



User Manual

JVM-206-K00-O21

Display

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Table of contents

1 Introduction	5
1.1 Information on this document	5
1.2 Typographical conventions	5
2 Safety	6
2.1 General information	6
2.2 Purpose	6
2.2.1 Usage other than intended	6
2.3 Warnings used in this document	6
3 Product Description	7
3.1 Design	7
3.2 Product Features	8
3.3 Nameplate	8
3.4 Scope of delivery	8
4 Technical specifications	9
4.1 Dimensions	9
4.2 Display	9
4.3 Pushbuttons	9
4.4 Processor Kernel	10
4.5 Mechanical specifications	10
4.6 Environmental conditions	10
4.7 Electrical properties	11
4.8 EMC values	11
4.9 Ports and interfaces	12
4.9.1 ISOBUS interface	12
4.9.2 USB interface	12
4.10 Inputs/outputs according to ISO11786:1995	13
4.11 Acoustic signal generator	14
4.12 Real-time clock	14
5 Mechanical installation	15
5.1 Allowed mounting orientations	15
6 Electrical connection	16
6.1 8-pin M12 connector (male)	17
6.2 8-pin M12 connector (female)	17
7 Identification and Configuration	18
7.1 Operating System Update via USB	18

7.2	Operating System Update via CAN.....	19
8	Programming.....	20
8.1	System Menu	20
8.1.1	Reserved Object IDs	20
8.1.2	Key Codes.....	24
8.1.3	Physical keys (shortcuts).....	25
8.2	Updating the System Menu	26
8.3	Font Selection in the System Menu.....	26
9	Maintenance and repairs	27
9.1	Maintenance, repairs and disposal.....	27
9.2	Storage and shipment	27
10	Service	28
10.1	Customer service	28
11	Spare parts and accessories	29
11.1	Accessories	29

1 Introduction

1.1 Information on this document

This document forms an integral part of the product and must be read and understood prior to using it. It contains important and safety-related information for the proper use of the product as intended.

Target groups

This document is intended for specialists with appropriate qualifications. Only competent and trained personnel is allowed to put this device into operation. During the whole product life cycle, safe handling and operation of the device must be ensured. In the case of missing or inadequate technical knowledge or knowledge of this document any liability is excluded.

Availability of information

Make sure this document is kept at the ready in the vicinity of the product throughout its service life.

For information on new revisions of this document, visit the download area on our website. This document is not subject to any updating service.

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For further information refer to the following information products:

- Version updates
Information about new versions of software products or of the operating system of your device.
- JetSym software Online Help
Detailed description of software functions with application examples

1.2 Typographical conventions

This manual uses different typographical effects to support you in finding and classifying information. Below, there is an example of a step-by-step instruction:

- ✓ This symbol indicates requirements which have to be met before executing the following action.
- This sign or a numbering at the beginning of a paragraph marks an action instruction that must be executed by the user. Execute the instructions one after the other.
- ⇒ The target after a list of instructions indicates reactions to, or results of these actions.

INFO

Further information and practical tips

In the info box you will find helpful information and practical tips about your product.

2 Safety

2.1 General information

When placed on the market, this product corresponds to the current state of science and technology.

In addition to the operating instructions, the laws, regulations and guidelines of the country of operation or the EU apply to the operation of the product. The operator is responsible for compliance with the relevant accident prevention regulations and generally accepted safety rules.

2.2 Purpose

2.2.1 Usage other than intended

Do not use the device in technical systems for which a high level of fail-safety is required.

Machinery Directive This device is no safety-related part as per Machinery Directive 2006/42/EC, and must, therefore, not be used for safety-relevant applications. This device is NOT intended for the purpose of personal safety, and must, therefore, not be used to protect persons.

2.3 Warnings used in this document

 DANGER	High risk Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Medium risk Indicates a potential hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Low risk Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Material damage Indicates a situation which, if not avoided, could result in malfunctions or material damage.

3 Product Description

The entry-level HMI JVM-206-K00-O21 has a display that can be operated intuitively. Thanks to its Limited-ISOBUS-UT functionality it works together with ISOBUS controllers. Communication takes place via the ISOBUS protocol.

