CiA Draft Standard Proposal 447

Application profile for special-purpose car add-on devices

Part 3: Detailed process data specification

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HISTORY

Date	Changes
2008-05-21	*Publication of version 1.0 as draft standard proposal*

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CONTENTS

1 Scope

This CANopen application profile specifies the CAN physical layer as well as application, configuration and diagnostic parameters for the add-on devices used in special-purpose passenger cars such as taximeter, roof bar, etc. The specification comprises the following parts:

- Part 1: General definitions
- Part 2: Virtual device definition
- Part 3: Detailed process data specification
- Part 4: Pre-defined CAN-IDs and communication objects

This part specifies in detail the process data and parameters of the virtual devices.

2 Normative references

/CiA447-1/ CiA 447, CANopen application profile for special-purpose car add-on devices – Part 1: General definitions

/CiA447-2/ CiA 447, CANopen application profile for special-purpose car add-on devices – Part 2: Virtual device definition

/CiA447-4/ CiA 447, CANopen application profile for special-purpose car add-on devices – Part 4: Pre-defined CAN-IDs and communication objects

The normative references given in /CiA447-1/ apply for this specification, too.

3 Definitions and abbreviations

3.1 Definitions

The definitions given in /CiA447-1/ apply to this specification, too.

3.2 Abbreviations

The abbreviations given in /CiA447-1/ apply to this specification, too.

4 Detailed parameter specification

4.1 Introduction

4.1.1 Object and Entry description attributes

Process data are described by Object description and Entry description. Object description and Entry description attributes are specified in /CiA301/.

The *Category* and *Entry category* attributes indicate, if the object shall be implemented (Mandatory) or may be implemented (Optional). These attributes are defined in /CiA447-2/.

The *Access* attribute is different for a device, which provides this objects by means of producer functionality (*ro*) or for devices, which consume (*rw*) this process data by means of SDO or PDO (only if the *PDO mapping* attribute is default or optional) services.

The *Default value* attribute defines the value of the objects with *Access* type ‘rw’ or ‘const’ after the first power-on or after reset if the configuration was not saved.

4.1.2 Complex data type definitions

The complex data types are defined in /CiA447-1/.

4.2 Application parameters for virtual devices

4.2.1 Introduction

The application parameters described in clause 4.2 are used to exchange process data between virtual devices and to configure virtual devices.

4.2.2 Application parameters for IVN gateway virtual device, function group car body electronics

4.2.2.1 Object 6005_h: Switch illumination level status

This object shall provide the switch illumination level status of the dashboard background illumination. Table 1 specifies the value definition. Table 2 specifies the object description and Table 3 specifies the entry description.

Table 1 – Value definition

Value	Definition
00_h	Minimal value in %
64_h	Maximal value in %
65_h to FD_h	Reserved
FE_h	Failure
FF_h	Signal not available

Table 2 – Object description

Attribute	Value
Index	6005_h
Name	Switch illumination level status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 3 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.2 Object 6006_h: Switch illumination level command

This object shall indicate the switch illumination level command for the dashboard background illumination. Table 4 specifies the value definition. Table 5 specifies the object description and Table 6 specifies the entry description.

Table 4 – Value definition

Value	Definition
00_h *to* 64_h	Switch illumination level to 0 % *to* 100%
65_h to FD_h	Reserved
FE_h	Reserved (for write access); Function not implemented (for read access)
FF_h	Don't care, take no action

Table 5 – Object description

Attribute	Value
Index	6006_h
Name	Switch illumination level command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 6 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.2.3 Object 6007_h: Ignition switch status

This object shall provide the ignition switch status. The object structure is specified in Figure 1. The values are specified in Table 7.

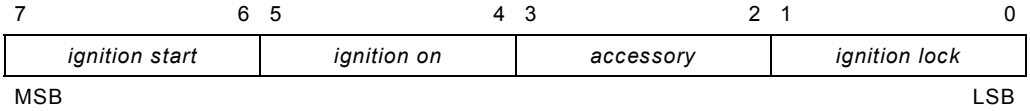

Figure 1 – Object structure

Table 7 – Value definition

Field	Value	Definition
ignition lock	00_h 01_h 02_h 03_h	Ignition not locked Ignition locked (Key in) Failure Signal not available
accessory	00_h 01_h 02_h 03_h	No ignition accessory Ignition accessory Failure Signal not available
ignition on	00_h 01_h 02_h 03_h	Ignition off Ignition on Failure Signal not available
ignition start	00_h 01_h 02_h 03_h	No ignition start Ignition start Failure Signal not available

Table 8 specifies the object description and Table 9 specifies the entry description.

Table 8 – Object description

Attribute	Value
Index	6007_h
Name	Ignition switch status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 9 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.4 Object 6009_h: Central locking system status

This object shall provide the central locking system status. The object structure is specified in Figure 2. The values are specified in Table 10.

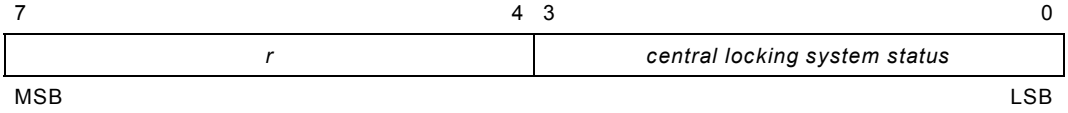

Figure 2 – Object structure

Table 10 – Value definition

Field	Value (hex)	Definition
central locking system status	00_h 01_h 02_h 03_h 04_h to $0D_h$ $0E_h$ $0F_h$	Vehicle unlocked Vehicle internal locked Vehicle external locked Vehicle selective unlocked Reserved Failure Signal not available
r	$0F_h$	Reserved

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

Table 11 – Object description

Attribute	Value
Index	6009_h
Name	Central locking system status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 12 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro *or* rw
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.5 Object $600A_h$: Central locking system command

This object shall indicate the central locking system command. The object structure is specified in Figure 3. The values are specified in Table 13.

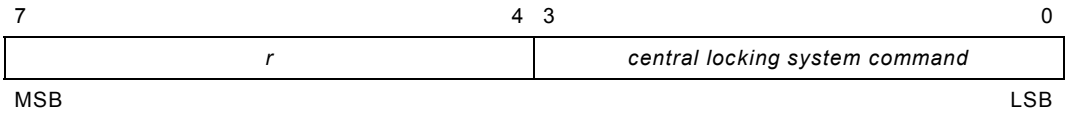

Figure 3 – Object structure

Table 13 – Value definition

Field	Value	Definition
central locking system command	00_h 01_h 02_h 03_h 04_h to $0D_h$ $0E_h$ $0F_h$	Unlock vehicle Lock vehicle internal Lock vehicle external Unlock vehicle selective Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$0F_h$	Reserved

Table 14 specifies the object description and Table 15 specifies the entry description.

Table 14 – Object description

Attribute	Value
Index	$600A_h$
Name	Central locking system command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 15 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.2.6 Object $600B_h$: Window status

This object shall provide the window status. The object structure is specified in Figure 4. The values are specified in Table 16.

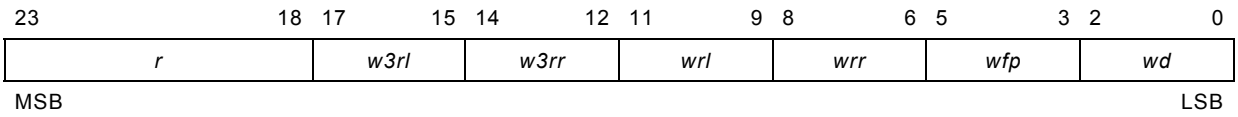

Figure 4 – Object structure

Table 16 – Value definition

Field	Value (hex)	Definition
wd (window driver) *wfp (window front passenger)* *wrr (window rear right)* *wrl (window rear left)* *w3rr (window 3rd row right)* *w3rl (window 3rd row left)*	00_h 01_h 02_h 03_h 04_h to 05_h 06_h 07_h	Open Closed Is getting open Is getting closed Reserved Failure Signal not available
r	$3F_h$	Reserved

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

Table 17 – Object description

Attribute	Value
Index	$600B_h$
Name	Window status
Object code	Variable
Data type	Unsigned24
Category	See /CiA447-2/

Table 18 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)

4.2.2.7 Object $600C_h$: Window command

This object shall indicate the window command. The object structure is specified in Figure 5. The values are specified in Table 19.

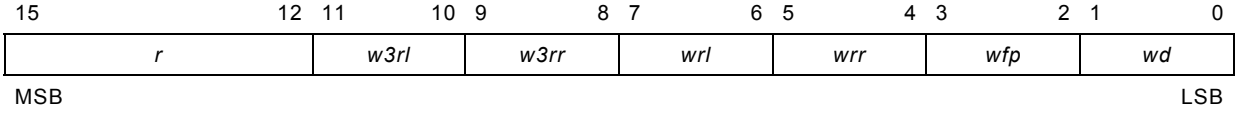

Figure 5 – Object structure

Table 19 – Value definition

Field	Value	Definition
wd (window driver) *wfp (window front passenger)* *wrr (window rear right)* *wrl (window rear left)* *w3rr (window 3rd row right)* *w3rl (window 3rd row left)*	00_h 01_h 02_h 03_h	Open the window Close the window Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$0F_h$	Reserved

Table 20 specifies the object description and Table 21 specifies the entry description.

Table 20 – Object description

Attribute	Value
Index	$600C_h$
Name	Window command
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 21 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.2.8 Object $600D_h$: Door status

This object shall provide the door status. The object structure is specified in Figure 6. The values are specified in Table 22.

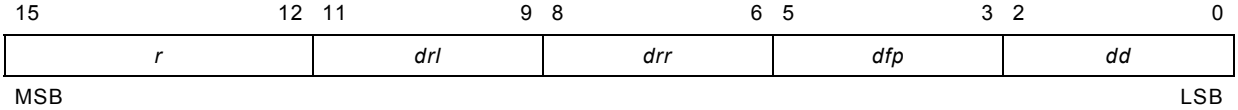

Figure 6 – Object structure

Table 22 – Value definition

Field	Value	Definition
dd (door driver) *dfp (door front passenger)* *drr (door rear right)* *drl (door rear left)*	00_h 01_h 02_h 03_h 04_h to 05_h 06_h 07_h	Open Closed Is getting open Is getting closed Reserved Failure Signal not available
r	$0F_h$	Reserved

Table 23 specifies the object description and Table 24 specifies the entry description.

Table 23 – Object description

Attribute	Value
Index	$600D_h$
Name	Door status
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 24 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro *or* rw
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.2.9 Object $600E_h$: Door command

This object shall indicate the door command. The object structure is specified in Figure 7. The values are specified in Table 25.

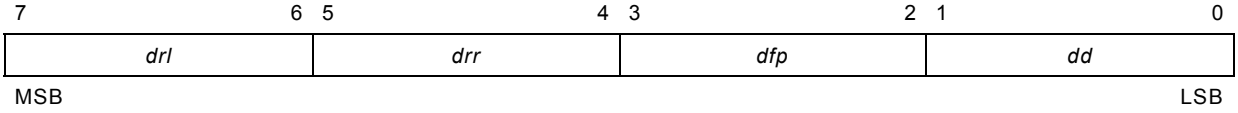

Figure 7 – Object structure

Table 25 – Value definition

Field	Value	Definition
dd (door driver)	00_h	Open the door
dfp (door front passenger)	01_h	Close the door
drr (door rear right)	02_h	Reserved (for write access); Function not implemented (for read access)
drl (door rear left)	03_h	Don't care, take no action

Table 26 specifies the object description and Table 27 specifies the entry description.

Table 26 – Object description

Attribute	Value
Index	$600E_h$
Name	Door command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 27 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.2.10 Object 6010_h: Car flap status

This object shall provide the car flap status. The object structure is specified in Figure 8. The values are specified in Table 28.

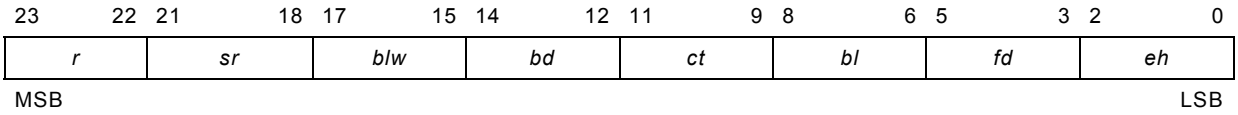

Figure 8 – Object structure

Table 28 – Value definition

Fields	Value	Definition
eh (engine hood) *fd (fuel door)* *bl (boot lid)* *blw (boot lid window)*	00_h 01_h 02_h 03_h 04_h to 05_h 06_h 07_h	Closed Open Is getting closed Is getting open Reserved Failure Signal not available
ct (convertible top) *bd (back door)*	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h	Closed Open Is getting closed Is getting open Stopped Reserved Failure Signal not available
sr (sliding roof)	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h to $0D_h$ $0E_h$ $0F_h$	Closed Open (tilt) Open (slide) Is getting closed (tilt) Is getting closed (slide) Is getting open (tilt) Is getting open (slide) Stopped (tilt) Stopped (slide) Reserved Failure Signal not available
r	03_h	Reserved

Table 29 specifies the object description and Table 30 specifies the entry description.

Table 29 – Object description

Attribute	Value
Index	6010_h
Name	Car flap status
Object code	Variable
Data type	Unsigned24
Category	See /CiA447-2/

Table 30 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)

4.2.2.11 Object 6011_h: Car flap command

This object shall indicate the car flap command. The object structure is specified in Figure 9. The values are specified in Table 31.

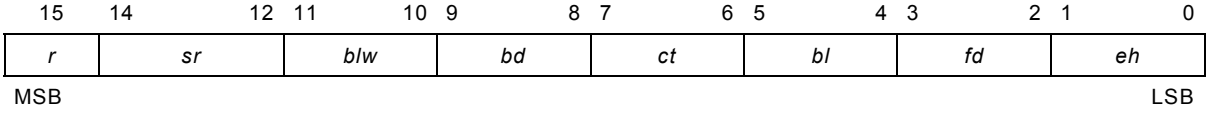

Figure 9 – Object structure

Table 31 – Value definition

Fields	Value	Definition
eh (engine hood) *fd (fuel door)* *bl (boot lid)* *blw (boot lid window)*	00_h 01_h 02_h 03_h	Close Open Reserved (for write access); Function not implemented (for read access) Don't care, take no action
ct (convertible top) *bd (back door)*	00_h 01_h 02_h 03_h	Close Open Stop Don't care, take no action
sr (sliding roof)	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h	Close (tilt) Close (slide) Open (tilt) Open (slide) Stop Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	1_b	Reserved

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

Table 32 – Object description

Attribute	Value
Index	6011_h
Name	Car flap command
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 33 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.2.12 Object 6018_h: Seat adjustment command

This object shall indicate the seat adjustment command. Sub-index 01_h shall indicate the seat adjustment command for the driver seat. Sub-index 02_h shall indicate the seat adjustment command for the front passenger seat.

The structure of sub-index 01_h and sub-index 02_h is specified in Figure 10. Table 34 specifies the value definition for sub-index 01_h and sub-index 02_h.

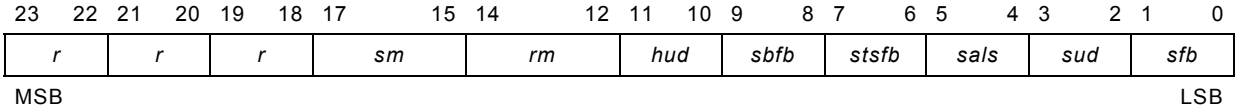

Figure 10 – Structure of sub-index 01_h and sub-index 02_h

Table 34 – Value definition for sub-index 01_h and sub-index 02_h

Fields	Value	Definition
sfb (seat forward/backward)	00_h 01_h 02_h 03_h	Seat forward Seat backward Reserved (for write access); Function not implemented (for read access) Don't care, take no action
sud (seat up/down)	00_h 01_h 02_h 03_h	Seat up Seat down Reserved (for write access); Function not implemented (for read access) Don't care, take no action
sals (seat angle lift/sink)	00_h 01_h 02_h 03_h	Seat angle lift Seat angle sink Reserved (for write access); Function not implemented (for read access) Don't care, take no action
stsfb (seat tight support forward/backward)	00_h 01_h 02_h 03_h	Seat tight support forward Seat tight support backward Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Fields	Value	Definition
sbfb (seat back forward/backward)	00_h 01_h 02_h 03_h	Seat back forward Seat back backward Reserved (for write access); Function not implemented (for read access) Don't care, take no action
hud (headrest up/down)	00_h 01_h 02_h 03_h	Headrest up Headrest down Reserved (for write access); Function not implemented (for read access) Don't care, take no action
rm (recall memory)	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h	Recall no memory Recall Memory 1 Recall Memory 2 Recall Memory 3 Recall Memory 4 Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
sm (store memory)	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h	Store no memory Store Memory 1 Store Memory 2 Store Memory 3 Store Memory 4 Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	03_h	Reserved

Table 35 specifies the object description and Table 36 specifies the entry description.

Table 35 – Object description

Attribute	Value
Index	6018_h
Name	Seat adjustment command
Object code	Array
Data type	Unsigned24
Category	Optional

Table 36 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h
Default value	02_h

Attribute	Value
Sub-Index	01_h
Description	Seat adjustment command driver
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF $FFFF_h$
Sub-Index	02_h
Description	Seat adjustment command front passenger
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF $FFFF_h$

4.2.2.13 Object 6019_h: Seat adjustment status

This object shall provide the seat adjustment status. Sub-index 01_h shall provide the seat adjustment status of the driver seat. Sub-index 02_h shall provide the seat adjustment status of the front passenger seat.

The structure of sub-index 01_h and sub-index 02_h is specified in Figure 10. Table 37 specifies the value definition for sub-index 01_h and sub-index 02_h.

Table 37 – Value definition

Fields	Value	Definition
sfb (seat forward/backward)	00_h 01_h 02_h 03_h	Seat is moving forward Seat is moving backward Failure Signal not available
sud (seat up/down)	00_h 01_h 02_h 03_h	Seat is moving up Seat is moving down Failure Signal not available
sals (seat angle lift/sink)	00_h 01_h 02_h 03_h	Seat angle lift Seat angle sink Failure Signal not available
stsfb (seat tight support forward/backward)	00_h 01_h 02_h 03_h	Seat tight support forward Seat tight support backward Failure Signal not available
sbfb (seat back forward/backward)	00_h 01_h 02_h 03_h	Seat back is moving forward Seat back is moving backward Failure Signal not available
hud (headrest up/down)	00_h 01_h 02_h 03_h	Headrest is moving up Headrest is moving down Failure Signal not available

Fields	Value	Definition
rm (recall memory)	00_h 01_h 02_h 03_h 04_h 05_h to 06_h 07_h	No memory recalled Memory 1 recalled Memory 2 recalled Memory 3 recalled Memory 4 recalled Failure Signal not available
sm (store memory)	00_h 01_h 02_h 03_h 04_h 05_h to 06_h 07_h	No memory stored Memory 1 stored Memory 2 stored Memory 3 stored Memory 4 stored Failure Signal not available
r	03_h	Reserved

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

Table 38 – Object description

Attribute	Value
Index	6019_h
Name	Seat adjustment status
Object code	Array
Data type	Unsigned24
Category	Optional

Table 39 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h
Default value	02_h
Sub-Index	01_h
Description	Seat adjustment status driver
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)

Attribute	Value
Sub-Index	02_h
Description	Seat adjustment status front passenger
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)

4.2.2.14 Object $601A_h$: Wiper system status

This object shall provide the wiper system status. The object structure is specified in Figure 11. Table 40 specifies the value definition.

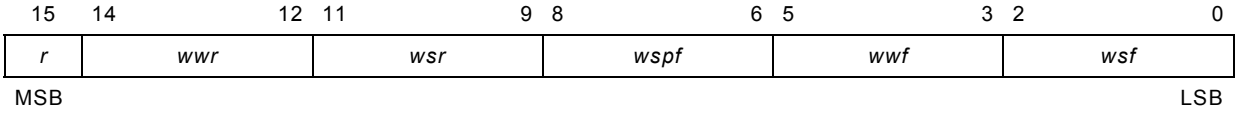

Figure 11 – Object structure

Table 40 – Value definition

Field	Value	Definition
wsf (wiper system front)	00_h 01_h 02_h to 05_h 06_h 07_h	Front wiper system is off Tip wiping is on Reserved Failure Signal not available
wwf (wiper washer front)	00_h 01_h 02_h to 05_h 06_h 07_h	Front washer system is off Washing is on Reserved Failure Signal not available
wspf (wiper switch position front)	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h	Wiper switch stage 0 (off) Wiper switch stage I (interval) Wiper switch stage II (stage 1) Wiper switch stage III (stage 2) Wiper switch automatic Reserved Failure Signal not available
wsr (wiper system rear)	00_h 01_h 02_h to 05_h 06_h 07_h	Rear wiper system is off Rear wiper system is on Reserved Failure Signal not available
wwr (wiper washer rear)	00_h 01_h 02_h to 05_h 06_h 07_h	Rear washer system is off Washing is on Reserved Failure Signal not available
r	1_b	Reserved

Table 41 specifies the object description and Table 42 specifies the entry description.

Table 41 – Object description

Attribute	Value
Index	$601A_h$
Name	Wiper system status
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 42 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.2.15 Object $601B_h$: Wiper system command

This object shall indicate the wiper system command. The object structure is specified in Figure 12. Table 42 specifies the value definition.

15	14	13	12	11	10 9	8 7	6 4	3 2	1 0
r	*r*	*r*	*r*	*r*	*wwr*	*wsr*	*wspf*	*wwf*	*wsf*

MSB LSB

Figure 12 – Object structure

Table 43 – Value definition

Field	Value	Definition
wsf (wiper system front)	00_h 01_h 02_h 03_h	Switch the front wiper system off Switch tip wiping on Reserved (for write access); Function not implemented (for read access) Don't care, take no action
wwf (wiper washer front)	00_h 01_h 02_h 03_h	Switch the front washing off Switch the front washing on Reserved (for write access); Function not implemented (for read access) Don't care, take no action
wspf (wiper switch position front)	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h	Stage 0 (off) Stage I (interval) Stage II (stage 1) Switch stage III (stage 2) Automatic Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
wsr (wiper system rear)	00_h 01_h 02_h 03_h	Switch the rear wiper system off Switch the rear wiper system on Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Field	Value	Definition
wwr (wiper washer rear)	00_h 01_h 02_h 03_h	Switch the rear washer system off Switch the rear washer system on (for write access); Function not implemented (for read access) Don't care, take no action
r	1_b	Reserved

Table 44 specifies the object description and Table 45 specifies the entry description.

Table 44 – Object description

Attribute	Value
Index	$601B_h$
Name	Wiper system command
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 45 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.2.16 Object $601C_h$: Steering wheel angle

This object shall provide the steering wheel angle. The values shall be given in 0,1°. The object structure is specified in Figure 13. Table 46 specifies the value definition.

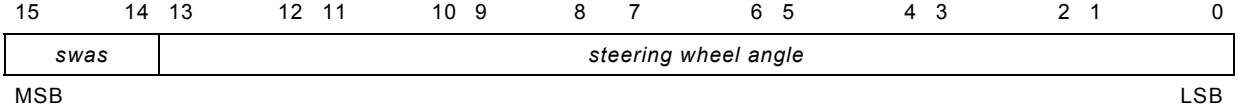

Figure 13 – Object structure

Table 46 – Value definition

Fields	Value	Definition
steering wheel angle	0000_h 3800_h 3801_h to $3FFD_h$ $3FFE_h$ $3FFF_h$	Minimum value Maximum value Reserved Failure Signal not available
swas (steering wheel angle sign)	00_h 01_h 03_h 04_h	Steering wheel angle positive/left Steering wheel angle negative/right Failure Signal not available

Table 47 specifies the object description and Table 48 specifies the entry description.

Table 47 – Object description

Attribute	Value
Index	$601C_h$
Name	Steering wheel angle
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 48 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.2.17 Object $601D_h$: Turn indicator reset status

This object shall provide the turn indicator reset status. The object structure is specified in Figure 14. Table 49 specifies the value definition.

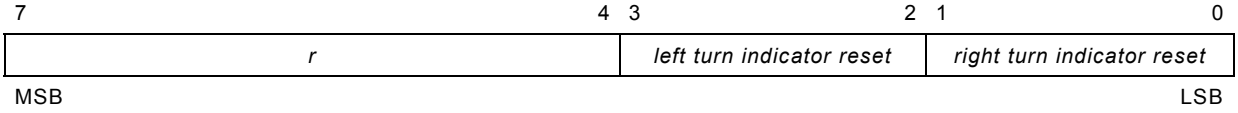

Figure 14 – Object structure

Table 49 – Value definition

Fields	Value	Definition
right turn indicator reset *left turn indicator reset*	00_h 01_h 02_h 03_h	No turn indicator reset detected Turn indicator reset detected Failure Signal not available
r	$0F_h$	Reserved

Table 50 specifies the object description and Table 51 specifies the entry description.

Table 50 – Object description

Attribute	Value
Index	$601D_h$
Name	Turn indicator reset status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 51 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.18 Object 6020_h: Displayed outside air temperature

This object shall provide the displayed outside air temperature. The values shall be given in 0,5 °C. The offset shall be - 100_d. Table 52 specifies the value definition.

Table 52 – Value definition

Value	Definition	Calculation
00_h FD_h FE_h FF_h	Minimum value Maximum value Failure Signal not available	(00_h - 100_d) x 0,5 °C = - 50 °C (FD_h - 100_d) x 0,5 °C = (253_d - 100_d) x 0,5 °C = 76,5 °C

Table 53 specifies the object description and Table 54 specifies the entry description.

Table 53 – Object description

Attribute	Value
Index	6020_h
Name	Displayed outside air temperature
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 54 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.19 Object 6021_h: Displayed inside air temperature

This object shall provide the displayed inside air temperature. The values shall be given in 0,5 °C. The offset shall be - 100_d. Table 55 specifies the value definition.

Table 55 – Value definition

Value	Definition	Calculation
00_h FD_h FE_h FF_h	Minimum value Maximum value Failure Signal not available	(00_h - 100_d) x 0,5 °C = - 50 °C (FD_h - 100_d) x 0,5 °C = (253_d - 100_d) x 0,5 °C = 76,5 °C

Table 56 specifies the object description and Table 57 specifies the entry description.

Table 56 – Object description

Attribute	Value
Index	6021_h
Name	Displayed inside air temperature
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 57 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.20 Object 6025_h: Heating and air conditioner command

This object shall indicate the air conditioner command. The object structure is specified in Figure 15. Table 58 specifies the value definition.

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
r		*r*		*recair*		*temp*		*dfw*		*acc*		*hrw*		*hfw*	
MSB															LSB

Figure 15 – Object structure

Table 58 – Value definition

Fields	Value	Definition
hfw (heat front window) *hrw (heat rear window)* *acc (automatic conditioner control)*	00_h 01_h 02_h 03_h	Deactivate the function Activate the function Reserved (for write access); Function not implemented (for read access) Don't care, take no action
dfw (defrost front window)	00_h 01_h 02_h 03_h	Deactivate the function Defrost front window (vans on with full power) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
temp (temperature control)	00_h 01_h 02_h 03_h	Deactivate the function + (0,5 °C) - (0,5 °C) Don't care, take no action
recair (recirculation air)	00_h 01_h 02_h 03_h	Recirculation air off Recirculation air on Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

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

Table 59 – Object description

Attribute	Value
Index	6025_h
Name	Heating and air conditioner command
Object code	Variable
Data type	Unsigned16
Category	Optional

Table 60 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.2.21 Object 6026_h: Heating and air conditioner status

This object shall provide the air conditioner status. The object structure is specified in Figure 16. Table 61 specifies the value definition.

