# CiA 417

*Application profile for lift control systems*

Part 4: Detailed application object specification

**Version: 2.0.0**

**02 February 2011**

**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 |
| | - Completely re-edited and re-chaptered |
| | - New application objects for car drive unit |
| | - Application object specification clarified |
| | - Minor corrections and description improvements |
| | NOTE: Version 2.0 is partly incompatible to version 1.0 |
| 2011-02-02 | *Publication of version 2*.0 as public specification |

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# 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.

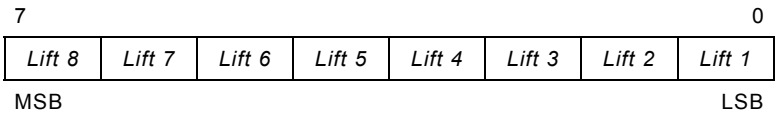


**Figure 1 – Object structure of the lift number**

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.

 

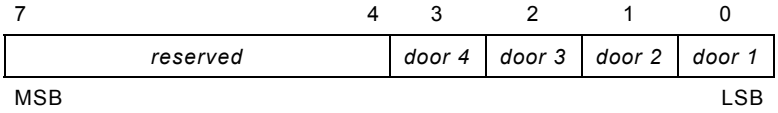


**Figure 2 – Object structure of car door number**

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

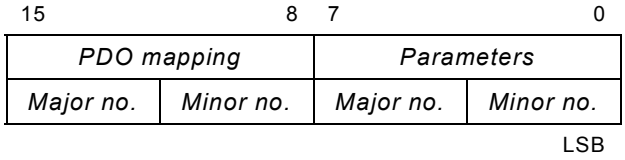


**Figure 3 – Object structure of the specification version**

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/.

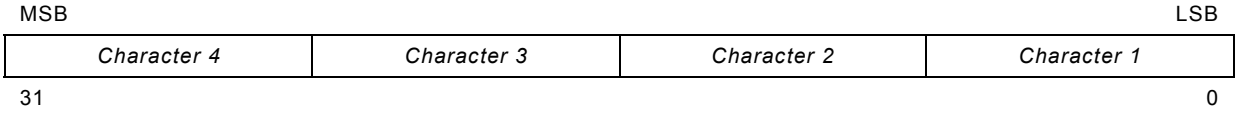


**Figure 4 – Object structure of virtual terminal interface**

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.

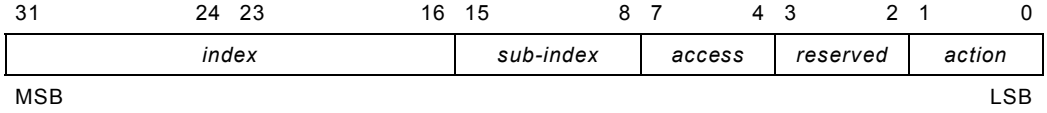


**Figure 5 – Object structure of object creation**

**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.

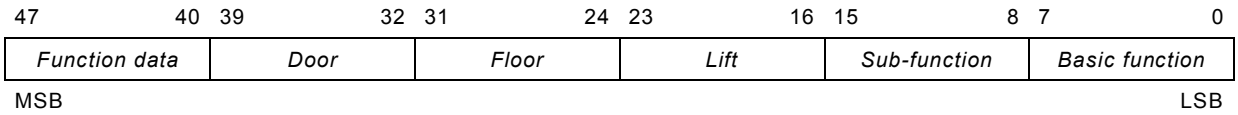


**Figure 6 – Object structure**

- ***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 |
| $0E_h$ | 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 |

 

| Value | Description |
|---|---|
| $1A_h$ | 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.

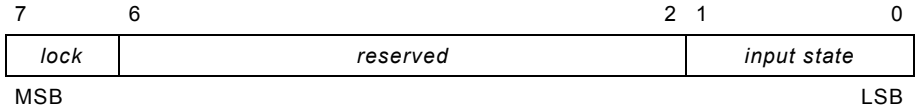


**Figure 7 – Structure of the *function data* field**

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.

