do not care / take no action
NOTE 1 Not allowed for EN-81 compliant lifts NOTE 2 Nudging is the forced closing of car door with reduced speed (kinematic energy without door reversal devices (e.g. light barrier) due to blocked door for too long time.				

Table 75 specifies the object description, and Table 76 specifies the entry description.

Table 75 – Object description

Attribute	Value
Index	6300_h
Name	Door controlword
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 76 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Door 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 30 and Table 74 to Table 69
Default value	See /CiA417-2/
Sub-index	02_h
Description	Door 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 30 and Table 74 to Table 69
Default value	See /CiA417-2/
Sub-index	03_h
Description	Door 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 30 and Table 74 to Table 69
Default value	See /CiA417-2/
Sub-index	04_h
Description	Door 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 30 and Table 74 to Table 69
Default value	See /CiA417-2/

4.4.14 Object 6301_h: Door statusword

This object shall contain the car door status and other status information. Figure 31 specified the object structure.

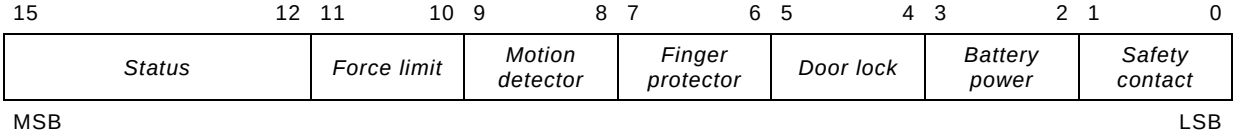

Figure 31 – Object structure of door statusword

- ***Safety contact* field description**

The *safety contact* field shall contain information, if the contact is closed. Table 77 specifies the *safety contact* field values.

Table 77 – Value definition of the *safety contact* field

Bit 5	Bit 4	Description
0	0	Contact not closed
0	1	Contact closed
1	0	Error indicator
1	1	not available or not installed

- ***Battery power* field description**

The *battery power* field shall contain information, if battery power is used. Table 78 specifies the *Battery power* field values.

Table 78 – Value definition of the *battery power* field

Bit 3	Bit 2	Description
0	0	No battery power used
0	1	Battery power used
1	0	Error indicator
1	1	Not available or not installed

- ***Door lock* field description**

The *door lock* field shall contain information, if the door is locked. Table 79 specifies the *door lock* field values.

Table 79 – Value definition of the *door lock* field

Bit 5	Bit 4	Description
0	0	Door not locked
0	1	Door locked
1	0	Error indicator
1	1	not available or not installed

- ***Finger protector* field description**

The *finger protector* field shall contain information about detected fingers. Table 80 specifies the *finger protector* field values.

Table 80 – Value definition of the *finger protector* field

Bit 7	Bit 6	Description
0	0	No finger detected
0	1	Finger detected
1	0	Error indicator
1	1	not available or not installed

- ***Motion detector* field description**

The *Motion detector* field shall contain motion detection information. Table 81 specifies the *motion detector* field values.

Table 81 – Value definition of the *motion detector* field

Bit 9	Bit 8	Description
0	0	Motion not detected
0	1	Motion detected
1	0	Error indicator
1	1	not available or not installed

- ***Force limit* field description**

The *force limit* field shall contain force limit information. Table 82 specifies the *force limit* field values.

Table 82 – Value definition of the *force limit* field

Bit 11	Bit 10	Description
0	0	Force limit not reached
0	1	Force limit reached
1	0	Error indication
1	1	not available or not installed

- ***Status* field description**

The *status* field shall contain the moving status of the car door. Table 83 specifies the *status* field values.

Table 83 – Value definition of the *status* field

Bit 15	Bit 14	Bit 13	Bit 12	Description
0	0	0	0	Door closed with torque
0	0	0	1	Door closed without torque
0	0	1	0	Door is closing
0	0	1	1	Door opened with torque
0	1	0	0	Door opened without torque
0	1	0	1	Door is opening
0	1	1	0	Door is re-opening
0	1	1	1	Door stopped with torque
1	0	0	0	Door stopped without torque
1	0	0	1	reserved
to				
1	1	0	0	reserved
1	1	0	1	Tech-in drive
1	1	1	0	Error indicator
1	1	1	1	not available / not installed

Table 84 specifies the object description, and Table 85 specifies the entry description.

Table 84 – Object description

Attribute	Value
Index	6301_h
Name	Door statusword
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 85 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Door 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 31 and Table 77 to Table 83
Default value	See /CiA417-2/
Sub-index	02_h
Description	Door 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 31 and Table 77 to Table 83
Default value	See /CiA417-2/
Sub-index	03_h
Description	Door 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 31 and Table 77 to Table 83
Default value	See /CiA417-2/

Sub-index	04_h
Description	Door 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See Figure 31 and Table 77 to Table 83
Default value	See /CiA417-2/

4.4.15 Object 6302_h: Door position

This object shall contain the current position of the car doors.

The value shall be given in multiples of mm, measured between door closing edges. The value 0000_h shall mean door is closed, and the value $FFFF_h$ shall indicate that the position is not available or is not requested. Table 86 specifies the object description, and Table 87 specifies the entry description.

Table 86 – Object description

Attribute	Value
Index	6302_h
Name	Door position
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 87 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Door 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	UNSIGNED16
Default value	See /CiA417-2/

Sub-index	02_h
Description	Door 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	03_h
Description	Door 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	04_h
Description	Door 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.16 Object 6304_h *to* 6307_h: Door 1 *to* door 4 configuration

These objects shall contain door configuration parameters.

- ***Door velocity profile*** **parameter (sub-index 01_h)**

This parameter shall contain the velocity for the drive closing and opening the door. Table 88 specifies the *door velocity profile* field values.

Table 88 – Value definition of the *door velocity profile* parameter

Value	Description
00_h	Default velocity profile (mandatory)
01_h *to* FF_h	Additional velocity profiles (optional)

- ***Door open width profile*** **parameter (sub-index 02_h)**

This parameter shall contain information, which profile shall be used to open the door. Table 89 specifies the *open width profile* values.

Table 89 – Value definition of the *door open width profile* parameter

Value	Description
00_h	Default width profile (mandatory)
01_h *to* FF_h	Additional width profiles (optional)

- ***Door type*** **parameter (sub-index 03_h)**

This parameter shall contain information, how the door shall open. Table 90 specifies the *door type* values.

Table 90 – Value definition of the *door type* parameter

Value	Description
00_h	Opening not defined
01_h	Center opening
02_h	Left side opening
03_h	Right side opening
04_h *to* FF_h	reserved

- ***Light barrier event modus* parameter (sub-index 04_h)**

This parameter shall contain information, how the door shall react, if the light barrier event occurs. Table 91 specifies the *light barrier event modus* values.

Table 91 – Value definition of the door reaction on events

Value	Description
00_h	Door unit sends only its status by PDO
01_h	Door unit re-opens its door
02_h	Door unit device stops door motion
03_h *to* FF_h	reserved

- ***Force limit reached modus* parameter (sub-index 05_h)**

This parameter shall contain information, how the door shall react, if the force limit is reached. Table 91 specifies the *force limit reached modus* values.

- ***Finger protector modus* parameter (sub-index 06_h)**

This parameter shall contain information, how the door shall react if a finger is detected. Table 91 specifies the *finger protector modus* values.

