

Software History Xvi75V8S

8.10 - 11th of August 2025

New

- Encoder direction inversion and encoder position offset functionality added
- New SDO Objects and corresponding ASCII-Commands
 - 0x6000 ENCCD Encoder count direction
 - 0x6509 ENCPO Encoder position offset
- New SDO Object
 - 0x5003:107 (FCSP)

Improvements

- Fast trigger settings can be changed while the fast trigger is deactivated
- Webmotion startup speed increased

8.08B - 17th of July 2025

New

- New ASCII-Command
 - FCSP Force calibration speed

Fixes

- error 56 sometimes not resettable without power cycle in gantry coupled mode fixed

8.08A - 2th of July 2025

Fixes

- Webmotion displays correct reference method for ROTAX® Rxhq motors
- New SDO Objects for Fast trigger corresponding to ASCII-Commands
 - 0x5030:0 (FBCM)
 - 0x5031:1-2 (FTPA, FTPR)
 - 0x5032:1-13 (FTCD, FTCE, FTCH, FTCH, FTID, FTILB, FTIUB, FTOE, FTOG, FTOM, FTOPD, FTOPW, FTOI)
 - 0x5033:1-100 (FTPL)

8.08 - 20th of June 2025

New

- Fast trigger functionality support (co-processor firmware update necessary)

Improvements

- More reliable detection of measuring system failures (error 54/55)
- I2T overtemperature detection limit reduced for ROTAX Rxvp (error 73)

8.06 - 16th of April 2025

New

- Support for optical RXHQ 110-50T1.5 and RXHQ 50-12T0.3 motors with 120'000inc per revolution
- Shared IP access mode support for servo controller access with same IP address over fieldbus ethernet and direct ethernet
- Storage of force calibration data into motor made more robust
- New ASCII-Commands
 - EIPAM IP access mode
 - FCSS Force Calibration Storage State

Fixes

- Sporadic error 56 at enabling or disabling power stage in gantry coupled mode fixed
- Ramp down of ongoing drive at ds402 mode change or ds402 state change in gantry coupled mode fixed
- Sporadic missing warning 31 and corresponding PSR-Bit "FORCE_LIMIT_REACHED" clearing during simultaneous activated limit I_FORCE fixed
- Abort of loading application data from startup key fixed
- Various minor WebMotion® fixes:
 - Inconsistency in preset gantry main sub offset fixed
 - Setting state control active filter fixed
 - Freezing while access non existing force sectors in force diagram fixed
 - Initialization problems at quick start for LINAX® Lxs F60S and Lxu F60S fixed

8.04A - 17th of February 2025

Fixes

- Small force bump after finishing force drive with already released force in cyclic synchronized position mode minimized
- Display of error 61 (overvoltage motor inverter supply) made more tolerant

8.04 - 27th of January 2025

New

- EtherNet/IP CIP Sync support
- Gantry coupled mode support for easier integration of gantry systems into PLCs
- Position reached in cyclic synchronous position mode now indicated with bit 10 in CANopen statusword
- PSR bit 9 function extended and renamed to PSR_BIT_SYSTEM_REFERENCE_DONE
- New ASCII-Commands
 - CTSO CIP Sync timestamp offset
 - FBCM Force buffered CSP mode for EtherNet/IP
 - GCME Gantry Coupled Mode Enable
 - SOD P402 Switch on at transition 3 disabled
- New SDO Objects corresponding to ASCII-Commands
 - 0x5003:106 (FBCM)
 - 0x5003:105 (GCME)
 - 0x5003:104 (SOD)
- New value for CANopen direct command object 0x5000
 - Object 0x5000, value 0x5002: RESO command

Fixes

- Mutual blocking at simultaneous web and socket server communication fixed
- Spurious freezing of WebMotion after motion recorder start fixed
- Spurious faulty display of warning 46 fixed
- Error in I2T calculation for ELAX fixed
- Processing of invalid application data setting with Ethernet Installer versions older than 1.5.0 prevented
- Sporadic problems during pole alignment with active notch filter fixed

Improvements

- In CANopen DS402 state machine, power stage now enabled at "switch on" command (used to be done at "enable operation" command)

8.02B - 22th of November 2024

Fixes

- Improvements in cyclic synchronized position mode with intensive additional SDO communication and Busmodule MP firmware V5.18

8.02A - 30th of October 2024

Fixes

- Missing TCP/IP events "@S1"/"@S2" at moves to actual position fixed
- Faulty functions at some buttons on WebMotion® load cell calibration tab fixed