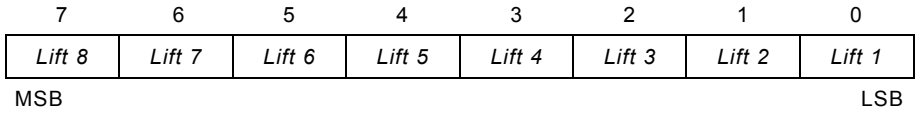


**Figure 8 – Object structure of *lift* field**

**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.

 

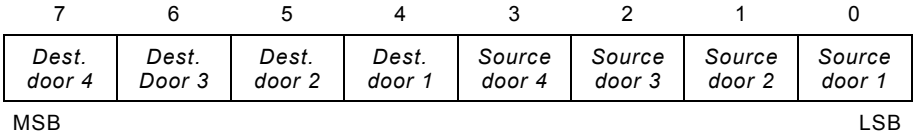


**Figure 9 – Structure of the *door* field (*basic function* = $08_h$ *to* $0D_h$)**

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.

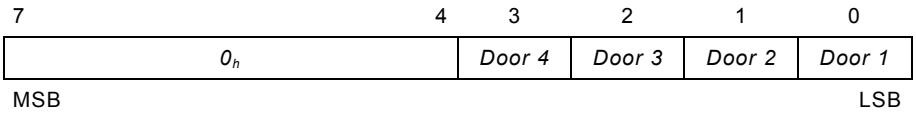


**Figure 10 – Other structure of the *door* field (*basic function* ≠ $08_h$ *to* $0D_h$)**

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.

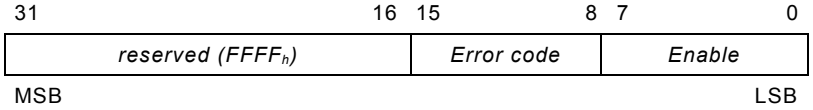


**Figure 11 – Object structure of the input parameter 1**

- ***Enable* field description**

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

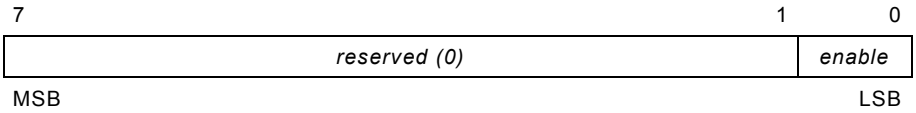


**Figure 12 – Structure of the *enable* field**

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.

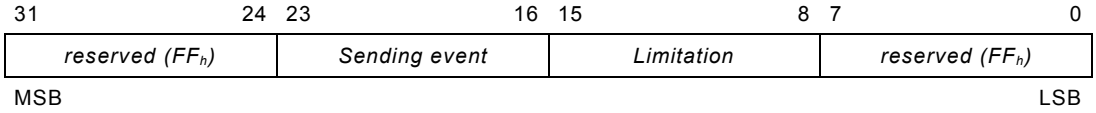


**Figure 13 – Object structure of input parameter 2**

- ***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.

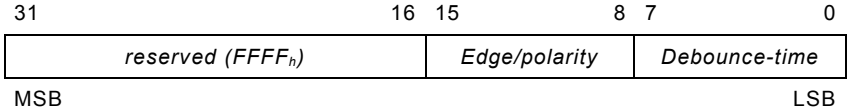


**Figure 14 – Object structure of the input parameter 3**

- ***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.

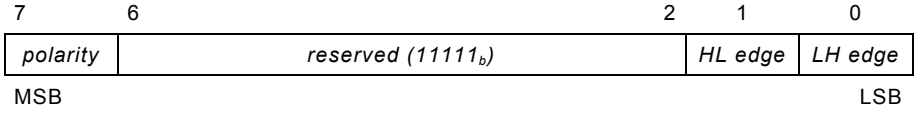


**Figure 15 – Structure of *edge/polarity* field**

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.