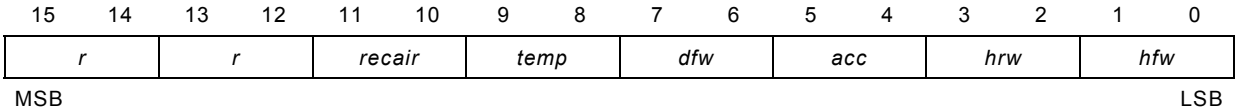

Figure 16 – Object structure

Table 61 – Value definition

Fields	Value	Definition
hfw (heat front window) *hrw (heat rear window)* *acc (automatic conditioner control)* *dfw (defrost front window)* *temp (temperature control)* *recair (recirculation air)*	00_h 01_h 02_h 03_h	Function is not active Function is active Failure Signal is not available
r	11_b	Reserved

Table 62 specifies the object description and Table 63 specifies the entry description.

Table 62 – Object description

Attribute	Value
Index	6026_h
Name	Heating and air conditioner status
Object code	Variable
Data type	Unsigned16
Category	Optional

Table 63 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.2.22 Object 6027_h: Occupant classification status

This object shall provide the occupant classification system status. The object structure is specified in Figure 17. Table 64 specifies the value definition.

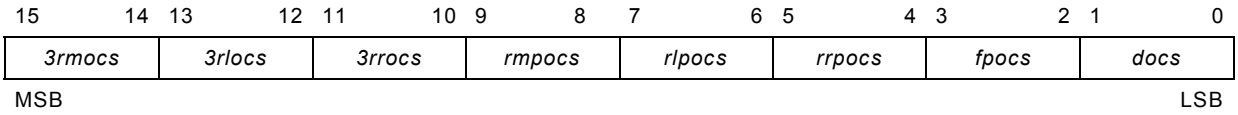

Figure 17 – Object structure

Table 64 – Value definition

Fields	Value	Definition
docs (driver occupant classification status) *fpocs (front passenger occupant classification status)* *rrpocs (rear right passenger occupant classification status)* *rlpocs (rear left passenger occupant classification status)* *rmpocs (rear middle passenger occupant classification status)* *3rrocs (3rd row right passenger occupant classification status)* *3rlocs (3rd row left passenger occupant classification status)* *3rmocs (3rd row middle passenger occupant classification status)*	00_h 01_h 02_h 03_h	Free Occupied Failure Signal not available

Table 65 specifies the object description and Table 66 specifies the entry description.

Table 65 – Object description

Attribute	Value
Index	6027_h
Name	Occupant classification status
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 66 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.2.23 Object 6028_h: Buckle switch status

This object shall provide the buckle switch status. The object structure is specified in Figure 18. Table 67 specifies the value definition.

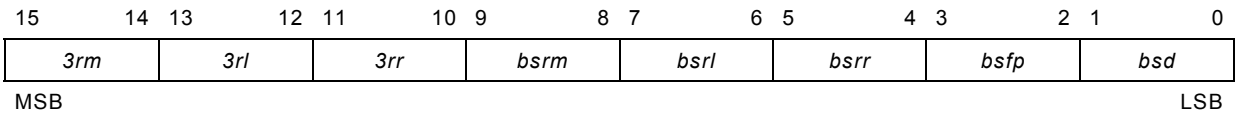

Figure 18 – Object structure

Table 67 – Value definition

Fields	Value	Definition
bsd (buckle switch driver) *bsfp (buckle switch front passenger)* *bsrr (buckle switch rear right)* *bsrl (buckle switch rear left)* *bsrm (buckle switch rear middle)* *3rr (3rd row right)* *3rl (3rd row left)* *3rm (3rd row middle)*	00_h 01_h 02_h 03_h	Seatbelt not fastened Seatbelt fastened Failure Signal not available

Table 68 specifies the object description and Table 69 specifies the entry description.

Table 68 – Object description

Attribute	Value
Index	6028_h
Name	Buckle switch status
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 69 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.2.24 Object $602B_h$: VIN data

This object shall provide the VIN identification data. The object shall be a string with 17 characters. If the VIN data is not available, the transmitted VIN data value shall be a string with 17 bytes, each with the value 00_h. Table 70 specifies the object description and Table 71 specifies the entry description.

Table 70 – Object description

Attribute	Value
Index	$602B_h$
Name	VIN data
Object code	Variable
Data type	UTF8 string
Category	See /CiA447-2/

Table 71 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)

4.2.2.25 Object $602C_h$: User-selected language command

This object shall indicate the user-selected language command. The object structure is specified in Figure 19. Table 72 specifies the value definition.

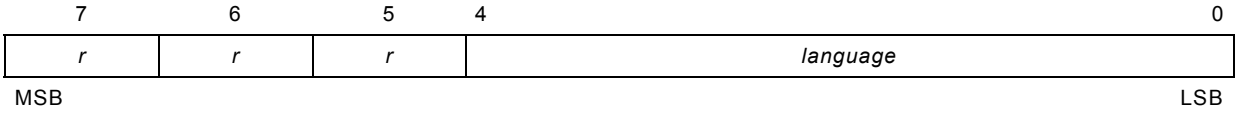

Figure 19 – Object structure

Table 72 – Value definition

Field	Value	Definition
language	00_h	German
	01_h	English
	02_h	French
	03_h	Italian
	04_h	Spanish
	05_h	Japanese
	06_h	Reserved
	07_h	Dutch
	08_h	Danish
	09_h	Swedish
	$0A_h$	Turkish
	$0B_h$	Portuguese
	$0C_h$	Russian
	$0D_h$ to $1D_h$	Reserved
	$1E_h$	Reserved (for write access); Function not implemented (for read access)
	$1F_h$	Don't care, take no action
r	1_b	Reserved

Table 73 specifies the object description and Table 74 specifies the entry description.

Table 73 – Object description

Attribute	Value
Index	$602C_h$
Name	User-selected language command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 74 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.2.26 Object $602D_h$: User-selected language status

This object shall provide the user-selected language status. The object structure is specified in Figure 19. Table 75 specifies the value definition. Table 76 specifies the object description and Table 77 specifies the entry description.

Table 75 – Value definition

Field	Value	Definition
language	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h $0A_h$ $0B_h$ $0C_h$ $0D_h$ to $1D_h$ $1E_h$ $1F_h$	German English French Italian Spanish Japanese Reserved Dutch Danish Swedish Turkish Portuguese Russian Reserved Failure Signal not available
r	1_b	Reserved

Table 76 – Object description

Attribute	Value
Index	$602D_h$
Name	User-selected language status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 77 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.27 Object 6030_h: Day/night detection

This object shall provide the day/night detection. The object structure is specified in Figure 20. Table 78 specifies the value definition. Table 79 specifies the object description and Table 80 specifies the entry description.

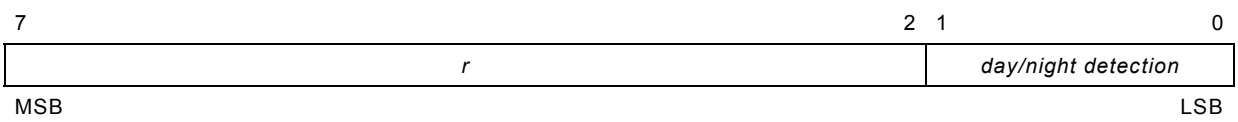

Figure 20 – Object structure

Table 78 – Value definition

Field	Value	Definition
day/night detection	00_h 01_h 02_h 03_h	Day Night Failure Signal not available
r	$3F_h$	Reserved

Table 79 – Object description

Attribute	Value
Index	6030_h
Name	Day/night detection
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 80 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.28 Object 6031_h: Environment light intensity

This object shall provide the environment light intensity. Table 81 specifies the value definition. Table 82 specifies the object description and Table 83 specifies the entry description.

Table 81 – Value definition

Value	Definition
00_h 64_h 65_h to FD_h FE_h FF_h	Minimal value in % Maximal value in % Reserved Failure Signal not available

Table 82 – Object description

Attribute	Value
Index	6031_h
Name	Environment light intensity
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 83 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.2.29 Object 6032_h: Accident detection and warning

This object shall provide the accident detection and warning. The object structure is specified in Figure 21. Table 84 specifies the value definition.

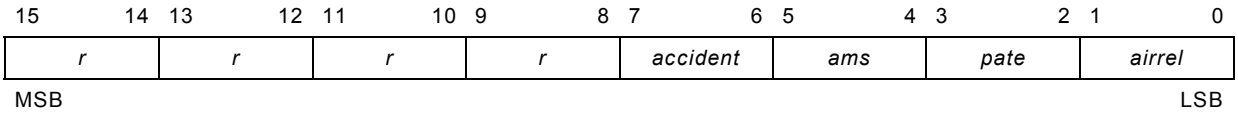

Figure 21 – Object structure

Table 84 – Value definition

Fields	Value	Definition
airrel (airbag released)	00_h 01_h 02_h 03_h	Airbag not released Airbag released Failure Signal not available
pate (presafe acceleration threshold exceeded)	00_h 01_h 02_h 03_h	Presafe acceleration threshold not exceeded Presafe acceleration threshold exceeded Failure Signal not available
ams (accident motor stop)	00_h 01_h 02_h 03_h	No accident motor stop Accident motor stop Failure Signal not available
accident	00_h 01_h 02_h 03_h	No accident Accident Failure Signal not available
r	03_h	Reserved

Table 85 specifies the object description and Table 86 specifies the entry description.

Table 85 – Object description

Attribute	Value
Index	6032_h
Name	Accident detection
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 86 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.2.30 Object 6033_h: Tester present

This object shall provide the UDS (see /ISO15765-3/ and /ISO14229-1/) tester presence. Figure 22 specifies the object structure. Table 87 specifies the value definition.

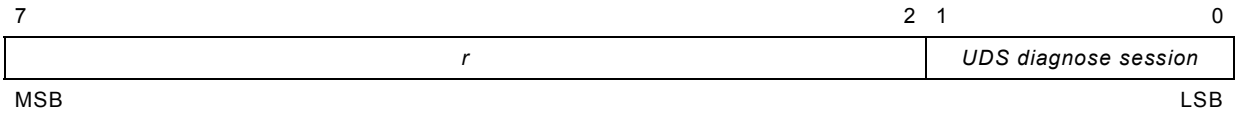

Figure 22 – Object structure

Table 87 – Value definition

Field	Value	Definition
UDS diagnose session	00_h 01_h 02_h 03_h	The UDS diagnose session is not active The UDS diagnose session is active Failure Signal not available
r	$3F_h$	Reserved

Table 88 specifies the object description and Table 89 specifies the entry description.

Table 88 – Object description

Attribute	Value
Index	6033_h
Name	Tester present
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 89 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.3 Application parameters for IVN gateway virtual device, function group light and signaling

4.2.3.1 Object 6040_h: Car light status

This object shall provide the car light status. The object structure is specified in Figure 23. Table 90 specifies the value definition.

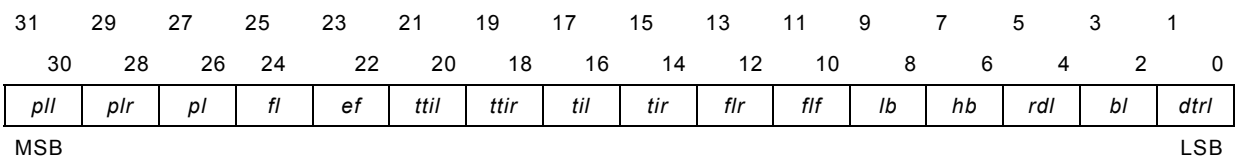

Figure 23 – Object structure

Table 90 – Value definition

Fields	Value	Definition
dtrl (day time running light) *bl (brake light)* *rdl (reverse driving light)* *hb (high beam)* *lb (low beam)* *flf (fog lamps front)* *flr (fog lamps rear)* *tir (turn indication right)* *til (turn indication left)* *ttir (tip turn indication right)* *ttil (tip turn indication left)* *ef (emergency flasher)* *fl (flashing light)* *pl (position lamps)* *plr (parking lamps right)* *pll (parking lamps left)*	00_h 01_h 02_h 03_h	Off On Failure Signal not available

Table 91 specifies the object description and Table 92 specifies the entry description.

Table 91 – Object description

Attribute	Value
Index	6040_h
Name	Car light status
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 92 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.3.2 Object 6044_h: Car light command

This object shall indicate the car light command. The object structure is specified in Figure 23. Table 93 specifies the value definition. Table 94 specifies the object description and Table 95 specifies the entry description.

Table 93 – Value definition

Fields	Value	Definition
dtrl (day time running light) *bl (brake light)* *rdl (reverse driving light)* *hb (high beam)* *lb (low beam)* *flf (fog lamps front)* *flr (fog lamps rear)* *tir (turn indication right)* *til (turn indication left)* *ttir (tip turn indication right)* *ttil (tip turn indication left)* *ef (emergency flasher)* *fl (flashing light)* *pl (position lamps)* *plr (parking lamps right)* *pll (parking lamps left)*	00_h 01_h 02_h 03_h	Switch the light off Switch the light on Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Table 94 – Object description

Attribute	Value
Index	6044_h
Name	Car light command
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 95 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.3.3 Object 6045_h: Car interior light status

This object shall provide the car interior light status. The object structure is specified in Figure 24. Table 96 specifies the value definition.

15	14	13	12 … 11	10 … 9	8 … 7	6 … 5	4 … 3	2 … 0
r	*r*	*r*	*bli*	*lrirl*	*lrirr*	*lrifp*	*lrid*	*ii*

MSB LSB

Figure 24 – Object structure

Table 96 – Value definition

Fields	Value	Definition
ii (interior illumination)	00_h 01_h 02_h 03_h to 05_h 06_h 07_h	Off On dimmed On undimmed Reserved Failure Signal not available
lrid (leg room illumination driver) *lrifp (leg room illumination front passenger)* *lrirr (leg room illumination rear right)* *lrirl (leg room illumination rear left)* *bli (boot lid illumination)*	00_h 01_h 02_h 03_h	Off On Failure Signal not available
r (reserved)	1_b	

Table 97 specifies the object description and Table 98 specifies the entry description.

Table 97 – Object description

Attribute	Value
Index	6045_h
Name	Car interior light status
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 98 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.3.4 Object 6046_h: Car interior light command

This object shall indicate the car interior light command. The object structure is specified in Figure 24. Table 99 specifies the value definition. Table 100 specifies the object description and Table 101 specifies the entry description.

Table 99 – Value definition

Fields	Value	Definition
ii (interior illumination)	00_h 01_h 02_h 03_h to 05_h 06_h 07_h	Off On dimmed On undimmed Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
lrid (leg room illumination driver) *lrifp (leg room illumination front passenger)* *lrirr (leg room illumination rear right)* *lrirl (leg room illumination rear left)* *bli (boot lid illumination)*	00_h 01_h 02_h 03_h	Off On Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	1_b	Reserved

Table 100 – Object description

Attribute	Value
Index	6046_h
Name	Car interior light command
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 101 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.3.5 Object 6047_h: Anti theft warning system status

This object shall provide the anti theft warning system status. Figure 25 specifies the object structure. Table 102 specifies the value definition.

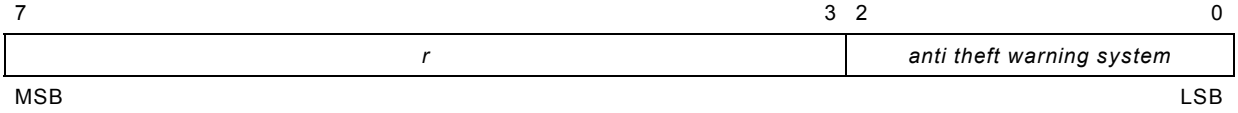

Figure 25 – Object structure

Table 103 specifies the object description and Table 104 specifies the entry description.

Table 102 – Value definition

Field	Value	Definition
anti theft warning system	00_h 01_h 02_h 03_h 04_h to 05_h 06_h 07_h	Disabled Pre-active Active Triggered Reserved Failure Signal not available
r	$1F_h$	Reserved

Table 103 – Object description

Attribute	Value
Index	6047_h
Name	Anti theft warning system status
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 104 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.3.6 Object 6048_h: Anti theft warning system command

This object shall indicate the anti theft warning system command. Figure 25 specifies the object structure. Table 105 specifies the value definition. Table 106 specifies the object description and Table 107 specifies the entry description.

Table 105 – Value definition

Field	Value	Definition
anti theft warning system	00_h 01_h 02_h 03_h 04_h to 05_h 06_h 07_h	Disable Do not trigger Activate Trigger Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$1F_h$	Reserved

Table 106 – Object description

Attribute	Value
Index	6048_h
Name	Anti theft warning system command
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 107 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.3.7 Object 6049_h: Mirror anti-dazzle position

This object shall provide the mirror anti-dazzle position value. Table 108 specifies the value definition. Table 109 specifies the object description and Table 110 specifies the entry description.

Table 108 – Value definition

Value	Definition
00_h	Minimal value in %
64_h	Maximal value in %
65_h to FD_h	Reserved
FE_h	Failure
FF_h	Signal not available

Table 109 – Object description

Attribute	Value
Index	6049_h
Name	Mirror anti-dazzle position
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 110 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.3.8 Object $604A_h$: Horn status

This object shall provide the horn status. The object structure is specified in Figure 26. Table 111 specifies the value definition.

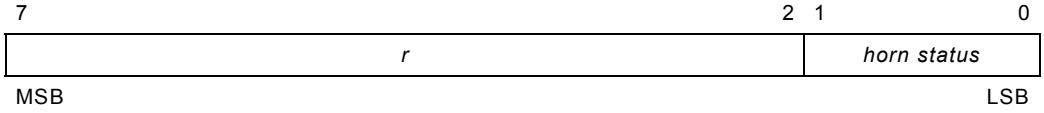

Figure 26 – Object structure

Table 111 – Value definition

Field	Value	Definition
horn status	00_h 01_h 02_h 03_h	Not active Active Failure Signal not available
r	$3F_h$	Reserved

Table 112 specifies the object description and Table 113 specifies the entry description.

Table 112 – Object description

Attribute	Value
Index	$604A_h$
Name	Horn status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 113 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.3.9 Object $604B_h$: Horn command

This object shall indicate the horn command. The object structure is specified in Figure 27. Table 114 specifies the value definition.

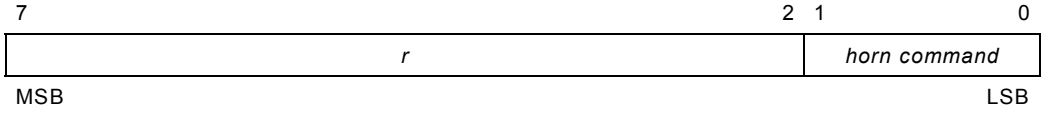

Figure 27 – Object structure

Table 114 – Value definition

Field	Value	Definition
horn command	00_h 01_h 02_h 03_h	Horn off command Horn on command Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$3F_h$	Reserved

Table 115 specifies the object description and Table 116 specifies the entry description.

Table 115 – Object description

Attribute	Value
Index	$604B_h$
Name	Horn command
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 116 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.3.10 Object $604C_h$: Flashing light command

This object shall indicate the flashing light command. By means of this object is it possible to activate the add-on light functions in case the roof bar light is active. The *gateway coded light functions* (field *gclf*) are configurable by a diagnostic tester. The object structure is specified in Figure 28 and Figure 29. Table 117 specifies the value definition.

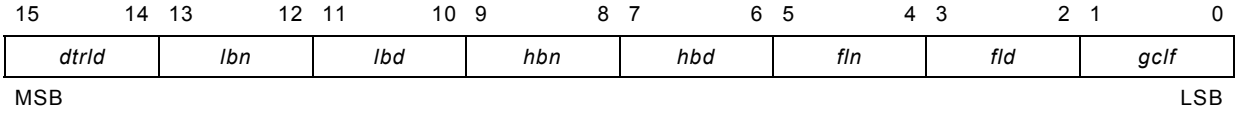

Figure 28 – Object structure bit 0 to 15

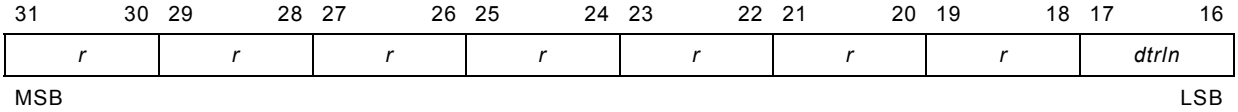

Figure 29 – Object structure bit 16 to 31

Table 117 – Value definition

Field	Value	Definition
gclf (gateway coded light functions) *fld (log lamps day)* *fln (fog lamps night)* *hbd (high beam day)* *hbn (high beam night)* *lbd (low beam day)* *lbn (low beam night)* *dtrld (day time running light day)* *dtrln (day time running light night)*	00_h 01_h 02_h 03_h	Disable function Enable function Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	03_h	Reserved

Table 118 specifies the object description and Table 119 specifies the entry description.

Table 118 – Object description

Attribute	Value
Index	$604C_h$
Name	Flashing light command
Object code	Variable
Data type	Unsigned32
Category	Optional

Table 119 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.3.11 Object $604D_h$: Flashing light status

This object shall provide the flashing light status. It is the status of add-on light functions in case the roof bar light is active. The object structure is specified in Figure 28 and Figure 29. Table 120 specifies the value definition.

Table 120 – Value definition

Field	Value	Definition
gclf (gateway coded light functions) *fld (log lamps day)* *fln (fog lamps night)* *hbd (high beam day)* *hbn (high beam night)* *lbd (low beam day)* *lbn (low beam night)* *dtrld (day time running light day)* *dtrln (day time running light night)*	00_h 01_h 02_h 03_h	Function is turned off Function is turned on Failure Signal not available
r	03_h	Reserved

Table 121 specifies the object description and Table 122 specifies the entry description.

Table 121 – Object description

Attribute	Value
Index	$604D_h$
Name	Flashing light status
Object code	Variable
Data type	Unsigned32
Category	Optional

Table 122 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.4 Application parameters for IVN gateway virtual device, function group power train

4.2.4.1 Object 6050_h: Actual engine revolutions

This object shall provide the actual engine revolutions per minute. This object shall be cyclically sent by the IVN gateway with a period of 100 ms.

The values in the field *actual engine revolutions* shall be given in 1/min. The object structure is specified in Figure 30. Table 123 specifies the value definition.

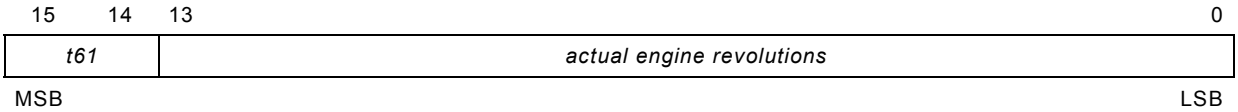

Figure 30 – Object structure

Table 123 – Value definition

Field	Value	Definition
actual engine revolutions	0000_h $3FFD_h$ $3FFE_h$ $3FFF_h$	Minimum value Maximum value Failure Signal not available
t61	00_h 01_h 02_h 03_h	Terminal 61 not active Terminal 61 active Failure Signal not available

Table 124 specifies the object description and Table 125 specifies the entry description.

Table 124 – Object description

Attribute	Value
Index	6050_h
Name	Actual engine revolutions
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 125 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.4.2 Object 6051_h: Engine status

This object shall provide the engine status. Table 126 specifies the value definition. Table 127 specifies the object description and Table 128 specifies the entry description.

Table 126 – Value definition

Value	Definition
00_h	Engine is off
01_h	Engine is ready
02_h	Engine is cranking
03_h	Engine is running
04_h	Engine is stalled
05_h	After run
06_h	Shutdown
07_h to FD_h	Reserved
FE_h	Failure
FF_h	Signal not available

Table 127 – Object description

Attribute	Value
Index	6051_h
Name	Engine status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 128 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.4.3 Object 6052_h: Transmission selector lever position

This object shall provide the transmission selector lever position. The object structure is specified in Figure 31. The values are specified in Table 129.

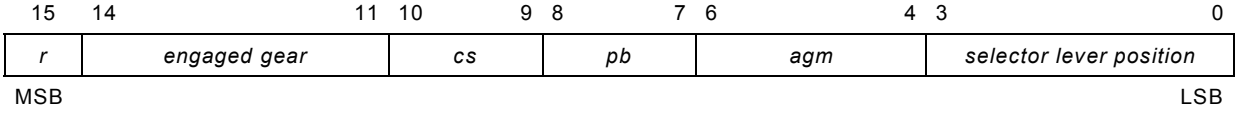

Figure 31 – Object structure

Table 129 – Value definition

Fields	Value	Definition
selector lever position	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h $0A_h$ to $0D_h$ $0E_h$ $0F_h$	Intermediate position Position 1 Position 2 Position 3 Position 4 Normal driving position automatic (D) Neutral position automatic (N) Reverse position automatic (R) Parking position automatic (P)/Key lock release Position L (low) Reserved Failure Signal not available
agm (automatic gear mode)	00_h 01_h 02_h 03_h 04_h to 05_h 06_h 07_h	Manual Sport Comfort Winter Reserved Failure Signal not available
pb (parking brake) *cs (coupling switch)*	00_h 01_h 02_h 03_h	Disengaged Engaged Failure Signal not available

Fields	Value	Definition
engaged gear	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h $0A_h$ to $0D_h$ $0E_h$ $0F_h$	No gear 1st gear 2nd gear 3rd gear 4th gear 5th gear 6th gear 7th gear 8th gear Reverse gear Reserved Failure Signal not available
r	1_b	Reserved

Table 130 specifies the object description and Table 131 specifies the entry description.

Table 130 – Object description

Attribute	Value
Index	6052_h
Name	Transmission selector lever position
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 131 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.4.4 Object 6053_h: Wheel rpm

This object shall provide the wheel(s) revolutions per minute. This object shall be cyclically sent by the IVN gateway with a period of 100 ms.

The values shall be given in 0,5/min. The statistical signal tolerance shall be less than 1 % for vehicle speeds higher than 3 km/h. The *wheel rpm* signal propagation time inside the vehicle shall be less than 500 ms. The signal propagation time difference between *wheel rpm* and *wheel pulse counter* shall be less than 500 ms.

Table 132 specifies the value definition. Table 133 specifies the object description and Table 134 specifies the entry description.

Table 132 – Value definition

Value	Definition
0000_h $3FFE_h$ $3FFF_h$ to $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimum value Maximum value Reserved Failure Signal is not available

Table 133 – Object description

Attribute	Value
Index	6053_h
Name	Wheel rpm
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 134 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.4.5 Object 6054_h: Wheel signal source

This object shall provide the source of the wheel signal. Table 135 specifies the value definition. Table 136 specifies the object description and Table 137 specifies the entry description.

A taximeter error may occur if this object is changed while the taximeter is not in the service mode.

Table 135 – Value definition

Value	Definition
00_h	Front right wheel
01_h	Front left wheel
02_h	Rear right wheel
03_h	Rear left wheel
04_h	Average front wheels
05_h	Average rear wheels
06_h	Average all wheels
07_h to FD_h	Reserved
FE_h	Failure
FF_h	Signal is not available

Table 136 – Object description

Attribute	Value
Index	6054_h
Name	Wheel signal source
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 137 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.4.6 Object 6055_h: Wheel pulse counter

This object shall provide the wheel pulse counter. This object shall be cyclically sent by the IVN gateway with a period of 100 ms. Routing losses of discrete *wheel pulse counter* values are acceptable as arisen from the system. Double transmission of discrete *wheel pulse counter* values is acceptable as arisen from the system.

The maximum permissible error of the wheel pulse counter is 1,8 %, compared to the true value. The stipulated lower limit for the maximum permissible error is 16 m, but may be even less on the basis of technical circumstances. The pulse number per wheel rotation shall be higher than 20. The *wheel pulse counter* signal propagation time inside the vehicle shall be less than 500 ms. The signal propagation time difference between *wheel rpm* (object 6053_h) and *wheel pulse counter* shall be less than 500 ms.

On the initialization of the signal source or the IVN gateway, the field *pcvalid* shall provide the value “Signal not available” (03_h).

