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BT-VS/ETP-MKP1

Product Management

Nuremberg

02.12.2022

## Release Letter

Product:	<b>VIDEOJET decoder 8000</b> <i>VJD-8000, VJD-8000-N</i>
Version:	<i>Firmware 10.05.0001</i>

This letter contains latest information about the above mentioned product.

### 1. General

This firmware release 10.05.0001 is a maintenance release based on FW 10.01.0036.

Changes since last release FW 10.01.0036 are marked in [blue](#).

VIDEOJET decoder 8000 uses robust, fan-less technology designed for ambitious environmental conditions while providing maximum performance on minimum space in a nicely designed industrial housing.

VIDEOJET decoder 8000 displays video from Standard Definition (SD), High Definition (HD), 4K Ultra High Definition (UHD), and Megapixel (MP) cameras and encoders using H.264 or MPEG-4 encoding at up to 60 frames per second over IP networks.



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## 2. Applicable products

- VJD-8000
- VJD-8000-N

## 3. Installation notes

- If installed firmware is lower than version 9.51, firmware 9.51 must be installed prior to installation of this firmware 10.05.

## 4. New Features

- APIPA (link-local address, Auto-IP) is used instead of a default IP address when DHCP is on and no DHCP server responded.
- Display orientation can be changed per line via RCP+.
- RCP+ WRITE command MONITOR\_NAME now supported for custom monitor names.
- Support of RCP+ via CGI has been added.
- HTTP digest authentication for RCP+ via CGI has been added.

## 5. Changes

- A security vulnerability has been fixed where a crafted configuration packet sent by an authenticated administrative user can be used to execute arbitrary commands in system context (CVE-2021-23862).

For more details refer to our Security Advisory BOSCH-SA-043434-BT, published at our Security Advisory web page

<https://www.boschsecurity.com/xc/en/support/product-security/security-advisories.html>  
or visit our PSIRT website at <https://psirt.bosch.com>.

- IP matrix initialization is now working also for camera lines larger than 1.
- RCP+ response for query on connected cameras is now working correctly.
- URL extension for camera configuration in IP matrix is no longer truncated.
- An issue with an unexpected application restart has been fixed.

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## 6. System Requirements

For configuration purposes:

- [Configuration Manager 7.50 or newer](#)

For operation purposes:

- Bosch Video Management System 10.0.1 or higher



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## 7. Restrictions; Known Issues

- IP Matrix license, applicable for VIP-XD and VJD-3000, is not supported nor required.
- Analogue monitors are not supported.
- Connecting encrypted streams without proper signalling may result in crashing the software decoder instance, resulting in black video displayed.
- Alarms will not be signaled with a red border around the cameo if connection was established using CONNECT\_PRIMITIVE.
- Using CONNECT\_PRIMITIVE via TCP is not possible.
- CONNECT\_PRIMITIVE does not support "first available" feature.
- Audio may remain audible despite layout change to other than single view.
- RCP+ command CONF\_ALARM\_CONNECT\_TO\_IP is not supported.
- Alarm connection does not support audio.
- Maximum password length is 19 characters.
- ONVIF 2.0 conformance is not yet provided with this firmware release. (Earlier ONVIF specifications do not include decoder support yet.)
- With "Reconnect last devices" active camera connections are stored and automatically reconnected after reboot. To avoid deadlock in case of an overload situation the automatic reconnect will be deactivated after the decoder was forced into reboot for ten times within 10 minutes.
- HD 1080p60 streams that need to be upscaled for display on a 4Kp60 monitor are jerking due to an issue in Intel's HD Graphics chip. This can be avoided by either not scaling up HD streams to full view but rather use e. g. a quad layout or running the 4K monitor in 30 Hz.
- Monitors may be swapped after update. Swap back is possible using Configuration Manager.
- IP Matrix pre-requisites for clustering:
  - Fixed IP addresses must be assigned; DHCP configuration is not functional.
  - Passwords for service level must be same on all clustered decoders.
  - Passwords for user level must be same on all clustered decoders.
- After removing a slave decoder from the IP Matrix master, both decoders must be restarted.
- Firmware update from 8.23 to 9.00 may fail on first attempt because resources required for this huge update may have been consumed by its dedicated internal purposes. This can be avoided by performing a power cycle on the decoder before starting the update.
- Camera sequences are paused when picture-in-picture mode is activated.
- Time related settings may appear in Configuration Manager only with delay or after a reboot.