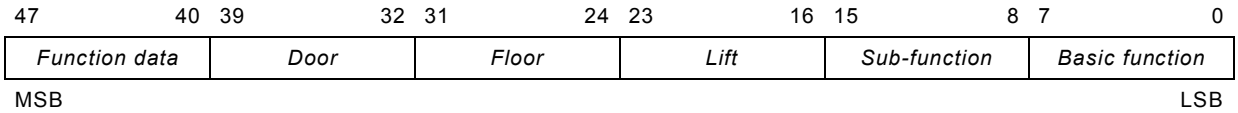


**Figure 16 – Object structure of output groups**

- ***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 |

 

| Value | Description |
|---|---|
| $46_h$ | Publicity indication |
| $47_h$ | 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.

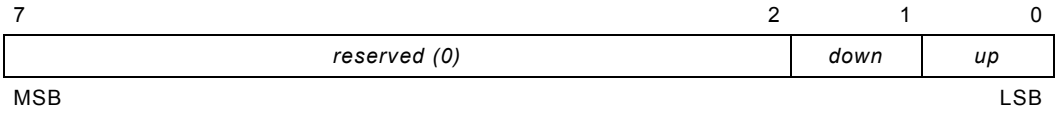


**Figure 19 – Structure of the sub-function field (*basic function* = $44_h$)**

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.

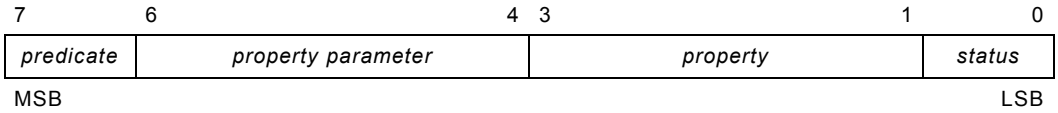


**Figure 20 – Structure of *function data* field**

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 |

 

| Value | Property | | | | | | |
|---|---|---|---|---|---|---|---|
| | **no action** | **continuous** | **pulsed** | **flashing** | **color** | **volume** | **scroll rate** |
| $011_b$ | n. a. | reserved | 2 s | 2 Hz | green | vary | 3 lines/s |
| $100_b$ | 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.

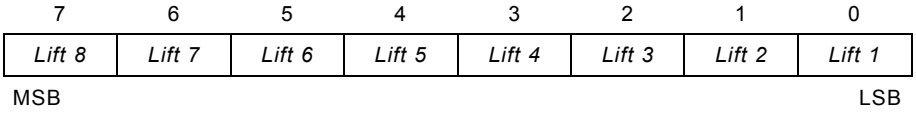


**Figure 21 – Structure of the *lift* field**

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.

 

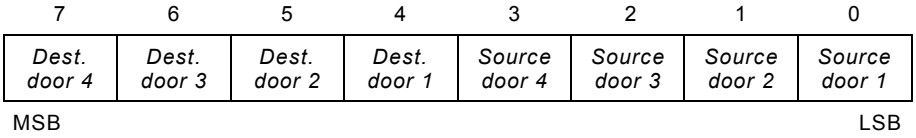


**Figure 22 – Structure of the *door* field (*basic function* = $08_h$ *to* $0D_h$)**

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

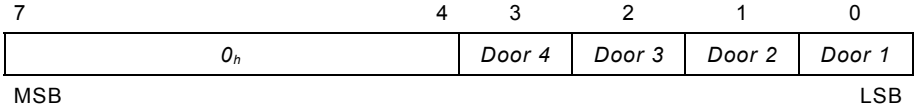


**Figure 23 – Structure of the door field (*basic function* ≠ $08_h$ to $0D_h$)**

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 $FF_h$.

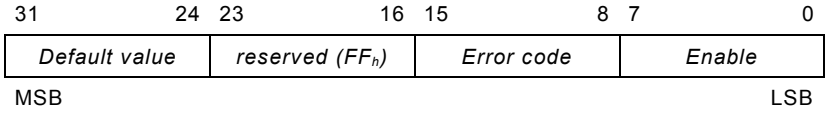


**Figure 24 – Object structure of output parameter 1**

- ***Enable* field description**

Figure 25 specifies the *enable* field structure.