3.1 Design

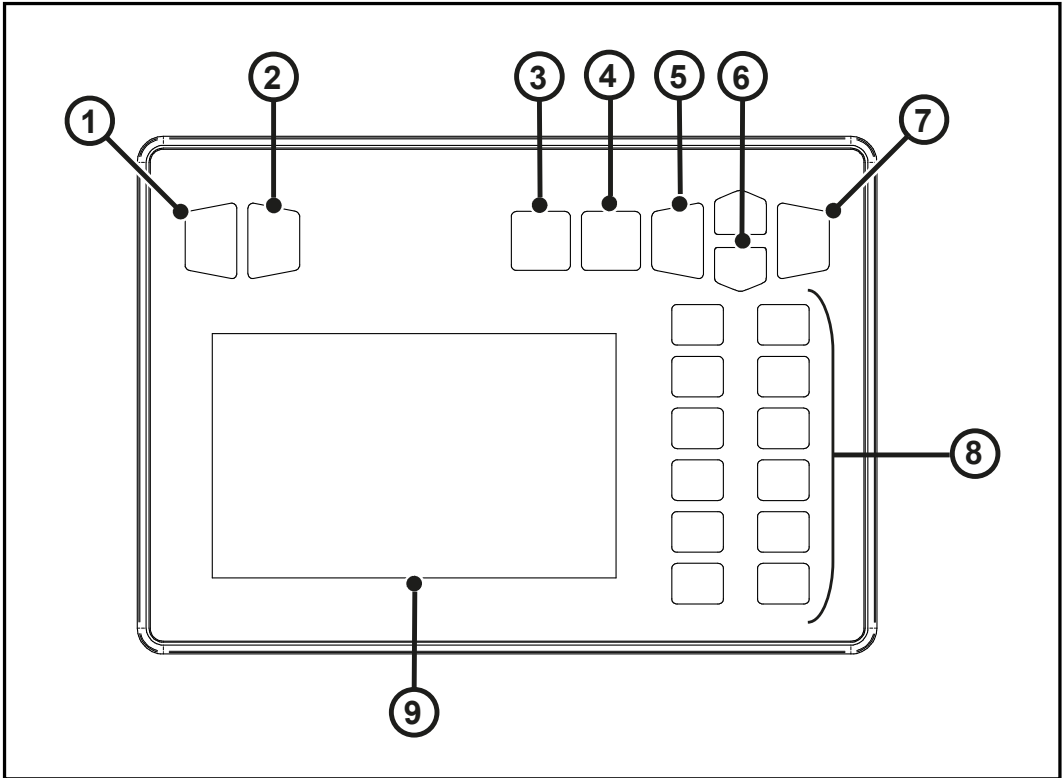


Fig. 1: Design

1	Power button	2	ISB button
3	Programmable softkey	4	Home button to exit the current menu
5	ESC button to exit the edit mode	6	Up/Down buttons for navigation within the system menu
7	OK button to open the edit mode	8	F1 ... F12 Programmable softkeys
9	TFT touch display		

3.2 Product Features

- 5" touch display, high resolution
- 12 softkeys
- Navigation buttons, ISB and power button
- 2 digital inputs for tractor speed
- 1 digital rear PTO speed input
- 1 three-point digital input
- 1 three-point analog input
- 1 digital input for ignition signal
- Real time clock (RTC), battery-backed
- Limited-ISOBUS-UT
- 16 MB flash memory
- Limited TECU function
- Calibration function for tractor speed signal
- Limited FS function
- Update via USB
- System menu customizable

3.3 Nameplate

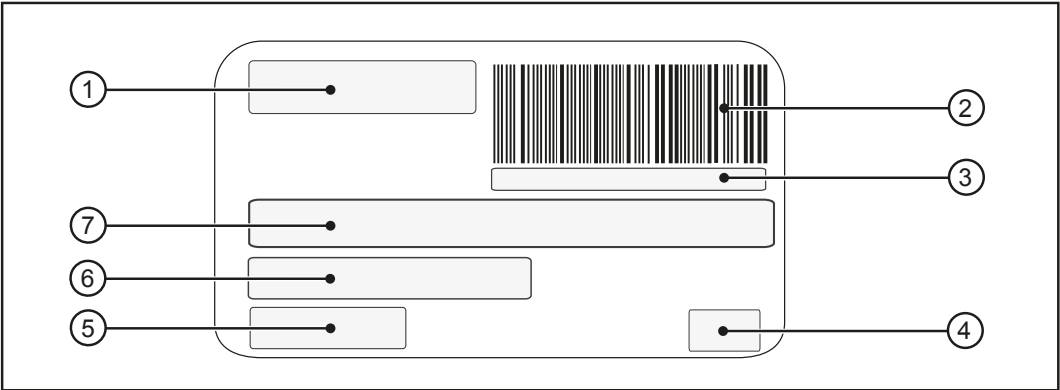


Fig. 2: Nameplate

1	Logo	2	Barcode
3	Serial number	4	Type designation
5	CE logo	6	Revision number
7	Part number		

3.4 Scope of delivery

Scope of delivery	Item number	Quantity
JVM-206-K00-O21	10001905	1

4 Technical specifications

This chapter contains information on electrical and mechanical data, as well as on operating data of the JVM-206-K00-O21.