- ***Motion detection modus* parameter (sub-index 07_h)**

This parameter shall contain information, how the door shall react if a motion is detected. Table 91 specifies the *motion detection modus* values.

- ***Light barrier re-close* parameter (sub-index 08_h)**

This parameter shall contain the time to re-close the door, if the door has been re-opened by the light barrier. The value shall be given in multiples of 1 s. The value of ‘0’ shall indicate that the timer is disabled.

- ***Closing force limit re-close* parameter (sub-index 09_h)**

This parameter shall contain the time to re-close the door, if the door has been re-opened by the closing force limit. The value shall be given in multiples of 1 s. The value of ‘0’ shall indicate that the timer is disabled.

- ***Light barrier broken re-close* parameter (sub-index $0A_h$)**

This parameter shall contain the time to re-close the door, if the light barrier is broken. The value shall be given in multiples of 2 s. The value of ‘0’ shall indicate that the timer is disabled.

- ***Lost of heartbeat* parameter (sub-index $0B_h$)**

This parameter shall contain, how the door shall react, if a car door controller heartbeat event has occurred. Table 92 specifies the *lost of heartbeat* values.

Table 92 – Value definition of the *lost of heartbeat* parameter

Value	Description
00_h	Door stops without torque
01_h	Door stops with torque
02_h	Door closes with reduced speed
03_h *to* FF_h	reserved

Table 93 specifies the object description, and Table 94 specifies the entry description.

Table 93 – Object description

Attribute	Value
Index	6304_h *to* 6307_h
Name	Door 1 configuration *to* door 4 configuration
Object code	ARRAY
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 94 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* $0B_h$
Default value	Manufacturer-specific
Sub-index	01_h
Description	Door velocity profile
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 88
Default value	See /CiA417-2/
Sub-index	02_h
Description	Door open width profile
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See Table 89
Default value	See /CiA417-2/

Sub-index	03_h
Description	Door type
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 90
Default value	See /CiA417-2/
Sub-index	04_h
Description	Light barrier event modus
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 91
Default value	See /CiA417-2/
Sub-index	05_h
Description	Force limit reached modus
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED8
Default value	See /CiA417-2/
Sub-index	06_h
Description	Finger protector modus
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 91
Default value	See /CiA417-2/
Sub-index	07_h
Description	Motion detection modus
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 91
Default value	See /CiA417-2/

Sub-index	08_h
Description	Light barrier re-close
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED8
Default value	See /CiA417-2/
Sub-index	09_h
Description	Closing force limit re-close
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED8
Default value	See /CiA417-2/
Sub-index	$0A_h$
Description	Light barrier broken
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED8
Default value	See /CiA417-2/
Sub-index	$0B_h$
Description	Lost of heartbeat
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 92
Default value	See /CiA417-2/

4.4.17 Object 6310_h: Light barrier status

This object shall contain status information of the VD light barrier unit for up to four doors. Figure 32 specifies the object structure.

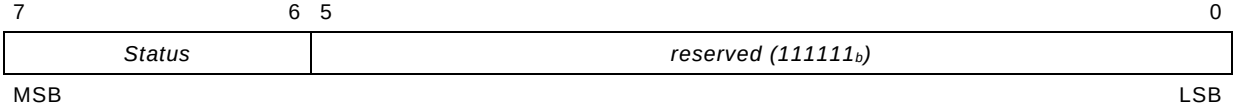

Figure 32 – object structure of light barrier status

Table 95 specifies the *status* field value.

Table 95 – Value definition of the *status* field

Bit 7	Bit 6	Description
0	0	No subject detected
0	1	Subject detected
1	0	Error indicator
1	1	not available / not installed

Table 96 specifies the object description, and Table 97 specifies the entry description

Table 96 – Object description

Attribute	Value
Index	6310_h
Name	Light barrier status
Object code	ARRAY
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 97 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Door 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 32 and Table 95
Default value	See /CiA417-2/
Sub-index	02_h
Description	Door 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 32 and Table 95
Default value	See /CiA417-2/

Sub-index	03_h
Description	Door 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 32 and Table 95
Default value	See /CiA417-2/
Sub-index	04_h
Description	Door 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See Figure 32 and Table 95
Default value	See /CiA417-2/

4.4.18 Object 6380_h: Operating parameter

This object contains the operating parameter of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6000_h in /CiA406/. Table 98 specifies the object description, and Table 99 specifies the entry description.

NOTE Linear measuring sensor units should behave as rotational encoders.

Table 98 – Object description

Attribute	Value
Index	6380_h
Name	Operating parameter
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 99 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.19 Object 6381_h: Measuring units per revolution

This object contains the measuring units per revolution. Sub-index 01_h to 04_h shall be equivalent to object 6001_h in /CiA406/.

Table 100 specifies the object description, and Table 101 specifies the entry description.

Table 100 – Object description

Attribute	Value
Index	6381_h
Name	Measuring units per revolution
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 101 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.20 Object 6382_h: Preset value

This object contains the preset values of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6003_h in /CiA406/.

Table 102 specifies the object description, and Table 103 specifies the entry description.

Table 102 – Object description

Attribute	Value
Index	6382_h
Name	Preset value
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 103 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.21 Object 6383_h: Position value

This object contains the position values measured by the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6004_h in /CiA406/.

Table 104 specifies the object description, and Table 105 specifies the entry description.

Table 104 – Object description

Attribute	Value
Index	6383_h
Name	Position value
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 105 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.22 Object 6384_h *to* 6387_h: Encoder measuring step settings position unit 1 *to* 4

These objects shall contain the measuring step settings for the position value, speed value and acceleration value of the car position units 1 to 4.

Sub-index 01_h shall contain the length measuring-step in multiples of 10 µm.

Sub-index 02_h shall contain the speed measuring-step in multiples of 0,1 mm/s.

Sub-index 03_h shall contain the acceleration measuring-step in multiples of 1 mm/s^2

Table 106 specifies the object description, and Table 107 specifies the entry description.

Table 106 – Object description

Attribute	Value
Index	6384_h *to* 6387_h
Name	Encoder measuring step settings position unit 1 *to* 4
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 107 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	03_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Measuring step
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/
Sub-index	02_h
Description	Speed measuring step
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/
Sub-index	03_h
Description	Acceleration measuring step
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/

4.4.23 Object 6390_h: Speed value car

This object shall contain the speed of the car measured by the car position units. The speed measuring-step is defined in object 6384_h, sub-index 02_h. Table 108 specifies the object description, and Table 109 specifies the entry description.

Table 108 – Object description

Attribute	Value
Index	6390_h
Name	Speed value car
Object code	ARRAY
Data type	INTEGER16
Category	See /CiA417-2/

Table 109 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	INTEGER16
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	INTEGER16
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	INTEGER16
Default value	See /CiA417-2/

Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	INTEGER16
Default value	See /CiA417-2/

4.4.24 Object 6391_h: Acceleration value car

This object shall contain the acceleration of the car measured by the car position units. The acceleration measuring-step is defined in object 6384_h, sub-index 03_h. Table 110 specifies the object description, and Table 111 specifies the entry description.

Table 110 – Object description

Attribute	Value
Index	6391_h
Name	Acceleration value car
Object code	ARRAY
Data type	INTEGER16
Category	See /CiA417-2/

Table 111 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	INTEGER16
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	INTEGER16
Default value	See /CiA417-2/

Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	INTEGER16
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	INTEGER16
Default value	See /CiA417-2/

4.4.25 Object $63B0_h$ *to* $63B3_h$: Area state register position unit 1 *to* 4

These objects shall be equivalent to object 6400_h in /CiA406/. Table 112 specifies the object description, and Table 113 specifies the entry description.

