RELEASE NOTE FOR COMET

ComET 4.10A – 4.50A

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1. RELEASE 4.50A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Production Software Package – PSWP 03-2023	
Date of release:	2023-04-13	
Versioning and concerned products:		
AccurET version 3.50A	AccurET 48	AccurET 300
	AccurET 400/600	AccurET VHP48
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QUIET	AccurET VHP100 QUIET
	AccurET 300 QUIET (new product)	AccurET 400 QUIET (new product)
	ACCURET+ 100 (new product)	ACCURET+ 300 (new product)
UltimET version 3.50A	UltimET Light PCI	UltimET Light TCP/IP
	UltimET Light PCIe	ULTIMET ADVANCED
Software and APIs	WINGLET version 1.50A	ComET version 4.50A
	EDI version 4.50A	IMP version 1.04A (no update)
	XT API version 1.01A (no update)	QCT version 1.00A (new product)
Main new features introduced with this release:		
AccurET	Support of the new ACCURET+ 100 and ACCURET+ 300 position controllers, with improved performances and EnDat3 connectivity (among other enhancements).	
	The Dynamic Braking is improved to provide a current limit above which the feature is temporarily disabled (also available in Stage Protection).	
	New feature Move Inhibition based on a DIN.	
UltimET	The ESM QUIET is available on ULTIMET ADVANCED motion controller to control the new QUIET AIS/DFC system based on controllers running Firmware version ≥ 3.50A.	
	New licensing mechanism for the moment only available on the ULTIMET ADVANCED motion controller running an ESM QUIET.	
ComET	Support of the new ACCURET+ 100 and ACCURET+ 300 position controllers.	
QCT (QUIET Commissioning Tool)	First release of the software for commissioning the new QUIET AIS/DFC system, replacing ComET4's QUIET Tool. ComET4's QUIET Tool must still be used to commission former QUIET AIS systems based on controllers running Firmware version < 3.50A.	
Warning notice:		
None		
Compatibility breaks:		
There are 6 compatibility breaks: 1 on AccurET, 2 on ULTIMET ADVANCED, 1 on UltimET Light, 1 on WINGLET and 1 on EDI. For further details, refer to the corresponding release notes.		
Notes concerning this release:		
The version just released supersedes the former one that is now considered as a "Supported" item for a period of two years. Support on old FW/SW versions is subject to specific conditions, please contact your ETEL S.A. representative in case of need. All above versions have been developed and qualified to be operated together. Users upgrading FW/SW to the most recent versions must do so on all products simultaneously (UltimET, AccurET, ACCURET+, EDI, etc.). Operation of multiple products with non-synchronized FW/SW releases is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
The following products produced from 2023-04-17 will contain this software package until further notice**:**		
• Firmware for AccurET 48 / 300 / 400-600 / VHP48 / VHP100: **3.50A**		
• Firmware for ACCURET+ 100 / 300: **3.50A**		
• Firmware for UltimET Light PCI / PCIe / TCPIP and ULTIMET ADVANCED: **3.50A**		
Internal reference number: 771421 ver./rev. 17/A.		

1.1. Compatibility breaks

None.

1.2. Deprecated features

None.

1.3. Additional remarks / DLL versions / etc.

ComET 4.50A is based on EDI 4.50A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

1.4. List of new features

Reference number	Description
160161	**General - Support of the ACCURET+ family**
	The new ACCURET+ position controller is now supported.
169014	**ZxT Tool - Use homing offsets instead of factory encoder offsets to set to zero**
	When setting the current position of the ZxT as zero, the tool now uses the homing offsets (KL45) instead of the deprecated factory encoder offsets (K480) if the controller firmware version is sufficiently recent. If not, it continues to set the latter and suggest to upgrade the firmware. Changing the homing offsets has the additional advantage that no controller reboot is needed, but only a new homing.
170772	**General - Support of the AccurET 300 QUIET product**
	The new AccurET300 QUIET controller is now supported.
170677	**General - ULTIMET ADVANCED ESM information**
	In the case of an ULTIMET ADVANCED with an ESM module, the ESM's name, ID and version are now displayed in different locations: . In the axis tooltip of the present axis' toolbar. . In the current axis status bar tooltip. . In the HTML report generated by the System Reporting tool. . In the Download Firmware wizard, next to the selected firmware title.
171132	**Stage Mapping - User confirmation required for activation**
	Since firmware 3.50A, when downloading a stage map configuration to the controller(s), the axes are no longer powered off. Due to this change of behaviour and as a measure of protection, when the user requests the activation of the stage mapping and if at least one of the axes in the mapped group is powered on, a confirmation is requested.

1.5. List of corrections

Reference number	Description
170795	**Advanced Feedforward Tuning - Error message corrected**
	The error message displayed when a constant acceleration zone cannot be found was corrected.
171747	**Controller Backup - New backup categories for ULTIMET ADVANCED**
	In case an ULTIMET ADVANCED controller is backed up: (1) The user is now allowed to select Firmware Licence and IP Addresses categories. (2) The Mapping category is no longer displayed. (3) The Boot, Checksum, ESM Configuration, and ESM FW Addon block types are now backed up as part of the Firmware category. (4) The Signature block types are backup up as part of the Reserved category. (5) Instead of the Sequence / Customer Software Module category, only Customer Software Module text is now depicted. In case of the other controller types: (1) Instead of the Sequence / Customer Software Module category, only Sequence text is now depicted.
171227	**Controller Backup - ULTIMET ADVANCED incomplete backup**