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## 8. Previous Revisions

### 8.1. *New Features with 10.01.0036*

#### Security

- A protected configuration mode has been implemented, allowing to
  - enable SSD encryption (BitLocker) and to
  - disable USB ports, e.g. for installation of the decoder in public areas.
- The configuration of the decoder can be protected by Software Sealing, similar to IP cameras.
- The latest Microsoft Windows security updates have been included.

#### Miscellaneous

- A dewarped cutout from panoramic cameras can be defined with PTZ coordinates.
- A new way to control and integrate the decoder into a management system has been added by a JSON RPC API. This allows to send commands and retrieve status information via JSON remote procedure calls. The API documentation is added to the distribution package.
- A video output capture service (VOCS) has been implemented which could be activated via a license, applicable per display output. This service captures the memory of the video output and encodes it into a camera-like video stream, which can be recorded via Video Streaming Gateway (VSG) onto iSCSI storage.
- A time server can be added to synchronize the decoder.
- Decoder log file can be downloaded via Configuration Manager. This is especially recommended when download of the log file is not working correctly via web browser.

### 8.2. *Changes with 10.01.0036*

- Upload of background image and connection loss image to the decoder and reverting them to default is now also possible with service password set. The former restriction is obsolete.
- Various minor bug fixes.



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### **8.3. New Features with 9.60.0017**

#### **IP Matrix enhancements**

- KBD-DIGITAL is supported in addition to KBD-UNIVERSAL XF. This keyboard requires a serial-to-USB adapter to connect to the decoder. Both keyboards can be mixed in a multi-decoder IP Matrix, one keyboard per decoder.
- Playback from local recording is supported. Permission is configured via Configuration Manager for the whole IP Matrix, valid for all users.
- Buttons for next and previous camera have been added to the KBD-UXF functions.
- Audio can be switched on or off via keyboard.
- Camera channels can be extended via license up to 64 cameras per decoder unit.

Note:

IP Matrix manuals are now separated into

- One configuration manual for IP Matrix
- One operation manual for IP Matrix using KBD-UXF
- One operation manual for IP Matrix using KBD-DIGITAL

#### **Security**

- The latest Microsoft Windows security updates have been included.

#### **Miscellaneous**

- Background image and connection loss image can be uploaded to the decoder, replacing the default images. Reverting them to default is done by uploading an empty image.  
Note: Upload is only possible in conjunction with an empty service password.

### **8.4. Changes with 9.60.0017**

- Various minor bug fixes.



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### **8.5. *New Features with 9.51.0058***

- The alarm frame around a cameo can be switched off, or blinking or on in case of alarm.
- The IP Matrix now allows switching the keyboard into left-hand usage mode.
- The latest Windows security updates have been included.

### **8.6. *Changes with 9.51.0058***

- An issue is fixed where a wrong scaling was selected, depending on the possible modes of the connected monitor, and display text was distorted as a result.
- An issue is fixed where the decoder ran out of memory under certain circumstances.
- An issue where decoding artifacts were caused is fixed by an updated Intel graphics driver and a new Video SDK.



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### **8.7. New Features with 9.50.0073**

- IP Matrix
  - Stand-alone system for managing, controlling and displaying cameras using a CCTV keyboard.
  - Up to four decoders can be clustered to extend the system.
  - Up to four operators can work simultaneously, using up to four keyboards KBD-UXF, each connected to one decoder.
  - Up to 128 cameras can be managed by the fully extended system.
  - Up to 32 camera sequences can be defined.
  - Up to 8 displays can be connected with the fully extended system.
  - Layouts can be switched per display.
  - Complete system view can be saved and recalled, inclusive camera connections, using up to 9 favorite views.
  - Keyboards can be locked with passcode.
  - Picture-in-picture mode has been introduced as alternative to full-screen mode for better awareness of else hidden video monitors.
  - For PTZ cameras, video smoothing is automatically suspended to allow best possible control with minimal latency.
  - Configuration is done with Configuration Manager; otherwise no PC is required.
- Configurable time for FREEZE detection.