Table 112 – Object description

Attribute	Value
Index	$63B0_h$ *to* $63B3_h$
Name	Area state register position unit 1 *to* 4
Object code	ARRAY
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 113 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of available channels
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Work area state channel 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	02_h
Description	Work area state channel 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Work area state channel 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.26 Object $63B4_h$ *to* $63B7_h$: Work area low limit position unit 1 *to* 4

These objects shall be equivalent to object 6401_h in /CiA406/. Table 114 specifies the object description, and Table 115 specifies the entry description.

Table 114 – Object description

Attribute	Value
Index	$63B4_h$ *to* $63B7_h$
Name	Work area lowlimit position unit 1 *to* 4
Object code	ARRAY
Data type	INTEGER32
Category	See /CiA417-2/

Table 115 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of available channels
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Work area lowlimit channel 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	02_h
Description	Work area lowlimit channel 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Work area lowlimit channel 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.27 Object $63B8_h$ *to* $63BB_h$: Work area highlimit position unit 1 *to* 4

These objects shall be equivalent to object 6402_h in /CiA406/. Table 116 specifies the object description, and Table 117 specifies the entry description.

Table 116 – Object description

Attribute	Value
Index	$63B8_h$ *to* $63BB_h$
Name	Work area highlimit position unit 1 *to* 4
Object code	ARRAY
Data type	INTEGER32
Category	See /CiA417-2/

Table 117 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of available channels
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Work area highlimit channel 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	02_h
Description	Work area highlimit channel 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Work area highlimit channel 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.28 Object $63C0_h$: Operating status

This object contains the operating status. Sub-index 01_h to 04_h shall be equivalent to object 6500_h in /CiA406/. Table 118 specifies the object description, and Table 119 specifies the entry description.

Table 118 – Object description

Attribute	Value
Index	$63C0_h$
Name	Operating status
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 119 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.29 Object $63C1_h$: Single turn resolution

This object contains the singe turn resolution of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6501_h in /CiA406/. Table 120 specifies the object description, and Table 121 specifies the entry description.

Table 120 – Object description

Attribute	Value
Index	$63C1_h$
Name	Single turn resolution
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 121 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.30 Object $63C2_h$: Number of distinguishable revolutions

This object contains the number of distinguishable revolutions of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6502_h in /CiA406/. Table 122 specifies the object description, and Table 123 specifies the entry description.

Table 122 – Object description

Attribute	Value
Index	$63C2_h$
Name	Number of distinguishable revolutions
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 123 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.31 Object $63C4_h$: Supported warnings

This object contains the supported warnings of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6506_h in /CiA406/. Table 124 specifies the object description, and Table 125 specifies the entry description.

Table 124 – Object description

Attribute	Value
Index	$63C4_h$
Name	Supported warnings
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 125 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.32 Object $63C5_h$: Warnings

This object contains the warnings of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6505_h in /CiA406/. Table 126 specifies the object description, and Table 127 specifies the entry description.

Table 126 – Object description

Attribute	Value
Index	$63C5_h$
Name	Warnings
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 127 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.33 Object $63C6_h$: Supported alarms

This object contains the supported alarms of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6504_h in /CiA406/. Table 128 specifies the object description, and Table 129 specifies the entry description.

Table 128 – Object description

Attribute	Value
Index	$63C6_h$
Name	Supported alarms
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 129 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.34 Object $63C7_h$: Alarms

This object contains the alarms of the car position unit. Sub-index 01_h to 04_h shall be equivalent to object 6503_h in /CiA406/. Table 130 specifies the object description, and Table 131 specifies the entry description.

Table 130 – Object description

Attribute	Value
Index	$63C7_h$
Name	Alarms
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 131 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.35 Object $63C8_h$: Operating time

This object contains the operating time of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6508_h in /CiA406/. Table 132 specifies the object description, and Table 133 specifies the entry description.

Table 132 – Object description

Attribute	Value
Index	$63C8_h$
Name	Operating time
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 133 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Position unit 1
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.36 Object $63C9_h$: Offset value

This object contains the offset values of the car position units. Sub-index 01_h to 04_h shall be equivalent to object 6509_h in /CiA406/. Table 134 specifies the object description, and Table 135 specifies the entry description.

Table 134 – Object description

Attribute	Value
Index	$63C9_h$
Name	Offset value
Object code	ARRAY
Data type	INTEGER32
Category	See /CiA417-2/

Table 135 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 04_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Position unit 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Position unit 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Position unit 3
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Position unit 4
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.37 Object $63D0_h$ *to* $63D3_h$: Module identification position unit 1 *to* 4

This object shall be equivalent to object $650A_h$ in /CiA406/. Table 136 specifies the object description, and Table 137 specifies the entry description.

Table 136 – Object description

Attribute	Value
Index	$63D0_h$ *to* $63D3_h$
Name	Module identification position unit 1 *to* 4
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 137 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 03_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Manufacturer offset value
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Manufacturer minimum position value
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	03_h
Description	Manufacturer maximum position value
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.38 Object $63A0_h$, $63A3_h$, $63A6_h$, $63A9_h$: CAM state register position unit 1 *to* 4

These objects shall be equivalent to object 6300_h in /CiA406/. Table 138 specifies the object description, and Table 139 specifies the entry description.

Table 138 – Object description

Attribute	Value
Index	$63A0_h$, $63A3_h$, $63A6_h$, $63A9_h$
Name	CAM state register position unit 1 *to* 4
Object code	ARRAY
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 139 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of available channels
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	CAM state channel 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	CAM state channel 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	CAM state channel 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.39 Object $63A1_h$, $63A4_h$, $63A7_h$, $63AA_h$: CAM enable register position unit 1 *to* 4

These objects shall be equivalent to object 6301_h in /CiA406/. Table 140 specifies the object description, and Table 141 specifies the entry description.

Table 140 – Object description

Attribute	Value
Index	$63A1_h$, $63A4_h$, $63A7_h$, $63AA_h$
Name	CAM enable register position unit 1 *to* 4
Object code	ARRAY
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 141 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of available channels
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	CAM enable channel 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	CAM enable channel 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	CAM enable channel 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.40 Object $63A2_h$, $63A5_h$, $63A8_h$, $63AB_h$: CAM polarity register position units 1 *to* 4

These objects shall be equivalent to object 6302_h in /CiA406/. Table 142 specifies the object description, and Table 143 specifies the entry description.

Table 142 – Object description

Attribute	Value
Index	$63A2_h$, $63A3_h$, $63A8_h$, $63AB_h$
Name	CAM polarity register position unit 1 *to* 4
Object code	ARRAY
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 143 – Entry description

Attribute	Value
Sub-index	00_h
Description	Number of available channels
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	CAM polarity channel 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/
Sub-index	02_h
Description	CAM polarity channel 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	CAM state channel 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA406/
Default value	See /CiA417-2/

4.4.41 Object 6400_h: Controlword

This object is based on object 6040_h of /CiA402-2/. The *insp* and *rcl* fields substitutes the bit 14 and bit 15 of the controlword specified in /CiA402-2/. Figure 33 specifies the object structure.