Reference number	Description
	The Controller Backup was not saving all the information related to the ULTIMET ADVANCED firmware, in particular the boot.bin block was missing. To ensure a correct backup, the EDI metadata was modified to include the missing information.
171494	**Editor - Cannot switch to debug mode after downloading the Sequence from the Editor**
	In some specific cases, e.g. if a Sequence source code was larger than the maximum size accepted by the firmware, the debug mode did not work. The issue has been solved with the latest version of the Sequence compiler.
171258	**Force Control - Operating System language-independent date format**
	The Force Control tool was updated to storage dates in the XML file in a format independent of the Operating System language (i.e. English, Japanese...).
171872	**General - Emergency stop to an ULTIMET ADVANCED**
	The emergency stop does not need to send an END command to the ULTIMET ADVANCED motion controller.
152028	**I/O Configuration - Tooltips information corrected**
	The tooltips now correctly display the information for the selected Analog input on the Analog input signal adaptation setting tool.
170213	**Registers Download - Incorrect handling of monitoring registers of type string**
	When uploading registers from a controller either to the Editor tool or a parameters file, monitoring registers of type string containing line separators were incorrectly handled. This would cause a problem when attempting to download the registers back to the controller.
123308	**Regulation - Automatic single trace acquisition triggering not working for the Step and Move operations**
	The Step and Move operations on the Position and Current Loop configuration settings now trigger correctly an automatic single trace regardless of any previous Scope tool source trigger axis settings.
159750	**Regulation - Dwell time could not be set**
	The user was not able to set a value for the dwell time in the FeedFwd and Settling time tabs of the Position Loop. Now, a value can be set in the interval 0 - 10250 ms.
171542	**Save configuration to controller - Corrections to the save options**
	Several save options are only applicable to certain types of devices (motion or position controllers). The enabled save options and the tooltips will now dynamically adjust to what is appropriate for the save destination devices the user has currently selected in the dialog.
147235	**Scope - Trigger source configuration settings for Register value triggers not updating properly**
	When the user wanted to modify the configured Register (or change the axis) in the Register value trigger source settings, the corresponding drop-down list of possible units for the Register trigger value were not updated accordingly.
170836	**Sequence - Maximum number of code offsets increased**
	The error MAX_NB_CODE_OFFSET_PER_LINE too small could pop-up when downloading a Sequence file with e.g. a switch case statement with many conditions (case). To avoid this issue, the maximum number of code offsets accepted per line of Sequence source code was increased by a factor of 10.
171430	**Sequence Download - Prevent Sequence download on a mix of ACCURET+ and AccurET standard controllers**
	As ACCURET+ and AccurET position controllers have a different type of processor, a Sequence cannot be downloaded in a single operation on a device group mixing ACCURET+ and AccurET controllers. This operation is prevented for downloading a Sequence from the Editor/file and for downloading a pre-compiled Sequence.
171462	**Setting - Incorrect KF91 value saved to the controller after the phasing selection step**

Reference number	Description
	In some situations, an incorrect KF91 value (in regard to selected phasing type and motor data) was saved to the controller, after the user clicked on the Next button, in the Setting: Phasing selection window.
170070	**ZxT Tool - Exception prevented in identification controller simulation**
	In the case where the ZxT Tool is used without connecting to a system, an identification result can be opened without causing an exception. The required library is loaded to be able to simulate correctly the controller filters.

2. RELEASE 4.27A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Production Software Package – PSWP 09-2022	
Date of release:	2022-09-30	
Versioning and concerned products:		
AccurET version 3.23A	AccurET 48	AccurET 300
	AccurET 400/600	AccurET VHP48
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET version 3.23A	UltimET Light PCI	UltimET Light TCP/IP
	UltimET Light PCIe	ULTIMET ADVANCED
Software and APIs	WINGLET version 1.03A	ComET version 4.27A
	EDI version 4.27A	IMP version 1.04A (no update)
	XT API version 1.01A (no update)	
Main new features introduced with this release:		
AccurET	The supported TTL encoder frequency is doubled and can now reach 20 MHz (quadrature frequency).	
	It is now possible to output a real-time status bit on DOUT, FDOUT or XDOUT.	
	Accuracy of the mapping in Permanent Dual Encoder Feedback is improved.	
UltimET	A new command to reset the UltimET Light and ULTIMET ADVANCED is provided through the RSU command.	
WINGLET	The reporting information is improved for traceability purposes.	
	It is now possible to modify the result properties after script execution (applicable for OEM License only).	
	Test results in Permanent Dual Encoder Feedback are improved.	
Warning notice:		
None		
Compatibility breaks:		
There are 7 compatibility breaks: 3 on AccurET, 1 on ULTIMET ADVANCED, 2 on WINGLET and 1 on EDI. For further details, refer to the corresponding release notes.		
Notes concerning this release:		
The version just released supersedes the former one that is now considered as a “Supported” item for a period of two years. Support on old FW/SW versions is subject to specific conditions, please contact your ETEL S.A. representative in case of need. All above versions have been developed and qualified to be operated together. Users upgrading FW/SW to the most recent versions must do so on all products simultaneously (UltimET, AccurET, EDI, etc.). Operation of multiple products with non-synchronized FW/SW releases is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
The following products produced from 2022-10-10 will contain this software package until further notice**:**		
• Firmware for AccurET 48 / 300 / 400-600 / VHP48 / VHP100: **3.23A**		
• Firmware for UltimET Light PCI / PCIe / TCPIP and ULTIMET ADVANCED: **3.23A**		
Internal reference number: 771421 ver./rev. 16/A.		

2.1. Compatibility breaks

None.

2.2. Deprecated features

None.

2.3. Additional remarks / DLL versions / etc.

ComET 4.27A is based on EDI 4.27A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

2.4. List of new features

Reference number	Description
165549	**General - Unclear message after downloading a Firmware on an UtimET PCI/PCIe with a jumper**
	After downloading a Firmware on an UltimET PCI/PCIe motion controller with a jumper inserted, a meaningless error message was displayed to the user. Now, this message has been modified to clearly instruct the user to switch off the PC, remove the jumper and restart the PC to be able to use the motion controller with the new Firmware.
169157	**IO Control - Output reservation of digital output(s) for M63 status bit**
	Now the IO Control tool verifies if a DOUT/FDOUT is reserved for the controller function Digital output of M63 status bit.
153495	**Stage Mapping - Number of correction points not validated**
	When the user entered a new number of correction points or when applying the smoothing selected by the user, the application did not check if the total number of correction points was not exceeding the maximum supported by the controller (i.e. 130816 points). This condition is now verified and if not valid, the operation is aborted and an error message is displayed.

