**BLACK BOX**
NETWORK SERVICES

## Firmware Revision Information

**Product Code(s):** *ACX048, ACX080, ACX160, ACX288, ACXC8, ACXC16, ACXC32, ACXC48, ACXC48F16, ACXC48F32, ACXC8F, ACXC16F, ACXC32F, ACXC48F, ACXC64F, ACXC80F*

**Product Name(s):** *DKM FX and DKM FXC Firmware*

**Date Modified:** *April 24th, 2017*

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**Release March 1st, 2018**
**DKM Java Utility Version 3.5.5.3**
**New Features:**
- Support of new I/O board (Rev. 1)
- 8-Port Multi-Screen Control (using new I/O board and Java Tool)
- Multiple multi-screen control instances within MSC group
- Support of new extender series (TBD)
- 2 step access control for full access connections
- Support of 8-Port CPU VGA switch
- New parameters as seen in the release notes

   **CON Units:**
- Support of USB 2.0 embedded module (USB Daughter Flex Version)
- Blue frame on redundant link (ENARED)
- Audio digital/analog conversion
- Dedicated DVI or HDMI output (ENADVI, ENAHDMI)

   **CPU Units:**
- Support of USB 2.0 embedded modular (USB Daughter Flex Version) with 50Mbits/s
- Writing/reading config.txt via matrix

   **HID Firmware:**
- Support of X-Keys XK-3 switch
- Hot key for deactivating USB 2.0 embedded (<L-Shift>, <L-Shift>, <U>, <D>, <Enter>)
- Hot key for activating USB 2.0 embedded (<L-Shift>, <L-Shift>, <U>, <E>, <Enter>)
- Port mode switching to 999 ports
- Optional MultiScreen control with <L-Shift> key held down (<L-Shift>, <L-Shift>, <X>, <M>, <Enter>), deactivation (<L-Shift>, <L-Shift>, <X>, <A>, <Enter>)

   **CONVGPU:**
- New customized video modes
- Support of XV extenders

**Improvements:**
- Port mode for 999 ports
- Master save for all matrices in Matrix Grid

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- I/O board memory info for extender updates
- Update of I/O boards
- Handling of I/O boards in Matrix Grid
- Acceleration of communication between controller board and I/O boards (flexible baud rate)
- Periodic alignment of Grid Data
- User Macros
- User access in Full Access and Private Mode on different Con unit
- Parallel operation of Auto Logout and CPU timeout
- Expansion of Active Directory features
- Matrix Grid communication in large configurations
- Highlighting of faulty ports by red port LED
- Monitoring of incorrect transfers (SYSLOG)
- Initialization method of faulty extenders
- Enhanced user login information in SYSLOG
- Accelerated update
- USB HID reset

**CON Units:**
- Video timing
- RAM timing
- Transmission of USB 2.0 embedded V1
- USB-HID Filter for OSD control
- Support of 1440x2560 on certain cards
- Freeze of last frame (ENAHOLDPIC)

**CPU Units:**
- Video Timing
- Transmission of USB 2.0 embedded V1
- Support of 1440x2560 (certain extenders)

**HID Firmware:**
- Writing of text in OSD including key repeat
- Handling of USB combined devices
- Mouse handling in MultiScreen control
- Support of Apple Magic Keyboard with numeric keypad

## Bug Fixes:
- Locking of Video Only mode
- Access rights in Extended Switch
- Echo function in Matrix Grid
- OSD settings for new CPU board
- Private Mode with redundant CON units
- Update of user login/logout data
- User login
- CPU timeout for Full Access and Private Access connections
- Memory control for extender updates
- Handling of connections after I/O board replacement
- Control CON in MultiScreen control
- Internal synchronization of ACX576
- Character set of Fujitsu keyboard KB521DE in OSD
- XV Grid line communication
- Video only switching in Draco tera compact matrices

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- Port Communication
- Converter settings are preserved after updated (EXTIMSD)

**CON Units:**
- String name (EXR>>EXT)
- H-Sync/V-Sync (EXTICON)
- Resolution 1720x1440

**CPU Units:**
- String name (EXR>>EXT)
- Handling of SFP modules
- Resolution 1720x1440
- Resolution 1024x768 (EXTICPU)
- Update (EXTICPU)

**HID Firmware:**
- Data transfer within framework
- Mouse mode in OSD
- Minor corrections in MultiScreen control
- Button control of ACX1004/ACX1008 series

**CONVGPU:**
- Updating

**Release (11/13/2017)**
**DKM Java Utility Version 3.5.4.0**
**New Features:**
- Support of MATLPXP update (Controller Board)
- Support for ACX1M-xx
- Support for ACX1MT/R-ARE
- Device Finder:  Show Grid Master
- System Check:  Quick link to extenders, devices and users in definition panels