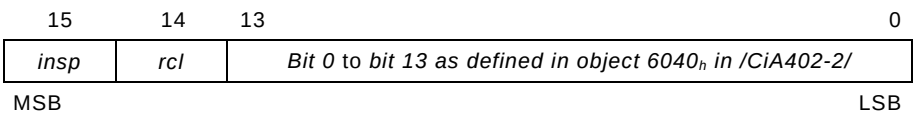

Figure 33 – Object structure of controlword

Table 144 – Value definition of the *rcl* field

Table 144 specifies the *rcl* field value.

Rcl	Description
1	Emergency recall operation mode active
0	Emergency recall operation mode inactive

Table 145 – Value definition of the *insp* field

Table 145 specifies the *insp* field value.

Insp	Description
1	Car top inspection mode active
0	Car top inspection mode inactive

Table 146 specifies the object description and Table 147 specifies the entry description.

Table 146 – Object description

Attribute	Value
Index	6400_h
Name	Controlword
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 147 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 33, Table 145, Table 144 and /CiA402-2/
Default value	See /CiA417-2/

4.4.42 Object 6401_h: Statusword

This object shall be equivalent to object 6041_h in /CiA402-2/. Table 148 specifies the object description, and Table 149 specifies the entry description.

Table 148 – Object description

Attribute	Value
Index	6401_h
Name	Statusword
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 149 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.43 Object 6402_h: Control option codes

This object contains several objects in /CiA402-2/.

Sub-index 01_h shall be equivalent to object $605B_h$ in /CiA402-2/.

Sub-index 02_h shall be equivalent to object $605C_h$ in /CiA402-2/.

Sub-index 03_h shall be equivalent to object $605A_h$ in /CiA402-2/.

Sub-index 04_h shall be equivalent to object $605D_h$ in /CiA402-2/.

Sub-index 05_h shall be equivalent to object $605E_h$ in /CiA402-2/.

Table 150 specifies the object description, and Table 151 specifies the entry description.

Table 150 – Object description

Attribute	Value
Index	6402_h
Name	Control option codes
Object code	ARRAY
Data type	IINTEGER16
Category	See /CiA417-2/

Table 151 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 05_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Shutdown option code
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Disable operation option code
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

Attribute	Value
Sub-index	03_h
Description	Quick stop option code
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	04_h
Description	Halt option code
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	05_h
Description	Fault reaction option code
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.44 Object 6403_h: Modes of operation

This object shall be equivalent to object 6060_h in /CiA402-2/. Table 152 specifies the object description, and Table 153 specifies the entry description.

Table 152 – Object description

Attribute	Value
Index	6403_h
Name	Modes of operation
Object code	VAR
Data type	INTEGER8
Category	See /CiA417-2/

Table 153 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	01_h (profile position mode) and 03_h (profile velocity mode)
Default value	See /CiA417-2/

4.4.45 Object 6404_h: Modes of operation display

This object shall be equivalent to object 6061_h in /CiA402-2/. Table 154 specifies the object description, and Table 155 specifies the entry description.

Table 154 – Object description

Attribute	Value
Index	6404_h
Name	Modes of operation display
Object code	VAR
Data type	INTEGER8
Category	See /CiA417-2/

Table 155 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.46 Object 6405_h: Motion profile type

This object shall be equivalent to object 6086_h in /CiA402-2/. Table 156 specifies the object description, and Table 157 specifies the entry description.

Table 156 – Object description

Attribute	Value
Index	6405_h
Name	Motion profile type
Object code	VAR
Data type	INTEGER16
Category	See /CiA417-2/

Table 157 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.47 Object 6406_h: Control effort

This object shall contain the breaking point or breaking distance depending of the target position given as absolute value respectively as relative value. The value shall be given in user defined position units. Table 158 specifies the object description, and Table 159 specifies the entry description.

Table 158 – Object description

Attribute	Value
Index	6406_h
Name	Control_effort
Object code	VAR
Data type	INTEGER32
Category	See /CiA417-2/

Table 159 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.48 Object 6407_h: Position actual value

This object shall contain the position of the drive shaft. This information is used to calculate the slippage of the position unit. This object shall be equivalent to object 6064_h in /CiA402-2/. Table 160 specifies the object description, and Table 161 specifies the entry description.

Table 160 – Object description

Attribute	Value
Index	6407_h
Name	Position actual value
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 161 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.49 Object 6408_h: Max velocity and speed

This object shall be a collection of limitations of the car drive unit.

Sub-index 01_h shall be equivalent to object $607F_h$ in /CiA402-2/.

Sub-index 02_h shall be equivalent to object 6080_h in /CiA402-2/.

Table 162 specifies the object description, and Table 163 specifies the entry description.

Table 162 – Object description

Attribute	Value
Index	6408_h
Name	Max velocity and speed
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 163 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Max profile velocity
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Max motor speed
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.50 Object 6409_h: Max acceleration and deceleration

This object shall be a collection of limitations of the car drive unit. The values shall be given in multiples of 1 mm/s^2.

Sub-index 01_h shall be equivalent to object $60C5_h$ in /CiA402-2/.

Sub-index 02_h shall be equivalent to object $60C6_h$ in /CiA402-2/. If sub-index 02_h is not implemented, the value of sub-index 01_h shall apply also to sub-index 02_h. Table 164 specifies the object description, and Table 165 specifies the entry description.

Table 164 – Object description

Attribute	Value
Index	6409_h
Name	Max acceleration and deceleration
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 165 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Max acceleration
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Max deceleration
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.51 Object $640A_h$: Quick stop deceleration

This object shall be equivalent to object 6085_h in /CiA402-2/. Table 166 specifies the object description, and Table 167 specifies the entry description.

Table 166 – Object description

Attribute	Value
Index	$640A_h$
Name	Quick stop deceleration
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 167 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.52 Object $640B_h$: Profile acceleration and deceleration

This object shall be a collection of parameters of the car drive unit. The values shall be given in multiples of 1 mm/s^2.

Sub-index 01_h shall be equivalent to object 6083_h in /CiA402-2/.

Sub-index 02_h shall be equivalent to object 6084_h in /CiA402-2/. If sub-index 02_h is not implemented, the value of sub-index 01_h shall apply also to sub-index 02_h.

Table 168 specifies the object description, and Table 169 specifies the entry description.

Table 168 – Object description

Attribute	Value
Index	$640B_h$
Name	Profile acceleration and deceleration
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 169 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Profile acceleration
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

Sub-index	02_h
Description	Profile deceleration
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.53 Object $640C_h$: Profile jerk use

This object shall contain the number of parameters of object $640D_h$ that are used for the jerk during profile movement.

The value shall be between 00_h and 06_h. The value of 00_h shall disable the use of jerk during profile movement. Other possible values see object $640D_h$.

If this object is not implemented the sub-index 00_h of object $640D_h$ shall apply to this value, too.

Table 170 specifies the object description, and Table 171 specifies the entry description.

Table 170 – Object description

Attribute	Value
Index	$640C_h$
Name	Profile jerk use
Object code	VAR
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 171 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	00_h, 01_h, 02_h, 04_h, 06_h
Default value	See /CiA417-2/

4.4.54 Object $640D_h$: Profile jerk

This object shall contain a collection of parameters used during profile movement. The values shall be given in multiples of 1 mm/s^3. Figure 34 specifies the velocity/time relation for jerk operations.