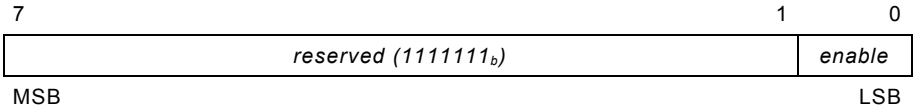


**Figure 25 – Structure of the *enable* field**

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 $FF_h$.

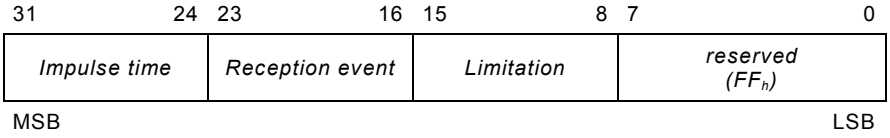


**Figure 26 – Object structure of output parameter 2**

- ***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.

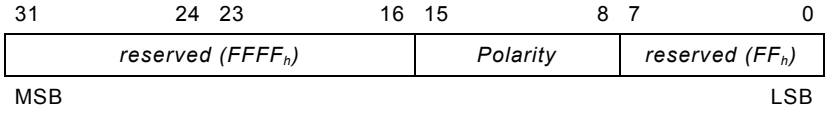


**Figure 27 – Object structure of output parameter 3**

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

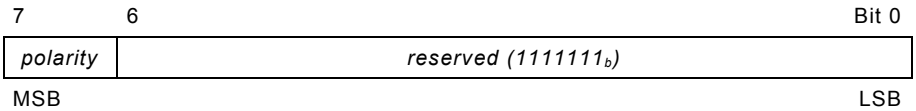


**Figure 28 – Structure of *polarity* field**

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 $FF_h$.

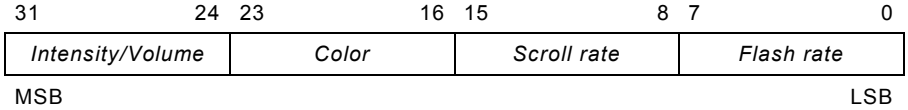


**Figure 29 – Object structure of output parameter 4**

- ***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.

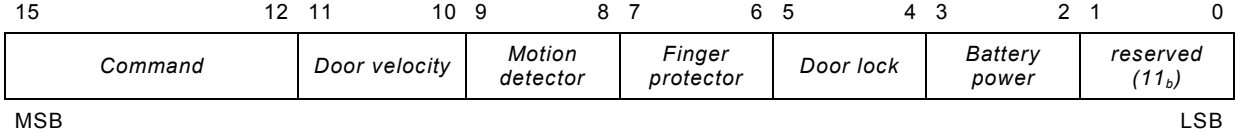


**Figure 30 – Object structure of the door controlword**

- ***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<br>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.

 

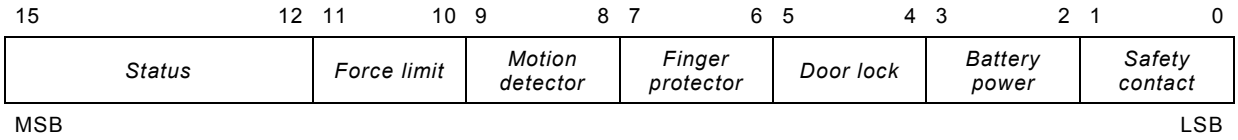


**Figure 31 – Object structure of door statusword**

- ***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 |

 

| Bit 15 | Bit 14 | Bit 13 | Bit 12 | Description |
|---|---|---|---|---|
| *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.

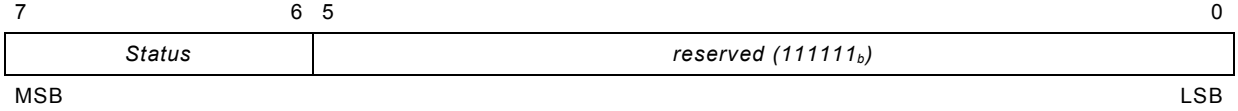


**Figure 32 – object structure of light barrier status**

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.