2.5. List of corrections

Reference number	Description
168392	**Advanced Feedforward Tuning - Cogging minimum speed greater than maximum speed**
	For some very specific settings, the Min. speed setting was set greater than the Max. speed on the Friction and Acceleration panel.
169350	**Editor - Unable to switch to Debug mode**
	If the downloaded Sequence contained warnings, it was not possible to switch the Editor to Debug mode.
168710	**General - CSM header information fields not updated**
	With the debug version, it was not able to read the CSM header information.
168574	**General - Erroneous information after a Sequence download error**
	If the Sequence compilation resulted in at least one warning before an error, the displayed error message wrongly stated that the Sequence had been successfully downloaded.
168375	**General - Jog movement control was not working as expected**
	When connected to a controller configured for a linear axis application, the movement generated by a jog control tool was executed in the opposite sense of the user's selection. This problem was present on all jog controls in ComET: main toolbar, Console tool and Setting tool (Setting: Protections panel).
162528	**General - Unclear error message when compiling offline a Sequence**

Reference number	Description
	The error message displayed when providing an inadequate parameter file for the offline compilation of a Sequence was unclear, therefore, not useful for the user to understand the problem.
158036	**Identification - Identification was failing on a controller configured for gantry control**
	The Identification tool was not powering on correctly a controller configured for gantry control before initiating the identification procedure.
166534	**Identification - Incorrect unit information in exported file**
	When exporting to a file the results of an identification realized on a rotary axis, some of the units included in the file were corresponding to a linear movement.
168859	**Sequence compiler error management improvements**
	Improved error management when a function's return value does not exist. In addition, the check of a function's return type and next assignment to a variable was also improved.
168386	**Setting - HSEI encoder selection not available**
	When performing a setting of an AccurET VHP100 position controller with a DynX system, the HSEI encoder option was not available.
168644	**Stage Mapping - Corrupted exported correction data file**
	As the correction data size was exceeding the internal exporting limit, the data was truncated, thus generating a corrupted file. This internal limit was now revised to allow for the maximum number of correction values (130 816), with a maximum of 35 characters each.
170084	**Viewer - Loading a trace from the Scope was generating an error**
	If the axis number 0 was not part of the list of available nodes for connection, it was not possible to load a trace from the Scope to visualize it in the Viewer.
169062	**Viewer - Not possible to Upload File**
	When no connection was established with a controller, it was not possible to load a Scope acquisition into the Viewer tool.

3. RELEASE 4.26A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Software Package – SWP 03-2022	
Date of release:	2022-03-31	
Versioning and concerned products:		
AccurET version 3.22A	AccurET 48	AccurET 300
	AccurET 400/600	AccurET VHP48
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET version 3.22A	UltimET Light PCI	UltimET Light TCPIP
	UltimET Light PCIe	ULTIMET ADVANCED
Software and APIs	WINGLET version 1.02A	ComET version 4.26A
	EDI version 4.26A	IMP version 1.04A (no update)
	XT API version 1.01A (no update)	
Main new features introduced with this release:		
UltimET	New monitoring registers are now available for describing a Customer Software Module (name, version and description).	
WINGLET	Simulation of position loops using dual-encoder feedback is now supported.	
	Improved settle time calculation.	
ComET	Display of ULTIMET ADVANCED Customer Software Module information (name, version and description).	
	System Configuration Manager is now scanning all connection buses only on demand to gain time.	
EDI	New Sequence compiler supported under both Windows 32/64-bit with improved language error/warning checking and optimized code generation.	
	Sample code improvements.	
Warning notice:		
None		
Compatibility breaks:		
There are 7 compatibility breaks: 1 on ComET and 6 on EDI. For further details, refer to the corresponding release notes.		
Notes concerning this release:		
The version just released supersedes the former one that is now considered as a “Supported” item for a period of two years. Support on old FW/SW versions is subject to specific conditions, please contact your ETEL S.A. representative in case of need. All above versions have been developed and qualified to be operated together. Users upgrading FW/SW to the most recent versions must do so on all products simultaneously (UltimET, AccurET, EDI, etc.). Operation of multiple products with non-synchronized FW/SW releases is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
No modification on the production. The manufactured products will still contain the same firmware version as before until the next production software package planned for October 2022.		
• Firmware for AccurET 48 / 300 / 400-600 / VHP48 / VHP100: **3.21A**		
• Firmware for UltimET Light PCI / PCIe / TCPIP and ULTIMET ADVANCED: **3.21A**		
Internal reference number: 771421 ver./rev. 15/A.		

3.1. Compatibility breaks

There is one compatibility break with this release:

- Reference number: 168210 → General - New Sequence compiler

The compatibility breaks are highlighted in red in the tables below.

3.2. Deprecated features

None.

3.3. Additional remarks / DLL versions / etc.

ComET 4.26A is based on EDI 4.26A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

3.4. List of new features

Reference number	Description
167028	**General - Customer Software Module (CSM) information**
	When preparing to download a CSM to the ULTIMET ADVANCED, information (name, version...) about the CSM currently loaded and the one selected for downloading is displayed to the user.
164021	**General - Improvement in error messages**
	In case of failure while trying to establish a connection to an ULTIMET ADVANCED motion controller, the error messages are now more comprehensive about the nature of the failure.
168210	**General - New Sequence compiler**
	New Sequence compiler supported under both Windows 32/64-bit with improved language error/warning checking and optimized code generation (execution performance improved as much as 30% under certain conditions).
166851	**System Configuration Manager - Scanning all connection buses on demand**
	To save time, the tool now only scans the connection buses defined in the port.proporties file, but the user can always scan all connection buses on demand.

3.5. List of corrections

Reference number	Description
167392	**Advanced Feedforward Tuning - Impossible to do an acquisition if the friction or cogging tuning failed before**
	It was not possible to start an acquisition using the Scope or Identification tools if the Advanced Feedforward Tuning tool failed before during a friction or cogging tuning. An error was popping up with the message that an acquisition was already in progress.
167394	**Advanced Feedforward Tuning - Process could not be interrupted**
	When trying to interrupt a cogging or friction tuning process by clicking on the close (X) button, the process was not stopping immediately while an acquisition was still on going.
167917	**Editor - Cursor's position was changing when saving the file**
	Whenever a file was saved, the cursor was relocated to a different position, forcing the user to scroll back to where it was before.
168204	**Force Control - Data acquisition not working after a test failure**