### **8.8. Changes with 9.50.0073**

- The issue that a firmware update using HTTPS required a service password set, and did not work with empty password, is fixed. Firmware upgrades using HTTPS now also work without a service password set.
- An issue where the decoder logo could not be overwritten is fixed.
- An issue with enhanced overlays is fixed.
- An issue where video of an incoming alarm connection was jerky is fixed.
- Various smaller issues were fixed.





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### **8.9. *New Features with 9.10.0029***

- Dynamic Host Control Protocol (DHCP) is now supported.

### **8.10. *Changes with 9.10.0029***

- Improvement for auto-reconnect; failed initial connection attempts will be repeated every 20 seconds.
- Improvements for network scan; extended capabilities are inserted into XML discovery response.

### **8.11. *Changes with 9.02.0003***

- An issue was fixed where the video windows were not repopulated after a network or power outage when the decoder was connected to a Cisco Catalyst switch set in PortFast mode.
- An issue was fixed where in certain scenarios the IP address was lost during firmware upgrade from 9.0.

### **8.12. *Changes with 9.01.0003***

- An issue with connections initiated by a VJD-3000 in IP Matrix was fixed.
- An issue with alarm connections was fixed.
- Video zoom mode, which was dropped in FW 9.0, has been re-added.



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### **8.13. New Features with 9.00.0134**

- Firmware 9.0 is based on new Monitor Wall 9.0 and Video SDK 6.11, both as 64 bit applications, providing improved performance and stability.
- The configuration file is now encrypted.
- Secure FW upload is possible via HTTPS.
- The password unlock mechanism is now using the secure certification-based method.
- The borders between video windows can be configured to none for pure displaying applications, removing the ability of additional status information, like alarm, but maximizing display space for video.
- ONVIF cameras and cameras from DIVARs can now be connected.

### **8.14. Changes with 9.00.0134**

- Video from panoramic cameras is now displayed as the full circle.
- Default value for reconnect has been changed to “On” for newly produced devices. Firmware update does not change the setting; factory reset does.
- Various security improvements have been implemented.
- A number of issues triggered during reboot of the decoder have been fixed.
- An issue was fixed where the wrong screen resolution has been chosen.
- An issue was fixed where connections were not closed in a setup with VJD-3000 and IP Matrix, leading to too many open sessions in cameras.



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### **8.15. New Features with 8.23.0001**

- Support of signed firmware upload, necessity for upgrading to firmware version 9.0 and higher.

### **8.16. Changes with 8.22.0039**

- Improved stability due to updated Intel HD graphics driver.
- An issue where the IP address could not be set anymore has been fixed.
- An issue where cameos sporadically show black flickering has been fixed.

### **8.17. Changes with 8.22.0031**

- Improved protection against cyberattacks, like “WannaCry”, by closing all unnecessary ports. Only ports 80 and 443 are kept open.

### **8.18. New Features with 8.22.0027**

- Enhanced overlay feature has been added to display camera stamping data or externally introduced text in various text size and color.
- ~~• Preparation for signed firmware file upload has been implemented, making this version the mandatory intermediate step before upgrading to a signed successive firmware.~~

### **8.19. Changes with 8.22.0027**

- An issue with alarm text not immediately displayed after being set has been fixed.



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**8.20. Features with 8.21.0028**

- GPU decoding resource management has been improved to also consider resolutions below 1080p for hardware decoding support, increasing the possible number of lower resolution streams. See updated decoding performance table.
- SSD write protection introduced to avoid data loss due to power loss or power cycle while/after configuration. All relevant write-affected disk sectors are buffered in a 2GB RAM disk. Updating the firmware may now take up to three reboots, performed automatically by the device.
- The physical access to the system via keyboard is now protected by a log-in dialog. As soon as a keyboard is connected, a login message appears that can only be closed by entering the 'service' password or by removing the keyboard. With successful login, standard applications like Command Shell, Explorer, Task Manager and Control Panel are automatically started, improving support in case of issue investigation.
  - A special function within this dialog allows to set the unit to factory defaults by entering 'factoryreset' instead of the password.
  - New tools were introduced to help tech support investigating issues.