8.02 - 11th of October 2024

New

- LINAX® Lxs F60S and Lxu F60S support
- Profinet MC_HOME support
- Force Monitoring Verification support
- Storage of force calibration data into motor can now be disabled which is useful if force calibration is run frequently
- New ASCII-Commands
 - PMHSD Profinet MC_HOME Support Disable
 - FMV Force Monitoring Verification
 - FCSM Force Calibration Storage Mode
 - IEMAC Industrial Ethernet MAC address
- New SDO Objects corresponding to ASCII-Commands
 - 0x5003:102
 - 0x5003:103
 - 0x5008
 - 0x5009

Improvements

- Minor optical WebMotion® improvements

8.00B - 09th of September 2024

Fixes

- Abort during single protocol Busmodule update fixed
- Data range check for Forceteq Pro force sectors in WebMotion® fixed

8.00A - 27th of August 2024

Improvements

- General WebMotion® improvements
 - Preserve zoom when changing motion diagram display data
 - Logarithmic sliders changed to linear
 - Input fields in the MOVE section of move axis by click now persistent
 - Selected filter in advanced settings section of setup state controller now persistent
 - Filter not set automatically, when selecting desired frequency in FFT diagram
 - Correct display of Gantry Offset setting
 - Various minor optical improvements
- Consistency of PSR bits and internal trajectory generator state improved
- Various improvements in service menu

Fixes

- Correct handling of ROTAX® Rxhq motors with not yet determined Position I_Force Drift Compensation
- Incorrect display of error 91 after self starting program in Main/Sub configuration removed

8.00 - 19th of July 2024

New

- General synchronisation of controller firmware Xvi75V8S, Xvi48V8 and Tvi36V5
- Full functionality support for Busmodule MP
 - Ethernet over EtherCAT (EoE)
 - TCP/IP communication for WebMotion®, ASCII protocol and Ethernet Installer over Busmodule MP
- New ASCII-Commands
 - LARES Linear Axis Resolution
 - LAST Linear Axis Stroke
 - RP Repeat Positions
 - BCSPR Buffered CSP reserve
 - APSD Automatic program start delay
 - APSM Automatic program start number
 - FEIP Fieldbus ethernet IP address
 - FEMAC Fieldbus ethernet MAC address
 - FENM Fieldbus ethernet net mask
 - FEGW Fieldbus ethernet gateway address
 - FTCP Force Busmodule MP to TCP/IP communication
 - TLICA Tell installed licences
- New error numbers
 - Info 28 "IP range overlap"

Improvements

- General controller improvements
 - Cyclic synchronized position mode with feed forward
 - More accurate I2T calculation
 - General calculation optimization within controller
- General WebMotion® improvements
 - Various optical adjustments
 - More detailed information in application data file
 - Controller and motor serial number available
 - Extended error history buffer
 - Automatic program start
 - WebMotion® access preventable by pin
 - Quickstart function improved

- General communication improvements
 - TCP/IP stack update

5.26A - 16th of Mai 2024

- Enabling power stage with activated SS2 only possible if PSR bit PHASING_DONE is set (otherwise error 90 is displayed)

5.26 - 14th of Mai 2024

- Saving SMU application again after SMU error 220 (SMU data inconsistent) and SMU error 0 (SMU unconfigured) now possible
- Spurious faulty calculation of error ramp down fixed (this caused error 50 when axis was referenced in soft limit with Codesys)

5.24 - 19th of March 2024

- LINAX® Lxs***F120 with optical absolute measurement system support
- New ASCII-Command
 - BCSPR Buffered CSP Reserve
- Spurious error 77 at Power ON/OFF with Ethernet/IP buffered CSP mode at low RPI<4ms fixed
- DS402 mode initialisation adjusted (no reinitialization of already active DS402 mode, prevents problems with multiple mode request to same mode as done in Codesys)
- Initialisation issue for position correction table at ROTAX® Rxhq with optical encoder fixed

5.22A - 01th of March 2024

- General limit switch behaviour in gantry systems improved
- Improved communication stability between the controller and rotative drives

5.22 - 09th of February 2024

- Support for Rxhq110T4.0
- Ethernet/IP Buffered Cyclic Synchronous Position mode bus cycle time (RPI) is now configurable. Bus cycle time down to 1ms is possible
- Referencing a rotative motor will set the position of the motor to its single turn position
- New SDO Objects corresponding to ASCII-Commands
 - 0x5003:98 (ENAR)
 - 0x5003:99 (CTAB)
- Limit switch warning displayed correctly after enabling power stage

