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User Manual BOP xD





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2 General Information

2.1 Document Information

This document’s purpose is to familiarise you with the Video surveillance system BOP XD and to enable you to operate it safely, properly and in an economically efficient manner. Following the documentation’s instructions helps prevent hazards, to minimize the time needed for maintenance and repair as well as downtime and to increase the reliability and the lifetime of the system and the peripheral devices connected to it.

- ❖ This document describes the safe operation of **BOP xD**.
- ❖ Read the document before starting to work with it!
- ❖ Keep the document in a place that is accessible for your employees.
- ❖ Observe the safety precautions’ instructions and the handling instructions at all times.
- ❖ The documentation must be complemented with instructions based on national regulations (especially regarding data privacy) by the system operator.
- ❖ The images are for general comprehension purposes and may deviate from the actual model due to further product development.

2.2 Document Scope

This document describes the operation of the following product:

Product Name:	Item No.:
BOP xD	AR10009295/ A

2.3 Contact Details of the Manufacturer

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Dresdenstrasse 17/18
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2.4 Other Applicable Documents

- IR14806 Technical Datasheet **BOP xD**
- IR14346 Getting started **BOP xD**

2.5 Warranty

The warranty does not apply to improper use of the device or to normal wear. The warranty period is 24 months after product purchase. If different warranty periods have been negotiated, they must be NOTICE in writing.

The warranty is provided as per the statutory requirements with the explicit repair authorisation. Within the warranty period, ACTIA I+ME GmbH remedies material and manufacturing defects in a verifiable manner and free of cost.

In the event of claims, we would like to ask you to return the device to your sales representative or directly to ACTIA I+ME GmbH free of carriage charges. Modifications, retrofitting or other interference with the video surveillance system **BOP xD** are not permitted and render the warranty invalid.

2.6 Disclaimer

Repairs may be performed by authorised qualified personnel only. Unauthorised repairs or modification by the user (operator) or third parties shall void the liability for any resulting consequences.

The operator and the operating personnel are liable for the proper and legal use of the BOP xD video surveillance system.

3 Safety

3.1 Certificates and Standards

BOP xD complies with the stipulated provisions and standards.

The applicable statutory specifications from the respective areas are listed as a table.

Area	Standard / Certificate / Licence
Electricity and EMC	EN45545
	EN50121
	EN61373
Vibrations	EN 50155, IEC 61373 Ch. 9
Shock	EN 50155, IEC 61373 Ch. 10.5
Heat and fire resistance	DIN 53438-2, DIN 5510-2
General provisions	Association of German Transport Undertakings - VDV No. 230, 234, 235, 410 BOStrab, BOKraft, Law on the Electromagnetic Compatibility of Equipment (EMVG) Public transport company association VÖV 04.05.06

Table 1) Standards and guidelines

3.2 General Safety Instructions

Read the following safety instructions prior to installing and using the BOP xD system to avoid personal injuries and material damage.


3.3 Safety Instructions and General Instructions

This chapter introduces the format of the safety and general instructions used throughout this document.

The safety instructions follow the ANSI Standard Z535.4. The safety instructions are marked with a signal word. The signal word classifies the hazard severity.

A safety instruction contains the following elements:

- ❖ Signal word - hazard classification
- ❖ Pictogram - visual representation of the hazard
- ❖ Hazard type and source
- ❖ Possible consequences of the hazard
- ❖ Measures and prohibitions for avoiding the hazard

DANGER - Accidents, severe injuries, death	
	<p>Hazard type and source</p> <p>Possible consequences of the hazard</p> <ul style="list-style-type: none"> ❖ ... <p>Measures and prohibitions for to avert the hazard</p>

WARNING - possible hazards, severe injuries



Hazard type and source

Possible consequences of the hazard

❖ ...

Measures and prohibitions for to avert the hazard

CAUTION - Minor injuries



Hazard type and source

Possible consequences of the hazard

❖ ...

Measures and prohibitions for to avert the hazard

ATTENTION - Material damage



Hazard type and source

Possible consequences of the hazard

❖ ...

Measures and prohibitions for to avert the hazard

NOTICE

A notice contains valuable tips and trick for the system user.

3.4 Qualified Personnel

Installation may only be performed by qualified personnel. Qualified personnel are persons with solid education in the area, who are also aware of the possible hazards and risks.

3.5 PPE - Personal Protective Equipment

If personal protective equipment is required, this is indicated by a reference to the respective action.

3.6 Safety Instructions BOP X

BOP xD may only be installed by qualified personnel in its designated area. Use **BOP xD** only as per the instructions of the user manual and its intended purpose.

Follow the security instructions of this documentation. Electricity and data connections may only be installed by qualified personnel. Use only dependable electricity and data cables.

3.7 Intended Use

The operator and the operating personnel are responsible for the proper and legally permissible use of the **BOP xD** video surveillance system. Modifications, retrofitting or other interference with the **BOP xD** video surveillance system.

The **BOP xD** video surveillance system by ACTIA may only be used for recording and evaluating video and audio data as well as information related with it in vehicles under compliance with the legislative framework.

The **BOP xD** video surveillance system by ACTIA may only be installed and put into operation by qualified personnel.

The general safety regulations for working with electric voltage must be strictly observed.

When choosing the place of installation of the **BOP xD** video surveillance system by ACTIA, the respective specifications and regulations must be followed



Safety

When integrating and operating the **BOP xD** video surveillance system by ACTIA in a vehicle, the vehicle's functionality may not be affected in any way. Especially the safety systems may not be disturbed or disabled.

4 Technical Details

BOP XD

Attributes	Values
Camera Supply	12 VDC / max. 2A
Monitor	BNC/ 75 Ohm/ 1Vss/ FBAS/ PAL or NTSC
Connections	
Microphone Connections	12 VDC / max. 1.5A
Supply voltage	10-32 VDC
Max. Current consumption	Active: 0,6A by 24VDC/ 1A by 12VDC Standby: 0,5mA by 24 VDC/ 0,5mA by 12VDC
Dimensions	269 x 93,2 x 216,6mm W/H/D
Weight	~2.9 kg
Working temperature	-25° to 70°C
Storage temperature	-25° to 85°C
Atmospheric humidity	10% ...95% relative atmospheric humidity, non-condensing
Vibrations	0,2G/ 5-150 Hz during operation 1,0G/ 5-150 Hz with the device turned off
Shock load	1,5G/ Half sinus/ 11ms during operation
Shock load	50G/ Half sinus/ 11ms with the device turned off
Recording format	MPEG4/ H.264



Technical Details

Recording resolution	720 x 576, 720 x 288, 352 x 288
Framerate	PAL up to 25 fps
	NTSC up to 30 fps
Protection class	Metal housing IP 40
Service life	approx. 21 years

Table 2) BOP xD Technical Details

4.1 Special Tools

If special tools are required, this is indicated by a NOTICE before the respective action.

4.2 BOP xD Pin Assignment

The pin assignment is indicated in the enclosed technical datasheets. If the technical datasheets are modified, a change notice will be sent out.

5 Product Overview

5.1 BOP xD General Overview



Figure 1) BOP xD

5.2 Short Description of BOP xD

The **BOP xD Series** is a robust digital video surveillance system. There are multiple options for a deployment site. The scope of application of the **BOP xD** is the storage of video sequences that are recorded with the help for up to 16 video cameras connected to it. At the same time, the BOP xD is able to record audio sequences (pay attention to the data protection regulations in your country).

The hard drives' capacity depends on the recording time. Typically, the volumes range between 320 GB and 3 TB, see chapter 10.2 Recording Time.

The **BOP xD** can record data from connected peripheral devices. The **BOP xD** can record the IBIS data stream and GPS coordinates via an external GPS system and a CAN data bus. BOP xD is able to play videos at the same time as it is recording and storing them. This is done accurately via IBIS and/or GPS.

The available interfaces (USB, Ethernet, Audio, IBIS and CAN) provide multiple connection options for external components (Wireless LAN, GSM, UMTS or GPS). The IBIS interface receives and sends IBIS data and stores in in the hard drive.

The system is easy to configure via licence-free access to a standard Internet browser. The data protection is guaranteed by a multistep security system.

5.3 Optional Modules and Extras

The BOP xD can be extended with the modules listed below.

The extensions are not an integral part of the product and this documentation.

- ❖ iShow = Passenger information system
- ❖ iCount = Passenger counting system
- ❖ xNet = WLAN/ UMTS /HSDPA Modem
- ❖ System racks = Standard holders and 19" plug-in rack

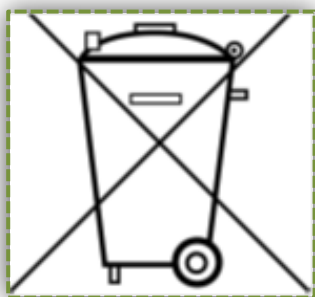
Contact your responsible project manager or send a written inquiry for additional information.

We would be happy to provide you with additional information.

6 Packaging & Disposal

6.1 Unpacking and Disposing of the Packaging Material

Used appliances and electronic components must be disposed of separately from the household waste.



Used appliances' and electronic components' marking.

The BOP xD video surveillance system and all appliances and electronic components included with it may not be disposed of together with household waste as per the European Regulations and the German Law on Electrical and Electronic Appliances (ElektroG). Used appliances and electronic components may be disposed of at the municipal collection centres.

6.1.1 Unpacking and Disposing of the Packaging Material

- 1 Pull up the packaging cover
- 2 Pull out the external sealing flaps from the sides of the packaging board
- 3 Open the packaging lid entirely
- 4 Remove the enclosed "Getting started" document

NOTICE

The passwords, installation instructions and functionality descriptions are listed in the "Getting started" document. Keep it safe!

- 5 Pull up the packaging protection above by the two notches
- 6 Carefully pull the BOP xD up to take it out

NOTICE

Protect the device from humidity, water, acid, solvents and dust.

NOTICE

Do not let the device fall.

7 Mounting and Installation

Personnel

The BOP xD video surveillance system by ACTIA may only be installed and commissioned by trained qualified personnel.

7.1 Preparatory Measures

ATTENTION - Material damage



Avoid damage, malfunctions or breakdown of the BOP xD or the vehicle.

❖ Follow the instructions below!

The general safety regulations for working with electric voltage must be strictly observed.

When choosing a mounting position for the BOP xD video surveillance system by ACTIA, follow the relevant specifications and regulations. When integrating and operating the BOP xD video surveillance system by ACTIA, the vehicle's functionality may not be affected in any way.

Especially the safety systems may not be disturbed or disabled.

When connecting peripheral units, such as cameras, microphones and monitors, follow their specifications, installation instructions and handling information.

NOTICE

If you have any questions regarding installation, please contact your sales representative or I+ME ACTIA directly.

7.2 Installation and Mounting

7.2.1 Place of Installation

When choosing a place for the installation of BOP xD, take the following points into account:

NOTICE

The BOP xD may not be subjected to direct weather effects.

- ❖ The mounting spot must be sufficiently ventilated to avoid condense water and trapped heat.
- ❖ Access for connecting peripheral devices, maintenance and data storage replacement must be provided.
- ❖ Unauthorised persons should have no direct access to the device.

The installation spot must be freely accessible at all times and it must not disturb the driver's work. The necessary power sources, IBIS data cables, video camera cables and other required equipment must be available at the place of installation.

Good installation places are:

- ❖ The roof coving above the driver
- ❖ The roof coving above the front passenger seats

7.2.2 Installation without BOP xD system rack

There are four boreholes at the bottom with a diameter of 6 mm.