The object structure is specified in Figure 32. The values are specified in Table 138.

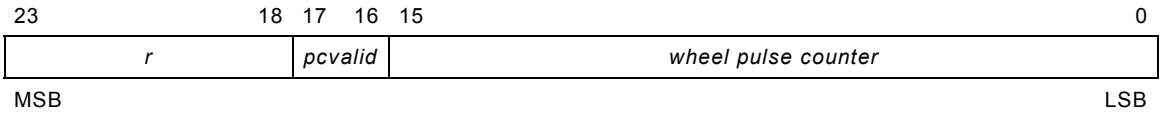

Figure 32 – Object structure

Table 138 – Value definition

Field	Value	Definition
wheel pulse counter	0000_h $FFFF_h$	Minimum value Maximum value
pcvalid (pulse counter valid)	00_h 01_h 02_h 03_h	No Yes Failure Signal is not available
r	$3F_h$	Reserved

Table 139 specifies the object description and Table 140 specifies the entry description.

Table 139 – Object description

Attribute	Value
Index	6055_h
Name	Wheel pulse counter
Object code	Variable
Data type	Unsigned24
Category	See /CiA447-2/

Table 140 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)

4.2.4.7 Object 6056_h: Wheel pulse counter overrun value

This object shall provide the overrun value of the wheel pulse counter. On the initialization of the signal source or the IVN gateway, the field *valid* shall provide the value “Signal not available” (03_h). The object structure is specified in Figure 33. The values are specified in Table 141.

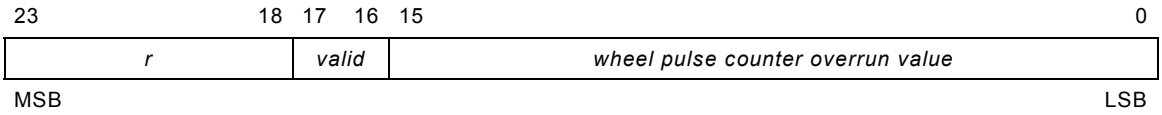

Figure 33 – Object structure

Table 141 – Value definition

Field	Value	Definition
wheel pulse counter overrun value	0000_h $FFFF_h$	Minimum value Maximum value
valid	00_h 01_h 02_h 03_h	No Yes Failure Signal is not available
r	$3F_h$	Reserved

Table 142 specifies the object description and Table 143 specifies the entry description.

Table 142 – Object description

Attribute	Value
Index	6056_h
Name	Wheel pulse counter overrun value
Object code	Variable
Data type	Unsigned24
Category	See /CiA447-2/

Table 143 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)

4.2.4.8 Object 6057_h: Pulses per wheel rotation

This object shall provide the pulses per wheel rotation. Table 144 specifies the value definition. Table 145 specifies the object description and Table 146 specifies the entry description.

Table 144 – Value definition

Value	Definition
00_h	Reserved
01_h	Minimum value
FD_h	Maximum value
FE_h	Failure
FF_h	Signal is not available

Table 145 – Object description

Attribute	Value
Index	6057_h
Name	Pulses per wheel rotation
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 146 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.4.9 Object $605A_h$: Displayed vehicle speed

This object shall provide the displayed vehicle speed (without attenuation). The values shall be given in 0,1 local distance unit per h. Table 147 specifies the value definition. Table 148 specifies the object description and Table 149 specifies the entry description.

Table 147 – Value definition

Value	Definition
0000_h	Minimum value
$0FFE_h$	Maximum value
$0FFF_h$ to $FFFD_h$	Reserved
$FFFE_h$	Failure
$FFFF_h$	Signal not available

Table 148 – Object description

Attribute	Value
Index	$605A_h$
Name	Displayed vehicle speed
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 149 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.4.10 Object $605B_h$: Odometer

This object shall provide the mileage as read from odometer. The values shall be given in 0,1 of the local distance unit. Table 150 specifies the value definition. Table 151 specifies the object description and Table 152 specifies the entry description.

Table 150 – Value definition

Value	Definition
$00\ 0000_h$	Minimum value
$98\ 967F_h$	Maximum value
$98\ 9680_h$ to $FF\ FFFD_h$	Reserved
$FF\ FFFE_h$	Signal is not valid
$FF\ FFFF_h$	Signal is not available

Table 151 – Object description

Attribute	Value
Index	$605B_h$
Name	Odometer
Object code	Variable
Data type	Unsigned24
Category	See /CiA447-2/

Table 152 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FF\ FFFF_h$ (rw)

4.2.4.11 Object $605C_h$: Tank status

This object shall provide the tank status. The values shall be given in l. The object structure is specified in Figure 34. Table 153 specifies the value definition.

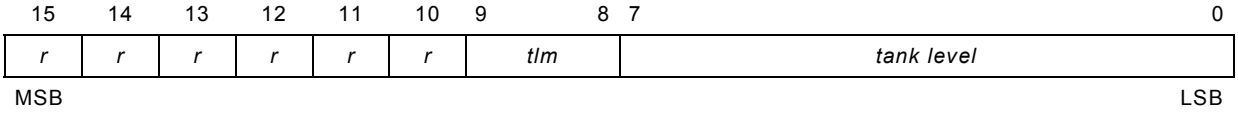

Figure 34 – Object structure

Table 153 – Value definition

Fields	Value	Definition
tank level	00_h $C8_h$ $C9_h$ to FD_h FE_h FF_h	Minimum value Maximum value Failure Signal not available
tlm (tank level minimum)	00_h 01_h 02_h 03_h	Tank level minimum not reached Tank level minimum reached Failure Signal not available
r	1_b	Reserved

Table 154 specifies the object description and Table 155 specifies the entry description.

Table 154 – Object description

Attribute	Value
Index	$605C_h$
Name	Tank status
Object code	Variable
Data type	Unsigned16
Category	Optional

Table 155 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.4.12 Object $605D_h$: Current average fuel consumption

This object shall provide the current average fuel consumption. The values shall be given in 0,001 fuel specific units per s. The object structure is specified in Figure 35. Table 156 specifies the value definition.

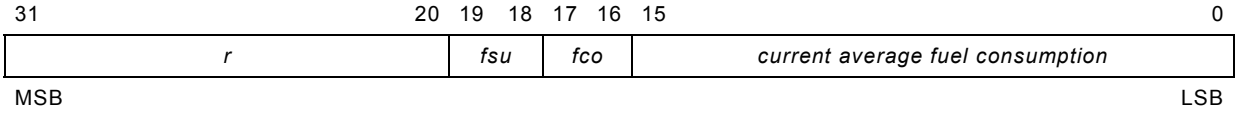

Figure 35 – Object structure

Table 156 – Value definition

Fields	Value	Definition
current average fuel consumption	0000_h $7F00_h$ $7F01_h$ to $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimum value Maximum value Failure Signal not available
fco (fuel consumption overflow)	00_h 01_h 02_h 03_h	No fuel consumption overflow Fuel consumption overflow Failure Signal not available

Fields	Value	Definition
fsu (fuel specific unit)	00_h 01_h 02_h 03_h	Liter Kilogram Failure Signal not available
bit 20 to bit 31	1_b	Reserved

Table 157 specifies the object description and Table 158 specifies the entry description.

Table 157 – Object description

Attribute	Value
Index	$605D_h$
Name	Current average fuel consumption
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 158 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.4.13 Object 6060_h: Automatic cruise control and distance control command

This object shall indicate the automatic cruise control and distance control command. The object structure is specified in Figure 36. Table 159 specifies the value definition.

15	14	13	12	11	10	9	8 7	6 4	3 2	1 0
r	*r*	*r*	*r*	*r*	*r*	*r*	*dcs*	*store*	*ad*	*acc*

MSB LSB

Figure 36 – Object structure

Table 159 – Value definition

Field	Value	Definition
acc (automatic cruise control)	00_h 01_h 02_h 03_h	Cruise control off Cruise control on Reserved (for write access); Function not implemented (for read access) Don't care, take no action
ad (accelerate/decelerate)	00_h 01_h 02_h 03_h	+ accelerate - decelerate Reserved (for write access); Function not implemented (for read access) Don't care, take no action
store	00_h 01_h 02_h 03_h 04_h to 05_h 06_h 07_h	Store current speed Store current speed as maximum Release stored speed Recall last stored speed Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Field	Value	Definition
dcs (distance control system)	00_h 01_h 02_h 03_h	Deactivate the function (turn-off) Activate the function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	1_b	Reserved

Table 160 specifies the object description and Table 161 specifies the entry description.

Table 160 – Object description

Attribute	Value
Index	6060_h
Name	Automatic cruise control and distance control command
Object code	Variable
Data type	Unsigned16
Category	Optional

Table 161 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.4.14 Object 6061_h: Automatic cruise control and distance control status

This object shall provide the automatic cruise control and distance control status. The object structure is specified in Figure 36. Table 162 specifies the value definition. Table 163 specifies the object description and Table 164 specifies the entry description.

Table 162 – Value definition

Field	Value	Definition
acc (automatic cruise control)	00_h 01_h 02_h 03_h	Cruise control off Cruise control on Failure Signal not available
ad (accelerate/decelerate)	00_h 01_h 02_h 03_h	+ accelerating - decelerating Failure Signal not available
store	00_h 01_h 02_h 03_h 04_h to 05_h 06_h 07_h	Current speed is stored Current speed is stored as maximum Stored speed released Last stored speed recalled Reserved Failure Signal not available
dcs (distance control system)	00_h 01_h 02_h 03_h	The function is turned-off The function is turned-on Failure Signal not available
r	1_b	Reserved

Table 163 – Object description

Attribute	Value
Index	6061_h
Name	Automatic cruise control and distance control status
Object code	Variable
Data type	Unsigned16
Category	Optional

Table 164 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.4.15 Object 6062_h: Four-wheel drive command

This object shall indicate the four-wheel drive command. Figure 37 specifies the object structure. Table 165 specifies the value definition.

7	6	5	4	3	2	1	0
r	*r*	*r*	*r*	*r*	*r*	*four-wheel drive*	

MSB LSB

Figure 37 – Object structure

Table 165 – Value definition

Field	Value	Definition
four-wheel drive	00_h 01_h 02_h 03_h	Switch four-wheel drive off Switch four-wheel drive on Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	1_b	Reserved

Table 166 specifies the object description and Table 167 specifies the entry description.

Table 166 – Object description

Attribute	Value
Index	6062_h
Name	Four-wheel drive command
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 167 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.4.16 Object 6063_h: Four-wheel drive status

This object shall provide the four-wheel drive status. Figure 37 specifies the object structure. Table 168 specifies the value definition. Table 169 specifies the object description and Table 170 specifies the entry description.

Table 168 – Value definition

Field	Value	Definition
four-wheel drive	00_h 01_h 02_h 03_h	Four-wheel drive function is switched off Four-wheel drive function is switched on Failure Signal not available
r	1_b	Reserved

Table 169 – Object description

Attribute	Value
Index	6063_h
Name	Four-wheel drive status
Object code	Variable
Data type	Unsigned8
Category	Optional

Table 170 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.5 Application parameters for fire extinguishing system virtual device

4.2.5.1 Object 6069_h: Fire extinguishing system status

This object shall provide the fire extinguishing system status. Figure 38 specifies the object structure. Table 171 specifies the value definition. Table 172 specifies the object description and Table 173 specifies the entry description.

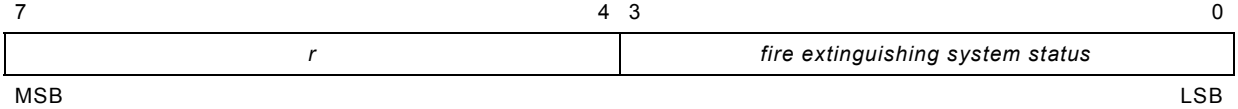

Figure 38 – Object structure

Table 171 – Value definition

Field	Value	Definition
fire extinguishing system status	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h to $0D_h$ $0E_h$ $0F_h$	Deactivated Standby without limitation Standby with limited function Initialization Automatic started Manuel started Activated Reserved Failure Signal not available
r	$0F_h$	Reserved

Table 172 – Object description

Attribute	Value
Index	6069_h
Name	Fire extinguishing system status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 173 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.6 Application parameters for emergency fresh-air system virtual device

4.2.6.1 Object $606C_h$: Emergency fresh-air system status

This object shall provide the emergency fresh-air system status. Figure 39 specifies the object structure. Table 174 specifies the value definition. Table 175 specifies the object description and Table 176 specifies the entry description.

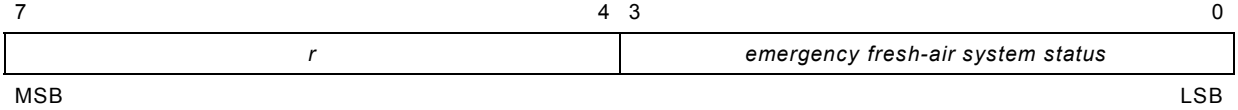

Figure 39 – Object structure

Table 174 – Value definition

Field	Value	Definition
emergency fresh-air system status	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h to $0D_h$ $0E_h$ $0F_h$	Deactivated Standby without limitation Standby with limited function Standby without sensory activation Initialization Manuel started Manuel activated Automatic activated Reserved Failure Signal not available
r	$0F_h$	Reserved

Table 175 – Object description

Attribute	Value
Index	$606C_h$
Name	Emergency fresh-air system status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 176 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.7 Application parameters for power supply virtual device

4.2.7.1 Object 6070_h: Radio power supply status

This object shall provide the radio power supply status. The object structure is specified in Figure 40. Table 177 specifies the value definition.

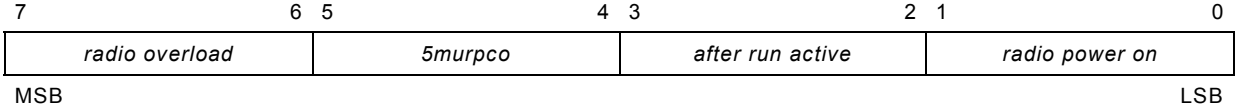

Figure 40 – Object structure

Table 177 – Value definition

Fields	Value	Definition
radio power on *after run active* *5murpco (5 minutes until radio power cut off)* *radio overload*	00_h 01_h 02_h 03_h	No Yes Failure Signal not available

Table 178 specifies the object description and Table 179 specifies the entry description.

Table 178 – Object description

Attribute	Value
Index	6070_h
Name	Radio power supply status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 179 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.7.2 Object 6071_h: Radio power supply command

This object shall indicate the radio power supply command. The object structure is specified in Figure 41. Table 180 specifies the value definition.

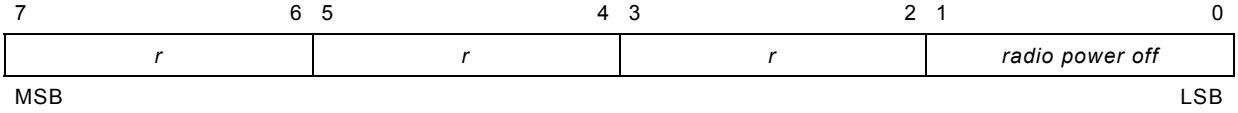

Figure 41 – Object structure

Table 180 – Value definition

Field	Value	Definition
radio power off	00_h 01_h 02_h 03_h	No radio power off request Radio power off request Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

Table 181 specifies the object description and Table 182 specifies the entry description.

Table 181 – Object description

Attribute	Value
Index	6071_h
Name	Radio power supply command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 182 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.7.3 Object 6073_h: Periphery power supply status

This object shall provide the periphery power supply status. The object structure is specified in Figure 42. Table 183 specifies the value definition.

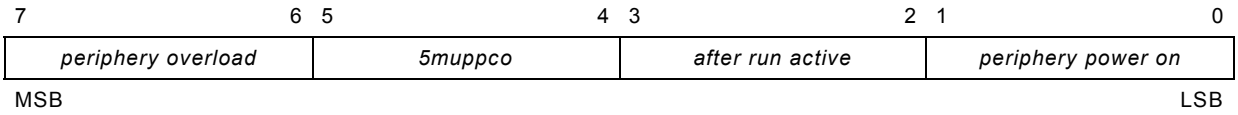

Figure 42 – Object structure

Table 183 – Value definition

Fields	Value	Definition
periphery power on	00_h	No
after run active	01_h	Yes
5muppco (5 minutes until periphery power cut off)	02_h	Failure
periphery overload	03_h	Signal not available

Table 184 specifies the object description and Table 185 specifies the entry description.

Table 184 – Object description

Attribute	Value
Index	6073_h
Name	Periphery power supply status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 185 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.7.4 Object 6074_h: Periphery power supply command

This object shall indicate the periphery power supply command. The object structure is specified in Figure 43. Table 186 specifies the value definition.

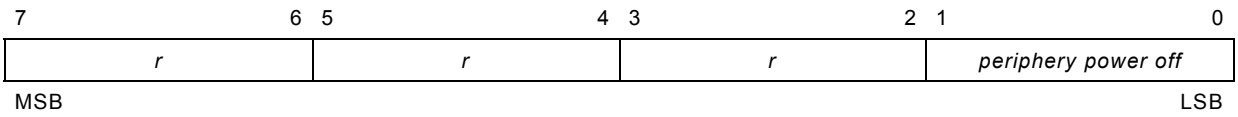

Figure 43 – Object structure

Table 186 – Value definition

Field	Value	Definition
periphery power off	00_h 01_h 02_h 03_h	No periphery power off request Periphery power off request Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

Table 187 specifies the object description and Table 188 specifies the entry description.

Table 187 – Object description

Attribute	Value
Index	6074_h
Name	Periphery power supply command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 188 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.8 Application parameters for discrete inputs virtual device

4.2.8.1 Object 6078_h: Discrete inputs status

This object shall provide the discrete input status. The object structure is specified in Figure 44. Table 189 specifies the value definition.

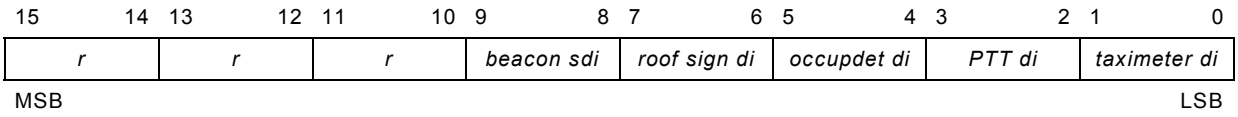

Figure 44 – Object structure

Table 189 – Value definition

Fields	Value	Definition
taximeter di (taximeter discrete input) *PTT di (PTT discrete input)* *occupdet di (occupant detection discrete input)* *roof sign di (roof sign discrete input)* *beacon sdi (beacon status discrete input)*	00_h 01_h 02_h 03_h	Input not active Input active Failure Signal not available
r	11_b	Reserved

Table 190 specifies the object description and Table 191 specifies the entry description.

Table 190 – Object description

Attribute	Value
Index	6078_h
Name	Discrete inputs status
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 191 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.9 Application parameters for terminal virtual device

4.2.9.1 General

If display functionality is supported, display 1 shall be regarded as primary display and display 2 as an extension display.

4.2.9.2 Object 6080_h: Number pad status

This object shall provide the number pad status. The object structure is specified in Figure 45. Table 192 specifies the value definition.

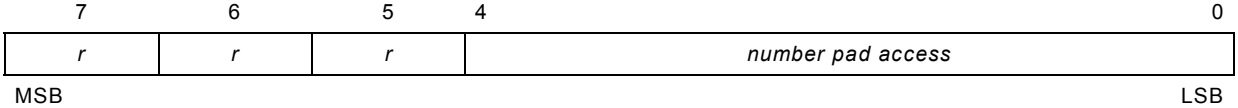

Figure 45 – Object structure

Table 192 – Value definition

Field	Value	Definition
number pad access	00_h	Number pad access is not active
	01_h	Number pad access by standard vehicle application
	02_h	Number pad access by car add-on device 1
	03_h	Number pad access by car add-on device 2
	04_h	Number pad access by car add-on device 3
	05_h	Number pad access by car add-on device 4
	06_h	Number pad access by car add-on device 5
	07_h	Number pad access by car add-on device 6
	08_h	Number pad access by car add-on device 7
	09_h	Number pad access by car add-on device 8
	$0A_h$	Number pad access by car add-on device 9
	$0B_h$	Number pad access by car add-on device 10
	$0C_h$	Number pad access by car add-on device 11
	$0D_h$	Number pad access by car add-on device 12
	$0E_h$	Number pad access by car add-on device 13
	$0F_h$	Number pad access by car add-on device 14
	10_h	Number pad access by car add-on device 15
	11_h	Number pad access by car add-on device 16
	12_h to $1D_h$	Reserved
	$1E_h$	Failure
	$1F_h$	Signal is not available
r	1_b	Reserved

Table 193 specifies the object description and Table 194 specifies the entry description.

Table 193 – Object description

Attribute	Value
Index	6080_h
Name	Number pad status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 194 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.3 Object 6081_h: Number pad command

This object shall indicate the number pad command. The object structure is specified in Figure 46. Table 195 specifies the value definition.

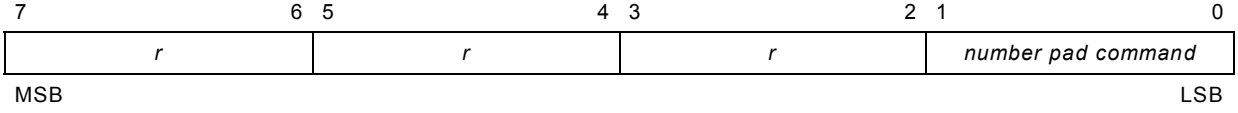

Figure 46 – Object structure

Table 195 – Value definition

Field	Value	Definition
number pad command	00_h 01_h 02_h 03_h	Release (control device by vehicle standard application) Lock (control device by car add-on device application) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

Table 196 specifies the object description and Table 197 specifies the entry description.

Table 196 – Object description

Attribute	Value
Index	6081_h
Name	Number pad command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 197 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.9.4 Object 6082_h: Number pad user interaction

This object shall provide the number pad user interaction. The object structure is specified in Figure 47. Table 198 specifies the value definition.

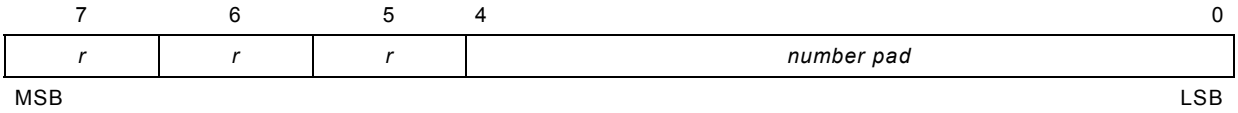

Figure 47 – Object structure

Table 198 – Value definition

Field	Value	Definition
number pad	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h $0A_h$ $0B_h$ $0C_h$ $0D_h$ $0E_h$ to $1D_h$ $1E_h$ $1F_h$	No key pressed Key 1 pressed Key 2 pressed Key 3 pressed Key 4 pressed Key 5 pressed Key 6 pressed Key 7 pressed Key 8 pressed Key 9 pressed Key # pressed Key 0 pressed Key * pressed More than one key pressed Reserved Failure Signal not available
r	1_b	Reserved

Table 199 specifies the object description and Table 200 specifies the entry description.

Table 199 – Object description

Attribute	Value
Index	6082_h
Name	Number pad user interaction
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 200 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.5 Object 6085_h: Function keys status

This object shall provide the function keys status. The object structure is specified in Figure 48. Table 201 specifies the value definition.

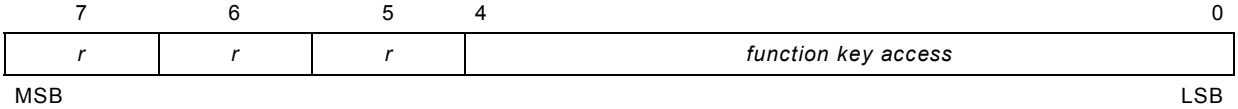

Figure 48 – Object structure

Table 201 – Value definition

Field	Value	Definition
function key access	00_h	Function key access is not active
	01_h	Function key access by standard vehicle application
	02_h	Function key access by car add-on device 1
	03_h	Function key access by car add-on device 2
	04_h	Function key access by car add-on device 3
	05_h	Function key access by car add-on device 4
	06_h	Function key access by car add-on device 5
	07_h	Function key access by car add-on device 6
	08_h	Function key access by car add-on device 7
	09_h	Function key access by car add-on device 8
	$0A_h$	Function key access by car add-on device 9
	$0B_h$	Function key access by car add-on device 10
	$0C_h$	Function key access by car add-on device 11
	$0D_h$	Function key access by car add-on device 12
	$0E_h$	Function key access by car add-on device 13
	$0F_h$	Function key access by car add-on device 14
	10_h	Function key access by car add-on device 15
	11_h	Function key access by car add-on device 16
	12_h to $1D_h$	Reserved
	$1E_h$	Failure
	$1F_h$	Signal is not available
r	1_b	Reserved

Table 202 specifies the object description and Table 203 specifies the entry description.

Table 202 – Object description

Attribute	Value
Index	6085_h
Name	Function keys status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 203 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.6 Object 6086_h: Function keys command

This object shall indicate the function keys command. The object structure is specified in Figure 49. Table 204 specifies the value definition.

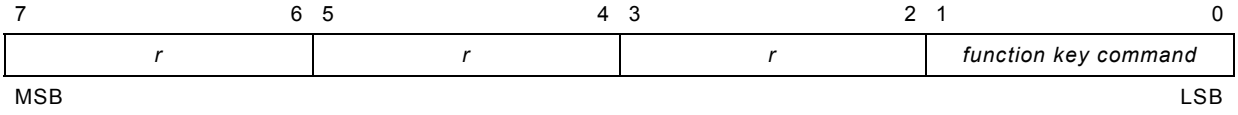

Figure 49 – Object structure

Table 204 – Value definition

Field	Value	Definition
function key command	00_h 01_h 02_h 03_h	Release (control device by vehicle standard application) Lock (control device by car add-on device application) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

Table 205 specifies the object description and Table 206 specifies the entry description.

Table 205 – Object description

Attribute	Value
Index	6086_h
Name	Function keys command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 206 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.9.7 Object 6087_h: Function keys user interaction

This object shall provide the function keys user interaction. The object structure is specified in Figure 50. Table 207 specifies the value definition.

7	6	5	4	3	0
r	*r*	*r*	*r*	*function key*	

MSB LSB

Figure 50 – Object structure

Table 207 – Value definition

Field	Value	Definition
function key	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h to $0D_h$ $0E_h$ $0F_h$	No key pressed Function key 1 pressed Function key 2 pressed Function key 3 pressed Function key 4 pressed Function key 5 pressed Function key 6 pressed Function key 7 pressed More than one key pressed Reserved Failure Signal not available
r	1_b	Reserved

Table 208 specifies the object description and Table 209 specifies the entry description.

Table 208 – Object description

Attribute	Value
Index	6087_h
Name	Function keys user interaction
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 209 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.8 Object $608A_h$: Control keys status

This object shall provide the control keys status. The object structure is specified in Figure 51. Table 210 specifies the value definition.

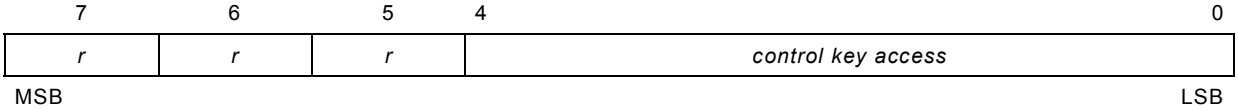

Figure 51 – Object structure

Table 210 – Value definition

Field	Value	Definition
control key access	00_h	Control key access is not active
	01_h	Control key access by standard vehicle application
	02_h	Control key access by car add-on device 1
	03_h	Control key access by car add-on device 2
	04_h	Control key access by car add-on device 3
	05_h	Control key access by car add-on device 4
	06_h	Control key access by car add-on device 5
	07_h	Control key access by car add-on device 6
	08_h	Control key access by car add-on device 7
	09_h	Control key access by car add-on device 8
	$0A_h$	Control key access by car add-on device 9
	$0B_h$	Control key access by car add-on device 10
	$0C_h$	Control key access by car add-on device 11
	$0D_h$	Control key access by car add-on device 12
	$0E_h$	Control key access by car add-on device 13
	$0F_h$	Control key access by car add-on device 14
	10_h	Control key access by car add-on device 15
	11_h	Control key access by car add-on device 16
	12_h to $1D_h$	Reserved
	$1E_h$	Failure
	$1F_h$	Signal is not available
r	1_b	Reserved

Table 211 specifies the object description and Table 212 specifies the entry description.