5.20B - 11th of December 2023

- Additional debug functionality added (no functional changes)

5.20A - 04th of December 2023

- Unnecessary communication to JSC motor removed at power loss

5.20 - 28th of November 2023

- Support for Lxs80F120, Lxs200F120 and Lxs2000F120
- Forceteq Pro: Speed limitation at limit force reached improved (especially after finishing a force drive in cyclic synchronised position mode)
- I2C communication improved at Xvi75V8S (reduction of I2C error at long motor cables)

5.18A - 13th of November 2023

- Improvements in cyclic synchronized position mode with intensive additional SDO communication

5.18 - 26th of September 2023

- Correction table support for ROTAX® Rxhq motors with optical encoder
- General controller performance improvements for ROTAX® Rxhq motors with optical encoder
- Autogain setting via WebMotion for all ROTAX® Rxhq motors sets a lower gain leading to more stable controller behavior

5.16 - 17th of August 2023

- Support for high resolution optical Rxhq 110 and Rxhq 50 motors
- Support for absolute gantry reference
- General improvements for gantry reference
- More accurate I2T supervision for Lxs***F120 motors

5.14B - 24th of May 2023

- No functional changes

5.14A - 09th of May 2023

- Bug in output function assignment fixed
- Minor text changes in WebMotion

5.14 - 17th of April 2023

- Z-Mark detection for reference drive made more robust, especially for Lxs160F60/Lxu160F60 with magnetic measuring system
- Maximum current settings increased to 20A
- New SDO Objects corresponding to ASCII-Commands
 - 0x5003:96 (EGMSO)
 - 0x5003:97 (VMTAE)
 - 0x5010:13 (BWFP)
 - 0x5010:14 (FTPES)

5.12 - 05th of April 2023

- LINAX® Lxs***F120 with absolute measurement system support
- Forceteq Pro controller enhancements
 - Adaptive switch between force controller and position controller to minimize dependencies of these two controllers
 - New Forceteq Pro elastic mode for special force applications with elastic structure (standard mode is solid mode)
- Gantry master/slave offset settings improved for easier commissioning of gantry systems
- New ASCII-Commands
 - BWFP Bandwidth Forceteq Pro
 - FTPES Forceteq Pro Elastic Spring constant
 - FTM Forceteq Mode (extended with value 2 = elastic mode)
 - TMO Tell Mode of Operation
- ROTAX® Rxhq measuring system filtering improved
- New Error 52 "The connected Jenny Science Motor is not supported by this servo controller"
- Same output functions can now be assigned to multiple outputs
- Velocity estimation used in ASCII command "TV" (Tell Velocity) and safety function SLS improved
- Power stage control signal generation for small target currents improved

5.10G - 19th of December 2022

- Gantry master/slave offset settings now available at gantry master WebMotion
- New ASCII-Command
 - EGMSO Enable user defined gantry master slave offset
- Maximum allowed servo controller identification string length now 32 characters (ASCII-command "SID")
- Command line echo can be switched off for socket server communication
- Minor adjustments on load cell tab in WebMotion

5.10F - 09th of November 2022

- Increased tolerance for continuous broadcast frames
- Optimized timing when setting the statusword bit which indicates success after reference drive (HORM). Prevents illegal state in a special case

5.10E - 07th of September 2022

- Functionality "Virtual Multiturn Absolut Encoder" added
- New ASCII-Command
 - VMTAE Virtual Multiturn Absolut Encoder
- New Error 53 "Virtual multiturn position deviation exceeded tolerance"
- I2C communication improved for master/slave configuration

5.10D - 08th of August 2022

- Functionality "Position Window Time" added (selectable delay of the PSR-Bit "IN_POSITION" and Statusword-Bit "Target Position Reached")
- New ASCII-Command
 - PWT Position Window Time
- New SDO Objects corresponding to ASCII-Commands
 - 0x6068
 - 0x5001:42
 - 0x5010:11
 - 0x5010:12
- Update time of PDO objects 0x2005 (I_Force Actual) and 0x200A (Force Actual Value) reduced to 100us
- Communication more robust against excessive Ethernet broadcast load
- Minimization of measuring system failures on LINAX® motors with optical measuring system after short power interruption

5.10C - 09th of June 2022

- Default value of "Emergency Deceleration" after reset command now depending on encoder resolution
- Spurious error 88 in gantry systems fixed
- Controller problem with rotative motors passing overflow position $2^{\exp(31)}-1$ to $-2^{\exp(31)}$ and vice versa solved