WARNING - Physical injuries



Mounting the device

- ❖ Mount the BOP xD properly, so that it cannot fall down.
- ❖ Before departure, check whether the BOP xD is firmly fixed.

Should the BOP xD fall during an accident because it hasn't been properly fixed and if it causes physical injuries, consult a physician immediately

- 1 Bore holes as per the boring diagram
- 2 Secure the BOP xD with 4 M6 screws
- 3 Use clamping rings or toothed lock washers to secure the screws.
- 4 Tighten the screws by hand

7.2.3 Installation with system racks

On the back of the BOP xD there are insertion slots for the mounting rack flaps.

- 1 Secure the system rack as per the Installation Instructions.
- 2 Consider the mounting rack used
- 3 Push the BOP with its back first in the mounting rack
- 4 Bend the front side at 25-30° so that the insertion flaps fit into the insertion slots
- 5 Press BOP slightly downward
- 6 BOP must be horizontal
- 7 Secure BOP with 2 M6 screws to the mounting rack

7.3 Preparatory Measures for the Installation

7.3.1 Intended Use

The BOP xD video surveillance systems by ACTIA may only be used for recording and evaluating video and audio data. The related additional information in the vehicles must be observed under compliance with the legal framework.

7.3.2 Prerequisites

The necessary connection cables, optional data and video lines for the cameras that will be connected to it must be available at the place of installation.

WARNING - electrical shock



Electrical Connection (12-24VDC)
You might get an electrical shock.

- ❖ Switch the ignition off
- ❖ Remove the fuse

Should you receive an electrical shock and you do not feel well, immediately contact a physician.

7.3.3 Power Supply Specification

- ❖ Input voltage 10-32 VDC
- ❖ Max. voltage: 2A by 12 VDC

Connection „ON“

- ❖ ⑩ + plug 2 - PIN1
- ❖ ⑩ plug 2 - PIN3



Connection "Ignition"

- ❖ Ignition on plug 2 - PIN2
- ❖ Ground plug 2 - PIN3

7.3.4 Power Supply and Data Sources

The BOP xD requires the following power supply voltage:

- ❖ 12 VDC - 24 VDC
- ❖ 10A fuse (time-lag).

Optional: IBIS data line, GPS signal, CAN bus data line, Ethernet network cable for the network connection with iCount and Ethernet switch.

8 Start-up

ATTENTION - Material damage



If the BOP xD configuration is wrong, there is a risk that the system will not function within the desired scope.

Start-up and system modification may only be performed by respectively trained qualified personnel.

8.1 Start-up

The BOP xD does not require any special start-up measure - all relevant data has already been preinstalled by the manufacturer.

8.2 Configuration

The configuration is done over a web interface. The connection is made over the Ethernet interface and a web browser. The access to the configuration data is secured by a password. You can find more information on configuration, see chapter 12 Web Interface.

NOTICE

The configuration of BOP xD must be checked during the initial startup of the entire system. When completed, it is recommended to save the configuration data to an external storage device and to change the passwords.

9 Functional Description

9.1 BOP xD Basic Functions

The system can digitally record up to 16 analogue video signals (PAL or NTSC) in MPEG4/H264 format as well as 2 audio tracks simultaneously in real time. The system can record the current GPS position data together with additional information that is being sent by the surrounding system.



Figure 2) BOP xD

The recording of the data starts by switching the ignition on or by a digital input wiring (wake-up function).

The data is deposited to a ring buffer (controlled either by capacity or by time). Alarm data is stored in a secure area of the ring buffer that cannot be overwritten.

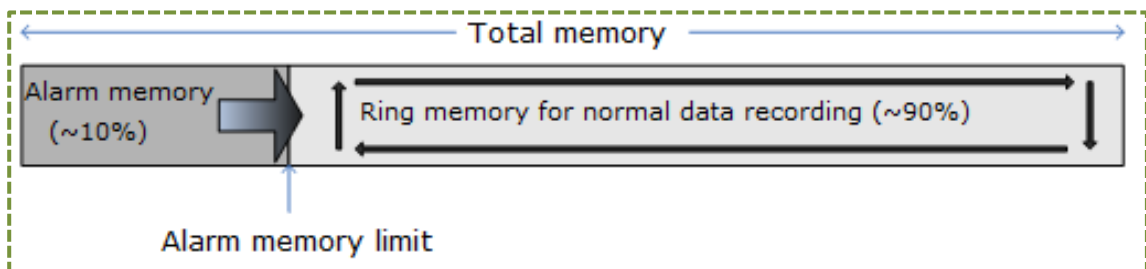


Figure 3) Storage capacities

9.2 Functions

9.2.1 Key Switch Positions



Pos.	Symbol	Operating status	Remark
a		OFF	BOP xD is or will be switched off. After the automatic shutdown of the electromagnetic locking the slide disk may be removed.
b		RECORDING	BOP xD is recording video data as per the configuration settings.

Table 3) Key Switch Positions

The Ethernet interface on the back is used for:

- ❖ System configuration web interface
- ❖ Password-secured data transfer SMB/CIFS
- ❖ Firmware update

The Ethernet interface on the front is used for

- ❖ Service interface
- ❖ Maintenance

9.2.2 Configuration

The system is configured over an easy-to-use web interface, see Chapter 11, Web Interface. To this end, a free web browser (e.g. Internet Explorer as of v. 8.0, Firefox or similar products) is required.

9.2.3 Secondary Functions

The recorded data can be output on parallels connected monitors. In the event of an alarm, the alarm data is transferred automatically via an external modem (e.g. xNet).

9.2.4 Visual Indicators and Instructions

Eight light diodes indicate the operating status of BOP xD.






Pos.	Symbol	Operating status	Remark
1		Power on	Lit in green when the power connection is active.
2		Service	Blinks red when there is a malfunction
3		Recording	Blinks green when data is being recorded
4-7		SlideDisk	Hard disk lit in blue when active
8		Wi-Fi	Lit in yellow when Wi-Fi is active.

Table 4) Visual Indicators, Light Diodes

9.3 BOP xD Operation

After putting the system into operation, BOP is switched to operating mode >RECORDING< via the key switch. During normal operation, BOP can be switched on and off with the ignition (terminal 15).

BOP is switched to >RECORDING< via the key switch.

- 1 Ignition on > BOP switches to >RECORDING<
- 2 Ignition off > after expiry of the switch-off delay time, BOP switches to >OFF<
- 3 BOP is switched to >OFF< via the key switch
- 4 Ignition on > BOP remains switched off

9.4 Installing/Changing the Slide Disk

The slide disk is electromagnetically locked. You can remove the slide disk, when BOP XD is switched-off from the key switch.

9.4.1 Exchanging the Slide Disk

- 1 Switch BOP xD off via the key switch
- 2 Wait until a signal is given
- 3 System is shut down, the Power LED goes off
- 4 The electromagnetic lock is switched off
- 5 Remove the storage device from the shaft
- 6 Put in the new storage device
- 7 Insert the storage device as far as it will go (the connector snaps in)

NOTICE

Before using it, format the storage drive. Formatting it guarantees that old data is deleted from the storage device and the entire capacity is available.

9.5 Storing and Transporting the Slide Disk

The BOP xD data storage complies with the automotive requirements. The integrated hard drives are stored for shock absorption. Regardless of their robust design, damage resulting from improper handling cannot be excluded.

ATTENTION - Material damage



The storage device may be damaged by improper handling. In the worst case, this can lead to loss of the recorded data.

Therefore you must protect the data storage from humidity, moisture, strong sunlight, heat, dust and hard impacts during storage and transportation:

NOTICE

We recommend using a transport box by ACTIA I+ME for securely transporting and storing the data storage.

If necessary, contact your responsible project manager!

10 BOP Standard Functions

The video surveillance system **BOP xD** records the video and audio data from the

- ❖ cameras
- ❖ microphones and
- ❖ peripheral devices (e.g. GPS) connected to it.

Additional data from the vehicle is recorded to a changeable slide disk.

The evaluation is done via a live image function, alarm data transfer or at a later point in time, over the Reviewer software. The data recorded in the event of an alarm is stored separately. The data can be automatically sent to a central reception point via an external modem (e.g. xNet).

10.1 Switching the Recorder on with an Ignition Signal

Switching-On Prerequisites

- 1 Flip the key-switch on the device to "Recording"
- 2 Flip the break switch on the dashboard to "Recording"

To switch **BOP** on, the "Terminal 15/Ignition" signal must be wired as a high active signal to the 21-pin "I/O plug" Pin 2.

A follow-up time can be set in the configuration, under [General Settings Switch-Off Delay].

10.2 Recording Duration

BOP xD records all data to a hard drive (HDD). The size of the data that will be written to the hard drive can be set under [General Settings > max. storage time] in the configuration.

Maximum Recording Time

Capacity GB/TB	4 Cam.	6 Cam.	8 Cam.	10 Cam.
320 GB	157	105	78	63
500GB	246	164	123	98
1TB	492	328	246	196
1.5TB	738	492	369	295
2TB	984	656	492	393
3TB	1476	984	738	590

This is not taking audio and log data into consideration (Audio=30MB h per channel)

Table 5) Recording Capacity in Hours*

Capacity GB/TB	12 Cam.	14 Cam.	16 Cam.
320 GB	52	45	39
500GB	82	70	61
1TB	164	140	123
1.5TB	246	210	184
2TB	328	281	246
3TB	492	421	369

This is not taking audio and log data into consideration (Audio=30MB h per channel)

Table 6) Recording Capacity in Hours*

*Values for a data stream of 1Mbit/s per camera

The age of the recorded data is calculated by:

- ❖ Activating the function,
- ❖ Creation time of the current **BOP** system time.

10.3 Alarm

For the alarm, there must be a “high active” signal on the 21-pin “I/O” plugs “Pin 9” or “Pin 2”.

The lead and follow-up time can be set under [General Settings] on the [Configuration] site. The alarm data is stored in a secure storage area and is kept until manually deleted.

10.4 Recording Additional Data

Beside the video data with the time stamp, the following additional data can also be found:

- ❖ Camera name (set under Configuration)
- ❖ Vehicle number
- ❖ Route
- ❖ Stop
- ❖ Vehicle identification

BOP saves the log files that protocol the behaviour of the recorder. All IBIS functions are checked during a test run and adjust via “ON” if necessary.

10.5 IBIS Time Correction

Date and Time are corrected by the real-time clock (RTC) via IBIS or GPS if there is a deviation of more than 30 seconds. By deviation of more than 2 minutes, the system is restarted. The IBIS time correction can be set under Configuration. The time can be automatically applied to a preconfigured time which requires a restart.

10.6 IBIS Data

All IBIS data received is saved as meta data in the event files. The data can be displayed and evaluated via the **BOP** Reviewer Software together with the video data.

10.7 GPS

GPS position data can be saved by our optional USB GPS device (USB GPS Mouse) as meta data together with the passenger count data.

10.8 Passenger Count Data

The optionally collected GPS data is saved as meta data together with the passenger count files. When modified, selected IBIS data is saved as meta data in the passenger count files. Passenger count data is saved in the DILAX3 and/or FAN format. The passenger count files dumping process can be automated. The data is dumped to an FTP server without encryption via the Ethernet or by sticking in a USB stick with an authentication.

10.9 Start-up Time

The time between switching-on the system and the recording start depends on the ambient temperature. With temperatures between 10°C and 0°C, the start-up time can be longer. If an SSD drive is used, the start-up time is shorter for all temperature ranges.