4.1 Dimensions

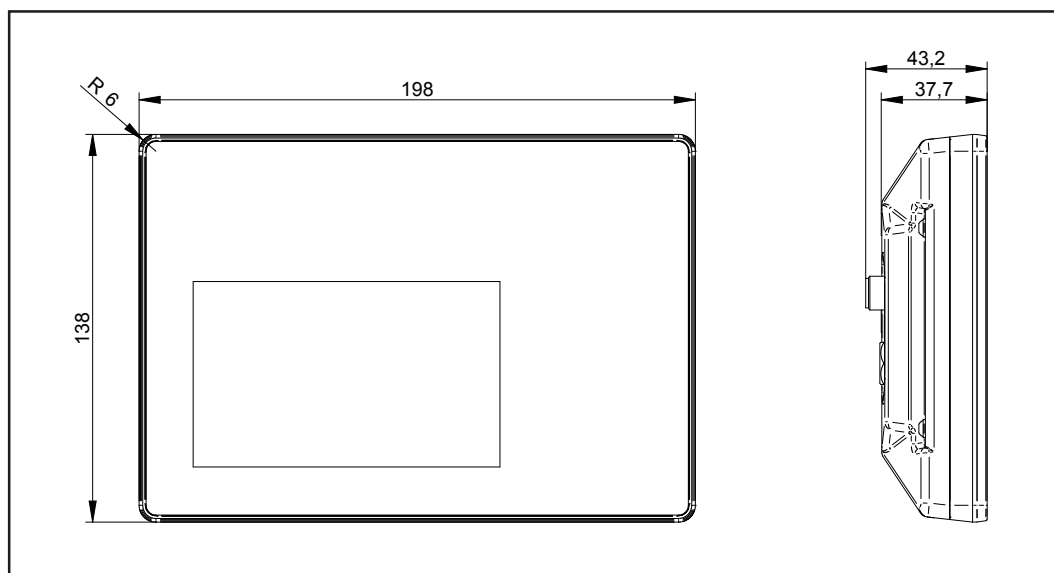


Fig. 3: Dimensions in mm

4.2 Display

Category	Description
Type	TFT screen with touch function
Resolution	800 x 480 pixels
Size	5"
Background lighting	LED, typically 500 cd/m ² , dimmable
Horizontal viewing angle	In each direction 70°
Vertical viewing angle	50° from above, 70° from below

Tab. 1: Technical data - Display

4.3 Pushbuttons

Category	Description
Number of membrane keys	19 keys + power key
Background lighting	Dimmable Adjustable between 0 ... 100%
Typical service life	1,000,000 operations

Tab. 2: Technical data - Keyboard

Key Behaviour

- Power ON/OFF: Press and hold for one second to turn the device on/off.
- ISB: Press and hold for one second to send the ISB message.

4.4 Processor Kernel

Parameter	Description
CPU	STM32F4
FLASH	16 MB
SDRAM	8 MB

Tab. 3: Processor Kernel

4.5 Mechanical specifications

Parameter	Description	Standards
Weight		
Enclosure specifications		
Material	Plastic	
Vibration resistance	10 Hz ... 150 Hz, 6 h	ISO 16750-3
Shock resistance		
Type of shock	Half-sine wave	ISO 16750-3
Intensity and duration	50 g for 18 ms	
Number and direction	10 shocks in the directions of all three spatial axes	

Tab. 4: Mechanical specifications

4.6 Environmental conditions

Parameter	Description	Standards
Operating temperature	-20°C ... +70°C	ISO 16750-4
Climatic conditions	Humid heat	
Storage temperature	-30°C ... +70°C	ISO 16750-4 DIN EN 60068-2-1 DIN EN 60068-2-2
Air humidity	5 ... 95 %	
Degree of protection	IP65 with mating connector plugged in IP20 without mating connector	

Tab. 5: Environmental conditions

4.7 Electrical properties

Power supply VBAT_ECU

Parameter	Description
Rated voltage	DC 8.5 V... DC 18 V
Permissible voltage range VBAT_ECU	DC 8 V ... DC 28 V
Maximum current	2 A
Typical current consumption logic circuit (VBAT_ECU)	320 mA at DC 12 V
Power consumption	Approx. 3 W
Integrated protective functions	Reverse polarity protection, overvoltage, voltage surges

Tab. 6: Power supply VBAT_ECU

4.8 EMC values

The has CE approval in accordance with EN ISO 13766-1 for 12 V vehicle power supply systems.

Pulses to ISO 7637-2

Test pulse	Values	Functional class
1	-450 V	C
2a	+37 V	O
2b	+20 V	C
3a	-150 V	O
3b	+150 V	O
4	Ua1: -12 V/50 ms Ua2: -5 V/500 ms	B (24 V systems)

Tab. 7: Pulses to ISO 7637-2

Pulses to ISO 16750-2 (12 V vehicle power supply systems)

Test pulse	Values	Functional class
5b	Load dump 70 V/2 Ω /350 ms	C

Tab. 8: Pulses to ISO 16750-2 for 12 V vehicle power supply systems

Irradiation to ISO 11452

Immission to ISO 11452	Functional class
20 MHz ... 2 GHz 30 V/m	O
20 MHz ... 2 GHz 100 V/m	B