Table 211 – Object description

Attribute	Value
Index	$608A_h$
Name	Control keys status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 212 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.9 Object $608B_h$: Control keys command

This object shall indicate the control keys command. The object structure is specified in Figure 52. Table 213 specifies the value definition.

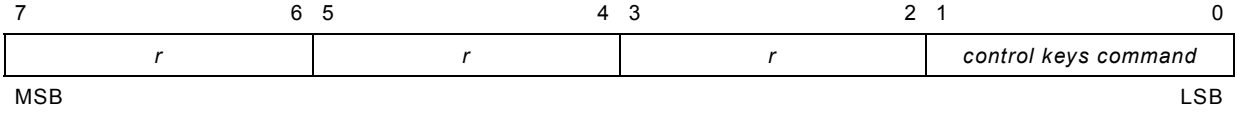

Figure 52 – Object structure

Table 213 – Value definition

Field	Value	Definition
control keys command	00_h 01_h 02_h 03_h	Release (control device by vehicle standard application) Lock (control device by car add-on device application) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

Table 214 specifies the object description and Table 215 specifies the entry description.

Table 214 – Object description

Attribute	Value
Index	$608B_h$
Name	Control keys command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 215 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.9.10 Object $608C_h$: Control keys user interaction

This object shall provide the control keys user interaction. The object structure is specified in Figure 53. Table 216 specifies the value definition.

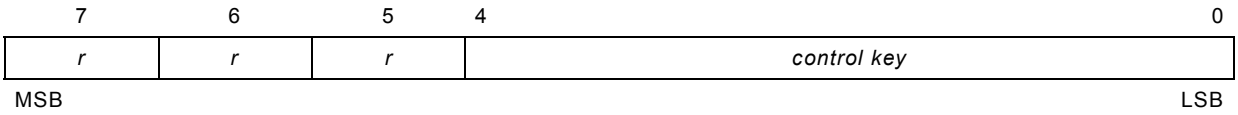

Figure 53 – Object structure

Table 216 – Value definition

Field	Value	Definition
control key	00_h	No key pressed
	01_h	Key “up” pressed
	02_h	Key “down” pressed
	03_h	Key “right” pressed
	04_h	Key “left” pressed
	05_h	Key “turn right” pressed
	06_h	Key “turn left” pressed
	07_h	Key “OK” pressed
	08_h	Key “clear” pressed
	09_h	Key “return” pressed
	$0A_h$	Key “send” pressed
	$0B_h$	Key “end” pressed
	$0C_h$	F1 pressed
	$0D_h$	F2 pressed
	$0E_h$	F3 pressed
	$0F_h$	F4 pressed
	10_h	More than one key pressed
	11_h to $1D_h$	Reserved
	$1E_h$	Failure
	$1F_h$	Signal not available
r	1_b	Reserved

Table 217 specifies the object description and Table 218 specifies the entry description.

Table 217 – Object description

Attribute	Value
Index	$608C_h$
Name	Control keys user interaction
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 218 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.11 Object 6090_h: Steering wheel switch pad status

This object shall provide the steering wheel switch pad status. The object structure is specified in Figure 54. Table 219 specifies the value definition.

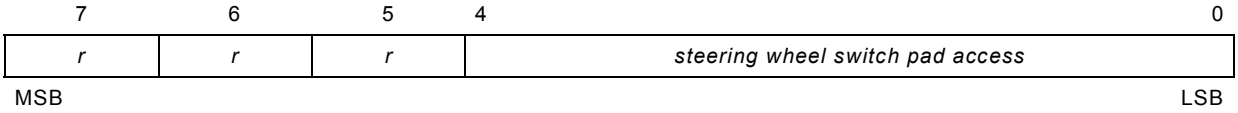

Figure 54 – Object structure

Table 219 – Value definition

Field	Value	Definition
steering wheel switch pad access	00_h	Steering wheel access is not active
	01_h	Steering wheel access by standard vehicle application
	02_h	Steering wheel access by car add-on device 1
	03_h	Steering wheel access by car add-on device 2
	04_h	Steering wheel access by car add-on device 3
	05_h	Steering wheel access by car add-on device 4
	06_h	Steering wheel access by car add-on device 5
	07_h	Steering wheel access by car add-on device 6
	08_h	Steering wheel access by car add-on device 7
	09_h	Steering wheel access by car add-on device 8
	$0A_h$	Steering wheel access by car add-on device 9
	$0B_h$	Steering wheel access by car add-on device 10
	$0C_h$	Steering wheel access by car add-on device 11
	$0D_h$	Steering wheel access by car add-on device 12
	$0E_h$	Steering wheel access by car add-on device 13
	$0F_h$	Steering wheel access by car add-on device 14
	10_h	Steering wheel access by car add-on device 15
	11_h	Steering wheel access by car add-on device 16
	12_h to $1D_h$	Reserved
	$1E_h$	Failure
	$1F_h$	Signal is not available
r	1_b	Reserved

Table 220 specifies the object description and Table 221 specifies the entry description.

Table 220 – Object description

Attribute	Value
Index	6090_h
Name	Steering wheel switch pad status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 221 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.12 Object 6091_h: Steering wheel switch pad command

This object shall indicate the steering wheel switch pad command. The object structure is specified in Figure 55. Table 222 specifies the value definition.

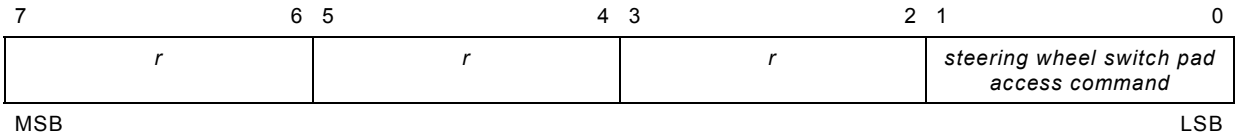

Figure 55 – Object structure

Table 222 – Value definition

Field	Value	Definition
steering wheel switch pad access command	00_h 01_h 02_h 03_h	Release (control device by vehicle standard application) Lock (control device by car add-on device application) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

Table 223 specifies the object description and Table 224 specifies the entry description.

Table 223 – Object description

Attribute	Value
Index	6091_h
Name	Steering wheel switch pad command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 224 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.9.13 Object 6092_h: Steering wheel switch pad user interaction

This object shall provide the steering wheel switch pad user interaction. The object structure is specified in Figure 56. Table 225 specifies the value definition.

7	6	5	4	3	0
r	*r*	*r*	*r*	*steering wheel switch pad interaction*	

MSB LSB

Figure 56 – Object structure

Table 225 – Value definition

Field	Value	Definition
steering wheel switch pad interaction	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h $0A_h$ $0B_h$ $0C_h$ $0D_h$ $0E_h$ $0F_h$	No steering wheel tip switch pressed Steering wheel tip switch 1 pressed Steering wheel tip switch 2 pressed Steering wheel tip switch 3 pressed Steering wheel tip switch 4 pressed Steering wheel tip switch 5 pressed Steering wheel tip switch 6 pressed Steering wheel tip switch 7 pressed Steering wheel tip switch 8 pressed Steering wheel tip switch 9 pressed Steering wheel tip switch 10 pressed Steering wheel tip switch 11 pressed Steering wheel tip switch 12 pressed More than one steering wheel tip switch pressed Failure Signal not available
r	1_b	Reserved

Table 226 specifies the object description and Table 227 specifies the entry description.

Table 226 – Object description

Attribute	Value
Index	6092_h
Name	Steering wheel switch pad user interaction
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 227 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.14 Object 6093_h: Emergency key status

This object shall provide the emergency key status. The object structure is specified in Figure 57. Table 228 specifies the value definition.

7	6	5	4	0
r	*r*	*r*	*emergency key access*	

MSB LSB

Figure 57 – Object structure

Table 228 – Value definition

Field	Value	Definition
emergency key access	00_h	Emergency key access is not active
	01_h	Emergency key access by standard vehicle application
	02_h	Emergency key access by car add-on device 1
	03_h	Emergency key access by car add-on device 2
	04_h	Emergency key access by car add-on device 3
	05_h	Emergency key access by car add-on device 4
	06_h	Emergency key access by car add-on device 5
	07_h	Emergency key access by car add-on device 6
	08_h	Emergency key access by car add-on device 7
	09_h	Emergency key access by car add-on device 8
	$0A_h$	Emergency key access by car add-on device 9
	$0B_h$	Emergency key access by car add-on device 10
	$0C_h$	Emergency key access by car add-on device 11
	$0D_h$	Emergency key access by car add-on device 12
	$0E_h$	Emergency key access by car add-on device 13
	$0F_h$	Emergency key access by car add-on device 14
	10_h	Emergency key access by car add-on device 15
	11_h	Emergency key access by car add-on device 16
	12_h to $1D_h$	Reserved
	$1E_h$	Failure
	$1F_h$	Signal is not available
r	1_b	Reserved

Table 229 specifies the object description and Table 230 specifies the entry description.

Table 229 – Object description

Attribute	Value
Index	6093_h
Name	Emergency key status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 230 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.15 Object 6094_h: Emergency key command

This object shall indicate the emergency key command. The object structure is specified in Figure 58. Table 231 specifies the value definition.

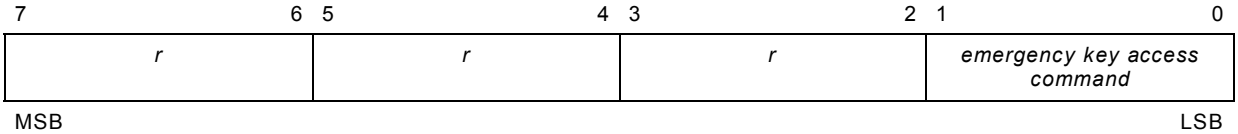

Figure 58 – Object structure

Table 231 – Value definition

Field	Value	Definition
emergency key access command	00_h 01_h 02_h 03_h	Release (control device by vehicle standard application) Lock (control device by car add-on device application) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

Table 232 specifies the object description and Table 233 specifies the entry description.

Table 232 – Object description

Attribute	Value
Index	6094_h
Name	Emergency key command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 233 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.9.16 Object 6095_h: Emergency key user interaction

This object shall provide the emergency key user interaction. The object structure is specified in Figure 59. Table 234 specifies the value definition.

7	6	5	4	3	2	1	0
r	*r*	*r*	*r*	*r*	*r*	*emergency key interaction*	

MSB LSB

Figure 59 – Object structure

Table 234 – Value definition

Field	Value	Definition
emergency key interaction	00_h 01_h 02_h 03_h	No emergency key pressed Emergency key pressed Failure Signal not available
r	1_b	Reserved

Table 235 specifies the object description and Table 236 specifies the entry description.

Table 235 – Object description

Attribute	Value
Index	6095_h
Name	Emergency key user interaction
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 236 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.17 Object 6096_h: Display 1 parameters

This object shall provide the parameters of display 1. Table 237 specifies the value definition. Table 238 specifies the object description and Table 239 specifies the entry description.

Table 237 – Value definition

Sub-index	Value	Definition
Sub-index 01_h: line number	00_h to FD_h FE_h FF_h	Number of lines 1 to 254 Failure Signal is not available
Sub-index 02_h: column number	00_h to FD_h FE_h FF_h	Number of columns 1 to 254 Failure Signal is not available
Sub-index 03_h: maximal number of characters	00_h to FD_h FE_h FF_h	Maximal number of characters 1 to 254 (8-bit long character) Failure Signal is not available

Table 238 – Object description

Attribute	Value
Index	6096_h
Name	Display 1 parameters
Object code	Array
Data type	Unsigned8
Category	See /CiA447-2/

Table 239 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	03_h
Default value	03_h
Sub-Index	01_h
Description	Line number
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)
Sub-Index	02_h
Description	Column number
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)
Sub-Index	03_h
Description	Maximal character number
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.18 Object 6097_h: Display 1 status

This object shall provide the status of display 1. Figure 60 specifies the object structure. Table 240 specifies the value definition. Table 241 specifies the object description and Table 242 specifies the entry description.

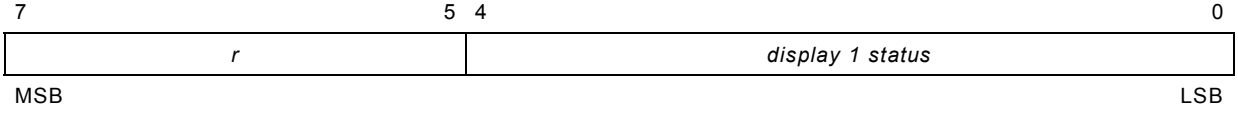

Figure 60 – Object structure

Table 240 – Value definition

Field	Value	Definition
display 1 status	00_h	Off
	01_h	On and access by standard vehicle application
	02_h	On and access by car add-on device 1
	03_h	On and access by car add-on device 2
	04_h	On and access by car add-on device 3
	05_h	On and access by car add-on device 4
	06_h	On and access by car add-on device 5
	07_h	On and access by car add-on device 6
	08_h	On and access by car add-on device 7
	09_h	On and access by car add-on device 8
	$0A_h$	On and access by car add-on device 9
	$0B_h$	On and access by car add-on device 10
	$0C_h$	On and access by car add-on device 11
	$0D_h$	On and access by car add-on device 12
	$0E_h$	On and access by car add-on device 13
	$0F_h$	On and access by car add-on device 14
	10_h	On and access by car add-on device 15
	11_h	On and access by car add-on device 16
	12_h to $1D_h$	Reserved
	$1E_h$	Failure
	$1F_h$	Signal is not available
r	07_h	Reserved

Table 241 – Object description

Attribute	Value
Index	6097_h
Name	Display 1 status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 242 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.19 Object 6098_h: Display 1 command

This object shall indicate the command for display 1. Figure 61 specifies the object structure. Table 243 specifies the value definition. Table 244 specifies the object description and Table 245 specifies the entry description.

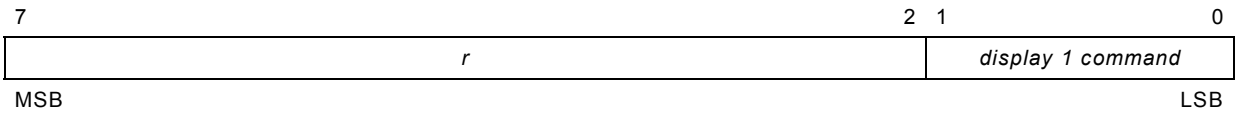

Figure 61 – Object structure

Table 243 – Value definition

Field	Value	Definition
display 1 command	00_h 01_h 02_h 03_h	Release (control device by vehicle standard application) Lock device for car add-on device application (usage of CANopen objects) Lock device for ISO-TP transmitted content Don't care, take no action
r	$3F_h$	Reserved

Table 244 – Object description

Attribute	Value
Index	6098_h
Name	Display 1 command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 245 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.9.20 Object 6099_h: Display 1 text

This object shall provide the text of display 1. Table 246 specifies the object description and Table 247 specifies the entry description.

Table 246 – Object description

Attribute	Value
Index	6099_h
Name	Display 1 text
Object code	Variable
Data type	UTF8 string
Category	See /CiA447-2/

Table 247 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)

4.2.9.21 Object $609A_h$: Display 1 title

This object shall provide the title of display 1. Table 248 specifies the object description and Table 249 specifies the entry description.

Table 248 – Object description

Attribute	Value
Index	$609A_h$
Name	Display 1 title
Object code	Variable
Data type	UTF8 string
Category	See /CiA447-2/

Table 249 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro *or* rw
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)

4.2.9.22 Object $609B_h$: Display 2 parameters

This object shall provide the parameters of display 2. Table 250 specifies the value definition. Table 251 specifies the object description and Table 252 specifies the entry description.

Table 250 – Value definition

Sub-index	Value	Definition
Sub-index 01_h: line number	00_h to FD_h FE_h FF_h	Number of lines 1 to 254 Failure Signal is not available
Sub-index 02_h: column number	00_h to FD_h FE_h FF_h	Number of columns 1 to 254 Failure Signal is not available
Sub-index 03_h: maximal number of characters	00_h to FD_h FE_h FF_h	Maximal number of characters 1 to 254 (8-bit long character) Failure Signal is not available

Table 251 – Object description

Attribute	Value
Index	$609B_h$
Name	Display 2 parameters
Object code	Array
Data type	Unsigned8
Category	See /CiA447-2/

Table 252 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	03_h
Default value	03_h
Sub-Index	01_h
Description	Line number
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)
Sub-Index	02_h
Description	Column number
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)
Sub-Index	03_h
Description	Maximal character number
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.23 Object $609C_h$: Display 2 status

This object shall provide the status of display 2. Figure 62 specifies the object structure. Table 253 specifies the value definition. Table 254 specifies the object description and Table 255 specifies the entry description.

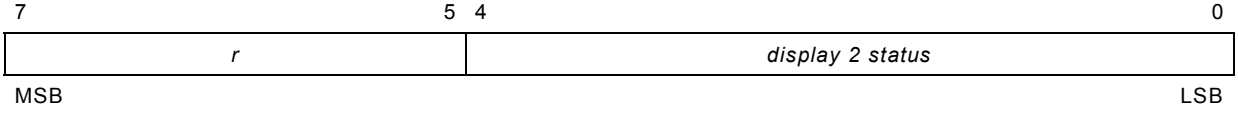

Figure 62 – Object structure

Table 253 – Value definition

Field	Value	Definition
display 2 status	00_h	Off
	01_h	On and access by standard vehicle application
	02_h	On and access by car add-on device 1
	03_h	On and access by car add-on device 2
	04_h	On and access by car add-on device 3
	05_h	On and access by car add-on device 4
	06_h	On and access by car add-on device 5
	07_h	On and access by car add-on device 6
	08_h	On and access by car add-on device 7
	09_h	On and access by car add-on device 8
	$0A_h$	On and access by car add-on device 9
	$0B_h$	On and access by car add-on device 10
	$0C_h$	On and access by car add-on device 11
	$0D_h$	On and access by car add-on device 12
	$0E_h$	On and access by car add-on device 13
	$0F_h$	On and access by car add-on device 14
	10_h	On and access by car add-on device 15
	11_h	On and access by car add-on device 16
	12_h to $1D_h$	Reserved
	$1E_h$	Failure
	$1F_h$	Signal is not available
r	07_h	Reserved

Table 254 – Object description

Attribute	Value
Index	$609C_h$
Name	Display 2 status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 255 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.9.24 Object $609D_h$: Display 2 command

This object shall indicate the command for display 2. Figure 63 specifies the object structure. Table 256 specifies the value definition. Table 257 specifies the object description and Table 258 specifies the entry description.

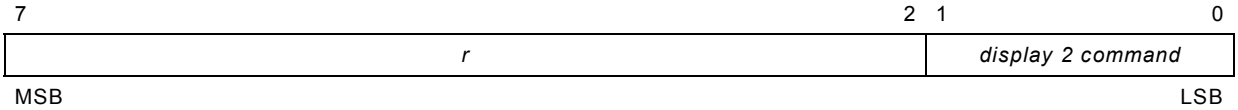

Figure 63 – Object structure

Table 256 – Value definition

Field	Value	Definition
display 2 command	00_h 01_h 02_h 03_h	Release (control device by vehicle standard application) Lock (lock device for car add-on device application) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$3F_h$	Reserved

Table 257 – Object description

Attribute	Value
Index	$609D_h$
Name	Display 2 command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 258 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.9.25 Object $609E_h$: Display 2 text

This object shall provide the text of display 2. Table 259 specifies the object description and Table 260 specifies the entry description.

Table 259 – Object description

Attribute	Value
Index	$609E_h$
Name	Display 2 text
Object code	Variable
Data type	UTF8 string
Category	See /CiA447-2/

Table 260 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)

4.2.9.26 Object $60A0_h$: Buzzer command

This object shall indicate the steering wheel switch pad command. Figure 64 specifies the object structure. Table 261 specifies the value definition. Table 262 specifies the object description and Table 263 specifies the entry description.

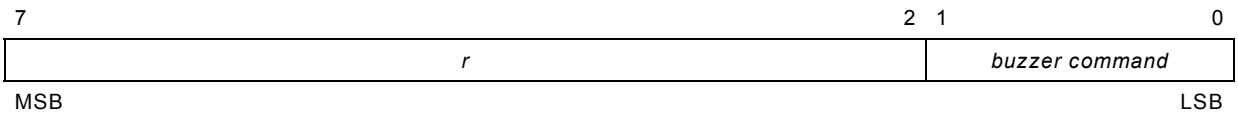

Figure 64 – Object structure

Table 261 – Value definition

Field	Value	Definition
buzzer command	00_h 01_h 02_h 03_h	Buzzer off Buzzer on Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$3F_h$	Reserved

Table 262 – Object description

Attribute	Value
Index	$60A0_h$
Name	Buzzer command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 263 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.9.27 Object $60A1_h$: Functional warnings status

This object shall provide the functional warnings status. Figure 65 specifies the object structure. Table 264 specifies the value definition. Table 265 specifies the object description and Table 266 specifies the entry description.

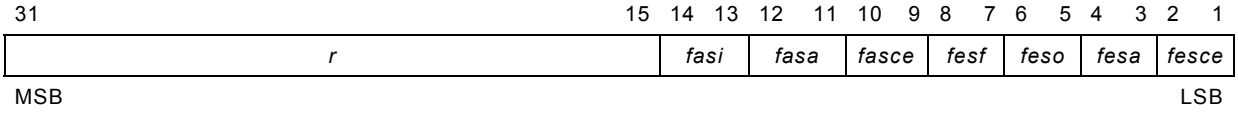

Figure 65 – Object structure

Table 264 – Value definition

Fields	Value	Definition
fesce (fire extinguishing system cartridge empty) *fesa (fire extinguishing system active)* *feso (fire extinguishing system on)* *fesf (fire extinguishing system fault)* *fasce (fresh air system cylinder empty)* *fasa (fresh air system active)* *fasi (fresh air system inactive)*	00_h 01_h 02_h 03_h	Warning not active Warning is active Failure Signal not available
r	1 $FFFF_h$	Reserved

Table 265 – Object description

Attribute	Value
Index	$60A1_h$
Name	Functional warnings status
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 266 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.9.28 Object $60A2_h$: Functional warnings command

This object shall indicate the functional warnings command. Table 267 specifies the value definition. Table 268 specifies the object description and Table 269 specifies the entry description.

Table 267 – Value definition

Value	Definition
0000_h	Reset all warnings
0001_h	Reset fire extinguishing system cartridge empty
0002_h	Reset fire extinguishing system active
0003_h	Reset fire extinguishing system on
0004_h	Reset fire extinguishing system fault
0005_h	Reset fresh air system cylinder empty
0006_h	Reset fresh air system active
0007_h	Reset fresh air system inactive
0008_h to 8000_h	Reserved
8001_h	Set fire extinguishing system cartridge empty
8002_h	Set fire extinguishing system active
8003_h	Set fire extinguishing system on
8004_h	Set fire extinguishing system fault
8005_h	Set fresh air system cylinder empty
8006_h	Set fresh air system active
8007_h	Set fresh air system inactive
8008_h to $FFFD_h$	Reserved
$FFFE_h$	Reserved (for write access); Function not implemented (for read access)
$FFFF_h$	Don't care, take no action

Table 268 – Object description

Attribute	Value
Index	$60A2_h$
Name	Functional warnings command
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 269 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.9.29 Object $60A6_h$: Icon display 1 command

This object shall indicate the icon display 1 command. The structure of each sub-index is specified in Figure 66. Table 270 specifies the value definition for each sub-index. Table 271 specifies the object description and Table 272 specifies the entry description.

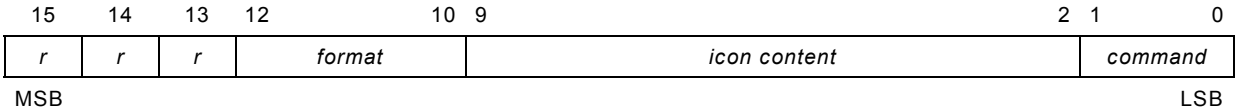

Figure 66 – Structure of each sub-index

Table 270 – Value definition for each sub-index

Fields	Value	Definition
command	00_h	Release (control device by vehicle standard application)
	01_h	Lock (lock device for car add-on device application)
	02_h	Reserved (for write access); Function not implemented (for read access)
	03_h	Don't care, take no action
Icon content	00_h	Display no icon
	01_h	Display icon number 1: DIN_PicAntenna
	02_h	Display icon number 2: DIN_PicMicro
	03_h	Display icon number 3: DIN_PicEmptyCircle
	04_h	Display icon number 4: DIN_PicFilledCircle
	05_h	Display icon number 5: DIN_PicSpeakerOn
	06_h	Display icon number 6: DIN_PicSpeakerOff
	07_h	Display icon number 7: DIN_PicSignalOut
	08_h	Display icon number 8: DIN_PicSignalIn
	09_h	Display icon number 9: DIN_PicGPSActive
	$0A_h$	Display icon number 10: DIN_PicCrossedCircle
	$0B_h$	Display icon number 11: DIN_PicBell
	$0C_h$	Display icon number 12: DIN_PicClock
	$0D_h$	Display icon number 13: DIN_PicSkipToEnd (search run)
	$0E_h$	Display icon number 14: DIN_PicTaxameter
	$0F_h$ to FD_h	Reserved
	FE_h	Reserved (for write access); Function not implemented (for read access)
	FF_h	Don't care, take no action
format	00_h	Standard
	01_h	Highlighted
	02_h to 05_h	Reserved
	06_h	Reserved (for write access); Function not implemented (for read access)
	07_h	Don't care, take no action

Table 271 – Object description

Attribute	Value
Index	$60A6_h$
Name	Icon display 1 command
Object code	Array
Data type	Unsigned16
Category	See /CiA447-2/

Table 272 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	01_h to 04_h
Default value	04_h
Sub-Index	01_h
Description	Icon 1 command
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$
Sub-Index	02_h
Description	Icon 2 command
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$
Sub-Index	03_h
Description	Icon 3 command
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$
Sub-Index	04_h
Description	Icon 4 command
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.9.30 Object $60A7_h$: Icon display 1 status

This object shall provide the icon display 1 status. The structure of each sub-index is specified in Figure 67. Table 273 specifies the value definition for each sub-index. Table 274 specifies the object description and Table 275 specifies the entry description.