NOTICE

Various non-regular functions (e.g. File Check) can increase the start-up time.

10.10 BOP Web Interface

The BOP Web Interface makes the following functions available:

- ❖ Live Images

- ❖ Maintenance
- ❖ Configuration
- ❖ Load/Save Configuration - Firmware upload
- ❖ Operator
- ❖ Admin

The connection to the BOP Web Interface is established over the Ethernet interface and a web browser. The web interface is described in Chapter 11, Web Interface.


10.11 Error Signalling

Error messages with exact information about the error (log files: err.txt, log.txt, log.1.txt) can be automatically uploaded to an FTP server. After that, the system sends a notification that system maintenance is necessary.

10.12 Passwords

Username	Standard Password	Right
user	user	live images, maintenance
cfg	conf	live images, maintenance, configuration, load/save configuration Firmware update
admin	bop-i+me	live images, maintenance, configuration, load/save configuration passwords, Data storage formatting Access to the data storage >/HDD<
review	view	Access to SMB / BOP Reviewer Software

Table 7) Passwords

ATTENTION - Password Protection	
	<p>Change the passwords!</p> <ul style="list-style-type: none"> ❖ To secure the system against unauthorised access, the passwords for the overall system should not be freely accessible. <p>Keep the passwords in a safe place.</p>

11 Network Functionality

The functions described in this chapter are available over the Ethernet network. The Ethernet interface is accessible via the integrated web server.

11.1 Ethernet Interface

BOP XD has two independent Ethernet interfaces. The Ethernet interface in the front can be used for maintenance purposes. The Ethernet in the back is designed for the device's permanent network connectivity, so that BOP can be connected over a network. The exact settings in the respective network can be adjusted in the configuration. This makes a wireless connection also possible. The BOP data is accessible via the Ethernet interface. The data is password protected. The system status can be queried and/or sent via an UDP broadcast.

Ethernet Interface - Forder Side

- ❖ RJ45 – 100Mbit autocrossing

Ethernet Interface - Back

- ❖ M12 D-coded, female socket 100 Mbit

11.2 Access to Video Data

For service purposes, the Web Server Menu [Maintenance] will be expanded with the ability to play the latest recorded video. The objective is to provide functionality control over the recording system without access rights for all recorded data.

11.3 Alarm Data Feedback

An automatic Alarm Data Feedback is performed after a configurable alarm data age. This age is pre-set to 90 days.

11.4 Data Access from the Headquarters

The headquarters can access the CCTV system data if there is a LAN connection. If the router has access to the Internet, the LAN connection must be established through a secured tunnel. Such access is possible after it is enabled. Enabling and Blocking is possible only via the [Live account]. The account has the following access rights:

- ❖ WEB server (live images, maintenance),
- ❖ SMB/CIFS/Samba (recorded data),
- ❖ FTP server (recorded data),

The assault button/ emergency call is connected to ALARM input "IN 6" (21pinsPin9) of the CCTV system. Triggering the alarm informs the headquarters (UDP datagram broadcast - Port 30603: 0, "ALARM").

Triggering the alarm enables access to data from the headquarters without a time limit. A data access acknowledgment from the headquarters starts a 60 minutes timer. After the 60 minutes time expires, the data access is disabled. A repeated alarm trigger stops the running 60 minutes timer. The data access acknowledgment is executed via the Web server in the [Maintenance] menu. The data access acknowledgement can be withdrawn.

- ❖ Time limit cancellation
- ❖ Timer stop

A new acknowledgment resets the timer to 60 minutes.

11.5 Data Transfer Options

11.5.1 Current Camera Images

The web server menu "Live images" provides the possibility to control the camera images and signals of Videooutput#1 (monitor output). The Videooutput#1 stream can be controlled via an additional browser window [VOut#1 control]. This makes it suitable for camera control via LAN connections, such as over a secured VPN tunnel of a router via UMTS/LTE to a server.

A monitor at VOut#1 is also switched over to.

Tested web browser 32 Bit options:

- ❖ "Firefox ESR"

(<https://www.mozilla.org/en-US/firefox/organizations/faq/>)

- ❖ "Seamonkey" (<http://www.seamonkey-project.org/>)

The camera images are available as a video stream. "VLC media player" is required (<http://www.videolan.org/>)

NOTICE

If using a 64 Bit web browser, a 64 Bit VLC medial player is required. The 32 Bit version is the standard version.

Video streams can be played directly from a VLC Media Player video stream client. The active stream URL, e.g. "rtsp://10.31.0.79:8554/h264_ch17", can be copied from the web server menu "Live images".

11.5.2 Recorded Data

The recorded data can be accessed via the network file system SMB/CIFS. Access over FTP is also possible.

The authentication is done via the Reviewer right called "review".

For BOP it should be NOTICE that usually during operation with multiple hard drives the active hard drive is active. Once the file "\\cfg\rvw\ping" or "/cfg/rvw/ping" is written, all available hard drives are activated in the next 30 minutes.

Using the "\\cfg\HDDsstate.ini" file, you can check whether the hard drives are on and if they are accessible.

[HDDSSTATE]

- ❖ HDDsList=1,2,3
- ❖ HDDsActive=1,2

The [Operator] web server menu allows access to the hard drives. Big files should not be clicked or saved because a device crash may occur due to the intermediate RAM check.

11.5.3 Automatic FTP Upload

Passenger log data, log data and alarm recording can be automatically uploaded to an FTP server. The FTP server must be check before that. Parametrization is performed under menu item [Configuration" - "Network].

The APC/APS files in Dilax or FAN format can be saved to a directory on the FTP server or they can be dumped. The directory is determined by "DLX data FTP subdir".

11.5.4 FTP Upload via Batch Files

An FTP upload of the recorded data to the FTP server can be initiated by batch files, "FTP basepath request" parameter.

11.5.5 UPD Broadcast - Inter-Device Communication

To communicate over the local network, the devices send and receive "UDP datagram broadcast" packages using Port 30603.

The first byte is always the package identifier 0..255, followed by a string with 0 termination.

The string always starts with an additional keyword, ending with the 0 termination or an additional line break '\n'. All unexpected packages must be ignored without an error message. The maximum length is defined by the maximum length of the "UDP datagram broadcast" packages.

The most important packages:

##-----

##--"ALARM" rx + tx:

0,"ALARM",0

##-----

##--"BOP identification" request:

1,<may be other data, not checked>

##--"BOP identification" answer:

2,"BOP\n <string with \n for next line start with "BOP">

10300013\n <BOP serial number like "10300013">

2.6.48\n <firmware version>

BOP-HD-10300013\n <BOP-ID, the BOP identification string>

192.168.12.2\n <ethernet IP address front>

00:10:02:0E:B0:18\n <ethernet MAC address front>

10.30.0.13\n <ethernet IP address rear>

00:10:02:0E:B0:19\n <ethernet MAC address rear>

IN: 00000000101\n <digital input values 0 or 1 for IN#1-8,KL15, pause, run:
"IN: 12345678ktr">

",0

..... or

##--"Reviewer-Station identification" answer

3,"BOP\n same data as 2,"BOP\n

The "BOP identification" query is used by the BOP Reviewing Software to find devices on the local network.

Via [Configuration" - "Network], set

- ❖ "Broadcast tx dest addr" and
- ❖ "Broadcast rx mask".

Whether there should be a reaction to an ALARM event from other devices in the local network, can be turned on or off separately.

12 Web Interface

This description is based on Firmware Version V3.0.25.

12.1 Initial Steps / Entering the Password

- 1 Connect the BOP xD Ethernet interface with a PC.
- 2 Switch BOP on
- 3 Wait until the system starts up
- 4 Open the browser
- 5 Go to BOP's IP address



Figure 4) Web Interface Login Screen

- 6 Enter your username and password in the authentication screen
- 7 Confirm with OK

- The Web Interface homepage is opened

12.2 Homepage

After logging in, the [Maintenance] tab opens as the start page. On the homepage, you can find the following information:

BOP-XD - Video Security System - ACTIA - V3.0.34 beta-2018-03-06_1657 - logon: **admin**

--- SYSTEM o.k.
 S/N: 10310259 - -, System load: 14% , Cam load: 5%

Live View Maintenance Configuration Configuration Load/Save - Firmware upload Operator Admin

Maintenance - VH259
 Some times are in UTC(=GMT)! So in Germany(GMT+1) the local time at daylight saving time is UTC time + 2 hours and otherwise UTC time + 1 hour.

Record of system errors that needs to be solved:
 Error file: [err.txt](#) - size: 66 bytes
 iShow Error file: [iSerr.txt](#) - size: 66 bytes
 delete:

Record of all system activities. The newest log file is on top:
 Log file: [log.txt](#) - size: 824812 bytes
 Log file: [log.1.txt](#) - size: 1225663 bytes
 Log file: [log.2.txt](#) - size: 1060277 bytes
 Log file: [log.3.txt](#) - size: 1197568 bytes

iShow:
 Log file: [iSlog.txt](#) - size: 31158 bytes
 Log file: [iSlog.1.txt](#) - size: 0 bytes
 Log file: [iSlog.2.txt](#) - size: 0 bytes
 Log file: [iSlog.3.txt](#) - size: 0 bytes

Recording Check Check the recording function via playing last completed records

Figure 5) Start page


- ❖ Firmware version
- ❖ Status information
- ❖ System starts > BOP xD is activated
- ❖ System OK > BOP xD is ready, no messages
- ❖ Maintenance > the error file is displayed
- ❖ Alarm > alarm date available
- ❖ Camera error > one or more cameras have experienced a malfunction
- ❖ GPS coordinates > only if a GPS receiver is connected
- ❖ BOP xD serial number

12.3 Live Images

The Live Images mode allows for opening the video channel directly in the web browser with a delay time of a few milliseconds.

Prerequisite:

A current version of VLC Media Player is installed!



BOP-XD - Video Security System - ACTIA - V3.0.34 beta-2018-03-06_165

--- SYSTEM o.k.
 S/N: 10310259 -- , System load: 14% , Cam load: 5%

Live View
Maintenance
Configuration
Configuration Load/Save - Firmware upload

Live View - VH259

Capture event for live download: -> [UTC] - seq -

newest videos - needs to log-in as "review" + password !

rtsp://172.27.14.210:8554/h264_ch3&user: - <http://www.videolan.org/vlc>

AN cams: 1 2 3 4 Vout#1 - -




Figure 6) Live Image Camera

A sequence can be saved and reviewed at a later time using the button [Event].

The [Download] button shows a list of the most recent videos.