**Improvements:**
- Allow optional sequential I/O board update on compact switch
- Definition – EXT Units/Version:  Increased table height to show all possible rows
- Monitoring:  Show confirmation dialog before closing the tool
- Flash Update:  Optimized layout of update panel

**Bug Fixes:**
- Definition – EXT Units:  Hide EDID and ghost tab for SDI CPU Extender
- Definition – EXT Units:  Check validity of extender before version request
- Status – SNMP:  Fixed numbering order
- Jerking in text area
- Showing change market although there have been no changes
- System Check:  Failed in systems with more than 127 modules
- New Configuration:  Set default facility for SYSLOG server 1 and SYSLOG server 2

**Release (9/11/2017)**
**DKM Java Utility Version 3.5.3.0**
**New Features:**
- New Flat UI
- Status – Control View:  Custom monitor layout and user-friendly monitoring of all connections and managing of interconnection between CPUs and Consoles
- Definition – EXT Units:  Support reading and writing of parameters on CPU extenders
- Status – Matrix View:  Showing system status (temp, fan, power supply) when clicking on the chassis

**Improvements:**
- Administration – Matrix Firmware Update:  Improved update selection and execution process

**Bug Fixes:**
- Control – Extended Switch:  Show virtual consoles
- Flash Update:  Fixed bug with Windows 10

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**Release (8/31/2017)**
**DKM Java Utility Version 3.5.2.2**
**Bug Fixes:**
- Assignment – Multi-Screen:  Fixed request of OSD firmware version

**Release (8/28/2017)**
**DKM Java Utility Version 3.5.2.1**
**Bug Fixes:**
- Assignment – Multi-Screen:  Fixed detection of 8 screen support
- Administration – Matrix Firmware Update:  Fixed MATLOSD and MATLVOSD update

**Release (8/4/2017)**
**DKM Java Utility Version 3.5.2.0**
**New Features:**
- Assignment – Multi-Screen:  Supports up to 8 screens with horizontal, block and free layout
- Support of new I/O Board

**Improvements:**
- Administration – Matrix Firmware Update:  Show restart confirm dialog after firmware update of a single I/O board

**Bug Fixes:**
- Administration – Extender Update:  Fixed bug in firmware version comparison
- KM-Switch MSC Configurator:  Fixed 8 screen block layout

**Release (04/12/2017)**
**Switch:**
**New Features:**
- Support of 640 CON Devices
- CON/CPU devices can inherit Device and Extender properties from a reference CON/CPU device at first connection
- Full access in Scan mode by mouse or keyboard event

**Improvements:**
- Reduction of matrix and extender update times
- Optimized search handling: Scroll & select search results while in search field
- Upon opening the OSD, the currently connected CPU is centered in the CPU selection list
- Alternative search mode in CPU selection list from the beginning of a Device name (F9 key)
- Previous Switching <P> for local CPU
- Internal processing of API commands
- Syslog message for new LAN connections
- General handling of LAN interface

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- Visualization of CPU assignment in OSD
- Internal storage of configurations

## Bug Fixes:
- Handling of Grid master and sub matrices in Matrix
- Initialization of matrices in Matrix Grid
- List handling in LDAP function
- Access rights (Login vs. Logout)
- Trap handling in Matrix Grid (SNMP)
- Handling of video only connections
- Login, Logout and disconnect of redundant extenders
- Macros for CON Devices with Force Login enabled
- Disconnect upon user logout
- Various minor bug fixes
- Fixed Matrix Firmware Update when using 1G and 3G I/O boards in the same matrix

## Release (11/16/2016)
### Switch:
### New Features:
- Support of display port CPU extender with FZVDECPU firmware
- Support of redundant CPU boards
- Full support of DKM 576/576S port matrix
- Support of redundant controller board for DKM 48, 80, and 288 Port chassis
- Support of new extender series
- Expansion of Matrix Grid to 24 matrices
- Support of 32 user and CON macros
- Macro OSD list for executing macros
- User and CON ACL: AND/OR assignment
- Deactivation option of OSD at CON Units
- CRC32 checksum for API interface
- Multicast network communication
- Restart option for controller board
- **Flash Update:** New extender firmware update wizard
- **Definition – CON Devices:** Added **OSD Disabled** parameter
- **System - Access**: New parameter **OR User/CON ACL**
- **System - Access**: New parameter **AND User/CON ACL**
- **System – Switch:** New parameter **Macro Single Step**
- Support of Multicast communication