Tab. 9: Irradiation to ISO 11452

Emission to CISPR 25

Emission to CISPR 25	Limit
Narrowband emission 30 MHz ... 1000 MHz	30 ... 75 MHz = 52 ... 42 dB μ V/m (decreasing over logarithm) 75 ... 400 MHz = 42 ... 53 dB μ V/m (increasing over logarithm) 400 ... 1000 MHz = 53 dB μ V/m (constant)
Wideband emission 30 MHz ... 1000 MHz	30 ... 75 MHz = 62 ... 52 dB μ V/m (decreasing over logarithm) 75 ... 400 MHz = 52 ... 63 dB μ V/m (increasing over logarithm) 400 ... 1000 MHz = 63 dB μ V/m (constant)

Tab. 10: Emission to CISPR 25**ESD EN 61000-4-2**

ESD EN 61000-4-2	Functional class
Contact ± 4 kV	O
Air ± 8 kV	O

Tab. 11: ESD EN 61000-4-2

4.9 Ports and interfaces

4.9.1 ISOBUS interface

Parameter	Description
Baud rate	250 kBaud
Protocol	ISOBUS
Terminating resistor	Integrated
Cable specification	CAN-compliant, twisted wires, unshielded

4.9.2 USB interface

Category	Description
Supply unit	5 V, 500 mA max.
Data rate	USB 1.1
Protocol	USB host interface

4.10 Inputs/outputs according to ISO11786:1995

Within the operating voltage range, all inputs are voltage-proof and overcurrent protected.

Digital inputs for tractor speed

Category	Description	
ISO11786 - Digital inputs for wheel speed and ground speed with two modes		
Abbreviation	IN_1 ... IN_2	
Quantity	2	
Pull resistor	4.7 KOhm	
H level	Mode 1: ≥ 3.4 V Mode 2: ≥ 6.2 V	
L level	Mode 1: ≥ 2.5 V Mode 2: ≥ 1.5 V	
Accuracy	2 %	
System menu functions	Mode and pull-up selection Pulse/meter Calibration	

Tab. 12: Digital tractor speed inputs according to ISO11786:1995

PTO speed input

Category	Description	
ISO11786 - PTO speed		
Abbreviation	PTO_IN	
Quantity	1	
Pull resistor	4.7 KOhm	Can be disabled
H level	Mode 1: $\geq 3.4\text{ V}$ Mode 2: $\geq 6.2\text{ V}$	Default = Mode 1
L level	Mode 1: $\geq 2.5\text{ V}$ Mode 2: $\geq 1.5\text{ V}$	
Signal	Up to 20%/80% duty cycle	

Tab. 13: PTO speed according to ISO11786:1995

Hitch position (digital input)

Category	Description	
ISO11786 - Hitch position (digital input)		
Abbreviation	TP_DI_IN	
Quantity	1	
H level	≥ 6.2 V	
L level	≥ 1.5 V	
Source resistance	100 Ohm ± 10 Ohm	
Input resistance	> 3 kOhm	

Tab. 14: Hitch position - digital input according to ISO11786:1995

Hitch position (analog input)

Category		Description
ISO11786 - Hitch position (analog input)		
Abbreviation	TP_AI_IN	
Quantity	1	
Voltage range	0 ... 10 V	
Input resistance	> 3 kOhm	

Tab. 15: Hitch position - analog input according to ISO11786:1995**Ignition input/output**

Category		Description
Ignition input/output		
Abbreviation	IGN_KEY	
Quantity	1	
Input		
Power supply	12 V	
Output		
Max. output current	0.5 A	

Tab. 16: Ignition**4.11 Acoustic signal generator**

Category		Description
Type	Piezo	
Volume	> 70 dB	At resonant frequency without mechanical attenuation
Volume control	Switched off, 10% ... 100%	Controlled via PWM
Frequency band	200 Hz ... 4 kHz	

Tab. 17: Acoustic signal generator**4.12 Real-time clock**

Parameter	Description	
Battery type	CR2032	
Service life	Approx. 10 years from production	The battery life depends on the environmental conditions and may therefore vary.

5 Mechanical installation

NOTICE

Damages to material or functional impairment

Welding on the chassis may cause damages to material of the device, or impair its functions.

- ▶ Before you start welding, disconnect all connections between the device and the electric system of the vehicle.
- ▶ Protect the device from flying sparks and welding beads (splatter).
- ▶ Do not touch the device with the welding electrode or earth clamp.

NOTICE

Dirt and moisture can affect the electrical connections.

- ▶ Plug unused pins with blanking plugs.
- ▶ Protect all electrical connections with appropriate single wire seals.

5.1 Allowed mounting orientations

The device has a RAM Mount ball adapter and can be installed accordingly in the driver's cab.