5.10B - 14th of February 2022

- Various improvements related to Signateq® and WebMotion
- New ASCII-Commands
 - SQAC Signateq® available calibrations
 - SQCM Switch Signateq® calibration mode
- Error number 58 messages clarified

5.10 - 17th of December 2021

- Support for ROTAX Rxhq110-50T1.5
- ROTAX Rxhq measuring system filtering improved (static position error eliminated and control settling time reduced)
- New ASCII-Commands
 - TVPSM Tell Voltage Power Supply Motor
- Error number 54 extended for ROTAX Rxhq measuring system failure
- Error number 92 (3-phase motor output frequency exceeded 599Hz) only showed when power stage is enabled
- Error number 50 (Position deviation too large) works now as well with deviation position set to 1'000'000

5.08F - 10th of December 2021

- Support for Signateq firmware V2.0 with calibration type "test report", "customer calibration" and "factory calibration"
- New ASCII-Commands
 - SQSNF Signateq Sensor Nominal Force
 - SQMRP Signateq Measurement Range Positive
 - SQSS Signateq Sensor Sensitivity
 - QSFT Signateq Sensor Force Type
 - SQOM Signateq Operation Mode
 - QSMT Signateq Sensor Model Type
 - SQSSN Signateq Sensor Serial Number
 - CLFO0 Clear Force Offset Reset
- New value for CANopen direct command object 0x5000
 - Object 0x5000, value 0x0x6011: CLFO0 command
- New SDO Objects corresponding to new ASCII-Commands
 - 0x5010:03 – 0x5010:8
 - 0x5011
 - 0x5012
- New Profinet Parameters corresponding to new ASCII-Commands
 - p6001...p6010
 - p6100
 - p6200
- Error number 58 extended for more detailed Signateq error information
- Command CLFO now available as program function

5.08E - 12th of November 2021

- Forceteq pro controller initialisation corrected (controller parameters now match to the connected motor again)
- SMU parameter could not be loaded or saved in WebMotion (bug was introduced in version 5.08D)

5.08D - 03th of November 2021

- No functional changes

5.08C - 04th of October 2021

- New ASCII-Commands
 - SQFD Signateq Force Direction
 - LFRMS Limit Force Reached Maximum Speed
 - SQVER Signateq Firmware Version
- New value for CANopen direct command object 0x5000
 - Object 0x5000, value 0x1050: AREF1 command
- New SDO Objects corresponding to new ASCII-Commands
 - 0x5010:09 – 0x5010:10
- New functionality "automatic force direction detection" and "speed limitation at limit force reached" implemented
- New Info 34 "Automatic detection of force direction not possible in standstill"
- Error 76 (Gantry Master Slave Offset deviation greater than 0.5mm) changed to Info 35
- Communication to Signateq improved (solves sporadic error 94 at powerup with connected Signateq)
- Return value of ASCII-Commands SPC and SPMAC changed from "-1" to "?", when no SMU is mounted
- Power stage now always disabled before saving safety parameters (fixes incorrect output of error 50 or error 70 after saving safety parameters)
- Sporadic offline problem with WebMotion solved
- Incorrect display of low active inputs during ramp down fixed
- Missing input events at low active inputs fixed
- Bug in object access for Objects 0x5005:12 – 0x5005:13 fixed

5.08B - 01th of July 2021

- New ASCII-Commands
 - SPC Safety Parameter CRC
 - SPMAC Safety Parameter and MAC Address CRC
- New value for CANopen direct command object 0x5000
 - Object 0x5000, value 0x1040: DMES command
- New SDO Objects corresponding to new ASCII-Commands
 - 0x5003:95
 - 0x5005:12 – 0x5005:13
 - 0x5010:01 – 0x5010:02
- Improved trajectory generation in cyclic synchronized mode, when only position is transmitted by PDO communication (noise reduction)
- Data consistency problem of Busmodule object 0x607A (target position) at changing from cyclic synchronized mode to any other mode fixed
- Spurious toggling of Force Calibration Valid "FCV" during active force calibration fixed
- WebMotion Update 6.06A: display SMU Checksum

5.08A - 11th of June 2021

- New ASCII-Command
 - DMES drive mechanical end stop
- Cyclic synchronized mode for reverse direction gantry systems improved
- WebMotion motion recorder speed filter added

5.08 - 28th of May 2021

- Quickstart problems with mounted SMU solved

5.06G - 06th of May 2021

- THORLABS DDR25/M angle identification bugfix

5.06F - 09th of April 2021

- Add support Rxhq110-50T1.4
- Add support THORLABS DDR25/M
- New ASCII-Command
 - AREF automatic reference drive when entering DS402 mode 6
- New error number 58 for communication interrupt with Signateq
- Cyclic CAN Frame communication improved for Signateq
- WebMotion access time improved to reduce conflicts with parallel WebMotion and socket communication
- Improve field adjustment with active brake for brakes with <12um backlash
- Improve Anti-windup for better force regulation with Signateq