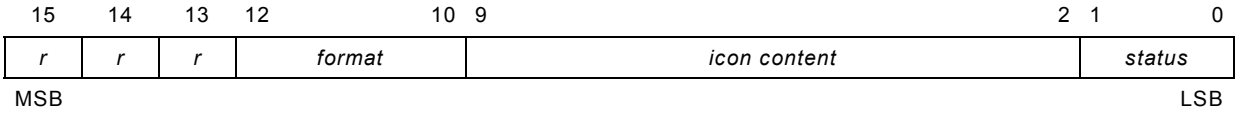

Figure 67 – Structure of each sub-index

Table 273 – Value definition for each sub-index

Fields	Value	Definition
status	00_h 01_h 02_h 03_h	Released (device controlled by vehicle standard application) Locked (device locked for car add-on device application) Failure Signal not available
Icon content	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h $0A_h$ $0B_h$ $0C_h$ $0D_h$ $0E_h$ $0F_h$ to FE_h FF_h	Display no icon Display icon number 1: DIN_PicAntenna Display icon number 2: DIN_PicMicro Display icon number 3: DIN_PicEmptyCircle Display icon number 4: DIN_PicFilledCircle Display icon number 5: DIN_PicSpeakerOn Display icon number 6: DIN_PicSpeakerOff Display icon number 7: DIN_PicSignalOut Display icon number 8: DIN_PicSignalIn Display icon number 9: DIN_PicGPSActive Display icon number 10: DIN_PicCrossedCircle Display icon number 11: DIN_PicBell Display icon number 12: DIN_PicClock Display icon number 13: DIN_PicSkipToEnd (search run) Display icon number 14: DIN_PicTaxameter Failure Signal not available
format	00_h 01_h 02_h to 06_h 07_h	Standard Highlighted Failure Signal not available

Table 274 – Object description

Attribute	Value
Index	$60A7_h$
Name	Icon display 1 status
Object code	Array
Data type	Unsigned16
Category	See /CiA447-2/

Table 275 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	01_h to 04_h
Default value	04_h
Sub-Index	01_h
Description	Icon 1 status
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)
Sub-Index	02_h
Description	Icon 2 status
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)
Sub-Index	03_h
Description	Icon 3 status
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)
Sub-Index	04_h
Description	Icon 4 status
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.9.31 Object 60AA$_h$: Icon display 2 command

This object shall indicate the icon display 2 command. The structure of each sub-index is specified in Figure 68. Table 276 specifies the value definition for each sub-index. Table 277 specifies the object description and Table 278 specifies the entry description.

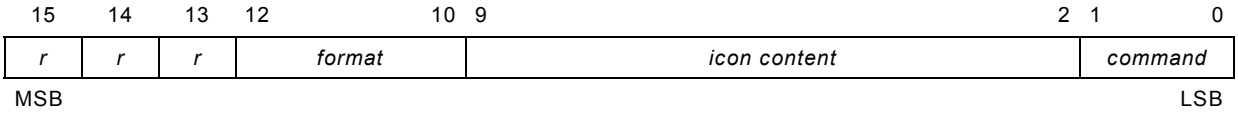

Figure 68 – Structure of each sub-index

Table 276 – Value definition for each sub-index

Fields	Value	Definition
command	00_h 01_h 02_h 03_h	Release (control device by vehicle standard application) Lock (lock device for car add-on device application) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
Icon content	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h $0A_h$ $0B_h$ $0C_h$ $0D_h$ $0E_h$ $0F_h$ to FD_h FE_h FF_h	Display no icon Display icon number 1: DIN_PicAntenna Display icon number 2: DIN_PicMicro Display icon number 3: DIN_PicEmptyCircle Display icon number 4: DIN_PicFilledCircle Display icon number 5: DIN_PicSpeakerOn Display icon number 6: DIN_PicSpeakerOff Display icon number 7: DIN_PicSignalOut Display icon number 8: DIN_PicSignalIn Display icon number 9: DIN_PicGPSActive Display icon number 10: DIN_PicCrossedCircle Display icon number 11: DIN_PicBell Display icon number 12: DIN_PicClock Display icon number 13: DIN_PicSkipToEnd (search run) Display icon number 14: DIN_PicTaxameter Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
format	00_h 01_h 02_h to 05_h 06_h 07_h	Standard Highlighted Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Table 277 – Object description

Attribute	Value
Index	$60AA_h$
Name	Icon display 2 command
Object code	Array
Data type	Unsigned16
Category	See /CiA447-2/

Table 278 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	01_h to 04_h
Default value	04_h
Sub-Index	01_h
Description	Icon 1 command
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$
Sub-Index	02_h
Description	Icon 2 command
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$
Sub-Index	03_h
Description	Icon 3 command
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$
Sub-Index	04_h
Description	Icon 4 command
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.9.32 Object $60AB_h$: Icon display 2 status

This object shall provide the icon display 2 status. The structure of each sub-index is specified in Figure 69. Table 279 specifies the value definition for each sub-index. Table 280 specifies the object description and Table 281 specifies the entry description.

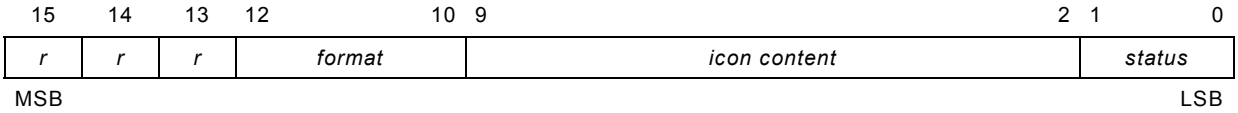

Figure 69 – Structure of each sub-index

Table 279 – Value definition for each sub-index

Fields	Value	Definition
status	00_h 01_h 02_h 03_h	Released (device controlled by vehicle standard application) Locked (device locked for car add-on device application) Failure Signal not available
Icon content	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h $0A_h$ $0B_h$ $0C_h$ $0D_h$ $0E_h$ $0F_h$ to FE_h FF_h	Display no icon Display icon number 1: DIN_PicAntenna Display icon number 2: DIN_PicMicro Display icon number 3: DIN_PicEmptyCircle Display icon number 4: DIN_PicFilledCircle Display icon number 5: DIN_PicSpeakerOn Display icon number 6: DIN_PicSpeakerOff Display icon number 7: DIN_PicSignalOut Display icon number 8: DIN_PicSignalIn Display icon number 9: DIN_PicGPSActive Display icon number 10: DIN_PicCrossedCircle Display icon number 11: DIN_PicBell Display icon number 12: DIN_PicClock Display icon number 13: DIN_PicSkipToEnd (search run) Display icon number 14: DIN_PicTaxameter Failure Signal not available
format	00_h 01_h 02_h to 06_h 07_h	Standard Highlighted Failure Signal not available

Table 280 – Object description

Attribute	Value
Index	$60AB_h$
Name	Icon display 2 status
Object code	Array
Data type	Unsigned16
Category	See /CiA447-2/

Table 281 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	01_h to 04_h
Default value	04_h
Sub-Index	01_h
Description	Icon 1 status
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)
Sub-Index	02_h
Description	Icon 2 status
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)
Sub-Index	03_h
Description	Icon 3 status
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)
Sub-Index	04_h
Description	Icon 4 status
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.10 Application parameters for GPS virtual device

4.2.10.1 Object $60B0_h$: GPS current position

This object shall provide the GPS current position. The values shall be given in 0,0000001°. Table 282 specifies the value definition for sub-index 01_h. Table 283 specifies the value definition for sub-index 02_h.

Table 282 – Value definition for sub-index 01_h

Value	Definition
$0000\ 0000_h$	0°
$0000\ 0001_h$ to $35A4\ E900_h$	0,0000001° to 90° (90° = north)
$35A4\ E901_h$ to $6B49\ D200_h$	-0,0000001° to -90° (-90° = south)
$6B49\ D201_h$ to $FFFF\ FFFD_h$	Reserved
$FFFF\ FFFE_h$	Failure
$FFFF\ FFFF_h$	Signal not available

Table 283 – Value definition for sub-index 02_h

Value	Definition
$0000\ 0000_h$	0°
$0000\ 0001_h$ to $6B49\ D200_h$	0,0000001° to 180° (180° = east)
$6B49\ D201_h$ to $D693\ A400_h$	-0,0000001° to -180° (-180° = west)
$D693\ A401_h$ to $FFFF\ FFFD_h$	Reserved
$FFFF\ FFFE_h$	Failure
$FFFF\ FFFF_h$	Signal not available

Table 284 specifies the object description and Table 285 specifies the entry description.

Table 284 – Object description

Attribute	Value
Index	$60B0_h$
Name	GPS current position
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 285 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h
Default value	02_h

Attribute	Value
Sub-Index	01_h
Description	Position latitude
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	02_h
Description	Position longitude
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.10.2 Object $60B1_h$: GPS satellites

This object shall provide the number of GPS satellites. The object structure is specified in Figure 70. Table 286 specifies the value definition.

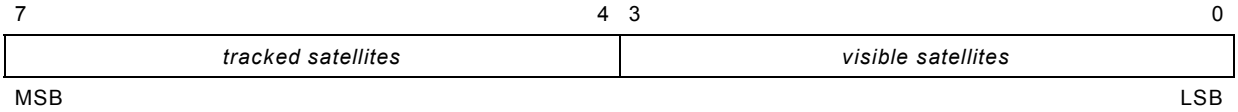

Figure 70 – Object structure

Table 286 – Value definition

Fields	Value	Definition
visible satellites *tracked satellites*	00_h $0D_h$ $0E_h$ $0F_h$	Minimum value Maximum value Failure Signal not available

Table 287 specifies the object description and Table 288 specifies the entry description.

Table 287 – Object description

Attribute	Value
Index	$60B1_h$
Name	GPS satellites
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 288 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.10.3 Object $60B2_h$: GPS status

This object shall provide the GPS status. The object structure is specified in Figure 71. Table 289 specifies the value definition.

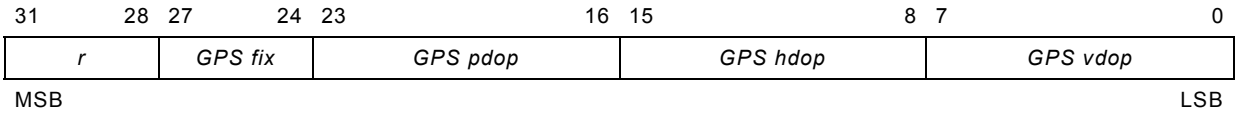

Figure 71 – Object structure

Table 289 – Value definition

Fields	Value	Definition
GPS vdop (vertical dilution of precision) *GPS hdop (horizontal dilution of precision)* *GPS pdop (position dilution of precision)*	00_h 50_h 51_h to FD_h FE_h FF_h	Minimum value Maximum value Reserved Failure Signal not available
GPS fix	00_h 01_h 02_h 03_h to $0D_h$ $0E_h$ $0F_h$	No fix 2D fix 3D fix Reserved Failure Signal not available
r	1111_b	Reserved

Table 290 specifies the object description and Table 291 specifies the entry description.

Table 290 – Object description

Attribute	Value
Index	$60B2_h$
Name	GPS status
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 291 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.10.4 Object $60B3_h$: GPS date

This object shall provide the GPS date. The object structure is specified in Figure 72. Table 292 specifies the value definition.

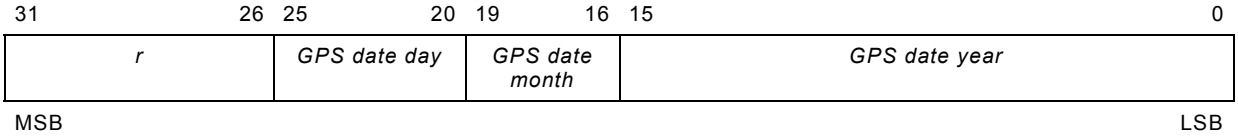

Figure 72 – Object structure

Table 292 – Value definition

Fields	Value	Definition	Unit
GPS date year	0000_h $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimum value Maximum value Failure Signal not available	Years
GPS date month	00_h 01_h $0C_h$ $0D_h$ $0E_h$ $0F_h$	Reserved Minimum value (January) Maximum value (December) Reserved Failure Signal not available	Months
GPS date day	00_h 01_h $1F_h$ 20_h to $3D_h$ $3E_h$ $3F_h$	Reserved Minimum value (1^{st}) Maximum value (31^{st}) Reserved Failure Signal not available	Days
r	$11\ 1111_b$	Reserved	

Table 293 specifies the object description and Table 294 specifies the entry description.

Table 293 – Object description

Attribute	Value
Index	$60B3_h$
Name	GPS date
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 294 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF\ FFFF_h$ (rw)

4.2.10.5 Object $60B4_h$: GPS UTC time

This object shall provide the GPS UTC time. The object structure is specified in Figure 73. Table 295 specifies the value definition.

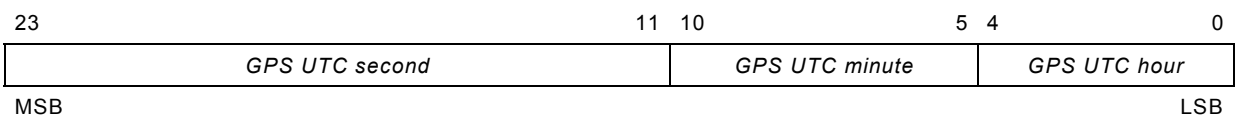

Figure 73 – Object structure

Table 295 – Value definition

Fields	Value	Definition	Unit
GPS UTC hour	00_h 17_h 18_h to $1D_h$ $1E_h$ $1F_h$	Minimum value Maximum value Reserved Failure Signal not available	Hours
GPS UTC minute	00_h $3B_h$ $3C_h$ to $3D_h$ $3E_h$ $3F_h$	Minimum value Maximum value Reserved Failure Signal not available	Minutes
GPS UTC second	0000_h $176F_h$ 1770_h to $1FFD_h$ $1FFE_h$ $1FFF_h$	Minimum value Maximum value Reserved Failure Signal not available	0,01s

Table 296 specifies the object description and Table 297 specifies the entry description.

Table 296 – Object description

Attribute	Value
Index	$60B4_h$
Name	GPS UTC time
Object code	Variable
Data type	Unsigned24
Category	See /CiA447-2/

Table 297 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)

4.2.10.6 Object $60B5_h$: GPS velocity and heading

This object shall provide the GPS velocity (sub-index 01_h) and heading (sub-index 02_h). Table 298 specifies the value definition for sub-index 01_h. Table 299 specifies the value definition for sub-index 02_h. Table 300 specifies the object description and Table 301 specifies the entry description.

Table 298 – Value definition for sub-index 01_h

Value	Definition	Unit
0000_h $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimum value Maximum value Failure Signal not available	0,01 m/s

Table 299 – Value definition for sub-index 02_h

Value	Definition	Unit
0000_h $0E0F_h$ $0E10_h$ to $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimum value Maximum value Reserved Failure Signal not available	0,1°

Table 300 – Object description

Attribute	Value
Index	$60B5_h$
Name	GPS velocity and heading
Object code	Array
Data type	Unsigned16
Category	See /CiA447-2/

Table 301 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	01_h to 02_h
Default value	02_h
Sub-Index	01_h
Description	GPS velocity
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

Attribute	Value
Sub-Index	02_h
Description	GPS heading
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.10.7 Object $60B6_h$: GPS altitude

This object shall provide the GPS altitude. Table 302 specifies the value definition. Table 303 specifies the object description and Table 304 specifies the entry description.

Table 302 – Value definition

Value	Definition	Unit
0000_h $0E0F_h$ $0E10_h$ to $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimum value Maximum value Reserved Failure Signal not available	m with an offset of (-1000)

Table 303 – Object description

Attribute	Value
Index	$60B6_h$
Name	GPS altitude
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 304 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.11 Application parameters for navigation system virtual device

4.2.11.1 Object $60C0_h$: Distance to selected destination

This object shall provide the distance to selected destination. Table 305 specifies the value definition. Table 306 specifies the object description and Table 307 specifies the entry description.

Table 305 – Value definition

Value	Definition	Unit
0000_h $FFFC_h$ $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimal value Maximal value No destination selected Failure Signal not available	0,1 km

Table 306 – Object description

Attribute	Value
Index	$60C0_h$
Name	Distance to selected destination
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 307 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.11.2 Object $60C1_h$: Position description request

This object shall indicate the position description request. The coordinates given in this object are described in *position description* (object $60C2_h$) as text.

The values shall be given in 0,0000001°. Table 308 specifies the value definition for sub-index 01_h. Table 309 specifies the value definition for sub-index 02_h. Table 310 specifies the object description and Table 311 specifies the entry description.

Table 308 – Value definition for sub-index 01_h

Value	Definition
$0000\ 0000_h$ $0000\ 0001_h$ to $35A4\ E900_h$ $35A4\ E901_h$ to $6B49\ D200_h$ $6B49\ D201_h$ to $FFFF\ FFFE_h$ $FFFF\ FFFF_h$	0° 0,0000001° to 90° (90° = north) -0,0000001° to -90° (-90° = south) Reserved Don't care, take no action

Table 309 – Value definition for sub-index 02_h

Value	Definition
$0000\ 0000_h$ $0000\ 0001_h$ to $6B49\ D200_h$ $6B49\ D201_h$ to $D693\ A400_h$ $D693\ A401_h$ to $FFFF\ FFFE_h$ $FFFF\ FFFF_h$	0° 0,0000001° to 180° (180° = east) -0,0000001° to -180° (-180° = west) Reserved Don't care, take no action

Table 310 – Object description

Attribute	Value
Index	$60C1_h$
Name	Position description request
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 311 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h
Default value	02_h
Sub-Index	01_h
Description	Position latitude
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$
Sub-Index	02_h
Description	Position longitude
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.11.3 Object $60C2_h$: Position description

This object shall provide the position description as text. The position coordinates are given in *position description request* (object $60C1_h$). Table 312 specifies the object description and Table 313 specifies the entry description.

Table 312 – Object description

Attribute	Value
Index	$60C2_h$
Name	Position description
Object code	Array
Data type	UTF8 string
Category	Optional

Table 313 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h to 03_h
Default value	03_h
Sub-Index	01_h
Description	City
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)
Sub-Index	02_h
Description	Street
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)
Sub-Index	03_h
Description	Country
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)

4.2.11.4 Object $60C3_h$: Start route guidance

This object shall indicate the start of the route guidance. On writing (value 00_h or 01_h) to the sub-index 03_h the route guidance from *current position* (object $60C5_h$) to the position indicated in sub-index 01_h and 02_h shall be started.

The values shall be given in 0,0000001°. Table 314 specifies the value definition for sub-index 01_h. Table 315 specifies the value definition for sub-index 02_h. Table 316 specifies the value definition for sub-index 03_h.

Table 314 – Value definition for sub-index 01_h

Value	Definition
$0000\ 0000_h$	0°
$0000\ 0001_h$ to $35A4\ E900_h$	0,0000001° to 90° (90° = north)
$35A4\ E901_h$ to $6B49\ D200_h$	-0,0000001° to -90° (-90° = south)
$6B49\ D201_h$ to $FFFF\ FFFE_h$	Reserved
$FFFF\ FFFF_h$	Don't care, take no action

Table 315 – Value definition for sub-index 02_h

Value	Definition
$0000\ 0000_h$	0°
$0000\ 0001_h$ to $6B49\ D200_h$	0,0000001° to 180° (180° = east)
$6B49\ D201_h$ to $D693\ A400_h$	-0,0000001° to -180° (-180° = west)
$D693\ A401_h$ to $FFFF\ FFFE_h$	Reserved
$FFFF\ FFFF_h$	Don't care, take no action

Table 316 – Value definition for sub-index 03_h

Value	Definition
00_h	Start route guidance without interrupting currently active guidance
01_h	Start route guidance with interrupting currently active guidance
02_h to FE_h	Reserved
FF_h	Don't care, take no action

Table 317 specifies the object description and Table 318 specifies the entry description.

Table 317 – Object description

Attribute	Value
Index	$60C3_h$
Name	Start route guidance
Object code	Record
Data type	Start route guidance record (see /CiA447-1/)
Category	See /CiA447-2/

Table 318 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	03_h
Default value	03_h
Sub-Index	01_h
Description	Position latitude
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$
Sub-Index	02_h
Description	Position longitude
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$
Sub-Index	03_h
Description	Start guidance
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.11.5 Object $60C4_h$: Current position request

This object shall indicate the current position request. The object structure is specified in Figure 74. Table 319 specifies the value definition. Table 320 specifies the object description and Table 321 specifies the entry description.

7	6	5	4	3	2	1	0
r	*r*	*r*	*r*	*r*	*r*	*r*	*rcp*
MSB							LSB

Figure 74 – Object structure

Table 319 – Value definition

Field	Value	Definition
rcp (read current position)	0_b 1_b	Read current position country, city and street Don't care take no action
r	1_b	Reserved

Table 320 – Object description

Attribute	Value
Index	$60C4_h$
Name	Current position request
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 321 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.11.6 Object $60C5_h$: Current position

This object shall provide the current position as text. Table 322 specifies the object description and Table 323 specifies the entry description.

Table 322 – Object description

Attribute	Value
Index	$60C5_h$
Name	Current position
Object code	Array
Data type	UTF8 string
Category	Optional

Table 323 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h to 03_h
Default value	03_h

Attribute	Value
Sub-Index	01_h
Description	City
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)
Sub-Index	02_h
Description	Street
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)
Sub-Index	03_h
Description	Country
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)

4.2.12 Application parameters for taximeter virtual device

4.2.12.1 Object $60D0_h$: Taxi trip payment

This object shall provide the taxi trip payment. This object shall contain the payment information of the last trip if the taxi is in “for-hire” mode. Otherwise it shall contain the payment information of the current trip. The values shall be reset when the taxi is entering “hired” mode.

The values in the sub-indices shall be given in 0,001 of local currency unit (e.g. €, $). Table 324 specifies the value definition for sub-indices 01_h to 03_h and 05_h to 06_h. Table 325 specifies the value definition for sub-index 04_h.

Table 324 – Value definition for sub-indices 01_h to 03_h and 05_h to 06_h

Value	Definition
$0000\ 0000_h$	Minimal value
$FFFF\ FFFD_h$	Maximal value
$FFFF\ FFFE_h$	Failure
$FFFF\ FFFF_h$	Signal not available

Table 325 – Value definition for sub-index 04_h

Value	Definition
$0000\ 0000_h$	Single calculation mode S
$0000\ 0001_h$	Double calculation mode D
$0000\ 0002_h$	Fixed price
$0000\ 0003_h$ to $FFFF\ FFFD_h$	Reserved
$FFFF\ FFFE_h$	Failure
$FFFF\ FFFF_h$	Signal not available

Table 326 specifies the object description and Table 327 specifies the entry description.

Table 326 – Object description

Attribute	Value
Index	$60D0_h$
Name	Taxi trip payment
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 327 – 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 to 06_h
Default value	Device-specific
Sub-Index	01_h
Description	Trip fare
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF\ FFFF_h$ (rw)
Sub-Index	02_h
Description	Trip supplement charge
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF\ FFFF_h$ (rw)

Attribute	Value
Sub-Index	03_h
Description	Total charged
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	04_h
Description	Trip fare calculation mode
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	05_h
Description	Trip minimum fare
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	06_h
Description	Trip initial fare
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.12.2 Object $60D1_h$: Taxi trip distance travelled

This object shall provide the travelled taxi trip distance. This object shall contain the distance information of the last trip if the taxi is in “for-hire” mode. Otherwise it shall contain the distance information of the current trip. The values shall be reset when the taxi is entering “hired” mode.

The values shall be given in 0,001 of local distance unit (e.g. km, mile). Table 328 specifies the value definition.

Table 328 – Value definition

Value	Definition
0000 0000$_h$	Minimal value
FFFF FFFD$_h$	Maximal value
FFFF FFFE$_h$	Failure
FFFF FFFF$_h$	Signal not available

Table 329 specifies the object description and Table 330 specifies the entry description.

Table 329 – Object description

Attribute	Value
Index	60D1$_h$
Name	Taxi trip distance travelled
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 330 – Entry description

Attribute	Value
Sub-Index	00$_h$
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF FFFF$_h$ (rw)

4.2.12.3 Object 60D2$_h$: Taxi trip time information

This object shall provide the taxi trip time information. This object shall contain the time information of the last trip if the taxi is in “for-hire” mode. Otherwise it shall contain the time information of the current trip. The values shall be reset when the taxi is entering “hired” mode.

The values in the sub-indices 01$_h$ and 02$_h$ shall be given in s. The values in the sub-indices 03$_h$ and 04$_h$ shall be given in seconds since 1970-01-01. Table 331 specifies the value definition for each sub-index. Table 332 specifies the object description and Table 333 specifies the entry description.

Table 331 – Value definition

Value	Definition
0000 0000$_h$	Minimal value
FFFF FFFD$_h$	Maximal value
FFFF FFFE$_h$	Failure
FFFF FFFF$_h$	Signal not available

Table 332 – Object description

Attribute	Value
Index	60D2$_h$
Name	Taxi trip time information
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 333 – 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	Device-specific
Sub-Index	01_h
Description	Trip duration
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF FFFF$_h$ (rw)
Sub-Index	02_h
Description	Fare relevant waiting time
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF FFFF$_h$ (rw)
Sub-Index	03_h
Description	Trip start time
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF FFFF$_h$ (rw)
Sub-Index	04_h
Description	Trip finish time
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF FFFF$_h$ (rw)

4.2.12.4 Object 60D3$_h$: Taxi trip tariff level

This object shall provide the taxi trip tariff level. This object shall contain the last tariff level information of the last trip if the taxi is in “for-hire” mode. Otherwise it shall contain the actual

tariff level information of the current trip. The values shall be actualized when the taxi is entering “hired” mode.

The object structure is specified in Figure 75. Table 334 specifies the value definition.

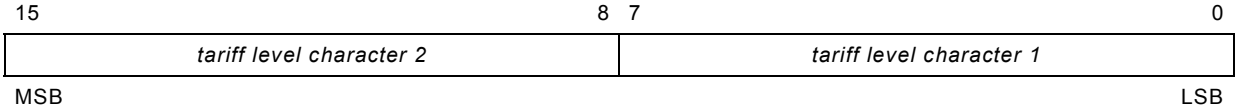

Figure 75 – Object structure

Table 334 – Value definition

Value	Value	Definition
tariff level character 1 *tariff level character 2*	00_h 01_h to $1E_h$ 20_h to $7E_h$ 80_h to FD_h FE_h FF_h	Value coded according to /ISO10646/ Reserved Value coded according to /ISO10646/ Reserved Failure Signal not available

Table 335 specifies the object description and Table 336 specifies the entry description.

Table 335 – Object description

Attribute	Value
Index	$60D3_h$
Name	Taxi trip tariff level
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 336 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.12.5 Object $60D4_h$: Taxi trip tariff value

This object shall provide the taxi trip tariff value. This object shall contain the last tariff value of the last trip if the taxi is in “for-hire” mode. Otherwise it shall contain the actual tariff value of the current trip. The value in the sub-index 01_h shall be given in 0,001 of local currency unit (e.g. €, $) per hour. The value in the sub-index 02_h shall be given in 0,001 of local currency unit per local distance unit (e.g. km, mile). Table 337 specifies the value definition for each sub-index.

Table 337 – Value definition

Value	Definition
$0000\ 0000_h$ $FFFF\ FFFD_h$ $FFFF\ FFFE_h$ $FFFF\ FFFF_h$	Minimal value Maximal value Failure Signal not available

Table 338 specifies the object description and Table 339 specifies the entry description.

Table 338 – Object description

Attribute	Value
Index	$60D4_h$
Name	Taxi trip tariff value
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 339 – 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	Device-specific
Sub-Index	01_h
Description	Time tariff value
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	02_h
Description	Distance tariff value
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.12.6 Object $60D8_h$: Taximeter status

This object shall provide the taximeter status. The object structure is specified in Figure 76. Table 340 specifies the value definition.

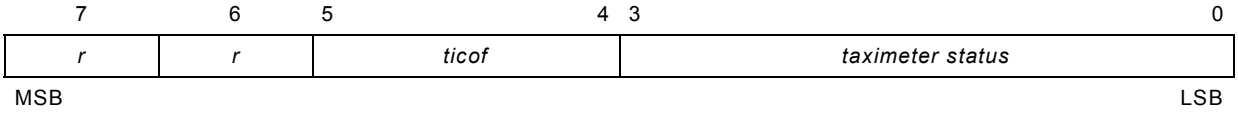

Figure 76 – Object structure

Table 340 – Value definition

Field	Value	Definition
taximeter status	00_h 01_h 02_h 03_h 04_h 05_h 06_h to $0D_h$ $0E_h$ $0F_h$	For hire Hired Stopped Signed off Service mode Standby mode Reserved Failure Signal not available
ticof (taximeter is changing to off mode)	00_h 01_h 02_h 03_h	No Yes Failure Signal not available
r	1_b	Reserved

Table 341 specifies the object description and Table 342 specifies the entry description.