Download

Video channel:

Selected channel for download is: [1]

UTC 2018-03-08 14:52:55	seq40684.mp4	actual
UTC		captured event
UTC (file not found)	(file not found)	no event captured
UTC (file not found)	(file not found)	no event captured
UTC (file not found)	(file not found)	no event captured

HDD: [/hdd1/](#)



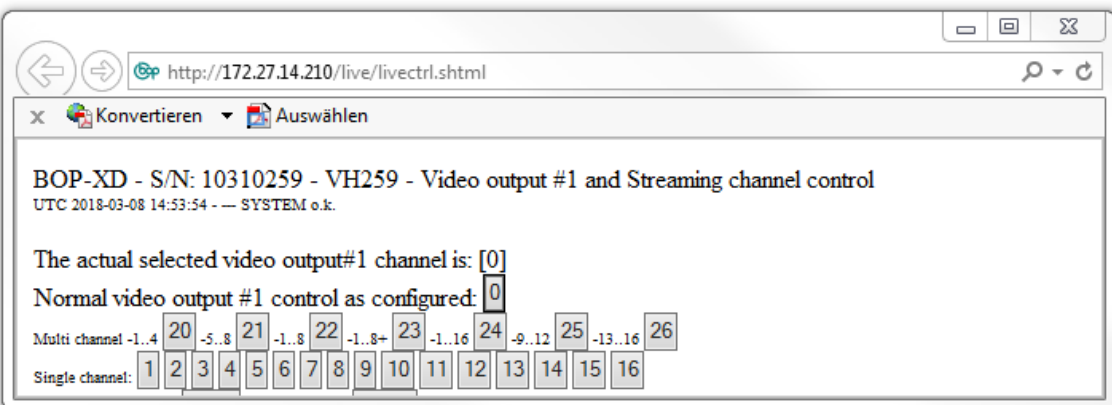
Copyright © 2003-2018 - ACTIA I+ME GmbH

Figure 7) Download

The cameras can be controlled individually and secured over a loop in the [Live Images] user interface. If the cameras are logged as red, a blue screen is displayed.

12.3.1 Camera Control

- 1 Click on Vout#1 control
- 2 A pop up window appears
- 3 Switch between multi and single channel.
- 4 Select cameras.



Browser address: http://172.27.14.210/live/livectrl.shtml

BOP-XD - S/N: 10310259 - VH259 - Video output #1 and Streaming channel control
UTC 2018-03-08 14:53:54 -- SYSTEM o.k.

The actual selected video output#1 channel is: [0]

Normal video output #1 control as configured: [0]

Multi channel -1..4 [20] -5..8 [21] -1..8 [22] -1..8+ [23] -1..16 [24] -9..12 [25] -13..16 [26]

Single channel: [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12] [13] [14] [15] [16]

Figure 8) Camera control



NOTICE

The current version of VLC player can be downloaded from www.videolan.org/vlc

NOTICE

The web browser must be set such that the access to BOP XD does not happen over a proxy.

12.4 Maintenance

Error messages are shown in the [MAINTENANCE] page. All events that have led to a data recording failure are logged in the error file. When an entry is written to the file, it is indicated on the homepage with a highlighted <MAINTENANCE> NOTICE. The malfunctioning cameras are shown in the [Maintenance] area.

12.4.1 Opening the Error File

- 1 Open the [MAINTENANCE] page
- 2 Click on the >err.txt< entry
- 3 The error file opens

Maintenance - VH259

Some times are in UTC(=GMT)! So in Germany(GMT+1)

Record of system errors that needs to be solved:
Error file: [err.txt](#) - size: 66 bytes
iShow Error file: [iSerr.txt](#) - size: 66 bytes

..... delete:

Figure 9) Maintenance err.txt

12.4.2 Error File Structure

Line 1 - Date of error file creation, date of latest error file deletion

Line 2 - system information, current firmware, date and time of the current configuration file, vehicle identification.

Line 3 - date and time errors I

NOTICE

The error file err.txt can be read and deleted by all users.

12.4.3 Maintenance HDD Report

```
smartctl 6.6 2017-10-11 r4552 [armv7l-linux-2.6.37] (local build)
Copyright (C) 2002-17, Bruce Allen, Christian Franke, www.smartmontools.org

=== START OF INFORMATION SECTION ===
Model Family:      Western Digital AV
Device Model:      WDC WD10JUCT-63CYN0
Serial Number:     WD-WX21AB50TUY5
LU WWN Device Id: 5 0014ee 65ba6b36e
Firmware Version: 01.01A01
User Capacity:     1,000,204,886,016 bytes [1.00 TB]
Sector Sizes:     512 bytes logical, 4096 bytes physical
Rotation Rate:    5400 rpm
Device is:         In smartctl database [for details use: -P show]
ATA Version is:   ACS-2 (minor revision not indicated)
SATA Version is:  SATA 3.0, 3.0 Gb/s (current: 1.5 Gb/s)
Local Time is:    Thu Mar  8 05:03:04 2018 CET
SMART support is: Available - device has SMART capability.
SMART support is: Enabled

=== START OF READ SMART DATA SECTION ===
SMART overall-health self-assessment test result: PASSED
```

Figure 10) HDD Report

Enable all switchable HDDs for the next 30 minutes:

HDDs:

I/Os - KL15:1 KEYSW:1 IN1-8:00000000 OUT1-4:1100 LED1-3:001 (Err, Rec, HDD)
 ALARM seqs: 0

Acceleration - BMA250 - values in mg -9 sec .. now


X:	42	42	42	42	42	42	42	42	42	42
Y:	35	35	35	35	31	31	31	31	35	31
Z:	1046	1046	1046	1046	1046	1046	1046	1046	1046	1046

differences to the -10 sec values

X:	-4	0	0	0	0	0	0	0	0	0
Y:	-4	0	0	0	-4	0	0	0	4	-4
Z:	0	0	0	0	0	0	0	0	0	0

Temperatures [degree C] - CPU:39 MBa:35 Slidedisk:28 HDDs #1:36

HDD SMART: [SMART hdd1.bt](#)
 HDD#1 - sd1 - sda1 - 1:0:0:0
 SD-HDD-power-switch#1 - 1:0:0:0



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Figure 11) Activate HDD

Maintenance - Recording Check - VH259

AN cams: 1 2 3 4

IP cams:

now: 2018-03-08 15:56:03
 up to: 2018-03-08 15:43:51 - ANcam#1 - /camera1/seq40683.mp4 - size: 10125 - ch: 1
 Your browser is not able to play videos.



Copyright © 2003-2018 - ACTIA I+ME GmbH

Figure 12) Recording check

12.4.4 Recording Test

Using the [Recording test] button, the recording functionality of the latest terminated sequences is tested.

Check the recording function via playing last completed records

Figure 13) Recording Test

12.5 Configuration

On the [Configuration] site, you can adjust the general as well as specific setting.

BOP-XD - Video Security System - ACTIA - V3.0.34 beta-2018-03-06_1657 - logon: **admin**

--- SYSTEM o.k.
S/N: 10310259 - -, System load: 14% , Cam load: 4%

Live View Maintenance Configuration Configuration Load/Save - Firmware upload Operator Admin

Configuration - 20180315_0859 - VH259
VSSXD-cfg_en-3.0.19.50_20180315_085905.bcf

General Video 1 Video 2 IP Cameras IP Cams V-Out Outputs Network

Date and Time

PC	UTC 2018-03-15.09:36:52	[save]-button stores the PC time in the BOP-XD RTC
BOP-XD-RTC	UTC 2018-03-15 09:36:52 +0000 GMT	RTC = Real Time Clock
BOP-XD-SYSTEM	UTC 2018-03-15 09:36:50 +0000 GMT	with next restart here the RTC time will be taken
BOP-XD-SYSTEM	local 2018-03-15 10:36:50 +0100 CET	
BOP-XD-IBIS	local	

default settings are marked with *

General Settings

Language: English

Review Mode: 0 *0,1 - This device will run as ReviewerStation (no recording).

Timezone String: CET-1CEST-2,M3.5.0/2,M10.5.0/3

*Central Europe: CET-1CEST-2,M3.5.0/2,M10.5.0/3
Great Britain: GMT0BST-1,M3.5.0/1,M10.5.0/2
Brazil/East: BRT3BRST2,M10.2.0/0,M2.3.0/0
local time OFF: UTC
other are available: Please ask your distributor or look yourself for "Posix Timezone String".

vehicle identifier: VH259

Figure 14) Configuration Part 1

12.5.1 General Settings

The general settings affect the alarm data recording, error messages and BOP switch-off.

12.5.1.1 Date and Time

BOP xD contains a real-time clock [RTC]. In case of deviations, the [RTC] should be adjusted because otherwise the time stamps of the data recordings do not allow for conclusions regarding the exact recording time. The time zones can be changed. The [save] button saves the PC time in the BOP Real Time Clock [RTC]. The RTC is applied after a restart.

Date and Time

PC	UTC 2018-03-09.07:21:56
BOP-XD-RTC	UTC 2018-03-09 07:21:53 +0000 GMT
BOP-XD-SYSTEM	UTC 2018-03-09 07:21:54 +0000 GMT
BOP-XD-SYSTEM	local 2018-03-09 08:21:54 +0100 CET
BOP-XD-IBIS	local

Figure 15) Setting the date/ time

NOTICE

The current time (atomic time) can be checked with the Physikalisch Technische Bundesanstalt (Physical Technical Federal Institute) at

<http://www.ptb.de/de/zeit/uhrzeit.html>

All data is presented in Coordinated Universal Time (UTC)

The following is valid for Germany:

Winter time = UTC + 1 hour

Summer time = UTC + 2 hours

12.5.1.2 Language

The BOP interface language can be selected from the "Language" list. This setting is enabled once the configuration is saved.

- ❖ Language (always EN) – 8 different languages

12.5.1.3 Review Mode

- ❖ Review Mode – The device can run as a Reviewer Station Value 0/1. When set to value 0, the system does not run as a recorder but as a network server for hard drive backup. The Video Data Converter with a USB 3.0 port can also be used for hard drive backup. This requires installing the necessary drivers.

12.5.1.4 Time Zone String

- ❖ Time Zone String – 3 pre-set time zones, see the enclosed datasheet for additional time zones.

12.5.1.5 Vehicle Identification

The vehicle identification serves the purpose of video data allocation. The clear unique designation of the vehicle where BOP is installed must be entered. The vehicle identification is displayed when reading the data in BOP ReviewerSoftware.

- ❖ Vehicle identification - BOP serial number, bus licence plate number

- ❖ Vehicle ID part - Vehicle ID prefix, customer defined
- ❖ Vehicle number range - vehicle number value range

12.5.1.6 Sequencing Time

The sequencing time is the time period during which the video data is being saved to a file. After the time for saving a sequence file expires, a new file with the next sequential number is created.

- ❖ Together with the video settings, sequencing time affects the size of the video files.

sequence time	<input type="text" value="10"/>	[min], *5..30, influences the file sizes
shutdown delay	<input type="text" value="0"/>	[min], *0..120, Power-OFF time after KL15/Ignition is switched off
pre-alarm time	<input type="text" value="10"/>	[min], *5..180
post-alarm time	<input type="text" value="10"/>	[min], *5..180
alarm buffer limit	<input type="text" value="10"/>	[%], 5..*10..90, Not a hard limit. If reached, it produces an error message
max. buffer time	<input type="text" value="0"/> : <input type="text" value="0"/>	[h]:[min], *0:0(off)..23:59..
	abs <input type="text" value="0"/>	abs[0]=Deletes all older sequences, abs[1]=Absolute time mode. Defines the number of sequences is greater/older than the defined storage time
alarms limit	<input type="text" value="0"/>	*0(=off),1..1000 - number of alarms buffer limit, if set on 3 files older than the recording loop.
alarm files age	<input type="text" value="0"/>	*0(=off)..14..90..365 days - maximum alarm files age in days. All older files are deleted.
alarm input edge	<input type="text" value="0"/>	*0(= edge to high), 1(= edge to low) - Defines the alarm input #6 to the device
alarm OSD text	<input type="text" value=":"/>	":", "*** ALARM ***" - Depending on "Messages on video output" and "Messages on monitors"
Emergency brake ALARM	<input type="text" value="200"/>	[mg] 0(off)..*200..1999 - (1000mg = 1g = 9.81m/s ²) -b- Acceleration
	Direction of travel <input type="text" value="1"/>	

Only one acceleration direction is supported. If you do not know how the device is oriented, use the following directions:
 1, 2 - right, left
 3, 4 - rear, front
 5, 6 - top, bottom

Figure 16) Configuration Part 2

12.5.1.7 Switch-off Delay

The video surveillance system is not switched-off together with the ignition, but after a predefined switch-off delay time. If the ignition is switched on again within this period of time, BOP is not switched off and the switch-off delay is reset.