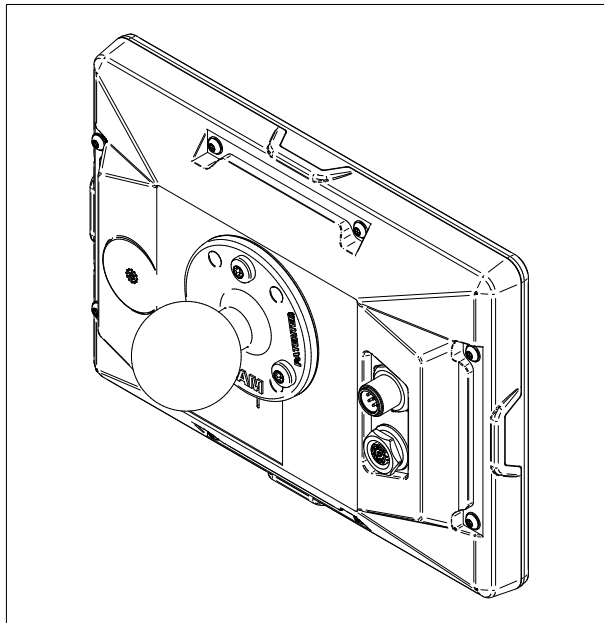


Fig. 4: Allowed mounting orientation

6 Electrical connection

NOTICE

Damages to material or functional impairment

Improper implementation of the wiring harness may cause mechanical stress.

- ▶ Protect the cables from bending, twisting or chafing.
- ▶ Install strain reliefs for the connecting cables.

NOTICE

Surges resulting from missing protection or fusing

Surges may cause malfunctions or damage to the product.

- ▶ Protect the voltage inputs from surges according to the requirements.
- ▶ Ensure that the device is handled in accordance with ESD regulations.

6.1 8-pin M12 connector (male)

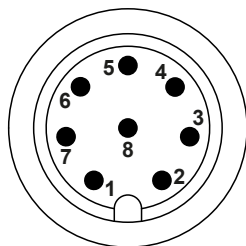


Fig. 5: 8-pin M12 connector (male)

1	Power supply from terminal 30 (+12 V)	2	USB data transfer +
3	Ignition input/output (max. 0.5 A)	4	USB data transfer -
5	CAN-L	6	Power supply from terminal 31 (GND)
7	CAN H	8	USB +5 V (USB_VBUS)

i INFO

A cable tee should be used to use the USB signal.

6.2 8-pin M12 connector (female)

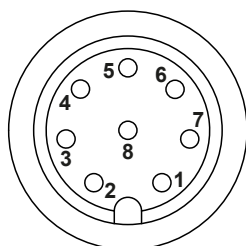


Fig. 6: 8-pin M12 connector, female

1	n. c.	2	Tractor speed: Wheel speed
3	Tractor speed: Ground speed	3	n. c.
5	PTO speed input (RPM signal)	6	Hitch position (digital)
7	Power supply from terminal 31 (GND)	8	Hitch position (analog)

7 Identification and Configuration

7.1 Operating System Update via USB

The operating system of the JVM-206-K00-O21 can be updated via USB. An update cable is required for the update ([Accessories](#) [▶ 29](#)).

Preparing the Update Process

1. Unzip the firmware package "JVM-206-K00-O21_rev_x_x_x.zip" where "x_x_x_x" stands for the firmware version.
2. Connect the update cable to the device.
3. Make sure that the device is switched off.
4. Connect the 12 V power supply.

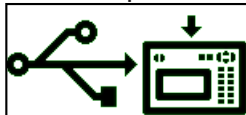
Update via USB

This update variant requires an already installed operating system.

1. Copy the file "34434445.EDC" to a USB flash drive.
2. Insert the USB flash drive into the USB A port of the update cable.
3. Switch the device ON.
4. Select the system settings:



5. Select "Update via USB":



7.2 Operating System Update via CAN

The operating system of the JVM-206-K00-O21 can be updated via CAN. To update the OS, A PEAK-P-CAN USB/CAN dongle is required.

The update can only be performed on a PC with Windows 10 Pro 64 operating system.

For the necessary tool `JV-206_CAN_updater_rev_1_0_0_2.zip`, as well as the system requirements, please contact Jetter support at support@jetter.de.

1. Insert the PEAK-P-CAN USB/CAN dongle into the USB slot of a Windows computer
2. Unzip the file "`JV-206_CAN_updater_rev_1_0_0_2.zip`" into any directory.
3. Option: Replace the standard file "`34434445.EDC`" with an individualized file.
4. Connect the JVM-206-K00-O21 to the dongle.
5. Turn on the JVM-206-K00-O21.
6. Execute the file "`JVM-206_updater.bat`". Do not turn off the device during the update.
 - ⇒ The device-specific firmware file (`34434445.EDC`) is loaded to the device via CAN.
7. After successfully downloading the file, the device must be restarted. After the restart, the new EDC contents are automatically used.

The device restarts automatically when the ignition input is used. If not, press the power button on the device to restart it.

For a detailed "`smallhmi_updater.py`" Python script description, please contact Jetter support at support@jetter.de.