Reference number	Description
	If a test failed in one of the sub-tools, any test realized subsequently in another sub-tool would also fail because data acquisition was no longer working.
166954	**General - Firmware pool updated**
	The firmware pool was missing the ULTIMET ADVANCED FW3.20B. In addition, the firmware pool contained the ULTIMET ADVANCED FW3.19B that is no longer supported.
166697	**Identification - AccurET VHP100 fell in error during position loop identification**
	With an AccurET VHP100 position controller, when having selected the option Noise added on Current Reference, the controller could fall in error LINEAR OVECUR during the last frequency band of a position loop identification.
167753	**QuiET - Number of digits for system serial number was increased**
	Serial numbers up to 12 digits are now accepted.
166713	**Register Editor - Controller could fall in error when a connection is established for the first time**
	When editing a register specific to a controller type (e.g. UltimET motion controller) and modifying the connection to a controller of another type (e.g. AccurET position controller) for which this particular register does not exist, this controller would fall in error REGISTER NUM ERR only for the very first time this operation is done.
164182	**Scope - Information displayed about the Trigger Source settings was incorrect**
	When the Scope's Trigger Mode was set to Bit field state, the information displayed on the Scope's main panel regarding the Trigger Source settings was incorrect (the LOW and HIGH state bit fields were inversed).
165718	**Scope - No error was raised for an incorrect Trigger configuration**
	When the Scope's Trigger Mode was set to Bit field state or Bit field change, no error was raised when selecting a float or double register type as Trigger Source.
161649	**Scope - Trigger configuration persistency not working properly**
	After closing and reopening a connection with a controller, the Trigger Mode configuration was not kept, but was always reset to the Immediate setting.
133946	**Scope - Trigger Source selection not persistent**
	When the Scope's Trigger Mode was set to Trace value, the selected Trigger Source Edge option was resetting to Both edges whenever opening the Scope's setup, instead of keeping the option previously set.
166819	**Setting - The jog mode on the panel Protections was not working properly**
	With a rotary motor, the jog mode was not working on both directions. In addition, a movement could be executed beyond the stroke software limits, which would lead to an error of the controller if the Error raised when software stroke limits are reached or Error raised at start of movement if target position is beyond stroke software limits option was selected.
167398	**Stage Mapping - Incorrect detection of mapping state**
	For certain mapping configurations where an axis was configured as source only (i.e. not mapped), the mapping state of the axes was incorrectly detected triggering the INCONSISTENT MAPPING error message.
144205	**Viewer - Bit field variables incorrectly displayed**
	Variables of type uint32 (bit field) were displayed as if they were signed 32-bit variables (int32). For example, the user status variable with bit 31 set was displayed as a negative value.

4. RELEASE 4.25A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Production Software Package – PSWP 09-2021	
Date of release:	2021-09-30	
Versioning and concerned products:		
AccurET version 3.21A	AccurET 48	AccurET 300
	AccurET 400/600	AccurET VHP48
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET version 3.21A	UltimET Light PCI	UltimET Light TCPIP
	UltimET Light PCIe	UltimET Advanced
Software and APIs	WINGLET 1.01A	ComET version 4.25A
	EDI version 4.25A	IMP version 1.04A
	XT API version 1.01A	
Main new features introduced with this release:		
AccurET	Improved management of gantry motion systems	
	Permanent Dual Encoder Feedback improvements with absolute EnDat22	
UltimET	Minor improvements of the interpolation	
	Behavior of HLx commands on UltimET Advanced CSM was improved for a better security	
WINGLET	Faster multi-site identification tests	
	Faster simulation	
	Numerous usability improvements	
ComET	Setting tool improvements for Dual Feedback and TTL encoders	
	Support of additional stroke software limits modes	
EDI	Migration from RTX64 3.5 to RTX64 4.0	
IMP and XT API	Compilation under Visual Studio 2019	
Warning notice:		
None		
Compatibility breaks:		
There are 13 compatibility breaks: 2 on AccurET, 2 on UltimET Advanced, 3 on WINGLET, 2 on ComET and 4 on EDI. For further details, refer to the corresponding release notes.		
Notes concerning this release:		
The version just released supersedes the former one that is now considered as a “Supported” item for a period of two years. Support on old FW/SW versions is subject to specific conditions, please contact your ETEL S.A. representative in case of need. All above versions have been developed and qualified to be operated together. Users upgrading FW/SW to the most recent versions must do so on all products simultaneously (UltimET, AccurET, EDI, etc.). Operation of multiple products with non-synchronized FW/SW releases is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
The following products produced from 2021-10-11 will contain this software package until further notice**:**		
• Firmware for AccurET Modular 48 / 300 / 400-600 / VHP48 / VHP100: **3.21A**		
• Firmware for UltimET Light PCI / PCIe / TCPIP and UltimET Advanced: **3.21A**		
Internal reference number: 771421 ver./rev. 15/A.		

4.1. Compatibility breaks

There are two compatibility breaks with this release:

- Reference number: 166327 → General - Unsupported Firmware versions removed from the Firmware pool
- Reference number: 165706 → Identification - MF31 delayed by one PLTI on VHP controllers

The compatibility breaks are highlighted in red in the tables below.

4.2. Deprecated features

None.

4.3. Additional remarks / DLL versions / etc.

ComET 4.25A is based on EDI 4.25A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

4.4. List of new features

Reference number	Description
162868	**General - ComET's distribution on CD-ROM stopped**
	ComET is no longer available on a CD-ROM support. From now on, ETEL will provide a single setup file, as done with other ETEL software products.
166327	**General - Unsupported Firmware versions removed from the Firmware pool**
	Firmware older than version 3.17A and recalled versions have been removed from the Firmware pool.
163776	**General - Removed dependency on EDI deprecated functions and registers**
	With EDI 4.24A, a few functions and registers were classified as deprecated and not recommended for use on newer developments. With the goal of maintaining ComET's source code sane, a general review was made to eliminate any dependencies on such deprecated EDI functions/registers.
165569	**General - Successful download of a CSM**
	Now, the successful download of a Customer Software Module (CSM) to an UltimET Advanced motion controller is acknowledged with a popup message.
159842	**Setting - Additional stroke software limits modes supported**
	The following stroke software limits modes can be selected in the Protections panel: - Error raised when stroke software limits are reached - Error raised at start of movement if target position is beyond stroke software limits
142979	**Setting - Dual Encoder Feedback auto setting not completing successfully**
	When using the Dual Encoder Feedback configuration, frequent phasing errors were being raised at the beginning of the Position loop" auto-tuning step. This has now been improved.
118337	**Setting - Option to release the motor brake during Encoder signal adjustment**
	It is now possible to release the brake of the motor for adjusting the encoder signal levels.
164913	**Setting - Permanent Dual Encoder Feedback taking advantage of absolute EnDat22**
	Since AccurET firmware version 3.21A, when using the Permanent Dual Encoder Feedback feature with an absolute EnDat22 encoder mounted on the rotary motor, it is possible to avoid the phasing process. This configuration can now be enabled via ComET.