## Improvements:
- Improvements of Matrix Firmware Update performance for matrix firmware >= 3.03
- Virtual CPU:  Simultaneous assignment of one real CPU to various virtual CPUs
- Accelerated update for controller boards and I/O boards
- Update process of mismatched I/O boards.
- SNMP: Expansion of MIB with extender data for $2^{nd}$ Link
- SNMP:  Traps for macros added
- Initialization process for matrix grid
- Synchronization between grid master and sub matrices
- Handling of matrix grid connections
- Handling of I/O boards
- Performance of TCP/IP interface
- USB HID communication to matrix
- Online config mode activation via configuration
- Sequential switching option for macro commands

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- User login macro in Matrix Grid
- **Save Status**: Check device name for invalid characters
- Show configuration file version in status bar
- Matrix Grid: When merging a configuration the new fixed port position in the grid will be calculated. Reduced network traffic. Improved message in message panel
- Save Status: More detailed information while saving extender status
- Multi-Screen Control: More detailed information in Matrix View and Grid Port View by highlighting invalid and not available CON devices
- Matrix View: Display fiber XV I/O boards as XV instead of SFP
- Optimized memory management
- Accelerated update

## Bug Fixes:
- Fixed possible blocking of **Matrix View** during I/O type detection
- Cat X phyter: Initialization of extenders on I/O board
- Temperature status for DKM 288 and 576
- Fix Frame option in Multi-Screen Control
- Fix port handling for USB 2.0 extenders
- Local computer switching of HDMI series
- Connection handling of previous switching
- OSD communication to extender
- User login in Matrix Grid
- XV grid line communication
- Video only switching in DKM compact matrices
- Fixed Matrix Firmware Update when using 1G and 3G I/O boards in the same matrix
- **Save Status**: Fixed reading detailed extender information in grid
- **Matrix Grid – Merge:** Fixed initialization of user
- **Connect-Dialog:** fixed URL encoding
- Fixed I/O port background color for unused ports
- Fixed Drag & Drop of files for JRE 1.8.0_91 on Linux and OS X
- Display ports with invalid status as invalid ports
- **Definition Panels:** fixed reload function
- **Extender CSV Import**: fixed import

## CON Units:
## New Features:
- Switching on Dual-Head CPUs (EXTVCON)
- <Hotkey><r><h><Enter> for HID hardware reset
- <Hotkey><r><s><Enter> for HID software reset
- New DISPLAY2 parameter selects second video channel of the dual-head units
- Deletion of Config.txt recovers factory settings
- Versioning of Config.txt file
- Various new audio codes for DP30Hz cards
- LOS timer in Config.txt (ENALOSTMR)
- Microphone preamplification in Config.txt (GAIN=X) for extenders with balanced audio transmitter module

## Improvements:
- VGA signal per default (EXTICON)
- USB 2.0 embedded connection in Video Only mode
- Manual extender update from Windows 8 computers
- Differentiation of EDID files (dual-head units)
- Detection Dual-Head/Dual-Link (EXTDLCON)
- Support of 3440 x 1440 resolution

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- Dithering filter ENADITHER (EXTCPU, EXTRCPU, EXTVCPU)
- Audio support in Video Only mode
- Bidirectional support of balanced audio upgrade module
- Automatic cutting of EDID extension block (EXTCPU, EXCTRCPU, EXTVCPU)
- Update improved

## Fixed Bugs:
- Service Mode via backplane
- EDID transmission of redundant extenders
- USB 1.1 support of USB 2.0 embedded upgrade modules
- Digital audio parameters for redundant CPUs
- USB 1.1 support of USB 2.0 embedded upgrade modules

## CPU Units:
### New Features:
- <Hotkey><R><H><Enter> for hardware reset and <Hotkey><R><S><Enter> for software reset
- Support of USB-HID Ghosting and EDID management through the matrix
- Microphone preamplification in Config.txt (GAIN=X) for extenders with balanced audio transmitter module
- New DISPLAY2 parameter selects second video channel of the dual-head units
- Deletion of Config.txt recovers factory settings
- Versioning of Config.txt file

### Improvements:
- Audio signal on both links available (redundant links)
- USB 2.0 embedded connection in Video-Only mode
- Compression control (EXTVCPU)
- Timing for memory control (EXTDLCPU)
- Detection Dual-Head/Dual-Link (EXTDLCPU)
- Support of 3440 x 1440 resolution
- Bidirectional support of balanced audio upgrade module
- Update improved
- Manual extender update from Windows 8 computers
- Differentiation of EDID files (dual-head units)