- ❖ Switch-off delay - between 0 and 120 min after the ignition has been switched off

12.5.1.8 Pre-Alarm and Post-Alarm Buffer

When there is a pending alarm, all recorded data is additionally saved in a separate folder for a set time (/hdd/alarm/). The alarm storage limit displays the percentage of the data storage total capacity that is available for the recording of alarm data. When the limit is exceeded, a message is entered into the err.txt error file thus activating the maintenance message on the homepage. The alarm data is recorded even after the storage limit is exceeded thus reducing the buffer storage.

- ❖ Pre-alarm time - between 5 and 180 min recording period before the alarm signal
- ❖ Post alarm time - between 5 and 180 min recording period after the alarm signal

12.5.1.9 Maximum Storage Time

The maximum storage time shows how long the data is saved in the buffer storage. All data that is older than the set period is automatically deleted. The BOP system time is of relevance for time comparisons.

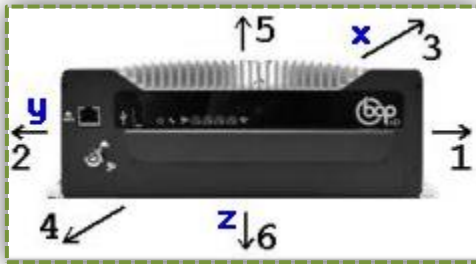
- ❖ Max. storage time - 0-23:59 min, value [abs]

If the value [abs] = 0, all older sequences are deleted. If the value [abs] = 1, all sequences for which the sequence time multiplied by the number of sequences is more/higher than the defined storage time are deleted.

12.5.1.10 Alarm Data

- ❖ Alarm limit - 1 to 1000 max. number of alarms triggered in the alarm storage, if the value is e.g. 3, all older alarms in the alarm storage are pushed back.
- ❖ Alarm Data Age - 14.90 to 365 days - older alarm data is pushed back in the alarm storage.
- ❖ Flank alarm input - defines the trigger direction - 0 = up, 1 = down

- ❖ Alarm OSD text - "***ALARM**" depending on the messages in the video output, this text is displayed on the monitors in the event of an alarm.
- ❖ Emergency stop ALARM - triggered by an acceleration sensor You must enter the correct acceleration direction, because only one acceleration direction will be checked.



1= right, 2= left,

3= backward, 4= forward

12.5.1.11 Key Switch

The slide disk can be exchanged. When the key switch is at Value 1. If the key switch is at 1 in the configuration, the system cannot be switched off and the slide disk can be changed. After the slide disk has been changed, the Value can be set to 0 again.

- ❖ Key switch [OFF] mode - 0 = System OFF
- ❖ Key switch [OFF] mode - 0 = Slide Disk release mode, recording is stopped, slide disk is unlocked

NOTICE

System switch-off is only possible by deactivating KL15, IN#1, IN#2, IN#3

12.5.1.12 24V Fault Test

When supply voltage is interrupted (Terminal 30 - battery), BOP is switched off without a delay. This can be classified and protocolled as an error.

- ❖ 0 = Error entry due to supply voltage failure
- ❖ 1 = No error entry due to supply voltage failure

12.5.1.13 Error Signalling Time

The error signalling time indicated how long an error will be signalled by the service LED and relay 4. The effect of the error signalling time depends on the setting >One-time error signalling<.

- ❖ 0 Error is signalled until the err.txt file is deleted
- ❖ 0 .. 1440 Error is signalled for the defined time

(Indicated in minutes, whereby 1440 = 24 hours)

12.5.1.14 One-time Error Signalling

>One-time error signalling< replaces >Error signalling time<.

- ❖ 0 = Setting disabled, error signalling time is now enabled
- ❖ 1 = An error is signalled as a 2-seconds long one-off impulse via the service LED and relay 4 and it is entered into the error file err.txt.
- ❖ 2 = Relay 4 and the service LED remain on as of the first error entry and until the error has been eliminated.
- ❖ One-time error signalling - 0 = OFF, 1 = One-off impulse, 2 = error

There is an additional error relay output. Value 1-4 defines an additional error relay output. The default "All OK status" is disabled, the relays is enabled when no further recording is possible. When no video signal is delivered, the relays blink.

12.5.1.15 Error Messages

You can configure the messages (error messages) at the video output as well as the stop at the video output. Error messages are displayed when a camera or a passenger counting device is out of commission. The error message or the stops are displayed on the monitors.

You can configure an automatic restart.

12.5.1.16 Inputs

- ❖ Pause input #4 - 0 = OFF, 1 = digital input, #4 stops the recording (customer specific)

- ❖ Alarm input #2 - 0 = OFF, 1 = digital input is an alarm trigger input (customer specific)
- ❖ RS232 GPS - 0=OFF 9600 / 1= ON 4800 GPS devices are in use

12.5.1.17 Camera Issue / Error

Indication whether an issue with a connected camera (e.g. no video signal) should be classified as an error or not.

- ❖ 0 The malfunction of a camera is not classified as an error
- ❖ 1 The malfunction of a camera is classified as an error all USB-GPS devices are automatically ignored.

12.5.1.18 APC/iCount - Automatic Passenger Counter

iCount can be optionally bought as an addition to the device. You can display the number of iCount devices used. A format must be selected otherwise the data is automatically reset to the default value.

APC/iCount - Automatic People Counter

iCount devices *0(off),1..n - Number of the to be used iCount devices (automatic passenger counting equipment).

iCount data - formats to be recorded

DLX3

FAN csv . . . + IBIS: cmt;ibis;20161031;074150;"z16 HAUPTBAHNHOF "

Figure 17) APC/ iCount

12.5.1.19 IBIS - Integrated On- Board Information System

IBIS status query - status query with device number

IBIS time correction - RTC time correction, restart required

IBIS - Integrated On-Board Information System

IBIS state request *"-"(off), "fCS", "aH", "gZ" - State request with device number 1..15 in C, H or Z [12; 070). Examples: "f8S", "a8", "g?".

IBIS time adjustment *0(off), 1(on) = IBIS time adjusts the RTC time, a restart takes this as SYSTEM time

Figure 18) IBIS

12.5.1.20 Temperature Management

The hard drives are automatically shut down after exceeding or falling below the temperature limits. Recording is stopped. The temperature limits are configurable.

Temperature Management

HDD limits	<input type="text" value="57"/>	(- <input type="text" value="5"/>)	[C] *57(-5), HDDs max temperature (HDDs switched off, recording stops) -minus- hysteresis for on again
	<input type="text" value="0"/>	(+ <input type="text" value="5"/>)	[C] *0 (+5), HDDs min temperature (HDDs switched off, recording stops) -plus- hysteresis for on again

Figure 19) Temperature Management

- ❖ 5°C degrees min.
- ❖ 57°C degrees max

12.5.1.21 Audio Settings

The audio setting is limited to defining the number of audio sources; 2 microphones can be set up. Number of the microphones connected.

- ❖ 0 No audio data recording
- ❖ 1 Recording audio data from Channel 1
- ❖ 2 Recording audio data from Channels 1 and 2

12.5.2 Video Settings Video Output 1

The video settings (codecs' settings) affect all video sources. In the video recording settings configuration, the values of the different analogue camera can be set. Column 1-4.

Video Recording Settings 1

Param set	-1-	-2-	-3-	-4-	VOut#1-Stream	
frame size	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="2"/>	0	*0=720x576/480, 1=720x288/240, 2=352x288/240
frame rate divisor	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	1	*1=25fps-PAL/30fps-NTSC, 2=12.5fps-PAL/15fps-NTSC
compression/quality	<input type="text" value="2500"/>	<input type="text" value="1000"/>	<input type="text" value="500"/>	<input type="text" value="250"/>	2500	100(100kbps - high/bad - small files)..*1000..4000(4000)
GOP(group of pictures) time	<input type="text" value="20"/>	<input type="text" value="100"/>	<input type="text" value="100"/>	<input type="text" value="20"/>	10	4(400ms)..*80(8sec)..100(10sec - best quality)
quality	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	0	*0=off, 32..82=quality for variable bitrate - also is used f
adaptive frame rate	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	0	*0=off, 1=on - good for very high compression like 100h
text insertion (OSD)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>		*0=off, 1=on - inserts vehicle identification, channel num
	<input type="button" value="save"/>		<input type="button" value="save + restart"/>			

Figure 20) Video Settings 1

12.5.2.1 Resolution

Video image size

- ❖ 0 Video image 720x576 Pixel 4CIF/D1
- ❖ 1 Video image 704x288 Pixel 2CIF
- ❖ 2 Video image 352x288 Pixel CIF

12.5.2.2 Framerate Divisor

The division factor for the framerate allows for decreasing the number of recorded images per second.

- ❖ 1 PAL 25 images/sec NTSC 30 images/sec

High quality image

- ❖ 2 PAL 12.5 images/sec NTSC 15 images/sec
- ❖ 3,4,.. The higher the division factor, the jerkier the image. However, this requires significantly less storage space. Please determine in trial how many images/sec are sufficient for your usage purposes.

12.5.2.3 Compression / Quality

The compression and thus the image quality depends on the video recording data rate set. A lower data rate necessitates a higher compression.

3 = low data rate (0,3 Mbit/s) / ... / 60 = high data rate (6 Mbit/s)

- ❖ High data rate

Lower compression, therefore higher image quality

Higher data volumes determine shorter recording times on the storage device.

- ❖ Low data rate

Higher compression, therefore lower image quality.

Smaller data volumes allow for longer recording times on the storage device.

NOTICE

The result of the data rate and the number of video channels should not exceed 200.

The data rate has a significant effect on the total recording duration.

12.5.2.4 GOP Time

Time gap between the change of a group of images, each a full screen image, with subsequent different images (Default value = 100).

4 = shorter time interval to the next full-screen image / fewer differing images

80 = longer time interval to the next full-screen image / more differing images

12.5.2.5 Quality

NOTICE

Many full-screen images

Higher data volumes and thus a shorter recording duration.

Fewer full-screen images

Lower data volumes and thus a longer recording duration

12.5.2.6 Adaptive Framerate

The adaptive framerate can reduce possible compression artefacts. Compression artefacts can occur when a low data rate is set and there are scenes with a lot of movement. In this case, the adaptive framerate reduces the number of images recorded per second

- ❖ 0 Adaptive framerate off

Higher chance of compression artefacts thus possibly a worse-quality image

- ❖ 1 Adaptive framerate on

Lower chance of compression artefact but a jerkier image due to the lower number of images/sec.

12.5.2.7 Text Overlay

OSD allows for integrating the vehicle identification and the system time in the video signal. The data is not only saved in the video files but it is also display in the video output.

Displayed information BOP ID, channel, time stamp and frame counter.

The configuration of the live stream can be nested in Column 5 [VOut#1 stream]. The stream can be displayed directly over the network.

12.5.2.8 Streaming Mode

A constant data rate is preferred for the purposes of the internal image processing (video codec). For this purpose, the video data must be compressed rather heavily.