4.5. List of corrections

Reference number	Description
148405	**Advanced Feedforward Tuning - Units were not consistent with user preferences**
	The information displayed on the various pop-up messages was always expressed in units of meter or turn, regardless of the user's settings defined in the ISO Units preferences panel.
163775	**Advanced Feedforward Tuning - Tool became Irresponsive**
	If the controller was already in error before initiating the test, the tool became irresponsive to user interaction.
148188	**Console - Jog motion generated an error**
	The jog motion was generating an error when the motor position limitation mode (MODESL) was set to 4.
163714	**Console - Window not properly resized**
	When adding (or removing) a new axis to (from) the console, the window was not resizing properly and some buttons could become inaccessible to user interaction.
166163	**Download Firmware - File type detection was case sensitive**
	When downloading a new Firmware, the detection of the file type was case sensitive, leading to an incorrect behavior of the tool (e.g. a Firmware file named *.FAR was mistakenly taken by a Backup *.bar file, consequently the wrong set of options were available to the user to set).
164706	**Force Control - Improved Kt measurement with time-domain measurement**
	Kt measurement now uses an experiment separate from the frequency time domain identification, improving the result quality.
163000	**Force Control - Incorrect axis selection**
	The wrong axis was selected when a Gantry, ZTT or QuiET system was present on the TransnET communication bus.
164050	**General - "Save on Controller" execution not interrupted**
	On the Save on Controller dialog box, after having pressed on the Save button, a new dialog box pops-up with the option to reset or not the controller. At that point, if the user attempted to close this dialog box using the Close button on the top right corner, the save operation was executed anyway.
166263	**General - Cleanup of the Error list**
	Inconsistent product naming was removed from the Error list.
165706	**Identification - MF31 delayed by one PLTI on VHP controllers**
	The AccurET VHP 48/100 controllers real current measurement monitoring parameter (MF31) used for the current loop identification was being updated with a delay of one PLTI. Consequently, the computed current loop identification margins and bandwidth figures were worse than reality.
162858	**Scope - Trigger value rounded to the nearest integer**
	With the trigger mode set to Position or Trace value, the value of the trigger (if displayed) was rounded to nearest integer number.
147067	**Setting - Display & Adjust information was not correctly updated**
	The information displayed on the Display & Adjust dialog box accessible from the Position feedback panel was not updated correctly after changing the encoder type while doing a new setting procedure or after connecting to another axis configured with a different encoder type while the setting tool was opened.
148400	**Setting - Irrelevant information displayed on the Display & Adjust dialog box**
	The Display & Adjust dialog box accessible through the Position feedback panel was displaying irrelevant information for the case of TTL encoders, such as the Lissajous Graph and Analog encoder signal

Reference number	Description
	amplitude. Now, only the Reference mark signal check is displayed in case a TTL encoder with one or several indexes is selected (for the case of a TTL encoder without a reference mark, this dialog box is not accessible).
159074	**Setting - Motor real speed limit (K31) was set too low for TTL encoders**
	When using TTL encoders, the frequency count used to determine the motor real speed limit (K31) was set to 2MHz instead of 10MHz. This wrong calculation could cause unexpected over speed errors, in particular for high resolution TTL encoders.
165690	**Setting - Permanent Dual Encoder Feedback configuration incorrectly set**
	With a rotary Permanent Dual Encoder Feedback configuration, the Encoder reading way inversion parameter (K68) was being incorrectly set if the motor was crossing the zero position during the setting.
148205	**Setting - Phasing with a digital Hall sensor was not possible**
	The option to select a digital Hall sensor was not available on the Phasing mode dropdown list box on the Phasing selection panel.
158096	**Viewer - Not possible to read traces stored in a file**
	If there were only two axes present on a saved scope file, it was not possible to open the third and fourth traces. If there were more two axes present, then it was possible to open the third and fourth traces, but the firmware version and device type information was incorrect.
166421	**ZxT Tool - Save identification result works also when several results are present**
	When several identification results are available and the user presses the Save button, the user is prompted to select which result should be saved.

5. RELEASE 4.24A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Software Package – SWP 03-2021	
Date of release:	2021-03-31	
Versioning and concerned products:		
AccurET Modular version 3.20A	AccurET 48 HW	AccurET 300
	AccurET 400/600 HW	AccurET VHP48 HW
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET version 3.20A	UltimET Light PCI	UltimET Light TCPIP
	UltimET Light PCIe	UltimET Advanced
Software and APIs	EDI version 4.24A	ComET version 4.24A
	IMP version 1.03A (no update)	XT API version 1.00B (no update)
	WINGLET 1.00A (no update)	
Main new features introduced with this release:		
EDI	Upgrade to .NET framework version 4.8.	
	Various improvements to the user documentation: - New chapter explaining the use of EDI for real-time applications. - List of deprecated functions not recommended for new developments.	
ComET	New Force Control Tool, with support of a new mode of operation (Mode =2).	
	Digital signature of the application by ETEL S.A.	
Warning notice:		
None		
Compatibility breaks:		
There are 12 compatibility breaks: 2 on UltimET Light, 1 on UltimET Advanced, 2 on AccurET, 3 on EDI and 4 on ComET. For further details, refer to the corresponding release notes.		
Notes concerning this release:		
The version just released supersedes the former one that is now considered as a “Supported” item for a period of two years. Support on old FW/SW versions is subject to specific conditions, please contact your ETEL S.A. representative in case of need. All above versions have been developed and qualified to be operated together. Users upgrading FW/SW to the most recent versions must do so on all products simultaneously (UltimET, AccurET, EDI, etc.). Operation of multiple products with non-synchronized FW/SW releases is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
This Software Package is available through ETEL Application Support. It will not be introduced in the production line. The manufactured products will still contain the last Production Software Package**:**		
• Firmware for AccurET Modular 48 HW / 300 / 400-600 HW / VHP48 HW / VHP100: **3.19B**		
• Firmware for UltimET Light PCI / PCIe / TCPIP and UltimET Advanced: **3.19B**		
Internal reference number: 771421 ver./rev. 14/A.		

5.1. Compatibility breaks

There are four compatibility breaks with this release:

- Reference number: 161808 → ZxT Tool - Harmonization of external tools installation folder and executable file naming
- Reference number: 161807 → QuiET Tool - Harmonization of external tools installation folder and executable file naming
- Reference number: 159810 → Force Control - New refactored tool
- Reference number: 159809 → General - Upgrade of MATLAB Runtime Compiler

The compatibility breaks are highlighted in red in the tables below.