**Decoding Performance**

- VIDEOJET decoder 8000 is capable of decoding streams according to the following table:

<i>Encoding</i>	<i>Streams</i>	<i>Resolution</i>	<i>Max. bit rate</i>
H.264 MP	3	12MPp20	32 Mbps
H.264 4K UHD	4	2160p30	32 Mbps
H.264 HD	8	1080p30	10 Mbps
	8	720p60	10 Mbps
	12	720p60	5 Mbps
	12	720p30	10 Mbps
	15	720p30	5 Mbps
H.264 SD	16	4CIF/432p	2.5 Mbps
	20	288p	1 Mbps

Note: Monitor scaling influences decoding power, resulting in less streams displayed on 4K monitors versus on HD monitors due to higher display pixel resolution.



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### 8.21. Features with 8.20.0033

- Integration of new VSDK 6.0 introduces hardware-decoding support to boost decoding performance for high megapixel streams with resolutions of 1080p and above. This roughly doubles the performance for those streams. A maximum of 6 streams can be handled by the hardware accelerator. All other streams will be decoded by software.

#### Decoding Performance

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H.264 MP	3	12MPp20	32 Mbps
H.264 4K UHD	4	2160p30	32 Mbps
H.264 HD	7	1080p30	10 Mbps
	2	720p60	10 Mbps
	3	720p60	5 Mbps
	5	720p30	10 Mbps
	6	720p30	5 Mbps
H.264 SD	8	4CIF/432p	5 Mbps
	15	4CIF/432p	2.5 Mbps

### 8.22. Changes with 8.20.0033

- Decoding performance table for initial release erroneously included too high values for resolutions below 1080p. Corrections within this release letter.



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### 8.23. Features with initial release 8.10

- VIDEOJET decoder 8000 displays video from Standard Definition (SD), High Definition (HD), 4K Ultra High Definition (UHD), and Megapixel (MP) cameras and encoders using H.264 or MPEG-4 encoding at up to 60 frames per second over IP networks.
- VIDEOJET decoder 8000 provides bi-directional G.711 audio for the video stream shown in single view on the first monitor.
- VIDEOJET decoder 8000 provides two Mini DisplayPorts, both capable of driving up to 4K UHD monitors simultaneously.
- Monitors are automatically discovered and set for optimal display performance.
- Monitor layouts can be switched independently for each monitor.
- Upright monitors (portrait mode) are supported.
- Video window (cameo) aspect ratio can be set to 16:9, 9:16, 3:4, or 1:1.
- Active camera connections and layout are stored and automatically reconnected after reboot if configured to.  
To avoid deadlock in case of an overload situation the automatic reconnect will be deactivated after VIDEOJET decoder 8000 was forced into reboot for 3 times within 10 minutes.
- Video smoothing can be configured.
- TCP connections are supported.
- RTSP connections are supported, enabling connectivity to 3<sup>rd</sup> party and ONVIF cameras.
- Discovery port is configurable.
- Cameo distance is configurable.
- VIDEOJET decoder 8000 can be used as an extended monitor to IP Matrix in single and quad view.
- The RCP+ command CONNECT\_PRIMITIVE is supported.
- VIDEOJET decoder 8000 is able to display VCA metadata.
- Configuration is made using the Configuration Manager.
- The number of decoders presented in capabilities is configurable to regulate the consumption of VMS licenses. Default value is 30.
- System access is password-protected with two levels.
- The system firmware can be upgraded remotely.
- Operation is possible with
  - Bosch Video Client 1.4 SR3 or higher
  - Bosch Video Management System 4.5.5 or higher
- System API is compatible to predecessor VJD 7000 for easy plug-and-play integration.

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### System

- VIDEOJET decoder 8000 is based on the latest Intel fifth generation Core i3 CPU.
- The system has a 64 GB SSD as boot medium for operating system and application.
- It uses a Gigabit Ethernet port.
- The system runs a tailored and Bosch-branded Microsoft Windows 8.1 embedded operating system and Monitor Wall software based on UHD-capable Video SDK 6. Making use of Intel's hardware decoding accelerators, the software is fine-tuned for 4K UHD and MP video decoding support.
- VIDEOJET decoder 8000 provides two Mini DisplayPorts, both capable of driving up to 4K UHD monitors simultaneously.
- The system is enclosed in a specially designed housing. It can be directly mounted to the back of a monitor, using the 100 mm (3.937 in) VESA mount option.

For detailed technical specification, please refer to the datasheet.