Table 341 – Object description

Attribute	Value
Index	$60D8_h$
Name	Taximeter status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 342 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.12.7 Object $60D9_h$: Taximeter totalizers

This object shall provide the values of the taximeter totalizers. The shift values shall reflect the current shift (if signed in) or the last shift (if signed off). The values in sub-indices 01_h to 04_h shall be given in 0,001 of local distance unit (e.g. km, mile). The values in sub-indices 07_h and 08_h shall be dimensionless. The values in sub-indices 05_h, 06_h and 09_h to $0C_h$ shall be given in 0,001 of local currency unit (e.g. €, $).

Table 343 specifies the value definition for each sub-index. Table 344 specifies the object description and Table 345 specifies the entry description.

Table 343 – Value definition

Value	Definition
$0000\ 0000_h$ $FFFF\ FFFD_h$ $FFFF\ FFFE_h$ $FFFF\ FFFF_h$	Minimal value Maximal value Failure Signal not available

Table 344 – Object description

Attribute	Value
Index	$60D9_h$
Name	Taximeter totalizers
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 345 – 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 $0C_h$
Default value	Device-specific
Sub-Index	01_h
Description	Total distance travelled
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	02_h
Description	Shift distance travelled
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	03_h
Description	Total distance when hired
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

Attribute	Value
Sub-Index	04_h
Description	Shift distance when hired
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	05_h
Description	Total income
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	06_h
Description	Shift income
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	07_h
Description	Total number of hirings
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	08_h
Description	Shift number of hirings
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

Attribute	Value
Sub-Index	09_h
Description	Total supplements
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	$0A_h$
Description	Shift supplements
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	$0B_h$
Description	Total fare
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	$0C_h$
Description	Shift fare
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.12.8 Object $60DA_h$: Taximeter configuration

This object shall provide the taximeter configuration.

The values of the sub-index 01_h shall be given in pulses per local distance unit (e.g. km, mile). Table 346 specifies the value definition for sub-index 01_h and for sub-index 06_h. The values in sub-index 06_h shall be given in seconds since 1970-01-01. This value shall provide the date when the taximeter was sealed. Table 347 specifies the value definition for sub-index 02_h. Table 348 specifies the value definition for sub-index 03_h and sub-index 07_h. The values in sub-index 05_h define the way the fare is calculated.

Table 346 – Value definition for sub-index 01_h and sub-index 06_h

Value	Definition
$0000\ 0000_h$	Minimal value
$FFFF\ FFFD_h$	Maximal value
$FFFF\ FFFE_h$	Failure
$FFFF\ FFFF_h$	Signal not available

Table 347 – Value definition for sub-index 02_h

Value	Definition
00_h	Taximeter operation
01_h	Odometer operation
02_h to FD_h	Reserved
FE_h	Failure
FF_h	Signal not available

Table 348 – Value definition for sub-index 03_h and sub-index 07_h

Value	Definition
$00\ 0000_h$	Minimal value
$00\ FFFF_h$	Maximal value
$01\ 0000_h$ to $FF\ FFFD_h$	Reserved
$FF\ FFFE_h$	Failure
$FF\ FFFF_h$	Signal not available

Table 349 specifies the object description and Table 350 specifies the entry description.

Table 349 – Object description

Attribute	Value
Index	$60DA_h$
Name	Taximeter configuration
Object code	Record
Data type	Taximeter configuration record (see /CiA447-1/)
Category	See /CiA447-2/

Table 350 – 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 to 09_h
Default value	Device-specific

Attribute	Value
Sub-Index	01_h
Description	Constant of the distance signal generator (k value)
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	02_h
Description	Taximeter mode
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)
Sub-Index	03_h
Description	Identification of the tariff
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)
Sub-Index	04_h
Description	Taxi identifier
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	UTF8 string (see /CiA447-1/)
Default value	No (ro); Manufacturer-specific (rw)
Sub-Index	05_h
Description	Calculation of fare
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	UTF8 string (see /CiA447-1/)
Default value	No (ro); Manufacturer-specific (rw)

Attribute	Value
Sub-Index	06_h
Description	Date of securing
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); Manufacturer-specific (rw)
Sub-Index	07_h
Description	Identification of future tariff
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF $FFFF_h$ (rw)
Sub-Index	08_h
Description	Actual currency
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	UTF8 string (see /CiA447-1/)
Default value	No (ro); Manufacturer-specific (rw)
Sub-Index	09_h
Description	Actual local distance unit
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	UTF8 string (see /CiA447-1/)
Default value	No (ro); Manufacturer-specific (rw)

4.2.12.9 Object $60DB_h$: Taxi trip data sequence counter

This object shall provide the taxi trip data sequence counter. The *taxi trip data sequence counter* will be read before and after the reading of the values in the objects *taxi trip payment* (object $60D0_h$), *taxi trip distance travelled* (object $60D1_h$), *taxi trip tariff level* (object $60D3_h$) or *taxi trip time information* (object $60D2_h$). If the value of *taxi trip data sequence counter* has been changed while reading the objects mentioned above, then the already read object values are no more valid and shall be read again.

The object structure is specified in Figure 77. Table 351 specifies the value definition.

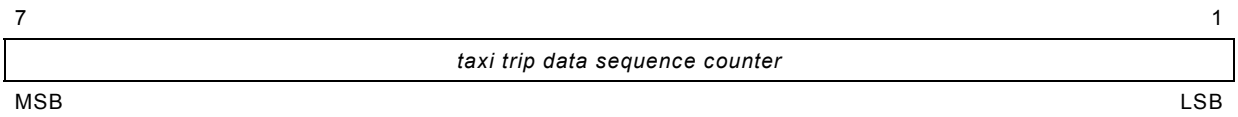

Figure 77 – Object structure

Table 351 – Value definition

Field	Value	Definition
taxi trip data sequence counter	00_h FD_h FE_h FF_h	Minimal value Maximal value Signal failure Signal not available

Table 352 specifies the object description and Table 353 specifies the entry description.

Table 352 – Object description

Attribute	Value
Index	$60DB_h$
Name	Taxi trip data sequence counter
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 353 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.13 Application parameters for printer virtual device

4.2.13.1 Object $60E0_h$: Printer status

This object shall provide the printer status. The object structure is specified in Figure 78. Table 354 specifies the value definition.

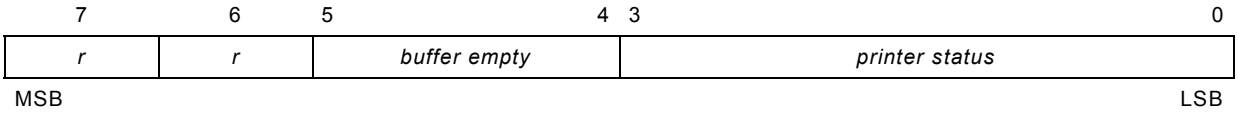

Figure 78 – Object structure

Table 354 – Value definition

Field	Value	Definition
printer status	00_h 01_h 02_h 03_h to $0D_h$ $0E_h$ $0F_h$	Ready Busy Standby mode Reserved Failure Signal not available

Field	Value	Definition
buffer empty	00_h 01_h 02_h 03_h	Buffer is not empty Buffer is empty Failure Signal not available
r	1_b	Reserved

Table 355 specifies the object description and Table 356 specifies the entry description.

Table 355 – Object description

Attribute	Value
Index	$60E0_h$
Name	Printer status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 356 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.13.2 Object $60E1_h$: Printer errors

This object shall provide the printer errors. The object structure is specified in Figure 79. Table 357 specifies the value definition.

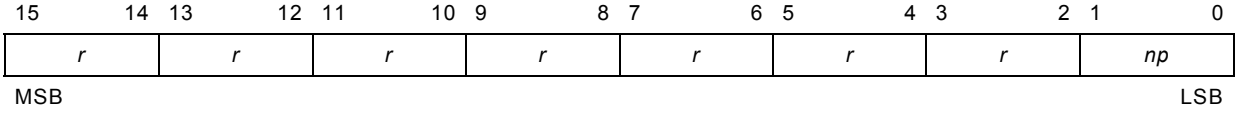

Figure 79 – Object structure

Table 357 – Value definition

Field	Value	Definition
np (no paper)	00_h 01_h 02_h 03_h	No error Error (printer has no paper) Signal failure Signal not available
r	03_h	Reserved

Table 358 specifies the object description and Table 359 specifies the entry description.

Table 358 – Object description

Attribute	Value
Index	$60E1_h$
Name	Printer errors
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 359 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.13.3 Object $60E2_h$: Printer features

This object shall provide the printer features. The object structure is specified in Figure 80 and Figure 81. Table 360 specifies the value definition.

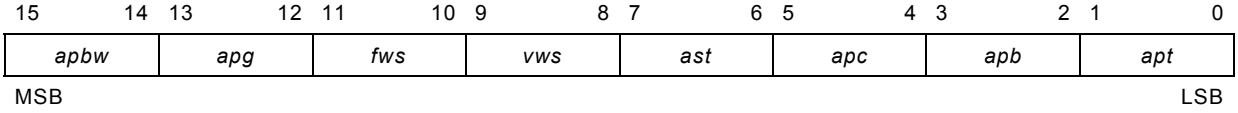

Figure 80 – Object structure bit 0 to 15

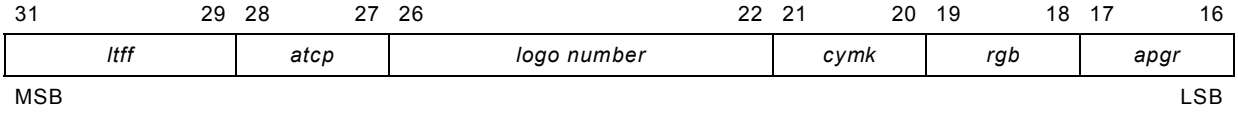

Figure 81 – Object structure bit 16 to 31

Table 360 – Value definition

Fields	Value	Definition
apt (able to print text) *apb (able to print bold)* *apc (able to print cursiv)* *ast (able to scale text)* *vws (variable width supported)* *fws (fixed width supported)* *apg (able to print graphics)* *apbw (able to print black/white)* *apgr (able to print gray)* *rgb (able to print RGB colors)* *cymk (able to print CYMK colors)* *atcp (able to cut paper)*	00_h 01_h 02_h 03_h	No Yes Failure Signal not available
logo number	00_h 01_h *to* 14_h 15_h to $1D_h$ $1E_h$ $1F_h$	The printer is not able to store logos The printer is able to store 1 *to* 20 logos Reserved Failure Signal not available
ltff (lines to form feed)	00_h 01_h to 05_h 06_h 07_h	The printer generates automatic linefeeds at the end of the print job Number of needed linefeeds Failure Signal not available

Table 361 specifies the object description and Table 362 specifies the entry description.

Table 361 – Object description

Attribute	Value
Index	$60E2_h$
Name	Printer features
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 362 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.13.4 Object $60E3_h$: Printer text status

This object shall provide the printer text status. The values in the sub-indices 04_h to 09_h shall be given in pixels. Table 363 specifies the value definition for each sub-index. Table 364 specifies the object description and Table 365 specifies the entry description.

Table 363 – Value definition

Value	Definition
00_h	Minimal value
FD_h	Maximal value
FE_h	Failure
FF_h	Signal not available

Table 364 – Object description

Attribute	Value
Index	$60E3_h$
Name	Printer text status
Object code	Array
Data type	Unsigned8
Category	See /CiA447-2/

Table 365 – 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 09_h
Default value	Device-specific
Sub-Index	01_h
Description	Maximum number of characters per full line
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)
Sub-Index	02_h
Description	Minimum number of characters per full line
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)
Sub-Index	03_h
Description	Current number of characters per full line
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)
Sub-Index	04_h
Description	Maximum text height
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)

Attribute	Value
Sub-Index	05_h
Description	Minimum text height
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)
Sub-Index	06_h
Description	Current text height
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)
Sub-Index	07_h
Description	Maximum text width
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)
Sub-Index	08_h
Description	Minimum text width
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)
Sub-Index	09_h
Description	Current text width
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned8
Default value	No (ro); FF_h (rw)

4.2.13.5 Object $60E4_h$: Printer graphics status

This object shall provide the printer graphics status. The value in the sub-index 01_h shall be given in pixels. Table 366 specifies the value definition for each sub-index. Table 367 specifies the object description and Table 368 specifies the entry description.

Table 366 – Value definition

Value	Definition
0000_h $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimal value Maximal value Failure Signal not available

Table 367 – Object description

Attribute	Value
Index	$60E4_h$
Name	Printer graphics status
Object code	Array
Data type	Unsigned16
Category	See /CiA447-2/

Table 368 – 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	Device-specific
Sub-Index	01_h
Description	Number of dots per line
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned16
Default value	No (ro); $FFFF_h$ (rw)
Sub-Index	02_h
Description	Number of grayscales
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned16
Default value	No (ro); $FFFF_h$ (rw)

Attribute	Value
Sub-Index	03_h
Description	Number of bits per colour channel
Entry category	Optional
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned16
Default value	No (ro); $FFFF_h$ (rw)

4.2.13.6 Object $60E5_h$: Printer configuration command

This object shall indicate the printer configuration command. The values in the fields *height of used font* and *width of used font* shall be given in pixels. The object structure is specified in Figure 82. Table 369 specifies the value definition.

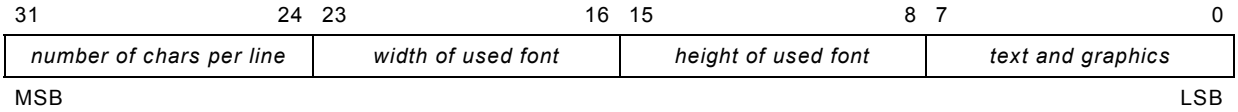

Figure 82 – Object structure

The structure of the *text and graphics* field is specified in Figure 83.

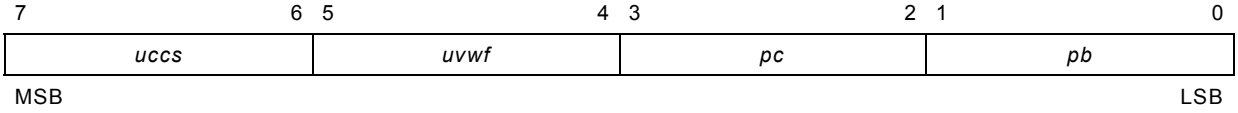

Figure 83 – Structure of the *text and graphics* field

Table 369 – Value definition

Fields	Value	Definition
height of used font *width of used font* *number of chars per line*	00_h 01_h0 to FC_h FD_h FE_h FF_h	No command Set to this value Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
text and graphics	See below	See below
pb (print bold) *pc (print cursive)* *uvwf (use variable width font)*	00_h 01_h 02_h 03_h	No command Execute the command Reserved (for write access); Function not implemented (for read access) Don't care, take no action
uccs (use certain color space)	00_h 01_h 02_h 03_h	No command Use RGB color space Use CYMK color space Don't care, take no action

Table 370 specifies the object description and Table 371 specifies the entry description.

Table 370 – Object description

Attribute	Value
Index	$60E5_h$
Name	Printer configuration command
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 371 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.13.7 Object $60E6_h$: Printer configuration status

This object shall provide the printer configuration status. The object structure is specified in Figure 82. The structure of the *text and graphics* field is specified in Figure 84. The values in the fields *height of used font* and *width of used font* shall be given in pixels. Table 372 specifies the value definition.

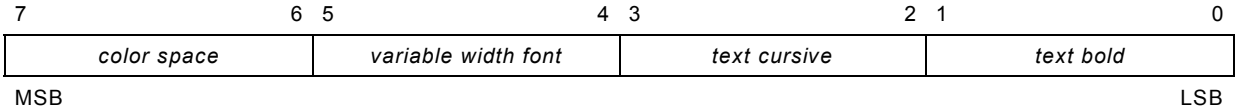

Figure 84 – Structure of the *text and graphics* field

Table 372 – Value definition

Fields	Value	Definition
height of used font *width of used font* *number of chars per line*	00_h 01_h0 to FD_h FE_h FF_h	No value is set Is set to this value Failure Signal not available
text and graphics	See below	See below
text bold	00_h 01_h 02_h 03_h	Text bold is not set Text bold is set Failure Signal not available
text cursive	00_h 01_h 02_h 03_h	Text cursive is not set Text cursive is set Failure Signal not available
variable width font	00_h 01_h 02_h 03_h	Variable width font is not set Variable width font is set Failure Signal not available
color space	00_h 01_h 02_h 03_h	RGB color space is set CYMK color space is set Failure Signal not available

Table 373 specifies the object description and Table 374 specifies the entry description.

Table 373 – Object description

Attribute	Value
Index	$60E6_h$
Name	Printer configuration status
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 374 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.13.8 Object $60E9_h$: Printer mode command

This object shall indicate the printer mode command. Table 375 specifies the value definition. Table 376 specifies the object description and Table 377 specifies the entry description.

Table 375 – Value definition

Value	Definition
00_h	Print Text
01_h	Print graphics black with ESC
02_h	Print graphics gray with ESC
03_h	Print graphics RGB with ESC
04_h	Print graphics CYMK with ESC
05_h	Print logo
06_h to FD_h	Reserved
FE_h	Reserved (for write access); Function not implemented (for read access)
FF_h	Don't care, take no action

Table 376 – Object description

Attribute	Value
Index	$60E9_h$
Name	Printer mode command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 377 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.13.9 Object $60EA_h$: Printer mode status

This object shall provide the printer mode status. Table 378 specifies the value definition. Table 379 specifies the object description and Table 380 specifies the entry description.

Table 378 – Value definition

Value	Definition
00_h	Text
01_h	Graphics black with ESC
02_h	Graphics gray with ESC
03_h	Graphics RGB with ESC
04_h	Graphics CYMK with ESC
05_h	Logo mode
06_h to FD_h	Reserved
FE_h	Failure
FF_h	Signal is not available

Table 379 – Object description

Attribute	Value
Index	$60EA_h$
Name	Printer mode status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 380 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.13.10 Object $60EB_h$: Printer transport

This object shall indicate the content to be printed. The content of this object shall depend on the *printer mode status* (see object $60EA_h$). Table 381 specifies the value definition. Table 382 specifies the object description and Table 383 specifies the entry description.

Table 381 – Value definition

Value of the printer mode status (object $60EA_h$)	Printer transport (content to be printed)	Content coding
00_h 01_h 02_h 03_h 04_h 05_h	Text Graphics black with ESC Graphics gray with ESC Graphics RGB with ESC Graphics CYMK with ESC Logo mode	UTF8 string (see /CiA447-1/) 1 bit per pixel: 0_b = print no dot, 1_b = print dot, MSB = left, LSB = right 1 byte per pixel: 00_h = white (do not print), FF_h = black 3 byte per pixel (R, G, B): 00_h = no color, FF_h = full color 4 byte per pixel (C, Y, M, K): 00_h = no color, FF_h = full color 1 byte per logo: value 20_h = print logo number 1 value 21_h = print logo number 2 to value 33_h = print logo number 20
		Printer modes with ESC use escape-sequences (first byte with the value $1B_h$) to execute the following special commands: 1B 04_h = cut paper 1B $0A_h$ = new line (1 pixel for logo mode; 1 character line feed for text mode) 1B $0D_h$ = carriage return 1B $1B_h$ = used if the data byte is $1B_h$ Other printer modes (text and logo mode) use following values for execution of special commands: 04_h = cut paper $0A_h$ = new line (1 pixel for logo mode; 1 character line feed for text mode) $0D_h$ = carriage return $1B_h$ = used if the data byte is $1B_h$

Table 382 – Object description

Attribute	Value
Index	$60EB_h$
Name	Printer transport
Object code	Variable
Data type	Domain
Category	See /CiA447-2/

Table 383 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	Domain
Default value	Manufacturer-specific

4.2.14 Application parameters for real time clock (RTC) virtual device

4.2.14.1 Object $60F0_h$: RTC date

This object shall provide the RTC date. The object structure is specified in Figure 85. Table 384 specifies the value definition.

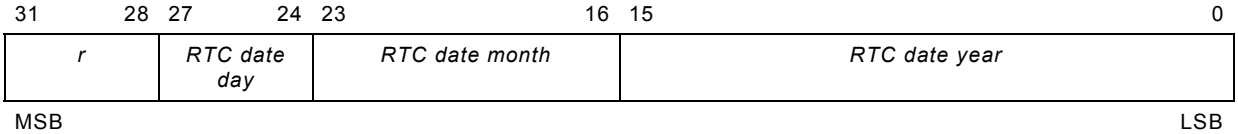

Figure 85 – Object structure

Table 384 – Value definition

Fields	Value	Definition	Unit
RTC date year	0000_h 0001_h $FFFD_h$ $FFFE_h$ $FFFF_h$	No date is set Minimum value Maximum value Failure Signal not available	Years
RTC date month	00_h 01_h $0C_h$ $0D_h$ $0E_h$ $0F_h$	No date is set Minimum value Maximum value Reserved Failure Signal not available	Months
RTC date day	00_h 01_h $1F_h$ 20_h to FD_h FE_h FF_h	No date is set Minimum value Maximum value Reserved Failure Signal not available	Days
r	$0F_h$	Reserved	

Table 385 specifies the object description and Table 386 specifies the entry description.

Table 385 – Object description

Attribute	Value
Index	$60F0_h$
Name	RTC date
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 386 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.14.2 Object $60F1_h$: Set RTC date

This object shall indicate the set RTC date. The object structure is specified in Figure 85. Table 387 specifies the value definition. Table 388 specifies the object description and Table 389 specifies the entry description.

Table 387 – Value definition

Fields	Value	Definition	Unit
RTC date year	0000_h 0001_h $FFFD_h$ $FFFE_h$ $FFFF_h$	Reset the date Minimum value Maximum value Reserved Don't care, take no action	Years

Fields	Value	Definition	Unit
RTC date month	00_h 01_h $0C_h$ $0D_h$ to $0E_h$ $0F_h$	Reset the date Minimum value Maximum value Reserved Don't care, take no action	Months
RTC date day	00_h 01_h $1F_h$ 20_h to FE_h FF_h	Reset the date Minimum value Maximum value Reserved Don't care, take no action	Days
r	$0F_h$	Reserved	

Table 388 – Object description

Attribute	Value
Index	$60F1_h$
Name	Set RTC date
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 389 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.14.3 Object $60F2_h$: RTC time

This object shall provide the RTC time. The object structure is specified in Figure 86. Table 390 specifies the value definition.

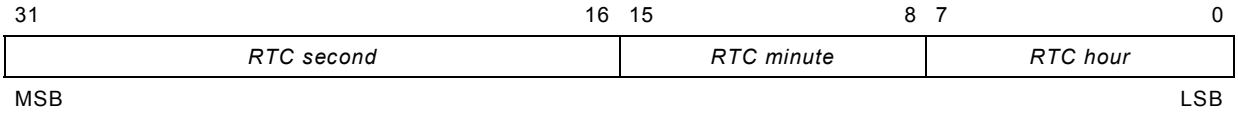

Figure 86 – Object structure

Table 390 – Value definition

Fields	Value	Definition	Unit
RTC hour	00_h 17_h 18_h to FD_h FE_h FF_h	Minimum value Maximum value Reserved Failure Signal not available	Hours
RTC minute	00_h $3B_h$ $3C_h$ to FD_h FE_h FF_h	Minimum value Maximum value Reserved Failure Signal not available	Minutes

Fields	Value	Definition	Unit
RTC second	0001_h $176F_h$ 1770_h to $FFFD_h$ $FFFE_h$ $FFFF_h$	Minimum value Maximum value Reserved Failure Signal not available	0,01s

Table 391 specifies the object description and Table 392 specifies the entry description.

Table 391 – Object description

Attribute	Value
Index	$60F2_h$
Name	RTC time
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 392 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF\ FFFF_h$ (rw)

4.2.14.4 Object $60F3_h$: Set RTC time

This object shall indicate the set RTC time. The object structure is specified in Figure 86. Table 393 specifies the value definition. Table 394 specifies the object description and Table 395 specifies the entry description.

Table 393 – Value definition

Fields	Value	Definition	Unit
RTC hour	00_h 17_h 18_h to FE_h FF_h	Minimum value Maximum value Reserved Don't care, take no action	Hours
RTC minute	00_h $3B_h$ $3C_h$ to FE_h FF_h	Minimum value Maximum value Reserved Don't care, take no action	Minutes
RTC second	0001_h $176F_h$ 1770_h to $FFFE_h$ $FFFF_h$	Minimum value Maximum value Reserved Don't care, take no action	0,01s

Table 394 – Object description

Attribute	Value
Index	$60F3_h$
Name	Set RTC time
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 395 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.14.5 Object $60F4_h$: RTC type and status

This object shall provide the RTC type and status. The object structure is specified in Figure 87. Table 396 specifies the value definition.

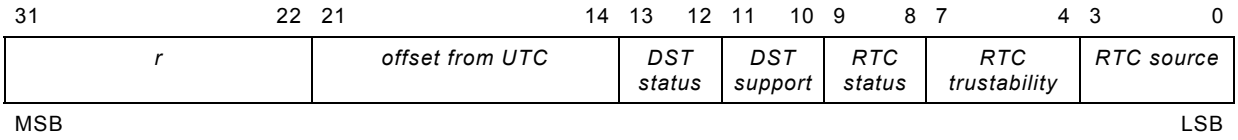

Figure 87 – Object structure

Table 396 – Value definition

Fields	Value	Definition
RTC source	00_h 01_h 02_h 03_h 04_h to $0D_h$ $0E_h$ $0F_h$	Unknown GPS Time normal Battery buffered RTC (taximeter intern) Reserved Failure Signal not available
RTC trustability	00_h 01_h 02_h to $0D_h$ $0E_h$ $0F_h$	User adjustable Accepted by authority Reserved Failure Signal not available
RTC status	00_h 01_h 02_h 03_h	RTC not valid RTC valid Failure Signal not available
DST support	00_h 01_h 02_h 03_h	DST not supported DST supported Failure Signal not available
DST status	00_h 01_h 02_h 03_h	DST not active DST active Failure Signal not available
offset from UTC	00_h 01_h 02_h 03_h 04_h *to* $2F_h$ 30_h 31_h *to* 67_h 68_h FE_h FF_h	The offset is (- 12,00) hours The offset is (- 11,75) hours The offset is (- 11,50) hours The offset is (- 11,25) hours The offset is (- 11,00) *to* (- 0,25) hours The offset is 0,00 hours The offset is (+ 0,25) *to* (+ 13,75) hours The offset is (+ 14,00) hours Failure Signal not available
r	$3FF_h$	Reserved

Table 397 specifies the object description and Table 398 specifies the entry description.

Table 397 – Object description

Attribute	Value
Index	$60F4_h$
Name	RTC type and status
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 398 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF\ FFFF_h$ (rw)

4.2.14.6 Object $60F5_h$: RTC time zone

This object shall provide the RTC time zone. The used string shall consist of six characters.

Table 399 specifies the object description and Table 400 specifies the entry description.

Table 399 – Object description

Attribute	Value
Index	$60F5_h$
Name	RTC time zone
Object code	Variable
Data type	UTF8 string
Category	See /CiA447-2/

Table 400 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)

4.2.15 Application parameters for driver identification virtual device

4.2.15.1 Object $60F9_h$: Unique driver ID

This object shall provide the unique driver ID. Table 401 specifies the object description and Table 402 specifies the entry description.

Table 401 – Object description

Attribute	Value
Index	$60F9_h$
Name	Unique driver ID
Object code	Variable
Data type	Unsigned64
Category	See /CiA447-2/

Table 402 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned64
Default value	No (ro); Manufacturer-specific (rw)

4.2.15.2 Object $60FA_h$: Driver ID status

This object shall provide the driver ID status. The object structure is specified in Figure 88. Table 403 specifies the value definition.