5.06E - 05th of January 2021

- The correct inductance value is entered in the motor table for Lxe 550F40, 100nm / Ra50R30 and Ra 60R30. This means that the controlling option "current feed forward" is also possible with these motors
- Watchdog timer command over socket connection worked only the first time the command was sent and after that not anymore. This is now fixed
- Signateq, force measurement value acquisition every 100µs and value sampling also every 100µs leads to undesired fluctuations with value losses. A sampling value every 50µs solved this issue

5.06D - 04th of December 2020

- Parameter input check for configuration over Xenax Ethernet Installer improved
- Error 82 in conjunction with excessive temperature requests over Busmodule fixed
- Minor WebMotion modifications

5.06C - 27th of November 2020

- New ASCII-Commands for Forceteq pro
 - CLFO Clear Force Offset
 - FPK Force Peak
 - SFF Sector Force Curve Failed
 - SFS Sector Force Start
 - SFE Sector Force End
 - NDF Number of Drive Force to change parameter
 - ADF Acceleration of selected Drive Force
 - SDF Speed of selected Drive Force
 - DDF Direction of selected Drive Force
- New value for CANopen direct command object 0x5000
 - Object 0x5000, value 0x6010: CLFO command
- Info number for "I_Force Drift Compensation Drive failed" changed from 31 to 32
- Process Status Register inconsistency for Ethernet/IP fixed
- Error 98 after driving into soft limits in Ethernet/IP buffered cyclic synchronised mode fixed
- Blocked switch from WebMotion to UpdateGUI fixed

5.06B - 22th of September 2020

- Motion now blocked when SMU is unconfigured
- New ASCII-Commands
 - DMBUS Deactivate Motion Blocking by Unconfigured SMU
- New value for CANopen direct command object 0x5000
 - Object 0x5000, value 0x5030: DMBUS command
- Current Feed Forward algorithm improved
- Force limitation controller improved and new default bandwidth for Signateq set to 100Hz
- Internal trajectory generator for cyclic synchronous position mode improved

5.06A - 21th of July 2020

- Signateq controller stability improvement
- WebMotion Force-MotionRecorder and I/O Function Indexes management improved

5.06 - 10th of July 2020

- Signateq support
 - LF Limit Force
 - TF Tell Force
 - DF Drive Force
 - CLF Change Limit Force
 - FDF Force of selected Drive Force
 - FH Force High
 - FL Force Low
 - FTM Forceteq Mode
 - STBW Signateq Bandwidth
 - TTPS Tell Temperature Power Stage
 - MM Motor Manufacturer
- New SDO Objects corresponding to new ASCII-Commands
 - 0x2009:00 – 0x200A:00
 - 0x5001:41
 - 0x5002:16
 - 0x5003:88 – 0x5003:94
 - 0x603F:00

- 0x606C:00
- 0x60FF:00
- Bitfield for warning 46 implemented to find out, which DS402 object caused the warning 46
- Ramp down behaviour in error case in buffered cyclic synchronized mode for Ethernet/IP improved
- Spurious warning 40 after enabling power stage in cyclic synchronised position mode without reference fixed

5.04B - 01th of July 2020

- Problem in port number request over UDP fixed

5.04A - 25th of June 2020

- Transfer of current TCP/IP setting to bootloader improved

5.04 - 15th of June 2020

- Buffered cyclic synchronized mode for Ethernet/IP implemented

5.02A - 12th of June 2020

- Static Error in the evaluation of the actual position signal for Rotax Rxhq fixed

5.02 - 29th of May 2020

- New output functions for SMU feedback
- Signal conditioning for Rotax Rxhq encoder improved
- Spurious Error 74 after reference of some Lxs/Lxu motors fixed

5.00 - 08th of May 2020

- Initial version with XENAX® Xvi75V8S support
- Switch to DS402 mode 8 without reference now possible (starting a drive in mode 8 without reference is still not possible and leads to error 75)
- Synchronous program start support (mode 20)
- Cogging compensation test mode with enabled current feed forward improved
- Default value for avoid vibration damping (AVD) changed to 1
- Spurious Error 77 after switch to mode 8 fixed
- Error in input functions EE/EE1 change over ASCII-Commands or SDO Objects fixed