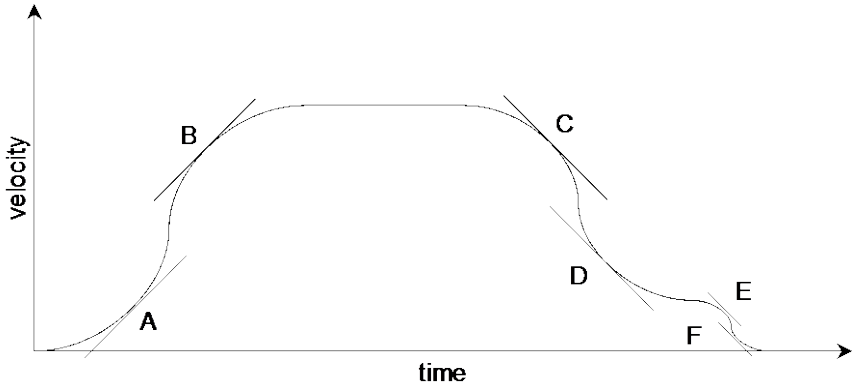

Figure 34 – Velocity/time diagram for use with jerk

- **Number of jerk parameters used = 1**

If object 640C$_h$ is implemented and has a value of 01$_h$, or if object 640C$_h$ is not implemented and object 640D$_h$ sub-index 00$_h$ has a value of 01$_h$, the sub-index shall be assigned to the positions as specified in Table 172.

Table 172 – Sub-index assignments to positions

Position	Sub-index
A	01$_h$
B	01$_h$
C	01$_h$
D	01$_h$
E	Not used
F	Not used

- **Number of jerk parameters used = 2**

If object 640C$_h$ is implemented and has a value of 02$_h$, or if object 640C$_h$ is not implemented and object 640D$_h$ sub-index 00$_h$ has a value of 02$_h$, the sub-index shall be assigned to the positions as specified in Table 173.

Table 173 – Sub-index assignments to positions

Position	Sub-index
A	01$_h$
B	01$_h$
C	02$_h$
D	02$_h$
E	Not used
F	Not used

- **Number of jerk parameters used = 4**

If object 640C$_h$ is implemented and has a value of 04$_h$, or if object 640C$_h$ is not implemented and object 640D$_h$ sub-index 00$_h$ has a value of 04$_h$, the sub-index shall be assigned to the positions as specified in Table 174.

Table 174 – Sub-index assignments to positions

Position	Sub-index
A	01_h
B	03_h
C	02_h
D	04_h
E	Not used
F	Not used

- **Number of jerk parameters used = 6**

If object $640C_h$ is implemented and has a value of 06_h, or if object $640C_h$ is not implemented and object $640D_h$ sub-index 00_h has a value of 06_h, the sub-index shall be assigned to the positions as specified in Table 175.

Table 175 – Sub-index assignments to positions

Position	Sub-index
A	01_h
B	03_h
C	02_h
D	04_h
E	05_h
F	06_h

Table 176 specifies the object description, and Table 177 specifies the entry description.

Table 176 – Object description

Attribute	Value
Index	$640D_h$
Name	Profile jerk
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 177 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h, 02_h, 04_h, 06_h
Default value	Manufacturer-specific

Sub-index	01_h
Description	Profile jerk 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 34 to and Table 172 to Table 175
Default value	See /CiA417-2/
Sub-index	02_h
Description	Profile jerk 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 34 to and Table 172 to Table 175
Default value	See /CiA417-2/
to	
Sub-index	06_h
Description	Profile jerk 6
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 34 *and* Table 172 *to* Table 175
Default value	See /CiA417-2/

4.4.55 Object $640F_h$: reserved

This object is reserved due to compatibility reason.

4.4.56 Object 6414_h: Position encoder resolution

This object shall be equivalent to object $608F_h$ in /CiA402-2/. Table 178 specifies the object description, and Table 179 specifies the entry description.

Table 178 – Object description

Attribute	Value
Index	6414_h
Name	Position encoder resolution
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 179 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific$_h$
Sub-index	01_h
Description	Encoder increments
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Motor revolutions
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.57 Object 6415$_h$: Velocity encoder resolution

This object shall be equivalent to object 6090_h in /CiA402-2/. Table 180 specifies the object description, and Table 181 specifies the entry description.

Table 180 – Object description

Attribute	Value
Index	6415_h
Name	Velocity encoder resolution
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 181 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Encoder increments per second
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Motor revolutions per second
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.58 Object 6416_h: Gear ration

This object shall be equivalent to object 6091_h in /CiA402-2/. Table 182 specifies the object description, and Table 183 specifies the entry description.

Table 182 – Object description

Attribute	Value
Index	6416_h
Name	Gear ration
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 183 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Motor revolutions
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Shaft revolutions
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.59 Object 6417_h: Feed constant

This object shall be equivalent to object 6092_h in /CiA402-2/. Table 184 specifies the object description, and Table 185 specifies the entry description.

Table 184 – Object description

Attribute	Value
Index	6417_h
Name	Feed constant
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 185 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Feed
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Shaft revolutions
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.60 Object $641E_h$: Polarity

This object shall be equivalent to object $607E_h$ in /CiA402-2/. Table 186 specifies the object description, and Table 187 specifies the entry description.

Table 186 – Object description

Attribute	Value
Index	$641E_h$
Name	Polarity
Object code	VAR
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 187 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.61 Object 641F$_h$: Position conversion

This object shall contain the conversion coefficients to convert the target position (from drive controller) and the position value (from the position device) into millimeter (mm).

NOTE This object needs to be configured by the drive controller or by the user to enable a correct operation.

Sub-index 01$_h$ shall contain the number of position units. Sub-index 02$_h$ shall contain the equivalent length value in multiple of mm of the total number of position units as given in sub-index 01$_h$.

Table 188 specifies the object description, and Table 189 specifies the entry description.

Table 188 – Object description

Attribute	Value
Index	641F$_h$
Name	Position conversion
Object code	ARRAY
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 189 – Entry description

Attribute	Value
Sub-index	00$_h$
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02$_h$
Default value	02$_h$
Sub-index	01$_h$
Description	Number of position units
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/
Sub-index	02$_h$
Description	Total length in Millimeter
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/

4.4.62 Object 6420$_h$: Target position

This object shall be equivalent to object 607A$_h$ in /CiA402-2/. Table 190 specifies the object description, and Table 191 specifies the entry description.

Table 190 – Object description

Attribute	Value
Index	6420_h
Name	Target position
Object code	VAR
Data type	INTEGER32
Category	See /CiA417-2/

Table 191 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.63 Object 6421_h: Position range limit

This object shall be equivalent to object $607B_h$ in /CiA402-2/. Table 192 specifies the object description, and Table 193 specifies the entry description.

Table 192 – Object description

Attribute	Value
Index	6421_h
Name	Position range limit
Object code	ARRAY
Data type	INTEGER32
Category	See /CiA417-2/

Table 193 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Min position range limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

Sub-index	02_h
Description	Max position range limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.64 Object 6422_h: Software position limit

This object shall be equivalent to object $607D_h$ in /CiA402-2/. Table 194 specifies the object description, and Table 195 specifies the entry description.