8 Programming

This chapter is intended exclusively for specialist personnel who are familiar with ISOBUS visualizations.

The device already has a system menu for end users ex works.

8.1 System Menu

The system menu is described by a customer-specific IOP file that is downloaded together with the firmware. Jetter provides the necessary tool for linking the two files.

The system menu contains the general functions of the terminal. You can use them without ECU visualization. The objects of the system menu are used separately from the ECU objects, therefore it is not necessary to check for a possible object collision.

To open the system menu during an ECU visualization, press the HOME button.

i INFO

The object description contains all system menu functions, but some functions are not accessible for all device versions. For this reason, check the device-specific description before adjusting the system menu:

- The RTC values are synchronized with the real-time clock if the hardware exists.
- The UDS-related objects are accessible if the corresponding license is active in the firmware.
- The hardware-specific objects are only active if the necessary hardware is available:
 - Speed channels
 - PTO speed input functions
 - Hitch position (digital)
 - Hitch position (analog)
 - Ignition output
 - Physical keys

8.1.1 Reserved Object IDs

Data Mask Objects

Object ID	Description
1000	Home data mask
1001 ... 1029	Data masks for settings
1030	IOP download
1031	USB update request
1032	Update via USB
1033	Update via UDS
1035	"Input Boolean" editor
1036	"Input Number" editor
1037	„Input String“ editor
1038	„Input List“ editor
1040	"The IOP cache has been cleared!"

Object ID	Description
1041	"New settings become active after a restart" - e.g. after changing the language
1042	"Shutdown" (visible during a delay of the shutdown process)
1044 ... 1046	Reserved for UDS client
1050	Error during download
1051	Error: Connection lost
1052	Error during USB update
105	Error: USB flash drive not found
1060 ... 1063	Reserved for UDS client
1064 ... 1071	Reserved
1100	Stop button pressed (Appears only in System Menu mode when the Stop button is pressed)

Tab. 18: Data mask objects

Rectangular Objects

Object ID	Description
200	Editor box

Tab. 19: Rectangular objects

String Variables

Object ID	Description
65000	Content of the editor box
65001	Original value of the edited object
65002	Serial number
65003	Production date
65004	Software version
65005	Hardware revision
65006	Type of device
65007	ActiveObjectPool version
65008	Editor min/max value as text string. Automatically composed as follows: [%min_value-%max_value]
65009	EDC file information
65010	Saved EDC file version
65012 ... 65021	Reserved for UDS client (name of *.hex/*.h86.files)
65032 ... 65041	Reserved for UDC client (ECU info)
65042	Key name
65043	Reserved

Tab. 20: String variables

Numeric Variables

Object ID	Read/write values	
65101	rw	Processed Boolean value
65102	ro	IOP download status in %
65103	ro	Operating hours
65104	ro	Memory usage in %
65105	rw	Real time clock - year

Object ID	Read/write values	
65106	rw	Real time clock - month
65107	rw	Real time clock - day
65108	rw	Real time clock - weekday
65109	rw	Real time clock - hour
65110	rw	Real time clock - minute
65111	rw	Real time clock - second
65112	rw*	Language ID
65113	rw*	System units (0 = metric, 1 = imperial)
65114	rw*	Decimal symbol (0 = comma, 1 = point)
65115	ro	Ground speed
65116	ro	Wheel speed
65117	ro	Ground speed counter
65118	ro	Wheel speed counter
65119	ro	Ground speed Pulses/meter
65120	ro	Wheel speed Pulses/meter
65121	ro	Device temperature in °C
65122	ro	Operating voltage in V
65123	rw*	Screen background brightness in %
65124	rw*	Keyboard background brightness in %
65125	rw*	
65126	ro	Real-time clock battery voltage in V
65127	ro	Upper part of the scroll bar of the ListObject edi- tor
65128	ro	Lower part of the scroll bar of the ListObject edi- tor
65129	rw*	Enable TECU
65130	rw*	Ground speed calibration
65131	rw*	Wheel speed calibration
65132	rw*	Pull-up resistor for ground speed input
65133	rw*	Pull-up resistor for wheel speed input
65134	rw*	Hysteresis width for in- puts
65137	rw*	Max. volume in %
65138	rw*	Real-time clock, format (0 = 12h, 1 = 24h)

Object ID	Read/write values	
65139	rw*	Real-time clock, time changeover (0 = winter time, 1 = day-light saving time)
65140	rw*	Real-time clock, AM/PM setting (0 AM, 1 = PM)
65141	ro	PTO speed input (0 = 0.125 rpm/bit)
65142	rw*	Pull-up resistor for PTO speed input
65143	ro	Hitch digital input value
65144	rw*	Pull-up resistor for hitch digital input
65145	ro	Hitch analog input value
65146	rw*	Direction of ignition (0 = input, 1 = output)
65150 .. 65163	rw	Reserved for UDC client
65164	rw*	Activation of acoustic feedback for keystroke

Tab. 21: Numeric variables

rw* variables are stored in non-volatile memory (EEPROM).