- ❖ 0 Streaming mode off

Heavy fluctuations in the short run, but a constant data rate in the long run

(optimal for data recording)

- ❖ 1 Streaming mode on

Constant data rate in the short run due to the high compression (optimal for streaming).

12.5.3 Video Settings 2

Video configuration 2 shows the configuration of [video settings 1]. The settings can only be changed in the [Video Settings 1] area.

Video Recording Settings 2					
Param set	-1-	-2-	-3-	-4-	
frame size	0	0	1	2	*0=720x576/480, 1=720x288/240, 2=352x288/240
frame rate divisor	1	1	1	1	*1=25fps-PAL/30fps-NTSC, 2=12.5fps-PAL/15fps-NTSC, .. 3
compression/quality	2500	1000	500	250	100(100kbps - high/bad - small files)..*1000..4000(4000kbps
GOP(group of pictures) time	20	100	100	20	4(400ms)..*80(8sec)..100(10sec - best quality)
quality	0	0	0	0	*0=off, 32..82=quality for variable bitrate - also is used for A
adaptive frame rate	0	0	0	0	*0=off, 1=on - good for very high compression like 100kbps
text insertion (OSD)	0	0	0	0	*0=off, 1=on - inserts vehicle identification, channel number

Figure 21) Video settings 2

V Input ON/OFF

The respective camera for data recording is activated via the checkbox at the start of each line.

You can give each video source an informative name in the entry fields V#01 to V#16. This name is analysed and displayed in the BOP Reviewer Software. In the upper part, you can see the saved settings for Video Output 1. Each camera can be controlled and turned individually.

The sensitivity for detecting blind cameras and the triggering time can be determined in minutes.

You can choose from the pre-set parameters 1-4. In the configuration, you can determine in minutes the period in which a camera is reported as blind. A camera is blind when it is covered or sprayed over. A brightness sensor can be connected to it which is activated under [General settings].

ON/OFF	Name	Review rotation	Param set	Blind Camera Detection	
				Sensitivity	Release time [min]
<input checked="" type="checkbox"/> <input type="checkbox"/> V#1	CAM-1	0	1	0	10
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> V#2	CAM-2	0	1	0	10
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> V#3	CAM-3	0	1	0	10
<input checked="" type="checkbox"/> <input type="checkbox"/> V#4	CAM-4	0	1	0	10
<input type="checkbox"/> <input type="checkbox"/> V#5	CAM-5	0	1	0	10
<input type="checkbox"/> <input type="checkbox"/> V#6	CAM-6	0	1	0	10
<input type="checkbox"/> <input type="checkbox"/> V#7	CAM-7	0	1	0	10
<input type="checkbox"/> <input type="checkbox"/> V#8	CAM-8	0	4	0	10
<input type="checkbox"/> <input type="checkbox"/> V#9	CAM-9	0	3	0	10
<input type="checkbox"/> <input type="checkbox"/> V#10	CAM-10	0	3	0	10
<input type="checkbox"/> <input type="checkbox"/> V#11	CAM-11	0	3	0	10
<input type="checkbox"/> <input type="checkbox"/> V#12	CAM-12	0	3	0	10
<input type="checkbox"/> <input type="checkbox"/> V#13	CAM-13	0	3	0	10
<input type="checkbox"/> <input type="checkbox"/> V#14	CAM-14	0	3	0	10
<input type="checkbox"/> <input type="checkbox"/> V#15	CAM-15	0	3	0	10
<input type="checkbox"/> <input type="checkbox"/> V#16	CAM-16	0	3	0	10

*0=off, 1..8 - If after the release time the camera still is blind an error is generated. 0 is the darkness detection mode to switch off blind camera detection. 1=dark at high level, 2=dark at low level.

active on ALARM *A* *0=off, 1..X=video input that only is recorded in case of ALARM. If the main switch is only active in case of ALARM.

active on EVENT *E* V# 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 -Recording, User Datagram Protocol.

[sec], *10..120, defines the minimum on-event recording time. If less this time is used.

Figure 22) Camera Configuration

12.5.4 IP-Cmas V-Out Configuration

The streams are decoded and can be displayed as either a full-screen image or a mosaic.

IP Cams V-Out
IP camera streams - prepared for the Video Outputs (not recording)

Please clear unused URL entries to reduce the system load.

This IP-Cam numbers 101..115 can be used in the menu [Outputs - Video Output #N - cycling control].
 Example: v102-t10,v101-t5,v103-t15.

#	Name	URL
101	ip1	
102	ip2	
103	ip3	
104	ip4	
105	ip5	
106	ip6	
107	ip7	
108	ip8	
109	ip9	
110	ip10	
111	ip11	
112	ip12	
113	ip13	
114	ip14	
115	ip15	

Figure 23) Configuration_IP -CAMS-V-Out

The maximum resolution of these streams can be 720x576 and a maximum framerate of 15 FpS is recommended.

Please delete URL entries that are not used to reduce system load.

- ❖ Connection - 0=BNC analogue, 1=HDMI
- ❖ OSD label- 0= no label, 1= Camera No., 2= Camera Name

12.5.5.1 Automatic Restart

The automatic relaying indicates whether the playback on the monitor is done as per the data in >Cycle controls< or not.

- ❖ 0 Switching Input 8 to high level causes a relay in the sequence as per the settings in the cycle controls. The current display remains active for about 10 seconds after the high level in digital input 8 drops. After that, the default video input is displayed.
- ❖ 1 The video sources are displayed as per the specifications in the cycle controls.

12.5.5.2 Cycle Controls

The individual sequence segments are divided by a comma. The total sequence is repeated in a cycle when >Automatic relaying< is enabled.

- ❖ V.. = video input / multiscreen selection
- ❖ v1 .. v16 = single screen display of the specified video channel
- ❖ v20 .. v23 = multiscreen display
- ❖ t.. = display duration

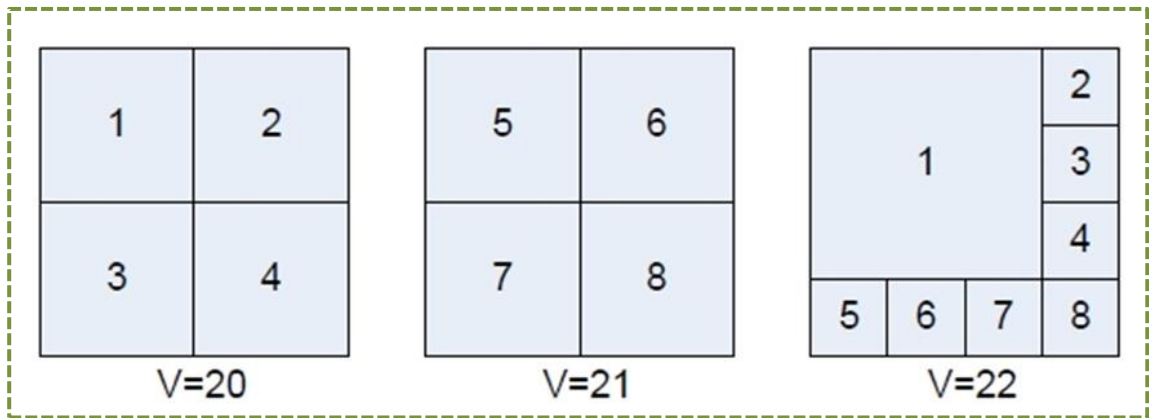


Figure 27) Multiscreen

- ❖ v1-t10

The current signal from camera 1 is displayed on the monitor for 10 sec.

- ❖ t20-t5

A mosaic of the signals from cameras 1 to 4 is displayed on the monitor for 5 sec.

Example of a sequence - v1-t10,v2-10,v3-t10,v4-t10,v20-t10

The signals from cameras 1 to 4 are displayed on the monitor one after the other for 10 seconds each; after that, a mosaic of all 4 video signals is displayed for 10 seconds.

12.5.5.3 Default Video Input

Indicates the video signal that is displayed on the monitor when the cycle is inactive. This setting is effective only when the >Automatic cycle< setting is set to 0.

- ❖ 0 = The last displayed video signal remains on.
- ❖ 1 ... 8 = The video signal with the respective number is shown continuously.

12.5.5.4 Reversing Camera

A camera with display priority can be determined for surveillance of the area behind the vehicle.

- ❖ 0 = No reversing camera available
- ❖ 1 .. 8 = Video input of the reversing camera

Priority

If simultaneous switching to the door and reversing cameras is necessary, the camera with the higher priority is displayed.

Caution - Physical injuries



The reversing camera is not a reversing aid and may not be used for this purpose any under circumstances. It does not replace or supplement the measures that have to be taken into account during reverse driving.

12.5.5.5 Door Camera

Indicates the door camera and its display priority.

- ❖ 0 = No door camera available
- ❖ 1 .. 8 = Video input for the door camera

Priority

If simultaneous switching to the door and reversing cameras is necessary, the camera with the higher priority is displayed.

12.5.5.6 Relay Outputs

Messages or the system status can be transmitted to external units via the relays.

Relays

automatic relay control	<input type="text" value="-"/>	<small>*o30-t10,o31-t10 -> out3=0, wait 10sec, out3=1, wait 10sec, repeat</small>
alarm output	<input type="text" value="0"/>	<small>*0=off, 1..4 -> if alarm is active relay#1..4 is switched on</small>
alarm signalling	<input type="text" value="0"/>	<small>*0=quiet, 1=flashing the "while recording" relay#2</small>

Figure 28) Relays

Default relay functionality:

Relay 1: BOP active relay. Closed when BOP is started. It is only open when BOP is switched off.

Relay 2: Recording active relay. Closed during recording. Open in pause mode.

Relay 3: BOP active relay. Closed when BOP is started. It is only open when BOP is switched off. Relay

4: Error relay. Indicates an active error as per the settings in >General settings<

12.5.5.7 Automatic Relay Control

Using the automatic relay control, the relays can be switched after the determined sequence. The entire sequence is repeated cyclically from left to right.

- ❖ oxy = Output no. x with signal status y
- ❖ t.. = display duration

Example of a sequence segment

- ❖ o31-t10

Relay 3 is energised for 10 seconds.

Example of a sequence

- ❖ o30-t10,o31-t10

Relay 3 is switched on and off in a 10 seconds cycle.

12.5.5.8 Alarm Output

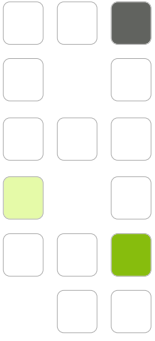
If there is an alarm, it can be signalled over a relay.

- ❖ 0 No alarm is signalled.
- ❖ 1 .. 4 The indicated relay is toggled in the event of an alarm

12.5.5.9 Alarm Signalling

Alarm recording can be signalled via the "Recording active" Relay 2.

- ❖ 0 Relay 2 "Recording active" is constantly toggled during data recording regardless of whether standard data or alarm data is being recorded.



- ❖ 1 Relay 2 "Recording active" is constantly toggled during data recording. Relay 2 flashes during alarm data recording. This behaviour can be used when there is only one signalling lamp available.

12.5.6 Network

ATTENTION - Impaired communications warning



The settings in section >Network parameters< affect the external communication with BOP. This could lead to a e.g. a message not being sent in the event of an alarm or to a lack of possibility for setup.

- ❖ Modify the settings only following the network administrator's instructions.
- ❖ NOTICE all modifications that have been performed.