5.2. Deprecated features

None.

5.3. Additional remarks / DLL versions / etc.

ComET 4.24A is based on EDI 4.24A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

5.4. List of new features

Reference number	Description
145610	**Force Control - Derivative gain supported**
	The derivative gain KF318 in force controller is now handled by the new Force Control tool.
159810	**Force Control - New refactored tool**
	A completely new refactored force control tool is now available for commissioning all force control modes (0, 1 and 2) supported by the AccurET controller (modes 0 and 1 are available since firmware 3.10A and mode 2 since firmware 3.19B). This new tool can only be executed on a 64-bit Windows Operating System and requires the prior installation of the MATLAB Compiler Runtime (MCR) version 2019b, which can be downloaded from: http://www.mathworks.com/products/compiler/mcr/. MATLAB® is a numerical computing environment and proprietary programming language developed by The MathWorks Inc.
158232	**General - Association of ETEL custom file types to ComET**
	Now, the following file types will be associated automatically to the ComET application during the installation: - *.cseq, *.eseq - *.emap - *.par - *.far, *.bar
162371	**General - ComET digital signature**
	All executable files provided with the ComET package are now digitally signed by ETEL.
158040	**General - Filtering files by file type**
	When opening/saving a file, the file filtering by the file type has been improved for better user experience (for e.g. the most suited file extension is proposed by default according to the type of file to open/save). Also, as the classical Sequence format is no longer supported, the file extension ".seq" was removed.
160428	**General - Incorrect use of the "Safety" terminology**
	The "Safety" wording used to describe various "protection" related functions could mislead the user to consider such features certified for "Functional Safety". The more adequate word "Protection" is now used instead.
159809	**General - Upgrade of MATLAB Runtime Compiler**

Reference number	Description
	The MATLAB Runtime Compiler (MCR) version 2019b is now required for running the external tools (Force control, QuiET and ZxT). Due to its size, the MCR is no longer included in the ComET installation package. The installer was modified to allow the download and installation of the MCR from the MATLAB website "http://www.mathworks.com/products/compiler/mcr/".
161807	**QuiET Tool - Harmonization of external tools installation folder and executable file naming**
	The QuiET tool installation folder and corresponding executable file have been renamed.
160522	**Setting - Add option to set a secondary encoder with a stepper motor configuration in open loop**
	For an application with a stepper motor in open loop, it is now possible to set a secondary encoder on the "position feedback" panel.
161808	**ZxT Tool - Harmonization of external tools installation folder and executable file naming**
	The ZxT tool installation folder and corresponding executable file have been renamed.

5.5. List of corrections

Reference number	Description
162199	**Controller Backup - Local network list not visible**
	When the window size was too small, the list of the available hosts was not fully visible.
153402	**Controller Backup - Unclear message when downloading a backup file**
	When trying to download a backup file (*.bar) to a device, the message displayed to inform that the download was not done because the device is already up-to-date was not sufficiently clear.
158176	**Controller Backup - Upload of UltimET Advanced firmware displayed the "null" word**
	When uploading the UltimET Advanced firmware blocks via the Controller Backup tool, the "null" word was inadvertently displayed on the progress bar.
157966	**Controller Backup - "Upload Master" was not selectable with an UltimET TCP-IP**
	If the name of the communication UltimET TCP-IP on the port properties did not include the word "UltimET", the option to select the UltimET was not available.
157967	**Controller Backup - Backup of unselected blocks**
	Using the advanced option, the blocks that were selected for backup and then unselected were still backup by the tool.
158180	**Controller backup - Application was crashing when performing a second backup**
	Performing a second controller backup without closing and restarting the tool was crashing the application.
162196	**Download Firmware - Local network list not visible**
	When the window size was too small, the list of the available hosts was not fully visible.
161441	**General - Timeout during download of Customer Software Module**
	An unexpected timeout error was occurring when downloading a Customer Software Module (CSM) with size bigger than 3.8 MB.
161085	**General - "Upload all logs" checkbox not uploading all log files**
	When selecting the "Upload all logs" checkbox for uploading all UltimET Advanced log files, only one log file was uploaded even if more existed in the motion controller.
157256	**General - Incorrect download of ISO registers when using EnDat encoders**

	When the controller was configured to use an EnDat encoder, but this one was not properly detected, the download of ISO registers was done without the proper conversion.
162760	**General - UltimET Advanced Upload Logs progress bar not working**
	When uploading logs from the UltimET Advanced, the progress bar was not being updated as the upload progressed.
161957	**I/O Control - Some I/O reservations were not signaled**
	When activating FDOUT/DOUT over RTV (C358), the tool was not displaying the output as reserved.
158037	**Identification - Unclear error message when saving an acquisition**
	An unclear error message was displayed when attempting to save an acquisition from a controller with which the connection was interrupted in the meantime.
140584	**QuiET tool - Controller parameters restored in case of error**
	During identification and performance tests, if a drive error occurs, the parameters which were temporarily modified for test purposes are restored.
161204	**Scope - Incorrect value displayed for long registers**
	On an acquisition, the XL, KL and a few ML registers' values were truncated to 32 bits.
162748	**Scope - Trace frequency wrongly rounded**
	When saving a Scope acquisition, the frequencies of the acquisition and of each trace were not rounded correctly.
159841	**Setting - Auto setting failing due to an incorrect KL55 parameter setting**
	When using a linear motor together with an EnDat 2.2 encoder, if the user returned to the Phasing panel after having configured the Feedback panel, the Encoder position increment factor (KL55) was incorrectly set to 0, leading the auto setting procedure to fail.
156275	**Setting - Current loop auto setting failed with an AccurET VHP100**
	An AccurET VHP100 controller driving a low inductance motor could fall into error during the auto setting of the current loop.
158250	**Setting - Motor encoder amplitude error**
	With the dual encoder feedback configured for using a 1Vptp encoder as motor encoder, the "Motor encoder amplitude error" error message was displayed when trying to moving to next Setting panel.
159566	**Setting - Unclear message in case of error during the phase connection check**
	The message displayed in case of error during the phase connection check was unclear regarding the nature of the problem. A new comprehensible error message is now presented to the user.
160523	**Setting - Wrong panel size**
	Sometimes panels were wrongly sized to screen, preventing the user from accessing certain functionalities on the user interface.
84325	**Stage Mapping - Axis name on the "Corrections" panel not updated**
	The axis name on the "Corrections" panel was not updated after having renamed the axis on the "Configuration" panel.
150257	**Stage Mapping - State unclear after a mapping error**
	Before, if not all the axes of the mapping group were active, the status displayed by the tool was "MAPPING NOT ACTIVE". Now, this message has been replaced by "INCONSISTENT MAPPING".
116913	**Stage Mapping - "No consistent mapping axes group found" warning was appearing when downloading the mapping**
	Under certain conditions, it was not possible to download a mapping if another mapping was already active.
158042	**System Configuration - Adding IP manually not working**
	It was not possible to add manually a controller accessible via TCP/IP using its hostname even if the association hostname/IP address was defined in the "C:\Windows\System32\drivers\etc\hosts" file.