Table 194 – Object description

Attribute	Value
Index	6422_h
Name	Software position limit
Object code	ARRAY
Data type	INTEGER32
Category	See /CiA417-2/

Table 195 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Min position limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/
Sub-index	02_h
Description	Max position limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.65 Object 6423h: Profile velocity

This object shall be equivalent to object 6081h in /CiA402-2/. The value shall be given in multiples of 1 mm/s. Table 196 specifies the object description, and Table 197 specifies the entry description.

Table 196 – Object description

Attribute	Value
Index	6423h
Name	Profile velocity
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 197 – Entry description

Attribute	Value
Sub-index	00h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.66 Object 6424h: End velocity

This object shall be equivalent to object 6082h in /CiA402-2/. Table 198 specifies the object description, and Table 199 specifies the entry description.

Table 198 – Object description

Attribute	Value
Index	6424h
Name	End velocity
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 199 – Entry description

Attribute	Value
Sub-index	00h
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.67 Object 6428h

This object is reserved for compatibility reasons.

4.4.68 Object 6430h: Target velocity

This object shall be equivalent to object 60FFh in /CiA402-2/. The value shall be given in multiples of 1 mm/s. Table 200 specifies the object description, and Table 201 specifies the entry description.

Table 200 – Object description

Attribute	Value
Index	6430_h
Name	Target velocity
Object code	VAR
Data type	INTEGER32
Category	See /CiA417-2/

Table 201 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.69 Object 6431_h: Velocity sensor actual value

This object shall be equivalent to object 6069_h in /CiA402-2/. Table 202 specifies the object description, and Table 203 specifies the entry description.

Table 202 – Object description

Attribute	Value
Index	6431_h
Name	Velocity sensor actual value
Object code	VAR
Data type	INTEGER32
Category	See /CiA417-2/

Table 203 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.70 Object 6432_h: Velocity demand value

This object shall be equivalent to object $606B_h$ in /CiA402-2/. Table 204 specifies the object description, and Table 205 specifies the entry description.

Table 204 – Object description

Attribute	Value
Index	6432_h
Name	Velocity demand value
Object code	VAR
Data type	INTEGER32
Category	See /CiA417-2/

Table 205 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.71 Object 6433_h: Velocity actual value

This object shall be equivalent to object $606C_h$ in /CiA402-2/. The value shall be given in multiples of 1 mm/s. Table 206 specifies the object description, and Table 207 specifies the entry description.

Table 206 – Object description

Attribute	Value
Index	6433_h
Name	Velocity actual value
Object code	VAR
Data type	INTEGER32
Category	See /CiA417-2/

Table 207 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.72 Object 6434_h: Sensor selection code

This object shall be equivalent to object $606A_h$ in /CiA402-2/. Table 208 specifies the object description, and Table 209 specifies the entry description.

Table 208 – Object description

Attribute	Value
Index	6434_h
Name	Sensor selection code
Object code	VAR
Data type	INTEGER16
Category	See /CiA417-2/

Table 209 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.73 Object 6435_h: Velocity window

This object contains configuration parameters of the car drive unit. The structure and value definition of sub-index 01_h shall be as defined in object $606D_h$ in /CiA402-2/. The structure and value definition of sub-index 02_h shall be as defined in object $606E_h$ in /CiA402-2/. The values shall be given in multiples of 1 mm/s.

Table 210 specifies the object description, and Table 211 specifies the entry description.

Table 210 – Object description

Attribute	Value
Index	6435_h
Name	Velocity window
Object code	ARRAY
Data type	INTEGER32
Category	See /CiA417-2/

Table 211 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Velocity window
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

Sub-index	02_h
Description	Velocity window time
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.74 Object 6436_h: Velocity threshold

This object contains configuration parameters of the car drive unit. The structure and value definition of sub-index 01_h shall be as defined in object $606F_h$ in /CiA402-2/. The structure and value definition of sub-index 02_h shall be as defined in object 6070_h in /CiA402-2/. The values shall be given in multiples of 1 mm/s.

Table 212 specifies the object description, and Table 213 specifies the entry description.

Table 212 – Object description

Attribute	Value
Index	6436_h
Name	Velocity threshold
Object code	ARRAY
Data type	INTEGER32
Category	See /CiA417-2/

Table 213 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Velocity threshold
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

Sub-index	02_h
Description	Velocity threshold time
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.75 Object 6437_h: Max slippage

This object shall be equivalent to object $60F8_h$ in /CiA402-2/. Table 214 specifies the object description, and Table 215 specifies the entry description.

Table 214 – Object description

Attribute	Value
Index	6437_h
Name	Max slippage
Object code	VAR
Data type	INTEGER32
Category	See /CiA417-2/

Table 215 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.76 Object 6440_h: Motor type

This object shall be equivalent to object 6402_h in /CiA402-2/. The value definition is given in /CiA402-2/. Table 216 specifies the object description, and Table 217 specifies the entry description.

Table 216 – Object description

Attribute	Value
Index	6440_h
Name	Motor type
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 217 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See /CiA402-2/
Default value	See /CiA417-2/

4.4.77 Object 6441_h: Motor rated speed

This object shall contain the nominal speed of the motor at rated voltage and frequency with rated load applied. The value shall be taken from the motor's name-plate and shall be given in multiples of rotations per minute (1/min). Table 218 specifies the object description, and Table 219 specifies the entry description.

Table 218 – Object description

Attribute	Value
Index	6441_h
Name	Motor rated speed
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 219 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.78 Object 6442_h: Motor rated frequency

This object shall contain the nominal frequency of the motor. The value shall be taken from the motor's name-plate and shall be given in multiples of 0,1 Hz. Table 220 specifies the object description, and Table 221 specifies the entry description.

Table 220 – Object description

Attribute	Value
Index	6442_h
Name	Motor rated frequency
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 221 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.79 Object 6443_h: Motor pole pairs

This object shall contain the number of the motor's pole pairs. The dimensionless value shall be taken from the motor's name-plate or calculated by the following equation:

No. of motor pole pairs = INT (60 x motor rated frequency/motor rated speed)

Table 222 specifies the object description, and Table 223 specifies the entry description.

Table 222 – Object description

Attribute	Value
Index	6443_h
Name	Motor pole pairs
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 223 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.80 Object 6444_h: Motor rated current

This object shall be equivalent to object 6075_h in /CiA402-2/.

Table 224 specifies the object description, and Table 225 specifies the entry description.

Table 224 – Object description

Attribute	Value
Index	6444_h
Name	Motor rated current
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 225 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/

4.4.81 Object 6445_h: Motor rated voltage

This object shall contain the nominal voltage of the motor. The value shall be taken from the motor's name-plate and shall be given in multiples of 1 V. Depending on the motor this value is either DC, peak or rms voltage. Table 226 specifies the object description, and Table 227 specifies the entry description.

Table 226 – Object description

Attribute	Value
Index	6445_h
Name	Motor rated voltage
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 227 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.82 Object 6446_h: Motor rated power

This object shall contain the nominal power of the motor. The value shall be taken from the motor's name-plate and shall be given in multiples of 1 W. Table 228 specifies the object description, and Table 229 specifies the entry description.

Table 228 – Object description

Attribute	Value
Index	6446_h
Name	Motor rated power
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 229 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/

4.4.83 Object 6447_h: Motor connection mode

This object shall contain the connection mode of the motor. The values are specified in Table 230. Table 231 specifies the object description, and Table 232 specifies the entry description.