### Fixed Bugs:
- Parameter RELEASETIME=X
- Link communication
- RAM timing (EXTICPU)
- Switching of redundant extenders
- EDID transmission of redundant extenders
- Audio transmission on HDMI (EXTHRCPU)
- Color defect in right half of the screen
- Digital audio parameters for redundant CPUs
- USB 1.1 support of USB 2.0 embedded upgrade modules

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## USB HID Firmware:
### New Features:
- <Hotkey><R><H><Enter> for hardware reset and <Hotkey><R><S><Enter> for software reset
- Port deactivation in Multi-Screen Control (Trader Switch)
- Support of Logitech K400 keyboard
- Support of Logitech MK220 keyboard/mouse
- Support of various touch screens for KVM sharing
- Expanding of favorites in port mode to 254
- Support of Raspberry Pi
- Support of 32 macros in a matrix
- Freely configurable Multi-Screen Control (Trader Switch)
- Support of new X-key generation

### Improvements:
- Multi-Screen Control with identical mice
- Support of Logitech Unifying Receiver
- Key buffer timeout
- Wake up of computers from sleep mode
- Boot process of Trader Switch
- Handling of multi interface devices
- Acceleration in Multi-Screen-Control
- Change of polling interval
- Handling of multi-interface keyboards
- Control of keyboard LEDs
- Fixed assignment of K/M to dedicated hub ports
- Support of horizontal scrolling of Apple mice in USB HID Ghosting
- Secure transmission of data packages
- Pointer handling in Red Hat and CentOS
- Handling of hubs for 3rd party USB switch
- Support of keyboards with mouse interface
- Support of EloTouch screens for shared control

### Fixed Bugs:
- Switching of Trader Switch
- Operation of Multi-Screen Control
- Port arrangement in Multi-Screen Control (Trader Switch)
- Deactivation of ports (Trader Switch)
- Start of recovery console of mac computers
- Handling of absolute mouse reports
- Converter OSD shut down
- OSD control in cascaded environment
- Mouse handling as a combined device
- Trade Switch arrangement 2x4 in Multi-Screen control corrected

## CONVGPU Firmware:
### New Features:
- New resolutions for SDI (1080p@24/25/30Hz)
- EDID change via keyboard command (VGA vs DVI) <Hotkey><V><G> (VGA) or <Hotkey><V><D> (DVI)

### Improvements:
- EDID transmission
- Scaling

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## Fixed Bugs:
- RAM timing
- Saving of image settings
- Minor bug fixes

## Java Tool:
## New Features:
- **System - Matrix Grid:** New **Offline Grid Wizard** in status and configuration files
- **Assignment – Virtual CPU Assignment:** Allow assignment of a real CPU to multiple virtual CPUs
- **Macro – Assign CPU, Assign CON:** Added **Remove Assignment** parameter
- Support of display port cpu extender with FZVDECPU firmware
- Support of redundant CPU boards
- **Flash Update:** New extender firmware update wizard
- **Definition – CON Devices:** Added **OSD Disabled** parameter
- **System - Access**: New parameter **OR User/CON ACL**
- **System - Access**: New parameter **AND User/CON ACL**
- **System – Switch:** New parameter **Macro Single Step**
- Support of Multicast communication

## Improvements:
- File Upload/Download communication improved
- **System – Matrix Grid**: Improved communication between TeraTool and matrix in **Online Grid Wizard**
- Reduced communication between Java Tool and matrix
- Significant improvement of **Matrix Firmware Update** performance for matrix firmware >= V03.03
- **Save Status**: Check device name for invalid characters
- Show configuration file version in status bar
- **Matrix Grid:** When merging a configuration the new fixed port position in the grid will be calculated.  Reduced network traffic.  Improved messages in message panel.
- **Save Status**: More detailed information while saving extender status
- **Multi-Screen Control**: More detailed information in **Matrix View** and grid port view by highlighting invalid and not available CON Devices
- **Matrix View:** Display fiber XV I/O boards as XV instead of SFP
- Fixed Drag & Drop of files for JRE 1.8.0_91 on Linux and OS X
- Display ports with invalid status as invalid ports
- Optimized memory management

## Fixed Bugs:
- **Matrix View**: Fixed missing SFP label for fiber cards
- **Macros**: Fixed incomplete macro clean up when deleting consoles or user
- **System – Matrix Grid**: Fixed bug in merge of macros
- Fixed possible blocking of **Matrix View** during I/O type detection
- Fixed **Matrix Firmware Update** when using 1G and 3G I/O boards in the same matrix
- **Save Status**: Fixed reading detailed extender information in grid
- **Matrix Grid – Merge:** Fixed initialization of user
- **Connect-Dialog:** fixed URL encoding
- Fixed I/O port background color for unused ports
- **Definition Panels:** fixed reload function
- **Extender CSV Import**: fixed import