Object Pointers

Object ID	Points to
65200	Edited list object elements
65201	Edited list object elements +1
65202	Edited list object elements +2
65203	Edited list object elements +3
65204	Edited list object elements +4
65205	Edited list object elements +5
65206	Edited list object elements -1
65207	Edited list object elements -2
65208	Edited list object elements -3
65209	Edited list object elements -4
65210	Edited list object elements -5
615219	Edited list object elements: previously selected element
65220 ... 65231	Reserved for UDS client
65300	Object pointer to container of the keys. Applied by StringEditor
65500	UDS client: Pool of active ECU objects If ECU connected: Points to implement identifier If ECU not connected: Points to object 5001 (softkey objects)

Tab. 22: Object Pointers

Key Objects

Object ID	Description
256 ... 511	Key objects for alphanumeric keyboard Offset: 8 bit char-code (IEC8859-1) E.g. the code for letter "A" (ASCII 65 _{dec}) = 256 + 65 = 321
512 ... 516	Reserved for UDS client

Tab. 23: Key objects**Container Objects**

Object ID	Description
3100 ... 3199	Container for keyboard mappings
3000	Listbox
3001	Implement descriptor
3010 ... 3027	Reserved for UDS client

Tab. 24: Container objects**8.1.2 Key Codes**

Key code	Description
1 ... 29	Jumps to data or alarm mask 1000 1029 [1 = jump to 1001]
30	Jump to pool of active objects
31	Same as "LEFT" key
32	Same as "RIGHT" key
33	Same as "UP" key
34	Same as "DOWN" key
35	Same as "ENTER" key
36	Same as "ESC" key
37	Same as "ISB" key
38	"CLR": Deletes the contents of the editor box (numeric: Zeroing)
39	"DEL": Deletes a character in the editor box
40	Deletes all saved IOPs
41	Jumps to end of list
42	Jumps to top of list
43	Increases numeric value
44	Decreases numeric value
46	Jumps to USB status mask and updates the variable with USB-Info
47	Starts update from USB and jumps to "Update from USB mask"
48	Touch calibration
50	Select edited list object: Current element +1
51	Select edited list object: Current element +2
52	Select edited list object: Current element +3
53	Select edited list object: Current element +4
54	Select edited list object: Current element +5
55	Select edited list object: Current element -1
56	Select edited list object: Current element -2
57	Select edited list object: Current element -3

Key code	Description
58	Select edited list object: Current element -4
59	Select edited list object: Current element -5
68	Jump to data mask "KEY TEST
69	Jump to data mask "FLASH TOOL
70	Jump to TECU settings
71	TECU: Starts calibration (wheel speed)
72	TECU: Saves calibration (wheel speed)
73	TECU: Resets counter (wheel speed)
74	TECU: Starts calibration (ground speed)
75	TECU: Saves calibration (ground speed)
76	TECU: Resets counter (ground speed)
77 ... 87	Reserved for UDS client
200	Passes the ID of the pressed key to the editor
202	Passes the ID of the pressed key to the value of the object pointer 65300

8.1.3 Physical keys (shortcuts)

Key name	Description
PWR_ON	Power supply on/off
HOME	Toggles between start screen and pool of active objects
LEFT	Sets input focus to the left
RIGHT	Sets input focus to the right
TOP	Sets input focus upwards
BOTTOM	Sets input focus down
ENTER	Exit and save shape editing mode and switch to editing mode
ESC	Exit shape editing without saving and switch to editing mode
ISB	ISOBUS key
SK_1 ... SK_n	Softkeys



Fig. 7: ISO-Designer

8.2 Updating the System Menu

The IOP file of the system menu is usually created by the Jetter software ISO-Designer. The firmware of the device is provided in a ZIP file containing the directory `edc_make.bat`. Unzip all files and copy the IOP file of the system menu into the `edc_make` directory. Make sure that the name of the IOP file corresponds to the corresponding field in the `edc.cfg` file and change it if necessary in the line starting with `496f-7072`:

Example of an `edc.cfg` file

```
4544-4334;1.6.0.48;33434445;output file (EUID is hardware
dependent)
4669-726d;1.6.0.48;small_HMI.hex; Firmware
426f-6f74;1.0.0.2;bootloader_v2.hex; Bootloader
496f-7072;1.0.0.0;MyProject1.iop; customized System Menu
4c5f-3f3f;0.0.0.8;system_menu_de.iop; System Menu (2nd lan-
guage*)
5069-6374;1.0.0.3;start_up.png; Start-up picture
```

- First column: `496f-7072` (EUID, contains the identification of the system menu and must not be changed).
- Second column: Version number of the system menu IOP file.
- Third column: Name of the IOP file (may need to be changed to match the name of your file).
- Fourth column: Comment field (will not compile).