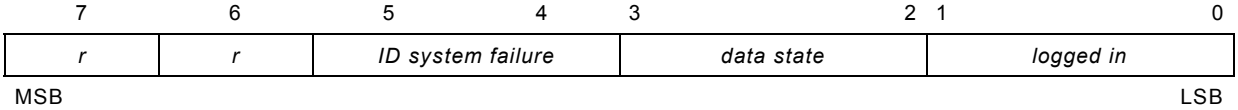

Figure 88 – Object structure

Table 403 – Value definition

Fields	Value	Definition
logged in	00_h 01_h 02_h 03_h	Driver is logged out Driver is logged in Failure Signal not available
data state	00_h 01_h 02_h 03_h	Invalid Valid Failure Signal not available
ID system failure	00_h 01_h 02_h 03_h	No identification failure Identification failure Failure Signal not available
r	1_b	Reserved

Table 404 specifies the object description and Table 405 specifies the entry description.

Table 404 – Object description

Attribute	Value
Index	$60FA_h$
Name	Driver ID status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 405 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.15.3 Object $60FB_h$: Drivers name

This object shall provide the drivers name. The used string shall consist of six characters.

Table 406 specifies the object description and Table 407 specifies the entry description.

Table 406 – Object description

Attribute	Value
Index	$60FB_h$
Name	Drivers name
Object code	Variable
Data type	UTF8 string
Category	See /CiA447-2/

Table 407 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See /CiA447-1/
Default value	No (ro); Manufacturer-specific (rw)

4.2.15.4 Object $60FC_h$: Driver login and logout time

This object shall provide driver login and logout time. The value shall be given in the seconds since 1970-01-01. Table 408 specifies the value definition for sub-indices 01_h and 02_h. Table 409 specifies the object description and Table 410 specifies the entry description.

Table 408 – Value definition

Value	Definition
$0000\ 0000_h$	Minimal value
$FFFF\ FFFD_h$	Maximal value
$FFFF\ FFFE_h$	Failure
$FFFF\ FFFF_h$	Signal not available

Table 409 – Object description

Attribute	Value
Index	$60FC_h$
Name	Driver login and logout time
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 410 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h
Default value	02_h
Sub-Index	01_h
Description	Driver login time
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned32
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	02_h
Description	Driver logout time
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	Unsigned32
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.16 Application parameters for tariff display virtual device

4.2.16.1 Object 6100_h: Tariff display information and status

This object shall provide the tariff display information and status. The object structure is specified in Figure 89. Table 411 specifies the value definition.

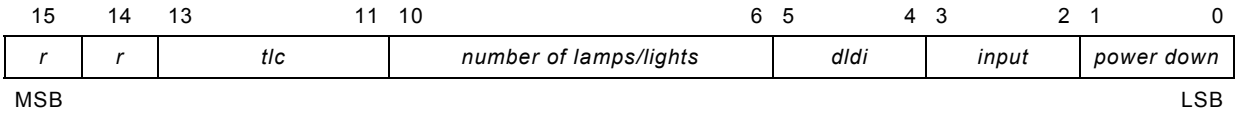

Figure 89 – Object structure

Table 411 – Value definition

Fields	Value	Definition
power down	00_h 01_h 02_h 03_h	No power down Power down Failure Signal not available
input	00_h 01_h 02_h 03_h	CAN used Discrete inputs used (lamp driver input) Failure Signal not available
dldi (discrete lamp driver input)	00_h 01_h 02_h 03_h	Discrete lamp driver input is not available Discrete lamp driver input available Failure Signal not available
number of lamps/lights	00_h 01_h to 10_h $1E_h$ $1F_h$	Not defined Number of used lamps/lights Failure Signal not available
tlc (tariff level characters)	00_h to 02_h 03_h to 05_h 06_h 07_h	Number of used level characters Reserved Failure Signal not available
r	1_b	Reserved

Table 412 specifies the object description and Table 413 specifies the entry description.

Table 412 – Object description

Attribute	Value
Index	6100_h
Name	Tariff display information and status
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 413 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.16.2 Object 6101_h: Tariff display lamp failures 1

This object shall provide the tariff display lamp failures of the lamps 1 to 8. The object structure is specified in Figure 90. Table 414 specifies the value definition.

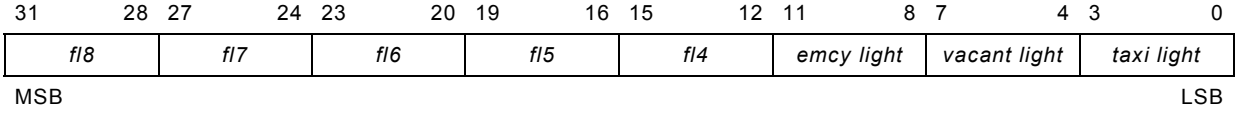

Figure 90 – Object structure

Table 414 – Value definition

Fields	Value	Definition
taxi light *vacant light* *emcy light (emergency light)* *fl4 to fl8 (failure lamp 4 to failure lamp 8)*	00_h 01_h 02_h 03_h to $0D_h$ $0E_h$ $0F_h$	No lamp failure Open load Over load Reserved Signal failure Signal not available

Table 415 specifies the object description and Table 416 specifies the entry description.

Table 415 – Object description

Attribute	Value
Index	6101_h
Name	Tariff display lamp failures 1
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 416 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF FFFF$_h$ (rw)

4.2.16.3 Object 6102_h: Tariff display lamp failures 2

This object shall provide the tariff display lamp failures of the lamps 9 to 16. The object structure is specified in Figure 91. Table 417 specifies the value definition.

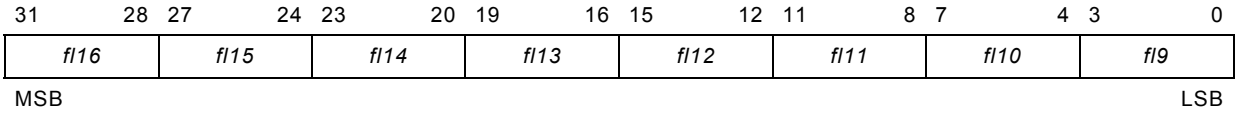

Figure 91 – Object structure

Table 417 – Value definition

Fields	Value	Definition
fl9 to fl16 (failure lamp 9 to failure lamp 16)	00_h 01_h 02_h 03_h to $0D_h$ $0E_h$ $0F_h$	No lamp failure Open load Over load Reserved Signal failure Signal not available

Table 418 specifies the object description and Table 419 specifies the entry description.

Table 418 – Object description

Attribute	Value
Index	6102_h
Name	Tariff display lamp failures 2
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 419 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.16.4 Object 6103_h: Tariff display inputs status

This object shall provide the status of the discrete inputs 1 to 16. The object structure is specified in Figure 92. Table 420 specifies the value definition.

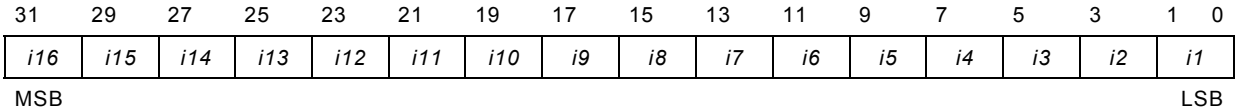

Figure 92 – Object structure

Table 420 – Value definition

Fields	Value	Definition
i1 to i16 (input 1 to input 16)	00_h 01_h 02_h 03_h	Input not active Input active Signal failure Signal not available

Table 421 specifies the object description and Table 422 specifies the entry description.

Table 421 – Object description

Attribute	Value
Index	6103_h
Name	Tariff display inputs status
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 422 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.16.5 Object 6104_h: Tariff display lamps status 1

This object shall provide the status of tariff display lamps 1 to 8. The object structure is specified in Figure 93. Table 423 specifies the value definition.

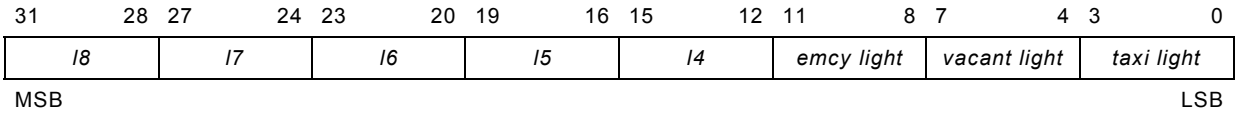

Figure 93 – Object structure

Table 423 – Value definition

Fields	Value	Definition
taxi light *vacant light* *emcy light (emergency light)* *I4 to I8 (lamp 4 to lamp 8)*	00_h 01_h 02_h 03_h 04_h to $0D_h$ $0E_h$ $0F_h$	Lamp off Lamp on Lamp dimmed Lamp blinking Reserved Failure Signal not available

Table 424 specifies the object description and Table 425 specifies the entry description.

Table 424 – Object description

Attribute	Value
Index	6104_h
Name	Tariff display lamps status 1
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 425 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.16.6 Object 6105_h: Tariff display lamps status 2

This object shall provide the status of tariff display lamps 9 to 16. The object structure is specified in Figure 94. Table 426 specifies the value definition.

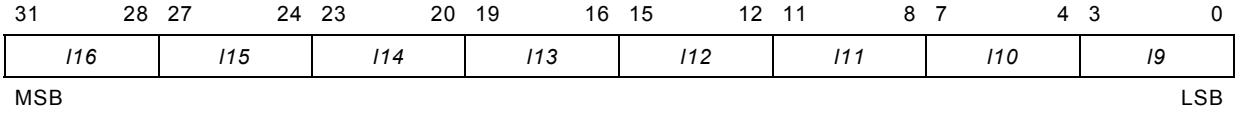

Figure 94 – Object structure

Table 426 – Value definition

Fields	Value	Definition
I9 to I16 (lamp 9 to lamp 16)	00_h 01_h 02_h 03_h 04_h to $0D_h$ $0E_h$ $0F_h$	Lamp off Lamp on Lamp dimmed Lamp blinking Reserved Failure Signal not available

Table 427 specifies the object description and Table 428 specifies the entry description.

Table 427 – Object description

Attribute	Value
Index	6105_h
Name	Tariff display lamps status 2
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 428 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FFFF FFFF$_h$ (rw)

4.2.16.7 Object 6106_h: Tariff display lamps command 1

This object shall indicate the command for tariff display lamps 1 to 8. The object structure is specified in Figure 95. Table 429 specifies the value definition.

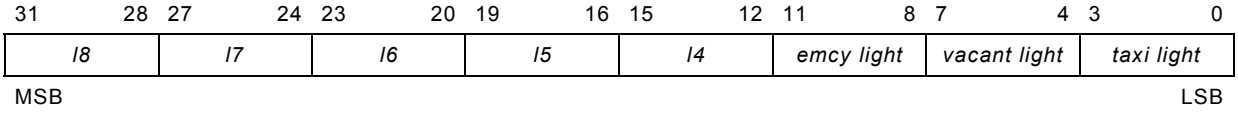

Figure 95 – Object structure

Table 429 – Value definition

Fields	Value	Definition
taxi light *vacant light* *emcy light (emergency light)* *l4 to l8 (lamp 4 to lamp 8)*	00_h 01_h 02_h 03_h 04_h to $0D_h$ $0E_h$ $0F_h$	Lamp off Lamp on Lamp dimmed Lamp blinking Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Table 430 specifies the object description and Table 431 specifies the entry description.

Table 430 – Object description

Attribute	Value
Index	6106_h
Name	Tariff display lamps command 1
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 431 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF FFFF$_h$

4.2.16.8 Object 6107_h: Tariff display lamps command 2

This object shall indicate the command for tariff display lamps 9 to 16. The object structure is specified in Figure 96. Table 432 specifies the value definition.

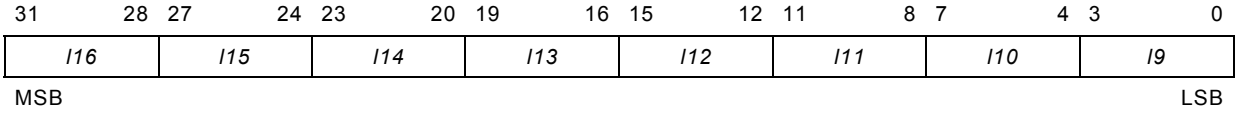

Figure 96 – Object structure

Table 432 – Value definition

Fields	Value	Definition
l9 to l16 (lamp 9 to lamp 16)	00_h 01_h 02_h 03_h 04_h to $0D_h$ $0E_h$ $0F_h$	Lamp off Lamp on Lamp dimmed Lamp blinking Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Table 433 specifies the object description and Table 434 specifies the entry description.

Table 433 – Object description

Attribute	Value
Index	6107_h
Name	Tariff display lamps command 2
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 434 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.16.9 Object 6109_h: Tariff display configuration

This object shall indicate the tariff display configuration. The object structure is specified in Figure 97. Table 435 specifies the value definition.

7	6	5	4	3 2	1 0
r	*r*	*r*	*r*	*configure*	*epdm*
MSB					LSB

Figure 97 – Object structure

Table 435 – Value definition

Fields	Value	Definition
epdm (enter power down mode)	00_h 01_h 02_h 03_h	Do not enter the power down mode Enter the power down mode Reserved (for write access); Function not implemented (for read access) Don't care, take no action
configure	00_h 01_h 02_h 03_h	No configuration command Configure via CAN: CAN operation (allows *tariff display lamps commands 1 and 2* (objects 6106_h and 6107_h) to set the display state) Configure by using discrete inputs: Discrete operation (display states are set by discrete inputs) Don't care, take no action
r	1_b	Reserved

Table 436 specifies the object description and Table 437 specifies the entry description.

Table 436 – Object description

Attribute	Value
Index	6109_h
Name	Tariff display configuration
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 437 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.16.10 Object $610A_h$: Tariff display tariff level

This object shall provide the tariff display tariff level. The object structure is specified in Figure 98. Table 438 specifies the value definition.

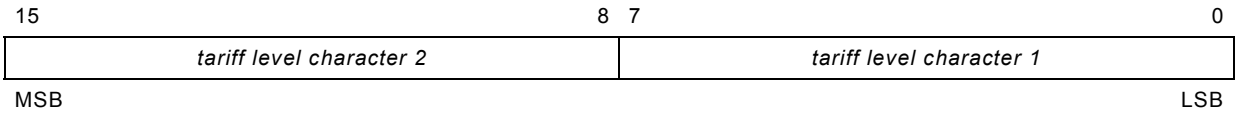

Figure 98 – Object structure

Table 438 – Value definition

Value	Value	Definition
tariff level character 1 (least significant) *tariff level character 2*	00_h 01_h to $1E_h$ 20_h to $7E_h$ 80_h to FD_h FE_h FF_h	Value coded according to /ISO10646/ Reserved Value coded according to /ISO10646/ Reserved Failure Signal not available

Table 439 specifies the object description and Table 440 specifies the entry description.

Table 439 – Object description

Attribute	Value
Index	$610A_h$
Name	Tariff display tariff level
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 440 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.17 Application parameters for taxi alarm system virtual device

4.2.17.1 Object 6110_h: Taxi alarm system status

This object shall provide the taxi alarm system status. The object structure is specified in Figure 99. Table 441 specifies the value definition.

15	14	13	12	11	10	9 8	7 6	5 4	3 2	1 0
r	*r*	*r*	*r*	*r*	*r*	*recr*	*rakp*	*akp*	*faa*	*saa*

MSB LSB

Figure 99 – Object structure

Table 441 – Value definition

Fields	Value	Definition
saa (silent alarm activated) *faa (full alarm activated)* *akp (alarm key pressed)* *rakp (remote alarm key pressed)* *recr (radio emergency call requested)*	00_h 01_h 02_h 03_h	No Yes Failure Signal not available
r	1_b	Reserved

Table 442 specifies the object description and Table 443 specifies the entry description.

Table 442 – Object description

Attribute	Value
Index	6110_h
Name	Taxi alarm system status
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 443 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF_h$ (rw)

4.2.18 Application parameters for radio virtual device

4.2.18.1 Object 6115_h: Radio status

This object shall provide the radio status. The object structure is specified in Figure 100. Table 444 specifies the value definition.

7 4	3 2	1 0
r	*rpod*	*rerr1*

MSB LSB

Figure 100 – Object structure

Table 444 – Value definition

Fields	Value	Definition
rerr1 (radio error 1) *rpod (radio power off detected)*	00_h 01_h 02_h 03_h	No Yes Failure Signal not available
r	$0F_h$	Reserved

Table 445 specifies the object description and Table 446 specifies the entry description.

Table 445 – Object description

Attribute	Value
Index	6115_h
Name	Radio status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 446 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.18.2 Object 6116_h: Radio device command

This object shall indicate the radio device command. The object structure is specified in Figure 101. Table 447 specifies the value definition.

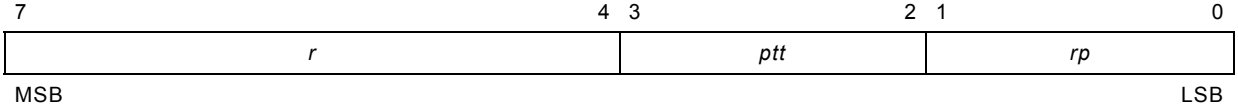

Figure 101 – Object structure

Table 447 – Value definition

Field	Value	Definition
rp (radio power)	00_h 01_h 02_h 03_h	Turn off the radio power Turn on the radio power Reserved (for write access); Function not implemented (for read access) Don't care, take no action
ptt (push-to-talk)	00_h 01_h 02_h 03_h	Release push-to-talk Set push-to-talk Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$0F_h$	Reserved

Table 448 specifies the object description and Table 449 specifies the entry description.

Table 448 – Object description

Attribute	Value
Index	6116_h
Name	Radio device command
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 449 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.18.3 Object 6117_h: Radio device status

This object shall provide the radio device status. The object structure is specified in Figure 102. Table 450 specifies the value definition.

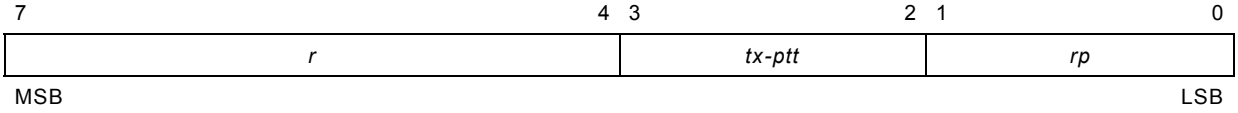

Figure 102 – Object structure

Table 450 – Value definition

Field	Value	Definition
rp (radio power)	00_h 01_h 02_h 03_h	Radio power is off Radio power is on Failure Signal not available
tx-ptt (transmit push-to-talk)	00_h 01_h 02_h 03_h	Ready to transmit, push-to-talk released Transmit in the moment, push-to-talk is set Failure Signal not available
r	$0F_h$	Reserved

Table 451 specifies the object description and Table 452 specifies the entry description.

Table 451 – Object description

Attribute	Value
Index	6117_h
Name	Radio device status
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 452 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.19 Application parameters for audio switch virtual device

4.2.19.1 Object 6120_h: Audio switch command

This object shall indicate the audio switch command. This command shall connect an audio input source on an input channel with selected audio output. The object structure is specified in Figure 103. Table 453 specifies the value definition.

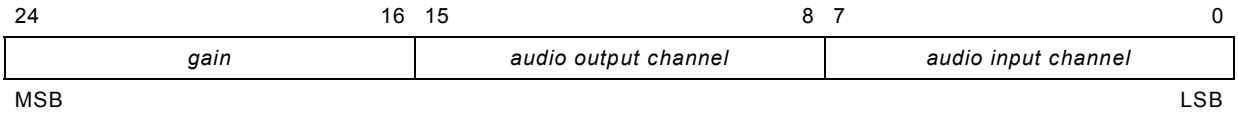

Figure 103 – Object structure

Table 453 – Value definition

Field	Value	Definition
audio input channel	00_h 01_h to 10_h 11_h to FD_h FE_h FF_h	All input channels Channel 1 to 16 (physical device with node-ID 1 to 16) Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
audio output channel	00_h 01_h to 10_h 11_h to FD_h FE_h FF_h	All output channels Channel 1 to 16 (physical device with node-ID 1 to 16) Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
gain	00_h 01_h to FD_h FE_h FF_h	Channel disconnected Gain value Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Table 454 specifies the object description and Table 455 specifies the entry description.

Table 454 – Object description

Attribute	Value
Index	6120_h
Name	Audio switch command
Object code	Variable
Data type	Unsigned24
Category	See /CiA447-2/

Table 455 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF $FFFF_h$

4.2.19.2 Object 6121_h: Audio switch status request

This object shall indicate the audio switch status request. With this request the audio switch device is asked for the gain of the selected *audio input channel* and *audio output channel*. Figure 104 specifies the object structure. Table 456 specifies the value definition.

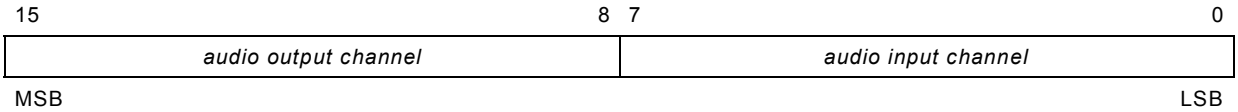

Figure 104 – Object structure

Table 456 – Value definition

Field	Value	Definition
audio input channel	00_h 01_h to 10_h 11_h to FE_h FF_h	All input channels Channel 1 to 16 (physical device with node-ID 1 to 16) Reserved Don't care, take no action
audio output channel	00_h 01_h to 10_h 11_h to FE_h FF_h	All output channels Channel 1 to 16 (physical device with node-ID 1 to 16) Reserved Don't care, take no action

Table 457 specifies the object description and Table 458 specifies the entry description.

Table 457 – Object description

Attribute	Value
Index	6121_h
Name	Audio switch status request
Object code	Variable
Data type	Unsigned16
Category	See /CiA447-2/

Table 458 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	$FFFF_h$

4.2.19.3 Object 6122_h: Audio switch status response

This object shall provide the audio switch status response. The response provide the gain value of the selected *audio input channel* and *audio output channel* in *audio switch status request* (object 6121_h).

Table 459 specifies the value definition. Table 460 specifies the object description and Table 461 specifies the entry description.

Table 459 – Value definition

Value	Definition
00_h	Channel disconnected
01_h to FD_h	Gain value
FE_h	Failure
FF_h	Signal not available

Table 460 – Object description

Attribute	Value
Index	6122_h
Name	Audio switch status response
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 461 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.20 Application parameters for roof bar light virtual device

4.2.20.1 Object 6130_h: Light commands roof bar

This object shall indicate the light commands for the roof bar. The structure of sub-index 01_h is specified in Figure 105 and Figure 106. Table 462 specifies the value definition for sub-index 01_h.

15 14	13 12	11 10	9 8	7 6	5 4	3 2	1 0
hdf2	*hdf1*	*alb4*	*alb3*	*alb2*	*alb1*	*mlb2*	*mlb1*

MSB LSB

Figure 105 – Structure of sub-index 01_h bit 0 to 15

31 30	29 28	27 26	25 24	23 22	21 20	19 18	17 16
rf2	*rf1*	*wlr1*	*wlf1*	*all1*	*alr1*	*ff2*	*ff1*

MSB LSB

Figure 106 – Structure of sub-index 01_h bit 16 to 31

Table 462 – Value definition for sub-index 01_h

Field	Value	Definition
mlb1 (main light beacon 1) *mlb2 (main light beacon 2)* *alb1 (additional light beacon 1)* *alb2 (additional light beacon 2)* *alb3 (additional light beacon 3)* *alb4 (additional light beacon 4)* *hdf1 (high distance flasher 1)* *hdf2 (high distance flasher 2)* *ff1 (front flasher 1)* *ff2 (front flasher 2)* *alr1 (alley light right 1)* *all1 (alley light left 1)* *wlf1 (working light front 1)* *wlr1 (working light rear 1)* *rf1 (rear flasher 1)* *rf2 (rear flasher 2)*	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action

The structure of sub-index 02_h is specified in Figure 107 and Figure 108. Table 463 specifies the value definition for sub-index 02_h.

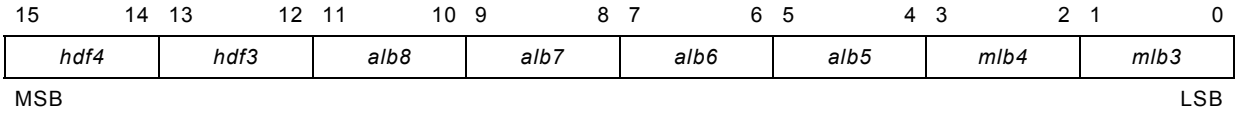

Figure 107 – Structure of sub-index 02_h bit 0 to 15

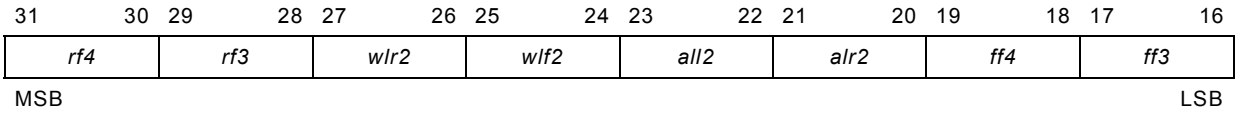

Figure 108 – Structure of sub-index 02_h bit 16 to 31

Table 463 – Value definition for sub-index 02_h

Field	Value	Definition
mlb3 (main light beacon 3) *mlb4 (main light beacon 4)* *alb5 (additional light beacon 5)* *alb6 (additional light beacon 6)* *alb7 (additional light beacon 7)* *alb8 (additional light beacon 8)* *hdf3 (high distance flasher 3)* *hdf4 (high distance flasher 4)* *ff3 (front flasher 3)* *ff4 (front flasher 4)* *alr2 (alley light right 2)* *all2 (alley light left 2)* *wlf2 (working light front 2)* *wlr2 (working light rear 2)* *rf3 (rear flasher 3)* *rf4 (rear flasher 4)*	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action

The structure of sub-index 03_h is specified in Figure 109 and Figure 110. Table 464 specifies the value definition for sub-index 03_h.

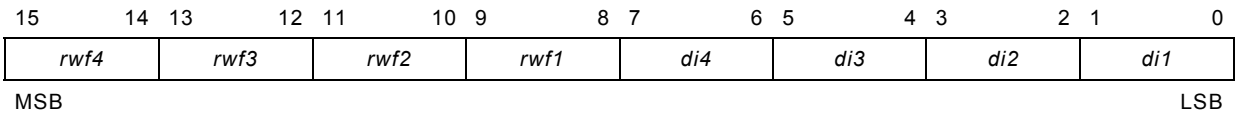

Figure 109 – Structure of sub-index 03_h bit 0 to 15

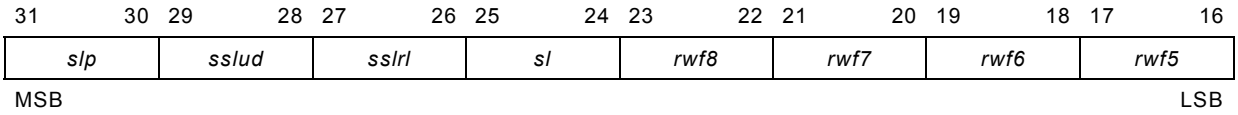

Figure 110 – Structure of sub-index 03_h bit 16 to 31

Table 464 – Value definition for sub-index 03_h

Field	Value	Definition
di1 (direction indicator 1) *di2 (direction indicator 2)* *di3 (direction indicator 3)* *di4 (direction indicator 4)* *rwf1 (rear warning flasher 1)* *rwf2 (rear warning flasher 2)* *rwf3 (rear warning flasher 3)* *rwf4 (rear warning flasher 4)* *rwf5 (rear warning flasher 5)* *rwf6 (rear warning flasher 6)* *rwf7 (rear warning flasher 7)* *rwf8 (rear warning flasher 8)* *sl (search lamp)*	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
sslrl (swing search lamp right/left)	00_h 01_h 02_h 03_h	Stop swinging right/left Swing the search lamp right Swing the search lamp left Don't care, take no action
sslud (swing search lamp up/down)	00_h 01_h 02_h 03_h	Stop swinging up/down Swing the search lamp up Swing the search lamp down Don't care, take no action
slp (search lamp position)	00_h 01_h 02_h 03_h	Bring search lamp in position 1 Bring search lamp in position 2 Bring search lamp in position 3 Don't care, take no action

The structure of sub-index 04_h is specified in Figure 111 and Figure 112. Table 465 specifies the value definition for sub-index 04_h.