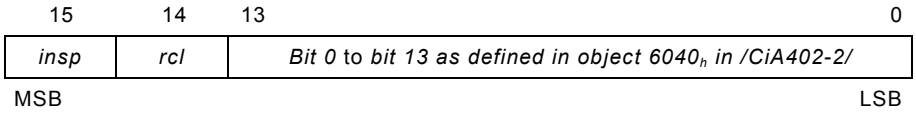


**Figure 33 – Object structure of controlword**

**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/ |
| | |

 

| | |
|---|---|
| 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.

 

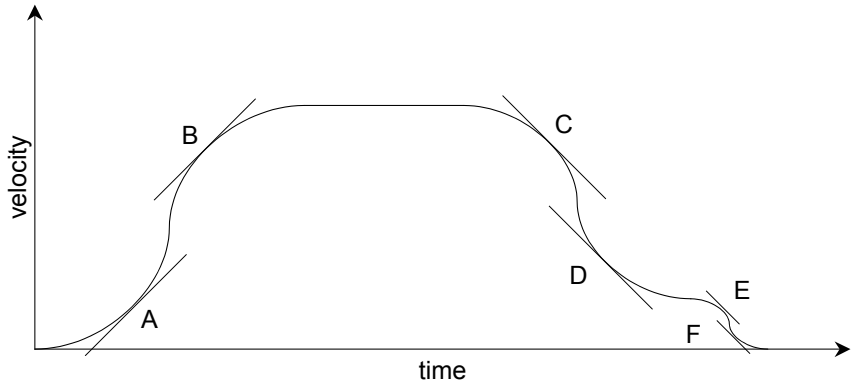


**Figure 34 – Velocity/time diagram for use with jerk**

- **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 $6423_h$: Profile velocity

This object shall be equivalent to object $6081_h$ 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 | $6423_h$ |
| Name | Profile velocity |
| Object code | VAR |
| Data type | UNSIGNED32 |
| Category | See /CiA417-2/ |

**Table 197 – 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/ |

### 4.4.66 Object $6424_h$: End velocity

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

**Table 198 – Object description**

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

 

**Table 199 – 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/ |

### 4.4.67 Object $6428_h$

This object is reserved for compatibility reasons.

### 4.4.68 Object $6430_h$: Target velocity

This object shall be equivalent to object $60FF_h$ 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 $6449_h$: 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 $644A_h$: 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 $644B_h$: 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 ($\sigma$Ls). 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 |

 

| Value | Description |
|---|---|
| $04_h$ | 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.

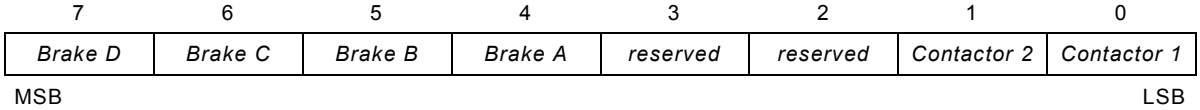


**Figure 35 – Object structure**

**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/.

 

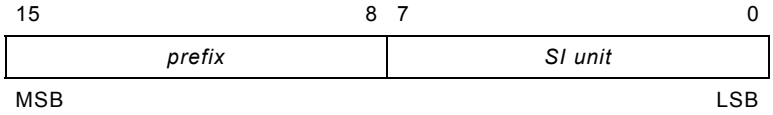


**Figure 36 – Object structure of SI unit (sub-index $02_h$)**

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.

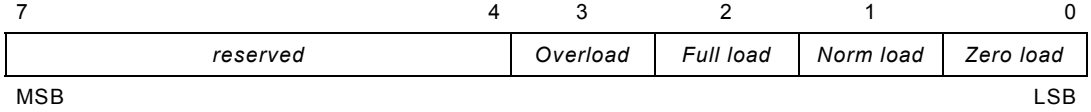


**Figure 37 – Object structure of the load signaling sub-indexes**

 

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 | $FF_h$ |

 