Network Access Parameters - Modify this *only* with the network administrators permission! Note down the modifications!

routing/forwarding	<input type="text" value="0"/>	*0,1 - 0=off(normal), 1=active
IP address - front	<input type="text" value="172.27.14.210"/>	*192.168.72.200
Netmask - front	<input type="text" value="255.255.0.0"/>	*255.255.255.0
IP address - front alias:0	<input type="text"/>	*(empty), 192.168.172.200
Netmask - front alias:0	<input type="text"/>	*(empty), 255.255.255.0
IP address - rear	<input type="text" value="10.31.2.59"/>	10.x.x.x - the character * results in automatic IP + netmask calculation
Netmask - rear	<input type="text" value="255.0.0.0"/>	*255.0.0.0
IP address - rear alias:0	<input type="text"/>	*(empty), 192.168.244.21, 192.168.8.2
Netmask - rear alias:0	<input type="text"/>	*(empty), 255.255.255.0
IP address - rear alias:1	<input type="text"/>	*(empty), 192.168.7.2
Netmask - rear alias:1	<input type="text"/>	*(empty), 255.255.255.0
default Gateway	<input type="text" value="172.27.10.56"/>	*(empty), 192.168.72.1
2nd default Gateway (only for fail-safe)	<input type="text"/>	*(empty), 10.99.0.1
route #1	<input type="text"/>	*(empty)=off, add -net 192.168.254.0 netmask 255.255.255.0 gw 192.168.8.1
route #2	<input type="text"/>	*(empty)=off, add -net 192.168.253.0 netmask 255.255.255.0 gw 192.168.7.1
route #3	<input type="text"/>	*(empty)=off
route #4	<input type="text"/>	*(empty)=off
Nameserver1	<input type="text"/>	*(empty), 172.27.10.1
Nameserver2	<input type="text"/>	*(empty), 172.27.10.2
60 sec ping IP	<input type="text"/>	*(empty)=off, 192.168.100.1 - sends a PING every 60 seconds
Broadcast tx dest addr	<input type="text" value="172.27.11.38"/>	*10.255.255.255, 192.168.72.255, (empty)=off - ALARM (digital input #6) events and on request identify send as UDP datagram on port 30603
Broadcast rx mask	<input type="text" value="255.255.0.0"/>	*255.0.0.0, 255.255.255.0 - reception mask for ALARM (digital input #6) events and the other requests
ALARM rx OFF/ON	<input type="text" value="0"/>	*0,1 - 0=normal, 1=ALARM can be triggered via ethernet broadcast message
State tx net UDP bcast	<input type="text"/>	*(empty)=off, 192.168.72.255, 10.255.255.255 - State data from CAN, IBIS, GPS, iCounter/APCs will be datagram broadcast on this network on following defined port
State tx port UDP bcast	<input type="text" value="30650"/>	*60650

Figure 29) Network parameters

The communication parameters for the front and back Ethernet interface are set via the network parameters.

12.5.6.1 IP Address / Netmask in Front

Default IP address (192.168.72.200) and Netmask (255.255.0.0) for the Ethernet interface in the front.

12.5.6.2 IP Address / Netmask in the Back

IP address and Netmask for the Ethernet interface in the back.

Per default, it is set after the 10.30.xx.yy schema, whereas xx represents the two second last and yy the last two numbers of the BOP xD serial number (SN:1030xxyy).

12.5.6.3 Name Server 1/ Name Server 2

NOTICE

Special network settings. Contact your administrator.

12.5.6.4 Broadcast Target Address

In the event of an alarm signal at digital input 6 (PIN 9 - plug 2 - 21 PIN), an alarm message is sent to the IP address provided.

12.5.6.5 Alarm RX OFF / ON

An alarm signal can be sent to the BOP from an external unit via the Ethernet. BOP xD reacts to this external alarm in the same way it reacts to a normal alarm. Using this function, all BOP xD units in the same network can be put into alarm mode.

- ❖ 0 = no alarm over the Ethernet possible
- ❖ 1 = alarm over the Ethernet possible

12.5.6.6 ERROR File and Alarm Message Transfer


After an error or an alarm occurs, certain data can be automatically transferred to an FTP server. This option is only active, when an IP address has been entered for the FTP server.

Error log + Alarm video file transfer: eth -> WLAN-client/repeater -> WLAN-AP -> FTP-server

FTP host	<input type="text" value="172.27.13.33"/>	*10.0.0.33, (empty)=off
FTP port	<input type="text" value="21"/>	*21
FTP user	<input type="text" value="cctvftp"/>	*cctvftp
FTP password	<input type="text" value="cctvftp"/>	*cctvftp
FTP basepath data	<input type="text" value="CCTV/data"/>	*(empty), CCTV/data
FTP basepath status	<input type="text" value="CCTV/status"/>	*(empty), CCTV/status
FTP basepath request	<input type="text" value="CCTV/request"/>	*(empty), CCTV/request
ALARM video transfer OFF/ON	<input type="text" value="0"/>	0,*1 - 0=off, 1=Transfer the ALARM data - after transfer the files are
LOG data transfer OFF/ON	<input type="text" value="0"/>	0,*1 - 0=off, 1=Transfer the LOG data in case of ALARM or ERROR
FTP upload speed	<input type="text" value="5"/>	1..*5..100 [Mbps] - minimum FTP upload speed - used for TIMEOUT t
APC/iCount data FTP subdir	<input type="text" value="CCTVdata/APC data"/>	*CCTVdata/APC data, (empty)=off
FTP upload check type	<input type="text" value="0"/>	*0,1 - 0=file size check, 1=additional APC/iCount data MD5sum mode

Figure 30) Error File

ATTENTION - Impaired communications warning



The settings in section >Network parameters< affect the external communication with BOP. This could lead to a e.g. a message not being sent in the event of an alarm or to a lack of possibility for setup.

- ❖ Modify the settings only following the network administrator's instructions.
- ❖ NOTICE all modifications that have been performed.

Video FTP Host / Port / User / Pass

data for the access to the FTP server

- ❖ host IP address of the FTP server

(When there is no entry, alarm data transferring is inactive)

- ❖ port - access port of the FTP server
- ❖ user - user name on the FTP server
- ❖ pass - user password on the FTP server

Video FTP Basepath

Indicates a subdirectory on the FTP servers, where the alarm data is transferred

ALARM Video Transfer OFF/ON

- ❖ 0 = only the log files are transferred.
- ❖ 1 = the contents of the alarm folder are also transferred.

NOTICE

In the event of an alarm, all data is deposited in the alarm folder and it is labelled. After the data has been transferred, the alarm label is removed and data is transferred to the buffer storage.

12.5.6.7 Reload, Save, Save + Restart

The PC time can be applied and the configuration data can be saved and loaded via the buttons at the end of the page.

NOTICE

In the event of an alarm, all data is deposited in the alarm folder and it is labelled. After the data has been transferred, the alarm label is removed and data is transferred to the buffer storage.

[Reload]

Load the last saved configuration data. All changes that have not been saved will be reset.

[Save]

Save the configuration data. The BOP xD real-time clock is set to the current date and time of the connected PC. The system time is applied to BOP xD after a restart.

[Save + Restart]

Save the configuration data. After that, BOP xD is restarted thus enabling any changes applied to the configuration.

12.1 Load/Save Configuration – Firmware Upload

The current configuration of the BOP system can be loaded to a PC over a link. A current configuration can be saved to BOP from a PC or a firmware update may be installed on the system.

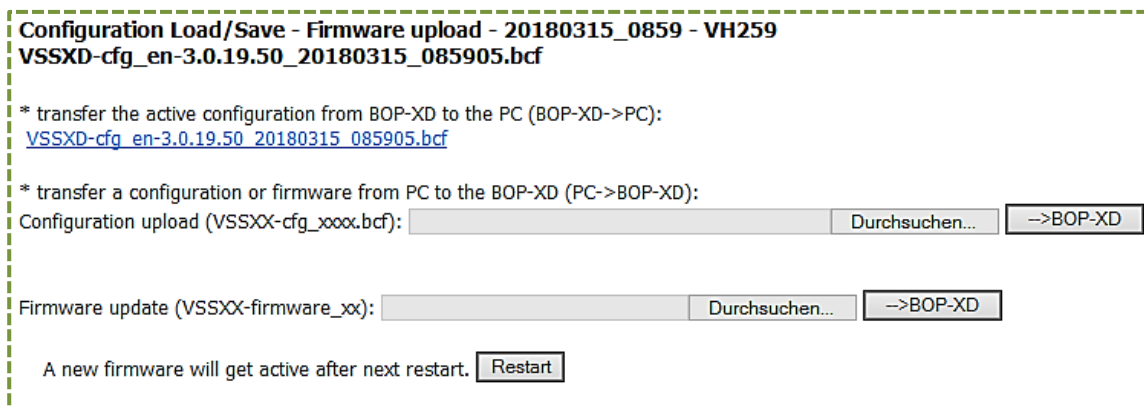


Figure 31.) Firmware upload

Pay attention to the order!! Begin by uploading the firmware first and the configuration second.

NOTICE

The new firmware is enabled only after a restart.

12.1.1.1 Saving the Current Configuration

Click on the link to the configuration file (*.bcf) and follow the instruction in your browser. The file name should look something like: vss3.0.25cfg_20090602_0935.bcf

- ❖ vss3.0.25 firmware on which the configuration file is based
- ❖ cfg stands for configuration
- ❖ 20090602 date of the configuration data (jjjmmmtt)
- ❖ 0935 time of the configuration data (hhmm)
- ❖ bcf file extension (bop configuration file)

Loading a Configuration

- 1 Click on [Browse]
- 2 Select the desired configuration file
- 3 Click on [->BOP xD] or [->BOP xD + restart]

The file name for a default configuration files looks something like vss3.0.25cfg_default_de.bcf

- ❖ vss3.0.25 firmware for the configuration file
- ❖ cfg stands for configuration
- ❖ fault as in default configuration

[de] signifies the language, customer and / or country of origin	
de	German
en	English
es	Spanish
pl	Polish
br	Portugese (Brazil)
fr	French
it	Italian
sv	Swedish

Table 8) Country of origin


- ❖ bcf file extension (bop configuration file)

NOTICE

The new firmware is enabled only after a restart.

12.1.1.2 Loading a Firmware

ATTENTION - System malfunctions warning



The upload and the automatic firmware installation that follows may not be interrupted;
 Otherwise the system will not function properly anymore.
 Thus, during the firmware upload

- ❖ do not switch-off BOP xD
- ❖ do not cut the power supply

NOTICE

To back up the BOP xD settings, we recommend saving the current configuration before uploading the firmware.

- 1 Click on [Browse]
- 2 Select the desired firmware file.
- 3 Click on [->BOP xD] or [->BOP xD + restart]
- 4 Wait until the firmware update has been performed

The file name of a firmware file looks something like jimg-VSS4-2-5-91en

- ❖ jimg Image file
- ❖ VSS4 Video Surveillance System 4
- ❖ Firmware version
- ❖ [en] stands for a country or a customer code

12.2 Operator

The operator makes live access to the hard drive possible. The hard drive can be deleted and reformatted. All old data is deleted after a system restart. The operator has access to the alarm files and he can delete, resequencing and disable files.

The operator can use a USB stick as authentication for downloading passenger count data.