162293	**System Configuration - ComET could block when loading the bus list**
	The application could suddenly freeze when loading the bus list in the System Configuration Manager tool if a connection was established with a controller and the Register Editor tool was opened.
157255	**System Configuration - Displaying wrong number of blocks**
	When downloading a configuration using the System Configuration Manager, a progress bar displays the number of blocks already downloaded alongside with the total number of blocks. Such information provided by EDI could be, under certain specific conditions, incorrect regarding the total number of blocks to download.
158043	**System Configuration - Incorrect message after download**
	Even if there was no firmware to download related to an UltimET motion controller, the tool was requesting to reboot it anyway.
149974	**ZxT tool - Open-loop, closed-loop and sensitivity transfer functions not updated in simulation mode**
	When in simulation mode, the open-loop, closed-loop and sensitivity transfer functions were not updated based on the controller and filter parameter settings (only the Stability curves were updated).

6. RELEASE 4.23A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Production Software Package – PSWP 09-2020	
Date of release:	2020-09-30	
Versioning and concerned products:		
AccurET Modular version 3.19A	AccurET 48 HW REV2	AccurET 300
	AccurET 400/600 HW REV2	AccurET VHP48 HW REV2
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET version 3.19A	UltimET Light PCI	UltimET Light TCPIP
	UltimET Light PCIe	UltimET Advanced
Software and APIs	EDI version 4.23A	ComET version 4.23A
	IMP version 1.03A (no update)	XT API version 1.00B (no update)
Main new features introduced with this release:		
AccurET Modular	The new Power Sag Detection feature improves the immunity to sudden and short power voltage sag.	
UltimET	First firmware release for the new UltimET Advanced product that will be launched by the end of 2020. This package includes all necessary files and tools to operate it.	
EDI	Improved real-time execution of EDI on RTX operating system. Reaction time to cyclic interrupts has been reduced and made more deterministic.	
ComET	Refactoring of multiple menus & tools in the GUI to improve user experience.	
	Extensive revision of the user documentation.	
Warning notice:		
None		
Compatibility breaks:		
There are 6 compatibility breaks: 4 on AccurET, 1 on EDI and 1 on ComET. For further details, refer to the corresponding release notes.		
Notes concerning this release:		
The version just released supersedes the former one that is now considered as a “Supported” item for a period of two years. Support on old FW/SW versions is subject to specific conditions, please contact your ETEL S.A. representative in case of need. All above versions have been developed and qualified to be operated together. Users upgrading FW/SW to the most recent versions must do so on all products simultaneously (UltimET, AccurET, EDI, etc.). Operation of multiple products with non-synchronized FW/SW releases is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
The following products produced from 2020-10-05 will contain this software package until further notice**:**		
• Firmware for AccurET Modular 48 HW Rev2 / 300 / 400-600 HW Rev2 / VHP48 HW Rev2 / VHP100: **3.19A**		
• Firmware for UltimET Light PCI / PCIe / TCPIP and UltimET Advanced: **3.19A**		
Internal reference number: 771421 ver./rev. 13/A.		

6.1. Compatibility breaks

None.

6.2. Deprecated features

None.

6.3. Additional remarks / DLL versions / etc.

ComET 4.23A is based on EDI 4.23A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

6.4. List of new features

Reference number	Description
155715	**Console - Control buttons not visible**
	Due to the minimum window size defined, some buttons were not visible in the user interface.
156336	**Download Firmware - Advanced operation panel displays block identification**
	The identification of the block is now presented on the Advanced operation panel.
156334	**Download Firmware - Recommendations panel extended**
	The list of precautions presented in the Recommendations panel of the Download Firmware wizard tool has been extended.
156008	**Dual Axis Force Control - Tool removed**
	Dual Axis Force Control tool is no longer available in ComET4. For further information, please contact your ETEL S.A. representative.
108620	**General - Menus refactoring**
	Menus have been refactored for an improved user experience.
148314	**General - UltimET Advanced product**
	The new motion controller UltimET Advanced is now supported.
147076	**Identification - Missing "Zoom reset" functionality**
	An additional button was added to reset the "Zoom" to default magnification.
155712	**S-Curve Profile: Graphical User Interface improvements**
	To improve the user experience and understanding of the tool, minor adjustments were introduced to the Graphical User Interface.
147065	**Setting - Conversion ratio not clear for indirect application configurations**
	On the Position feedback panel for indirect application configurations, the Conversion ratio did not remain as the user had defined. The displayed value, though accurate, was sometimes difficult to interpret.
145433	**Setting - Phasing fitting coefficient indicative of the quality of the phasing setting**
	Now, if the Phasing fitting coefficient (MF95) is above 5% for a particular phasing setting, a warning message suggests the user to refer to the AccurET position controller documentation for guidelines on how to improve the phasing setting.
121733	**Setting - Setting of the error propagation groups could not be immediately verified**
	At the final stage of the setting process, a pop-up dialog box appears to remind the user to check the consistency of error propagation groups setting with the rest of the configuration. However, when pressing the OK button, the setting assistant was immediately closing, forcing the user to find an alternative way to

Reference number	Description
	reach the corresponding configuration panel.
153258	**Setting - Speed error limit was not correctly computed**
	Errors could occur on other tools (e.g. Advanced Feedforward Tuning) because the Speed error limit setting (K31) default value was not correctly computed.
156445	**Setting -The I/O configuration button was always disabled**
	It is now possible to launch the I/O Configuration tool directly from the first panel of the Setting tool is the Controller is equipped with analog I/Os.
154780	**Setting - Failing Di/Dt verifications generate a warning**
	Before errors were generated when the Di/Dt verifications were failing and the user could not proceed with the setting. Now, these errors were replaced by the following warnings and the user can still proceed with the setting: Warning RATING: in order to ensure a proper operation of the Controller and avoid damaging the motor from overheat, it is recommended to add an inductance in series with the motor or decrease the Ubus. Refer to the corresponding Hardware Manual, under the Ratings chapter, for further details. Warning RATING: in order to ensure a proper operation of the Controller and avoid damaging the motor from overheat, it is recommended to limit the motor speed to dMaxSpeed + sUnit. Refer to the corresponding Hardware Manual, under the Ratings ratings, for further details.
117120	**System Configuration Manager - Add automatic detection of ETND bus type**
	Now, available ETND connection buses are also detected and displayed in the list of available buses for selection.