Table 230 – Value description

Value	Description
XXXXXX00$_b$	Not valid
XXXXXX01$_b$	Star connection
XXXXXX10$_b$	Delta connection
XXXXXX11$_b$	Not used
X = don't care	

Table 231 – Object description

Attribute	Value
Index	6447$_h$
Name	Motor connection mode
Object code	VAR
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 232 – Entry description

Attribute	Value
Sub-index	00$_h$
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 230
Default value	See /CiA417-2/

4.4.84 Object 6448$_h$: Motor cos phi

This object shall contain the nominal power factor of the motor. The dimensionless value shall be given in multiples of 0,001. Table 233 specifies the object description, and Table 234 specifies the entry description.

Table 233 – Object description

Attribute	Value
Index	6448$_h$
Name	Motor cos phi
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 234 – Entry description

Attribute	Value
Sub-index	00$_h$
Access	See /CiA417-2/
PDO mapping	No
Value range	0000$_h$ (0$_d$) *to* 03E8$_h$ (1000$_d$)
Default value	See /CiA417-2/

4.4.85 Object 6449h: Motor max current

This object shall contain the configured maximum permissible torque creating current in the motor. The value shall be given per thousand of the rated current. Table 235 specifies the object description, and Table 236 specifies the entry description.

Table 235 – Object description

Attribute	Value
Index	6449_h
Name	Motor max current
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 236 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.86 Object 644Ah: Motor rated field current

This object shall contain the field current of the motor. The value shall be given in multiples of 1 mA. Table 237 specifies the object description, and Table 238 specifies the entry description.

Table 237 – Object description

Attribute	Value
Index	$644A_h$
Name	Motor rated field current
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 238 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/

4.4.87 Object 644Bh: Motor phase resistance

This object shall contain the resistance of the motor winding per phase. The value shall be given in multiples of 1 µΩ (max. = 2000 Ω). Table 239 specifies the object description, and Table 240 specifies the entry description.

Table 239 – Object description

Attribute	Value
Index	$644B_h$
Name	Motor phase resistance
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 240 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/

4.4.88 Object $644C_h$: Motor phase inductance

This object shall contain the inductance of the motor winding per phase. For a servo-motor this is half the phase-to-phase inductance as given by the manufacturer. For an induction motor this is the per phase transient inductance (σLs). The value shall be given in multiples of 1 µH (max. = 2000 H). Table 241 specifies the object description, and Table 242 specifies the entry description.

Table 241 – Object description

Attribute	Value
Index	$644C_h$
Name	Motor phase inductance
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 242 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/

4.4.89 Object 6450_h: Motor encoder type

This object shall contain information about the installed encoder used locally by the motor. Table 243 specifies the values. Table 244 specifies the object description, and Table 245 specifies the entry description.

Table 243 – Value description

Value	Description
0000_h	No encoder used
0001_h	Quadrature incremental encoder with or without marker pulse (TTL)

0002_h	Incremental encoder with frequency and direction with or without marker pulse
0003_h	Incremental encoder with forward and reverse outputs with or without marker pulse
0004_h	Quadrature incremental encoder with communication output with or without marker pulse
0005_h	Incremental encoder with frequency direction and commutation output with or without marker pulse
0006_h	Incremental encoder with forward reverse and commutation output with or without marker pulse
0007_h	SinCos: Encoder with no serial communication link
0008_h	Absolute SinCos encoder using Stegmann 485 communication protocol (HiperFace)
0009_h	Absolute EnDat only encoder
$000A_h$	Absolute SinCos encoder using EnDat communication protocol
$000B_h$	Absolute SSI only encoder
$000C_h$	SinCos encoder using SSI communication protocol
$000D_h$	SinCos encoder with UVW communication output
$000E_h$	SinCos encoder with one sinus communication wave per pole-pair
$000F_h$	reserved
to	
$FFFF_h$	reserved

Table 244 – Object description

Attribute	Value
Index	6450_h
Name	Motor encoder type
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 245 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 243
Default value	See /CiA417-2/

4.4.90 Object 6451_h: Motor encoder resolution

This object shall contain the single-turn resolution of the motor encoder. The value shall be dimensionless and shall be given in multiples of 1. Table 246 specifies the object description, and Table 247 specifies the entry description.

Table 246 – Object description

Attribute	Value
Index	6451_h
Name	Motor encoder resolution
Object code	VAR
Data type	UNSIGNED32
Category	See /CiA417-2/

Table 247 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED32
Default value	See /CiA417-2/

4.4.91 Object 6452_h: Motor encoder alignment angle

This object shall contain the phase angle of the encoder to the PM synchronous motor alignment. The motor alignment is defined by the position of the rotor of the not loaded PM synchronous motor when supplied with the rated DC current und phase U and negative half-rated current in phase V and W via a battery with plus pole connected to U and minus pole to V and W. 360 electrical degrees are defined as 1 pole pair, so a 4-pole motor has 720 electrical degrees. The value shall be given in electrical degrees as multiples of 1 electrical degree. Table 248 specifies the object description, and Table 249 specifies the entry description.

Table 248 – Object description

Attribute	Value
Index	6452_h
Name	Motor encoder alignment angle
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 249 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.92 Object 6460_h: Lift installation speed

This object shall contain the nominal speed of the lift used during installation. The value shall be given in multiples of 1 mm/s. Table 250 specifies the object description, and Table 251 specifies the entry description.

Table 250 – Object description

Attribute	Value
Index	6460_h
Name	Lift installation speed
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 251 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.93 Object 6461_h: Motor rpm at lift installation speed

This object shall contain the nominal motor speed used during installation. The value shall be given in multiples of 1 1/min (rpm). Table 252 specifies the object description, and Table 253 specifies the entry description.

Table 252 – Object description

Attribute	Value
Index	6461_h
Name	Motor rpm at lift installation speed
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 253 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.94 Object 6462_h: Sheave diameter

This object shall contain the sheave diameter. The value shall be given in multiples of 1 mm. Table 254 specifies the object description, and Table 255 specifies the entry description.

Table 254 – Object description

Attribute	Value
Index	6462_h
Name	Sheave diameter
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 255 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.95 Object 6463_h: Suspension

This object shall contain the suspension of the lift car. The values are specified in Table 256. Table 257 specifies the object description, and Table 258 specifies the entry description.

Table 256 – Value description

Value	Description
00_h	1:1
01_h	2:1
02_h	3:1
03_h	4:1
04_h	reserved
to	
FE_h	reserved
FF_h	not valid

Table 257 – Object description

Attribute	Value
Index	6463_h
Name	Suspension
Object code	VAR
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 258 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	See Table 256
Default value	See /CiA417-2/

4.4.96 Object 6465_h: Loads and weights

This object shall contain the nominal lift load, the cabin and the counter weights. The values shall be given in multiples of 1 kg. Table 259 specifies the object description, and Table 260 specifies the entry description.

Table 259 – Object description

Attribute	Value
Index	6465_h
Name	Loads and weights
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 260 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 03_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Nominal lift load
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	02_h
Description	Car weight
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	03_h
Description	Counter weight
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.97 Object 6466_h: Delay times

This object shall contain the delay times for motor contactor and brake. The values shall be given in multiples of 1 ms. Table 261 specifies the object description, and Table 262 specifies the entry description.