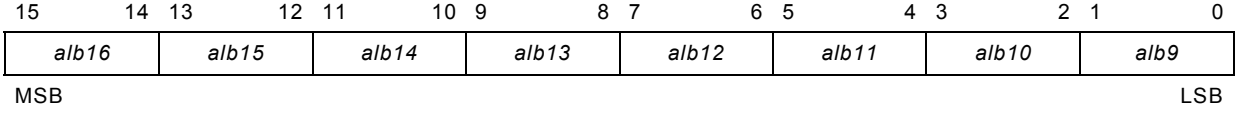

Figure 111 – Structure of sub-index 04_h bit 0 to 15

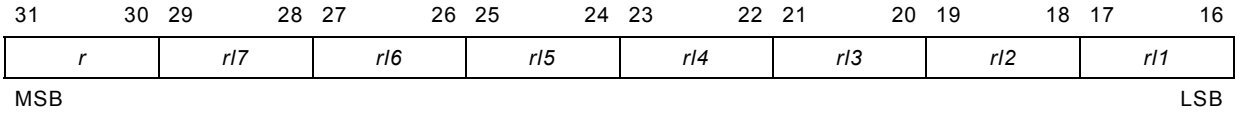

Figure 112 – Structure of sub-index 04_h bit 16 to 31

Table 465 – Value definition for sub-index 04_h

Field	Value	Definition
alb9 to *alb16 (additional light beacon 9* to *16)* *rl1* to *rl7 (reserve light 1* to *7)*	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	00_h	Reserved

The structure of sub-index 05_h is specified in Figure 113 and Figure 114. Table 466 specifies the value definition for sub-index 05_h.

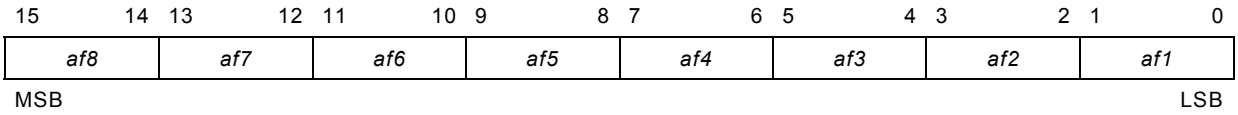

Figure 113 – Structure of sub-index 05_h bit 0 to 15

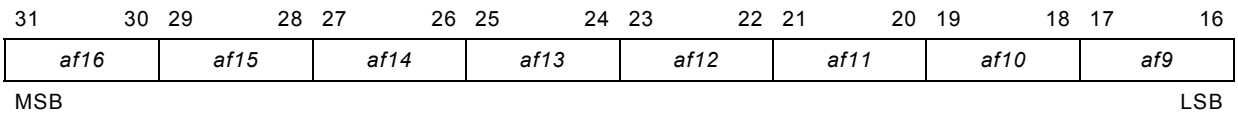

Figure 114 – Structure of sub-index 05_h bit 16 to 31

Table 466 – Value definition for sub-index 05_h

Field	Value	Definition
af1 to *af16 (additional function 1* to *16)*	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action

Table 467 specifies the object description and Table 468 specifies the entry description.

Table 467 – Object description

Attribute	Value
Index	6130_h
Name	Light commands roof bar
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 468 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	05_h
Default value	Device-specific
Sub-Index	01_h
Description	Light command 1
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

Attribute	Value
Sub-Index	02_h
Description	Light command 2
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$
Sub-Index	03_h
Description	Light command 3
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$
Sub-Index	04_h
Description	Light command 4
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$
Sub-Index	05_h
Description	Light command 5
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.20.2 Object 6131_h: Light status roof bar

This object shall provide the light status of the roof bar. The structure of sub-index 01_h is specified in Figure 105 and Figure 106. Table 469 specifies the value definition for sub-index 01_h.

Table 469 – Value definition for sub-index 01_h

Field	Value	Definition
mlb1 (main light beacon 1) *mlb2 (main light beacon 2)* *alb1 (additional light beacon 1)* *alb2 (additional light beacon 2)* *alb3 (additional light beacon 3)* *alb4 (additional light beacon 4)* *hdf1 (high distance flasher 1)* *hdf2 (high distance flasher 2)* *ff1 (front flasher 1)* *ff2 (front flasher 2)* *alr1 (alley light right 1)* *all1 (alley light left 1)* *wlf1 (working light front 1)* *wlr1 (working light rear 1)* *rf1 (rear flasher 1)* *rf2 (rear flasher 2)*	00_h 01_h 02_h 03_h	The function is disabled (off) The function is enabled (on) Failure Signal is not available

The structure of sub-index 02_h is specified in Figure 107 and Figure 108. Table 470 specifies the value definition for sub-index 02_h.

Table 470 – Value definition for sub-index 02_h

Field	Value	Definition
mlb3 (main light beacon 3) *mlb4 (main light beacon 4)* *alb5 (additional light beacon 5)* *alb6 (additional light beacon 6)* *alb7 (additional light beacon 7)* *alb8 (additional light beacon 8)* *hdf3 (high distance flasher 3)* *hdf4 (high distance flasher 4)* *ff3 (front flasher 3)* *ff4 (front flasher 4)* *alr2 (alley light right 2)* *all2 (alley light left 2)* *wlf2 (working light front 2)* *wlr2 (working light rear 2)* *rf3 (rear flasher 3)* *rf4 (rear flasher 4)*	00_h 01_h 02_h 03_h	The function is disabled (off) The function is enabled (on) Failure Signal is not available

The structure of sub-index 03_h is specified in Figure 109 and Figure 110. Table 471 specifies the value definition for sub-index 03_h.

Table 471 – Value definition for sub-index 03_h

Field	Value	Definition
di1 (direction indicator 1) *di2 (direction indicator 2)* *di3 (direction indicator 3)* *di4 (direction indicator 4)* *rwf1 (rear warning flasher 1)* *rwf2 (rear warning flasher 2)* *rwf3 (rear warning flasher 3)* *rwf4 (rear warning flasher 4)* *rwf5 (rear warning flasher 5)* *rwf6 (rear warning flasher 6)* *rwf7 (rear warning flasher 7)* *rwf8 (rear warning flasher 8)* *sl (search lamp)*	00_h 01_h 02_h 03_h	The function is disabled (off) The function is enabled (on) Failure Signal is not available
sslrl (swing search lamp right/left)	00_h 01_h 02_h 03_h	The function is not active The search lamp is moving right The search lamp is moving left Signal is not available
sslud (swing search lamp up/down)	00_h 01_h 02_h 03_h	The function is not active The search lamp is moving up The search lamp is moving down Signal is not available
slp (search lamp position)	00_h 01_h 02_h 03_h	The search lamp is in position 1 The search lamp is in position 2 The search lamp is in position 3 Signal is not available

The structure of sub-index 04_h is specified in Figure 115 and Figure 116. Table 472 specifies the value definition for sub-index 04_h.

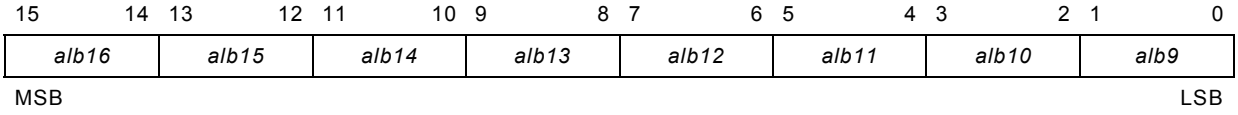

Figure 115 – Structure of sub-index 04_h bit 0 to 15

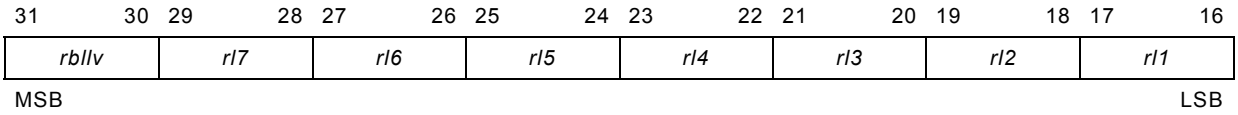

Figure 116 – Structure of sub-index 04_h bit 16 to 31

Table 472 – Value definition for sub-index 04_h

Field	Value	Definition
alb9 to *alb16 (additional light beacon 9* to *16)* *rl1* to *rl7 (reserve light 1* to *7)*	00_h 01_h 02_h 03_h	The function is disabled (off) The function is enabled (on) Failure Signal is not available
rbllv (roof bar light local voltage)	00_h 01_h 02_h 03_h	Voltage is OK Under voltage Over voltage Signal is not available

The structure of sub-index 05_h is specified in Figure 113 and Figure 114. Table 473 specifies the value definition for sub-index 05_h.

Table 473 – Value definition for sub-index 05_h

Field	Value	Definition
af1 to *af16 (additional function 1* to *16)*	00_h 01_h 02_h 03_h	The function is disabled (off) The function is enabled (on) Failure Signal is not available

Table 474 specifies the object description and Table 475 specifies the entry description.

Table 474 – Object description

Attribute	Value
Index	6131_h
Name	Light status roof bar
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 475 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	05_h
Default value	Device-specific
Sub-Index	01_h
Description	Light status 1
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	02_h
Description	Light status 2
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

Attribute	Value
Sub-Index	03_h
Description	Light status 3
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	04_h
Description	Light status 4
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)
Sub-Index	05_h
Description	Light status 5
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.21 Application parameters for roof bar sound virtual device

4.2.21.1 Object 6138_h: Country-specific sound command roof bar

This object shall indicate the country-specific sound command for the roof bar. Table 476 specifies the value definition. Table 477 specifies the object description and Table 478 specifies the entry description.

Table 476 – Value definition

Value	Definition
00_h	No sound
01_h	DIN
02_h	Italian police
03_h	Italian ambulance
04_h	Italian fire fight
05_h	Netherlands 2-sound
06_h	Netherlands 3-sound
07_h	Austria (Vienna rescue)
08_h	Austria rescue
09_h	Austria police
$0A_h$	Austria fire fight
$0B_h$	Austria ambulance
$0C_h$	Norway
$0D_h$	Sweden
$0E_h$	Denmark
$0F_h$	France police
10_h	France fire fight
11_h	France gendarmerie
12_h	France UMH
13_h	France ambulance
14_h	Piste
15_h	Great Britain fire fight
16_h	USA
17_h to $3F_h$	Reserved
$4F_h$ to FD_h	Manufacturer-specific sounds
FE_h	Reserved (for write access); Function not implemented (for read access)
FF_h	Don't care, take no action

Table 477 – Object description

Attribute	Value
Index	6138_h
Name	Country-specific sound command roof bar
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 478 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

4.2.21.2 Object 6139_h: Country-specific sound status roof bar

This object shall provide the country-specific sound status of the roof bar. Table 479 specifies the value definition. Table 480 specifies the object description and Table 481 specifies the entry description.

Table 479 – Value definition

Value	Definition
00_h	No sound selected
01_h	DIN
02_h	Italian police
03_h	Italian ambulance
04_h	Italian fire fight
05_h	Netherlands 2-sound
06_h	Netherlands 3-sound
07_h	Austria (Vienna rescue)
08_h	Austria rescue
09_h	Austria police
$0A_h$	Austria fire fight
$0B_h$	Austria ambulance
$0C_h$	Norway
$0D_h$	Sweden
$0E_h$	Denmark
$0F_h$	France police
10_h	France fire fight
11_h	France gendarmerie
12_h	France UMH
13_h	France ambulance
14_h	Piste
15_h	Great Britain fire fight
16_h	USA
17_h to $3F_h$	Reserved
$4F_h$ to FD_h	Manufacturer-specific sounds
FE_h	Failure
FF_h	Signal not available

Table 480 – Object description

Attribute	Value
Index	6139_h
Name	Country-specific sound status roof bar
Object code	Variable
Data type	Unsigned8
Category	See /CiA447-2/

Table 481 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	No
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.21.3 Object $613A_h$: Sound commands roof bar

This object shall indicate the sound commands for the roof bar. The structure of sub-index 01_h is specified in Figure 117 and Figure 118. Table 482 and Table 483 specify the value definition for sub-index 01_h.

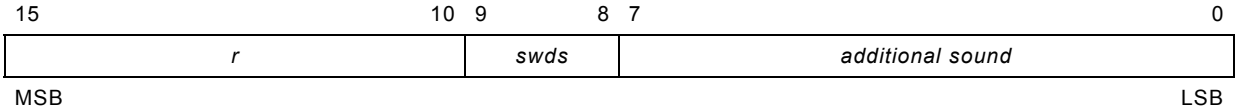

Figure 117 – Structure of sub-index 01_h bit 0 to 15

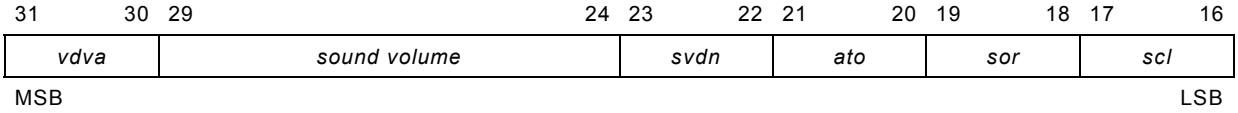

Figure 118 – Structure of sub-index 01_h bit 16 to 31

Table 482 – Value definition for sub-index 01_h bit 0 to 15

Field	Value	Definition
additional sound	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h to $3F_h$ $4F_h$ to FC_h FD_h FE_h FF_h	No sound (turn-off) Country-specific sound Peak US-HI-LO US-YELP Sweden-YELP WAIL Air horn Cricket (Grille: Austria-specific sound) Reserved Manufacturer-specific additional sounds Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
swds (sound with double speed)	00_h 01_h 02_h 03_h	Play the sound with normal speed Play the sound with double speed Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$3F_h$	Reserved

Table 483 – Value definition for sub-index 01_h bit 16 to 31

Field	Value	Definition
scl (switch city/land)	00_h 01_h 02_h 03_h	Switch to land sound signal Switch to city sound signal Reserved (for write access); Function not implemented (for read access) Don't care, take no action
sor (sound order readiness) *ato (acoustic test operation)*	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
svdn (sound volume day/night)	00_h 01_h 02_h 03_h	Switch to day sound signal Switch to night sound signal Reserved (for write access); Function not implemented (for read access) Don't care, take no action
sound volume	00_h *to* $3C_h$ $3D_h$ $3E_h$ $3F_h$	Sound volume step 1 *to* step 62 Reserved Reserved (for write access); Function not implemented (for read access) Don't care, take no action
vdva (velocity dependent volume adjustment)	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action

The structure of sub-index 02_h is specified in Figure 119 and Figure 120. Table 484 specifies the value definition for sub-index 02_h.

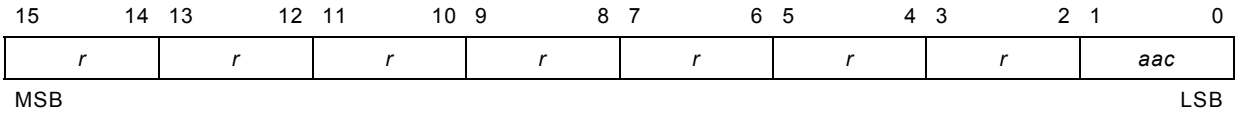

Figure 119 – Structure of sub-index 02_h bit 0 to 15

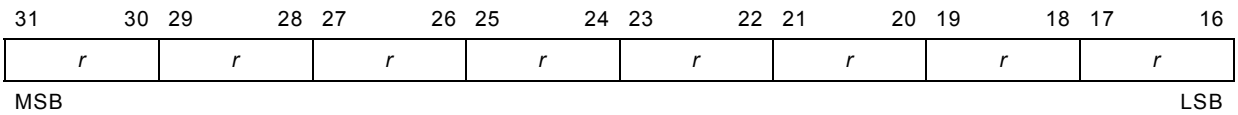

Figure 120 – Structure of sub-index 02_h bit 16 to 31

Table 484 – Value definition for sub-index 02_h

Field	Value	Definition
aac (audio active command)	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	11_b	Reserved

Table 485 specifies the object description and Table 486 specifies the entry description.

Table 485 – Object description

Attribute	Value
Index	$613A_h$
Name	Sound command roof bar
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 486 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h
Default value	02_h
Sub-Index	01_h
Description	Sound command 1
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

Attribute	Value
Sub-Index	02_h
Description	Sound command 2
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.21.4 Object $613B_h$: Sound status roof bar

This object shall provide the sound status of the roof bar. The structure of sub-index 01_h is specified in Figure 121 and Figure 122. Table 487 and Table 488 specify the value definition for sub-index 01_h.

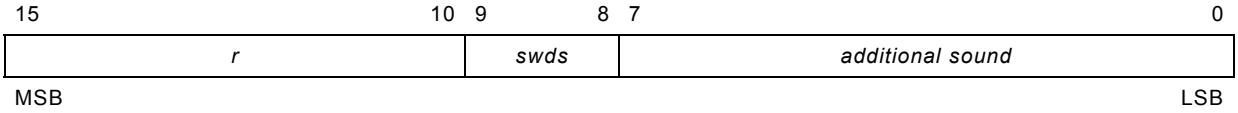

Figure 121 – Structure of sub-index 01_h bit 0 to 15

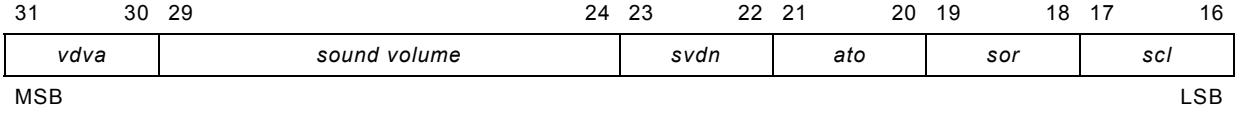

Figure 122 – Structure of sub-index 01_h bit 16 to 31

Table 487 – Value definition for sub-index 01_h bit 0 to 15

Field	Value	Definition
additional sound	00_h 01_h 02_h 03_h 04_h 05_h 06_h 07_h 08_h 09_h to $3F_h$ $4F_h$ to FD_h FE_h FF_h	No sound Country-specific sound Peak US-HI-LO US-YELP Sweden-YELP WAIL Air horn Cricket (Grille: Austria-specific sound) Reserved Manufacturer-specific additional sounds Failure Signal is not available
swds (sound with double speed)	00_h 01_h 02_h 03_h	The sound is playing with normal speed The sound is playing with double speed Reserved Don't care, take no action
r	$3F_h$	Reserved

Table 488 – Value definition for sub-index 01_h bit 16 to 31

Field	Value	Definition
scl (sound city/land)	00_h 01_h 02_h 03_h	Land sound signal is on City sound signal is on Failure Signal is not available
sor (sound order readiness) *ato (acoustic test operation)*	00_h 01_h 02_h 03_h	Function is turned off Function is turned on Failure Signal is not available
svdn (sound volume day/night)	00_h 01_h 02_h 03_h	Day sound signal is on Night sound signal is on Failure Signal is not available
sound volume	00_h *to* $3D_h$ $3E_h$ $3F_h$	Sound volume step 1 *to* step 62 Failure Signal is not available
vdva (velocity dependent volume adjustment)	00_h 01_h 02_h 03_h	Function is turned off Function is turned on Failure Signal is not available

The structure of sub-index 02_h is specified in Figure 123 and Figure 124. Table 489 specifies the value definition for sub-index 02_h.

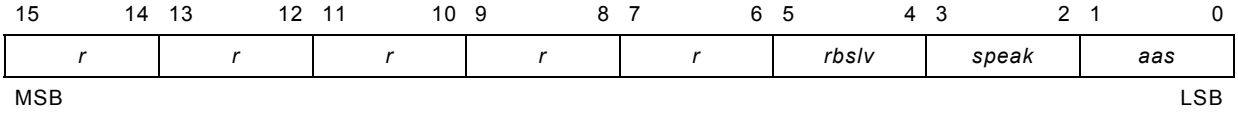

Figure 123 – Structure of sub-index 02_h bit 0 to 15

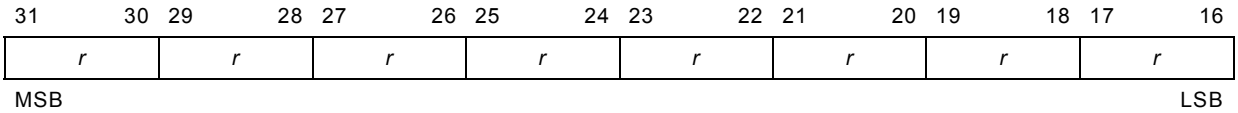

Figure 124 – Structure of sub-index 02_h bit 16 to 31

Table 489 – Value definition for sub-index 02_h

Field	Value	Definition
aas (audio active status)	00_h 01_h 02_h 03_h	Function is turned off Function is turned on Failure Signal is not available
speak (speaker)	00_h 01_h 02_h 03_h	Not defined Speaker is OK Failure Signal is not available
rbslv (roof bar sound local voltage)	00_h 01_h 02_h 03_h	Voltage is OK Under voltage Over voltage Signal is not available
r	11_b	Reserved

Table 490 specifies the object description and Table 491 specifies the entry description.

Table 490 – Object description

Attribute	Value
Index	$613B_h$
Name	Sound status roof bar
Object code	Array
Data type	Unsigned32
Category	See /CiA447-2/

Table 491 – Entry description

Attribute	Value
Sub-Index	00_h
Description	Highest sub-index supported
Entry category	Mandatory
Access	ro
PDO mapping	No
Value range	02_h
Default value	02_h
Sub-Index	01_h
Description	Sound status 1
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF\ FFFF_h$ (rw)
Sub-Index	02_h
Description	Sound status 2
Entry category	Mandatory
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); $FFFF\ FFFF_h$ (rw)

4.2.22 Application parameters for vehicle “blue” light flasher module virtual device

4.2.22.1 Object 6140_h: “Blue” light flasher command

This object shall indicate the “blue” light flasher command. Figure 125 and Figure 126 specify the object structure. Table 492 specifies the value definition.

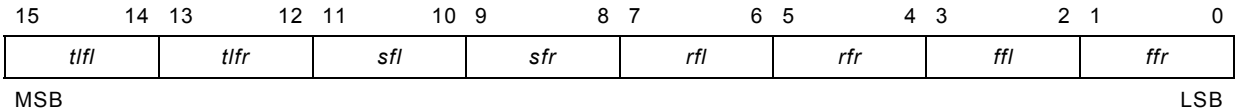

Figure 125 – Object structure bit 0 to 15

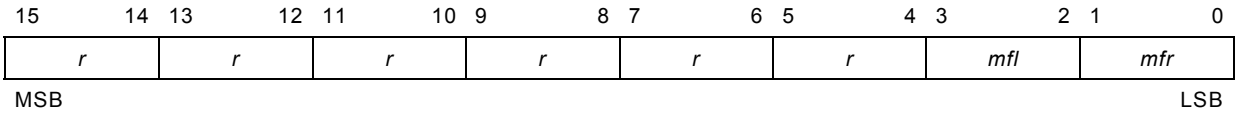

Figure 126 – Object structure bit 16 to 31

Table 492 – Value definition

Field	Value	Definition
ffr (front flasher right) *ffl (front flasher left)* *rfr (rear flasher right)* *rfl (rear flasher left)* *sfr (side flasher right)* *sfl (side flasher left)* *tlfr (trunk lid flasher right)* *tlfl (trunk lid flasher left)* *mfr (mirror flasher right)* *mfl (mirror flasher left)*	00_h 01_h 02_h 03_h	Disable function (turn-off) Enable function (turn-on) Reserved (for read access); Function not implemented (for write access) Don't care, take no action
r	03_h	Reserved

Table 493 specifies the object description and Table 494 specifies the entry description.

Table 493 – Object description

Attribute	Value
Index	6140_h
Name	"Blue" light flasher command
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 494 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FFFF $FFFF_h$

4.2.22.2 Object 6141_h: "Blue" light flasher status

This object shall provide the "blue" light flasher status. Figure 125 and Figure 126 specify the object structure. Table 495 specifies the value definition.

Table 495 – Value definition

Field	Value	Definition
ffr (front flasher right) *ffl (front flasher left)* *rfr (rear flasher right)* *rfl (rear flasher left)* *sfr (side flasher right)* *sfl (side flasher left)* *tlfr (trunk lid flasher right)* *tlfl (trunk lid flasher left)* *mfr (mirror flasher right)* *mfl (mirror flasher left)*	00_h 01_h 02_h 03_h	Function is turned off Function is turned on Failure Signal is not available
r	03_h	Reserved

Table 496 specifies the object description and Table 497 specifies the entry description.

Table 496 – Object description

Attribute	Value
Index	6141_h
Name	“Blue” light flasher status
Object code	Variable
Data type	Unsigned32
Category	See /CiA447-2/

Table 497 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FFFF $FFFF_h$ (rw)

4.2.23 Application parameters for radio hand-free conversation virtual device

4.2.23.1 Object 6150_h: Radio hand-free status

This object shall provide the radio hand-free status. The object structure is specified in Figure 127. Table 498 specifies the value definition.

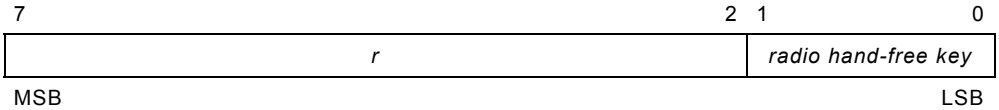

Figure 127 – Object structure

Table 498 – Value definition

Field	Value	Definition
radio hand-free key	00_h 01_h 02_h 03_h	Radio hand-free key is not pressed Radio hand-free key is pressed Failure Signal not available
r	$3F_h$	Reserved

Table 499 specifies the object description and Table 500 specifies the entry description.

Table 499 – Object description

Attribute	Value
Index	6150_h
Name	Radio hand-free status
Object code	Variable
Data type	Unsigned8
Category	See /CiA 447-2/

Table 500 – Entry description

Attribute	Value
Sub-Index	00_h
Access	ro (for functional server); rw (for functional client)
PDO mapping	Default
Value range	See value definition
Default value	No (ro); FF_h (rw)

4.2.23.2 Object 6151_h: Radio hand-free command

This object shall indicate the radio hand-free command. The object structure is specified in Figure 128. Table 501 specifies the value definition.

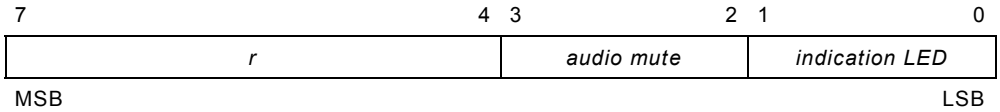

Figure 128 – Object structure

Table 501 – Value definition

Field	Value	Definition
indication LED	00_h 01_h 02_h 03_h	Request to switch radio active indication LED off Request to switch radio active indication LED on Reserved (for write access); Function not implemented (for read access) Don't care, take no action
audio mute	00_h 01_h 02_h 03_h	Request to switch audio mute off Request to switch audio mute on Reserved (for write access); Function not implemented (for read access) Don't care, take no action
r	$0F_h$	Reserved

Table 502 specifies the object description and Table 503 specifies the entry description.

Table 502 – Object description

Attribute	Value
Index	6151_h
Name	Radio hand-free command
Object code	Variable
Data type	Unsigned8
Category	See /CiA 447-2/

Table 503 – Entry description

Attribute	Value
Sub-Index	00_h
Access	rw
PDO mapping	No
Value range	See value definition
Default value	FF_h