Operator - VH259

Live access on the hard disk drive:

HDD: [/hdd1/](#)

ALARM Network live account - Set the point of time to deactivate in 60 minutes: --->> off

Activate ALARM identically equal to activation via IN#6: + operator alarm + UDP msgs

Activate ALARM identically equal to activation via IN#2:

Figure 32) Alarm files

12.2.1 Test Mode

- 1 Switch on the device
- 2 Wait for a moment
- 3 Flip the key switch to "OFF"

- 4 The system is starting, all LEDs are flashing
- 5 Wait until all LEDs are off
- 6 Flip the key switch to "ON"
- 7 Wait until the system starts up
- 8 Error LED is flashing
- 9 In test mode, the hard drives are not installed but they can be formatted.

The configurations parameters can be modified and the configuration can be loaded/saved. The operator can authenticate a USB stick and grant reading rights.

12.2.2 Downloading Passenger Count Data per USB Stick

The passenger count data downloads is secured by the use of the SHA-512 hash function. The RS232 plug allows for complete access to the data from a USB stick. The USB stick has an individual identification name. Authentication is done by key comparison; if the key does not correspond, access is aborted. Attempted access failures are recorded in the log file. The SHA-512 must be available to generate the key file. The key file on the USB stick is always called „vssAuthKeyStick“.

12.2.3 Generating the Key File using the Web Interface

- 1 Insert the USB stick in the PC
- 2 Select the batch files that also need to be generated for the read functionality.
 - * Read log files - "vssLOGread"
 - * Read passenger count data – „vssAPCdataread“
 - * Read and delete passenger count data – „vssAPCdatagrab“

USB stick authentication file generation for automatized read accesses

User name or ID (USB stick identification):

Optional command file generation:

- vssAPCdatagrab - read the collected APC/iCounter people counter data and delete the read data from system
- vssAPCdataread - read the collected APC/iCounter people counter data
- vssLOGread - read system log and error files

Figure 33) USB identification

Confirm the identification name with [OK].

- 3 The key file is being generated
- 4 The USB stick is written over
- 5 The USB stick is logged out and the ejected
- 6 Remove the USB stick

12.3 Admin

Access to the BOP xD web interface is password protected.

In the [Admin] area, individual passwords can be granted, there is direct access to the data storage and the storage devices can be formatted.

Admin - VH259

New password for the normal user "user":

New password for the service engineer "cfg":

New password for the reviewer "review":

New password for the temporary ALARM account "live":

New password for the administrator "admin":

Hard disk drives ATA password security on/off:

Figure 34) Passwords

- ❖ Normal user - "user"
- ❖ Service technician "cfg"
- ❖ Reviewer - "review"
- ❖ Temporary ALARM access "live"
- ❖ Administrator - "admin"

NOTICE

Access to the [Admin] section is only possible with administrator rights.

ATTENTION - Unauthorised access warning



To prevent unauthorised access to **BOP xD**, the passwords for the entire system should be changed and kept safe by the responsible personnel.

If the passwords are lost, access to **BOP XD** is only possible with special tools.

In such event, contact your sales representative or I+ME ACTIA.

There are five different user types on **BOP xD**, all with different rights.

To change a password, enter the new password and confirm by clicking on [submit].

The following rules apply when creating a password

- ❖ Minimum length - 3 symbols
- ❖ Maximum length - 16 symbols
- ❖ Valid symbols - capital and small letters, numbers

12.3.1 Data Storage Access

NOTICE

Only the administrator has direct access to the data storage.

There is read access to the main folder /hdd via the >/hdd/< link. Among others, it contains the recorded video and audio data divided in subfolders.

Operation

- 1 Open the folder and click on the name
- 2 Close the folder and click on../
- 3 Close all folders for screen maintenance
- 4 Close the folder and click on ../
- 5 Open file
- 6 Click on the file name
- 7 Copy file
- 8 Click on the file name with the right mouse button
- 9 Select the respective command from the browser context menu

Structure and Contents

Folder - alarm

The "alarm" folder contains the data recorded as a result of an alarm signal

Folder - audio*

The folder "audio1" and "audio2" contain the audio data from the respective audio sources.

Similarly to the video data, the audio data is distributed in packages and saved in consecutively numbered files.

Folder - camera*

The folders "camer01" to "camera16" contain the video data of the respective video sources. For this purpose, the video data is distributed in packages and saved in

consecutively numbered files.

Folder - log

The Folder "log" contains the files err.txt., log*.txt as well as other log files.

NOTICE

If only the video data is downloaded to an external PC, no additional information will be available. The complete information is only available after the entire folder structure has been downloaded and when the BOP Reviewer Software is used.

Formatting the Data Storage

ATTENTION - Data loss warning



When the data storage is formatted, all recorded data is lost.

To format the data storage, enter <OK> in the field and confirm by clicking on [submit].

Data Analysis

The recorded data is analysed on a BOP Reviewer Station with BOP Reviewer Software which is entirely independent from the BOP xD which is used for surveillance. The analysis of the data on a BOP Reviewer Station guarantees central evaluation of the data as well as independence from the BOP xD system used for surveillance.

A secure, data protection requirements compliant working environment is required.

NOTICE

In exceptional cases, data analysis can also be performed on site with a laptop with the BOP Reviewer Software installed. For this purpose, BOP xD is switched to the >PAUSE< operation mode.

13 Error Description

Scope	Error Message	Cause	Measure
Camera	MP CAM#4: video signal ERROR	Wrong number of cameras in setup	Check whether the correct number of cameras has been entered for BOP in the setup. Check using the web browser.
Camera	MP CAM#4: video signal back o.k	Bad contact at the connection points or BNC cable is broken / not connected.	Check for contact issues with the camera, the camera BNC connections and the cables.
Power	Jun 20 09:12:46 bop xd user.err syslog: (0265:03) uncontrolled POWER -OFF or RESTART or HDD access failure	This error message can be cause by: - Unexpected external power supply disconnection - Power supply contact issues - BOP system internal issues	Check whether the power supply has been disconnected (24V power supply). Change BOP HDD (reformat it). Change the BOP system to exclude BOP-related issues.
Power	„uncontrolled POWER-OFF or RESTART or HDD access failure	The BOP HDD file system has not been properly closed on shut down. Terminal 30 without power	Information only, no measures required
USB	Jun 20 11:10:38 bop xd daemon.err klogd: hub.c: connect-debounce failed, port 1	USB hub sends a communication issue notification	Check the contact to the USB and the connected devices



Error Description

	disabled		
HDD	2017-06-20.12:39:23— Noerror, maintenance has FORMATTED this HDD ---10200661 FW=0.5.63 config=20041231_2359 ident=I+ME BS-AI803	Formatting by the ser- vice	Information only, no measures re- quired
Error file	2017-06-20.11:40:09— NO error, maintenance has ERASED THIS FILE- ---SERIAL#=10200661 FW=0.5.63 con- fig=20041231_2359 ident=I+ME BS-AI803	The old error file has been deleted by the service	Information only, no measures re- quired
BOP	Orange LED flashing	Data is not recorded	Check whether a hard drive has been in- stalled
ALARM	Jun17 06:58:31— ALARM activated at UTC 200706110658	An alarm event has been triggered and the data is being saved to the secure area.	Secure alarm data! When desired the slide disk can be format- ted next time it is inserted in BOP or BOP as Reviewer Sta- tion. In BOP, the alarm data can be brought back to the normal data circuit via the web menu Op- erator even without format- ting.

Table 9) Error Description

13.1 Boot Specials BOP xD

BOP xD must switch-off on its own.

If that is not the case and Linux Kernel is running, it must be checked whether terminal 15 and inputs IN#1, IN#2, IN#3 are inactive. If all are inactive, the power supply must be disconnected.

If the key switch-off mode is set to "1" and the key switch is flipped to "off", the power supply must be disconnected unless the slide disk will be changed.

14 Complete System Maintenance / Functionality Check

14.1 Complete System Maintenance

The LEDs should be inspected regularly for proper functioning:

- ❖ If the red "LED Error" is flashing, the configuration menu should be open as described in Chapter 12, Web Interface.
- ❖ The error files can be found there.
- ❖ Take the necessary measures and, if necessary, contact ACTIA I+ME GmbH.
- ❖ Delete the errors.

14.2 Complete System Functionality Check

Perform a functionality check in regular intervals. There is 100% functionality when the following LEDs are lit or flashing:

- 1 Power green is lit,
- 2 Error red is off,
- 3 [3 Recording green] flashes in turn with LED 4 yellow,
- 4 [4 Saving yellow] flashes in turn with LED 3 green.

15 Abbreviations

Term	Definition
BOP xD	Best of Protection
BNC	Bayonet Nut Connector
CCTV	Closed Circuit Television
CIFS	Common Internet File System
Dilax / FAN Format	Format of the automated passenger counting systems for further data processing.
FBAS	Colour image blanking synchronisation signal
FPS	frames per second
FTP Server	File Transfer Protocol
GB	Gigabyte
GPS	Global Positioning System
GSM	Global System for Mobile Communication
HDD	Hard Disk Drive
IBIS	Integrated On-Board Information System
iCount	Passenger counting system
iShow	Passenger information system
LTE	Long Term Evolution
Meta data	Meta data is the name of structured data that contains information about other information sources. Meta data describes the actual data.
Metal housing IP40	Protection as per DIN 40050, Protection class of the housing
MPEG /H264	Video coding format for the recording of Full HD video and audio data
NTSC	Television standard, National Television Systems Committee
PAL	Television standard, Phase Alternating Line Process

Abbreviations

Reviewer Software	Data evaluation software
RTC	Real time clock
SMB	Server Message Block
SSD	Solid State Drive
TB	Terabyte
UMTS	Universal Mobile Telecommunication
UDP Datagram Broadcast	User Datagram Protocol
V DC	V for volt, DC for direct current
VPN Tunnel	Virtual Private Network
VSS	Video surveillance systems for security purposes as per the EN 62676 standard
Vss	Describes negative voltage, source voltage based on multiple transistors
xNet	WLAN /UMTS /HSDPA Modem

Table 10) Abbreviations

16 Appendix

16.1 Optional accessories

Product	Part No.	Description
19" Rack with adaption for BOP	On demand	Rack with adapter plate and fasteners
GPS mouse / receiver	AR10006002	GPS mouse with USB port and cable extension
Microphone	AR10006070	Microphone with cable plug & play cable
Hard disk 500GB	AR10010515	HDD Type
Hard disk 1TB	AR10009402	HDD Type
Hard disk 2 TB	AR10009403	HDD Type
Hard disk 480GB / SSD	AR10009406	SSD Type (MLC)
Hard disk 960GB / SSD	AR10009407	SSD Type (MLC)
Transport case for Hard disk	AR10009838	Transport case with foam insert for a hard disk
Power cable for 4 cameras	AR10006032	Connection cable with 4 x AMP plug for power combi cable
Power cable for 8 Cameras	AR10006034	Connection cable with 8 x AMP plug for power combi cable
Combi cable Power/ Video	AR10001956	Combi cable with 2 x 0.75 power cable and 1 x coaxial cable 75 Ω ECE-R118-02 certified
CAN-Y-Adapter	AR10006037	Connecting cable CAN bus (input, output CAN)
Plug & Play Camera cable	On demand	Camera connection cable prefabricated in lengths of 3/6/10/15/20/30 meters
VDC connection adapter with power supply	AR10010878	USB connection adapter for connecting the hard disk to a USB 3.0 port on the PC

USB service stick	AR10010680	USB stick adapted to the BOP for data exchange (setup, configuration, readout of counting data)
Lizenz Reviewer Software	AR10006026	License for the reviewer software for a PC / Laptop with Windows operating system
BOP Training	AR10007918	Training BOP according to customer requirements

Table 11) Optional accessories

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