Table 261 – Object description

Attribute	Value
Index	6466_h
Name	Delay times
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 262 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 03_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Contactor debouncing time
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	02_h
Description	Brake release time
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	03_h
Description	Brake apply time
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.98 Object 6467_h: Monitoring bits

This object shall contain status bits of the motor contactors and brake switches. The object structure is specified in Figure 35, and the field values are specified in Table 263. Table 264 specifies the object description, and Table 265 specifies the entry description.

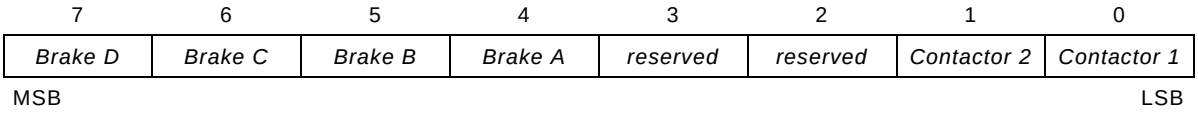

Figure 35 – Object structure

Table 263 – Value description

Field value	Description
0_b	Brake applied / contactor closed
1_b	Brake not applied / contactor open

Table 264 – Object description

Attribute	Value
Index	6467_h
Name	Monitoring bits
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 265 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	Optional
Value range	See Figure 35 *and* Table 263
Default value	See /CiA417-2/

4.4.99 Object 6468_h: Drive switching frequency

This object shall contain the switching frequency of the car drive inverter. The value shall be given in multiples of 1 Hz. Table 266 specifies the object description, and Table 267 specifies the entry description.

Table 266 – Object description

Attribute	Value
Index	6468_h
Name	Drive switching frequency
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 267 – Entry description

Attribute	Value
Sub-index	00_h
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.100 Object 6480_h: Load value

This object shall contain the load value (sub-index 01_h) and the related SI unit (sub-index 02_h). The load value shall be the absolute value of the load (payload). It shall be given in multiples of the configured SI unit. The load value of $FFFF_h$ shall be an error value that is applied, if the sensor is in error state or does not have an actual value.

If the SI unit is not implemented, the load shall be given in multiples of kg. Figure 36 specifies the SI unit structure. The *SI unit* and *prefix* field values shall use the coding as defined in /CiA303-2/.

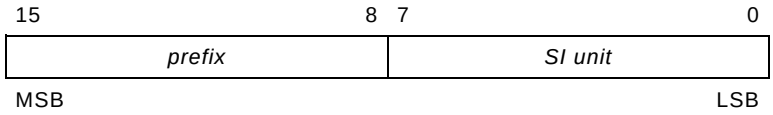

Figure 36 – Object structure of SI unit (sub-index 02_h)

Table 268 specifies the object description, and Table 269 specifies the entry description.

Table 268 – Object description

Attribute	Value
Index	6480_h
Name	Load value
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 269 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h *to* 02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Absolute load value
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	UNSIGNED16
Default value	See /CiA417-2/

Sub-index	02_h
Description	SI unit
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 36 and /CiA303-2/
Default value	See /CiA417-2/

4.4.101 Object 6481_h: Load limits

This object shall contain the high-limit and the low-limit value for the absolute load value. It shall be given in the same SI unit as the load value (object 6480_h). Table 270 specifies the object description, and Table 271 specifies the entry description.

Table 270 – Object description

Attribute	Value
Index	6481_h
Name	Load limits
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 271 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	02_h
Sub-index	01_h
Description	Low limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	02_h
Description	High limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.102 Object 6482_h: Load signaling

This object shall contain load signal information. It is used to signal measuring values of the load measuring system. Sub-index 01_h shall contain different kinds of load signal. If one of the load bits (for zero load, norm load, full load, and overload) is set to 1_b, the related condition is true. If the bit is set to 0_b, the related condition is not true. The related limits are configured in object 6483_h. Sub-index 02_h shall contain the information, if the related load bit shall be processed (if set to 1_b) or not (if set to 0_b). Figure 37 specifies the structure of both sub-indexes.

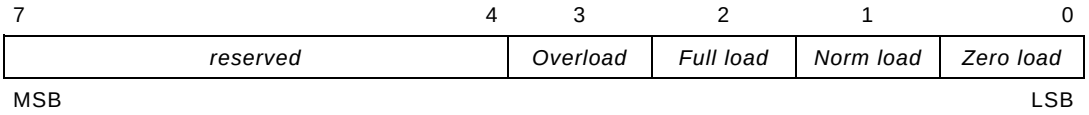

Figure 37 – Object structure of the load signaling sub-indexes

Table 272 specifies the object description, and Table 273 specifies the entry description.

Table 272 – Object description

Attribute	Value
Index	6482_h
Name	Load signaling
Object code	ARRAY
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 273 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Load signal
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	See /CiA417-3/
Value range	See Figure 37
Default value	See /CiA417-2/

Sub-index	02_h
Description	Load signal interrupt
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	See Figure 37
Default value	See /CiA417-2/

4.4.103 Object 6483_h: Load signaling limits

This object shall contain the load signaling limits, which shall be used to signal load conditions in object 6482_h. The limit values in the sub-indexes shall be given in the same unit as the absolute load value (see object 6480_h). The value $FFFF_h$ shall indicate an unused limit.

Table 274 specifies the object description, and Table 275 specifies the entry description.

Table 274 – Object description

Attribute	Value
Index	6483_h
Name	Load signaling limits
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 275 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	04_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Zero load limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

Sub-index	02_h
Description	Norm load limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	03_h
Description	Full load limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	04
Description	Overload limit
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.104 Object 6484_h: Rope load

This object shall contain the rope load. It applies for load measuring systems that are used where several ropes apply to the same car. It shall be used to measure the load for each rope. The load value for each rope shall be given in the same unit as the absolute load value (see object 6480_h).

Table 276 specifies the object description, and Table 277 specifies the entry description.

Table 276 – Object description

Attribute	Value
Index	6484_h
Name	Rope load
Object code	ARRAY
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 277 – Entry description

Attribute	Value
Sub-index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01_h to FE_h
Default value	Manufacturer-specific
Sub-index	01_h
Description	Rope 1
Entry category	Mandatory
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
Sub-index	02_h
Description	Rope 2
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/
to	
Sub-index	FE_h
Description	Rope 254
Entry category	Optional
Access	See /CiA417-2/
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.105 Object 6485_h

This object is reserved for compatibility reasons.

4.4.106 Object 6486_h: Car reference weight

This object shall be used to write the preset value (tare weight) of the car. The value shall be given in SI unit and prefix as defined in the load value (6480_h) object. The value of $FFFF_h$ shall indicate an invalid car reference weight. Table 280 defines the object description and Table 281 defines the entry description.

Table 278 – Object description

Attribute	Value
Index	6486_h
Name	Car reference weight
Object code	VAR
Data type	UNSIGNED16
Category	See /CiA417-2/

Table 279 – Entry description

Attribute	Value
Sub-index	00_h
Access	wo
PDO mapping	No
Value range	UNSIGNED16
Default value	See /CiA417-2/

4.4.107 Object $67FE_h$: Byte dummy

This object is used to fill one byte into a TPDO. Table 280 defines the object description and Table 281 defines the entry description.

Table 280 – Object description

Attribute	Value
Index	$67FE_h$
Name	Byte dummy
Object code	VAR
Data type	UNSIGNED8
Category	See /CiA417-2/

Table 281 – Entry description

Attribute	Value
Sub-index	00_h
Access	const
PDO mapping	See /CiA417-3/
Value range	FF_h
Default value	FF_h