Then execute the file `edc.make.bat`. Three files are output that can be used for the three different update methods:

- `34434445.EDC` - File for update via USB
- `3443445_EDC_x_x_x_.hex` - File for the UDS update method via the CAN bus
- `3443445_Emergency.hex` - File for the update via RS232
This update method must be carried out via a special tool and cable set and is only to be used after consultation with Jetter.

8.3 Font Selection in the System Menu

The following font types are supported:

Type	Character set
0	ISO8859-1 (ISO Latin 1)
1	ISO8859-15 (ISO Latin 9)
2	ISO8859-2 (ISO Latin 2)
4	ISO8859-4 (ISO Latin 4)
5	ISO8859-5 (Cyrillic)
7	ISO8859-7 (Greek)

Tab. 25: Font types

9 Maintenance and repairs

9.1 Maintenance, repairs and disposal

Maintenance	This device is maintenance-free. Therefore, for the operation of the device no inspection or maintenance are required.
Repairs	Defective components could cause dangerous malfunctions and could compromise safety. Only the manufacturer is allowed to repair the device. Do not open the device!
Disposal of obsolete equipment	The device must be disposed of in accordance with the Environmental Product Declaration EPD. Applicable local environmental directives and regulations must be complied with. This product must be disposed of as waste electronic equipment. Waste packaging material must be recycled or reused.
Modifications and alterations to the device	Modifications and alterations to the device and its functions are not allowed. In the case of modifications to the device, any liability is excluded. The original parts are specifically designed for the device. Parts and equipment from other manufacturers must, therefore, not be used. Any liability for any damages resulting from the use of non-original parts and equipment is excluded.

9.2 Storage and shipment

Storage	When storing the device observe the environmental conditions given in chapter "Technical specifications".
Shipment and packaging	The device contains electrostatically sensitive components which can be damaged if not handled properly. Damages to the device may impair its reliability. To protect the device from impact or shock, it must be shipped in its original packaging, or in an appropriate protective ESD packaging. In case of damaged packaging inspect the device for any visible damage, and inform your freight forwarder and the Jetter AG of the damage caused during shipment. If the device is damaged or has been dropped, it is strictly forbidden to use it.

10 Service

10.1 Customer service

Should you have any questions, suggestions, or problems, please don't hesitate to contact our service representatives. To contact them, please call our technical hotline or use the contact form on our homepage:

[*Technical hotline | Jetter - We automate your success.*](#)

You are also welcome to send an e-mail to our technical hotline:

[*hotline@jetter.de*](mailto:hotline@jetter.de)

Please supply the following information when contacting our technical hotline:

- Hardware revision and serial number
For the hardware revision number, please refer to the nameplate.

11 Spare parts and accessories

NOTICE

Inadequate accessories might cause damage to the product

Parts and equipment from other manufacturers might impede the function of the device and cause damage to the product.

- Only use accessories recommended by Jetter AG.

11.1 Accessories

Component	Order number
Update cable	KAYM-GEN-O5-0030
Provides CAN, USB, RS232 and power supply.	
Three-way switch	
Positions of the three-way switch:	
■ Boot: Device starts in boot mode	
■ OFF: Device starts via its own power button	
■ IGN: Device starts via external ignition signal	

List of figures

Fig. 1	Design	7
Fig. 2	Nameplate	8
Fig. 3	Dimensions in mm.....	9
Fig. 4	Allowed mounting orientation	15
Fig. 5	8-pin M12 connector (male)	17
Fig. 6	8-pin M12 connector, female.....	17
Fig. 7	ISO-Designer.....	26

List of tables

Tab. 1	Technical data - Display	9
Tab. 2	Technical data - Keyboard	9
Tab. 3	Processor Kernel.....	10
Tab. 4	Mechanical specifications.....	10
Tab. 5	Environmental conditions	10
Tab. 6	Power supply VBAT_ECU.....	11
Tab. 7	Pulses to ISO 7637-2	11
Tab. 8	Pulses to ISO 16750-2 for 12 V vehicle power supply systems	11
Tab. 9	Irradiation to ISO 11452	11
Tab. 10	Emission to CISPR 25.....	12
Tab. 11	ESD EN 61000-4-2.....	12
Tab. 12	Digital tractor speed inputs according to ISO11786:1995.....	13
Tab. 13	PTO speed according to ISO11786:1995	13
Tab. 14	Hitch position - digital input according to ISO11786:1995.....	13
Tab. 15	Hitch position - analog input according to ISO11786:1995	14
Tab. 16	Ignition	14
Tab. 17	Acoustic signal generator	14
Tab. 18	Data mask objects.....	20
Tab. 19	Rectangular objects.....	21
Tab. 20	String variables.....	21
Tab. 21	Numeric variables.....	21
Tab. 22	Object Pointers.....	23
Tab. 23	Key objects.....	24
Tab. 24	Container objects	24
Tab. 25	Font types.....	26

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