6.5. List of corrections

Reference number	Description
156444	**Advanced Feedforward Tuning - Incorrect labelling of the graph**
	The label of the graph incorrectly identified the measurements as being the theoretical current before advanced filters (though the reference to MF230 in between brackets was correct).
143937	**Advanced Feedforward Tuning - The error Error acquiring data from device. No constant speed zone for speed... was generated under certain conditions**
	The Advanced Feedforward Tuning tool was raising the error Error acquiring data from device. No constant speed zone for speed... when the tangential speed could not be reached for the given stroke. This was often the case when using movement software limits on torque motors with small diameters.
109705	**Editor - Editor was blocked in debugger mode after hitting the emergency stop (ESC key)**
	It was not possible to exit the debugger mode if the emergency stop (ESC key) was used when the sequence execution was on-hold because of a breakpoint.
131918	**Editor - Cursor was scrolling to the top of the view**
	With a change in the connection status (e.g. connection lost), the cursor in the Editor tool was automatically moved to the top of the view, forcing the user to scroll back to its previous position in the document.
154777	**General - Erasing sequence and/or parameters when downloading a firmware did not work**
	If the firmware was already up-to-date (hence, no need for downloading blocks), the erase sequence and/or parameters was not possible.
152269	**General - Plots were disappearing when zooming out the view**
	On multiple tools, for e.g. the Scope, Viewer and Identification tools, plots being displayed with logarithmic scales would disappear when zooming out the view too much.
149538	**General - Sequence compiler raised an unexpected error**
	The first line of a sequence file was not being fed to the sequence compiler. As such, depending on what this line actually contained (e.g. if it contained the beginning of a comment using the character /*), the

Reference number	Description
	compiler could raise a compilation error.
154076	**General - Incorrect behavior of sequences pre-compiled with the Offline ISO sequence option**
	Sequences pre-compiled with the Offline ISO sequence option and using time conversions based on time factors provided by the controller could experience an incorrect behavior, while the same sequence pre-compiled with a connection to the controller would not.
146257	**General - Temporary irresponsiveness after a failed attempt to establish a connection**
	ComET was temporarily irresponsive to user interaction after a failed attempt to establish a connection.
157720	**General - Unable to reconnect after a RSU command**
	When connected via TCP/IP to an UltimET Light or UltimET Advanced motion controller, the communication was sometimes irrecoverable after sending a RSU command to these controllers.
152826	**Identification - Position controller configured to operate on Gantry control level 1 fell in error during identification**
	It was not possible to do an identification of a position controller configured to operate on Gantry control level 1 when using an external reference mode.
147069	**Identification - Emergency stop caused ComET to terminate abruptly**
	Hitting the emergency stop (ESC key) to stop the identification process at the beginning of a measurement acquisition could cause ComET to terminate abruptly.
113468	**Identification - Incorrect diagrams**
	A few diagrams concerning the ZXT product were not correct.
86590	**Identification - Unclear error message when saving an acquisition**
	An unclear error message was displayed when attempting to save an acquisition from a Controller with which the connection was interrupted in the meantime.
156591	**Monitor - Displaying wrong values**
	Wrong values could be displayed when selecting a register for which the selected depth does not exist.
142414	**Regulation - Inconsistent regulator configuration could occur in case of multiple simultaneous connections to the controller**
	In case of multiple connections to the controller, it could happen that the update of one regulator setting sent over one of the connections could be overwritten by that of another connection, potentially resulting in an inconsistent regulator configuration.
127269	**Scope - Inconsistent trigger information stored in an acquisition file**
	If the trigger configuration was modified after realizing an acquisition and no acquisition was realized subsequently this modification, the trigger information stored in the file together with the acquisition data was inconsistent.
149303	**Scope - Traces not visible after panning view with the hand drag tool**
	When using the hand drag tool to pan a scope view displaying traces of registers with integer values together with traces of registers with other value types, the traces of the integer value registers disappeared.
142094	**Setting - Auto-setting was failing when using an EnDat 2.1 encoder**
	The auto-setting was failing with the error Zero position of the EnDat encoder not found being raised when using an EnDat 2.1 encoder.
126526	**Setting - Selection of encoder types EnDat, TTL and HSEI was not working**
	On the Position feedback dialog box, the encoder type was not properly retained for the encoder selections EnDat or TTL. Furthermore, having selecting an analog encoder type (1Vptp), it was not possible to select the HSEI input of an AccurET VHP position controller.
157457	**Setting - Unexpected error message**
	When using a USB connection, the unexpected error message System error: Setting tool will abort without saving parameters was popping up when transitioning from the Motor selection panel and to the Position

Reference number	Description
	feedback panel.
157069	**Setting - Incorrect information displayed linked to the position feedback**
	Under certain conditions, the information about the Controller maximum values and Subsequent resolutions displayed in the dialog box for adjusting the encoder interpolation factor in the Position feedback panel was not corresponding to the selected interpolation factor.
147070	**Setting - SLS (Search Limit Stroke) could not be executed to find the position limits**
	On the Safeties panel, if another axis registered to the first propagation error group was in error, the current axis could not be powered on to execute a SLS.
152133	**Setting - Tool was failing when connected to an AccurET VHP (48 or 100) in simulation mode**
	With a simulated connection established with an AccurET VHP (48 or 100), the error "String index out of range: 25" was popping up when exiting the "Application configuration" panel, preventing the setting tool from progressing further.
96901	**Stage Mapping - When saving a mapping file, the Controller info sub-section was corrupted**
	On a saved stage mapping file, the information of the Controller info sub-section appertaining to the "Header" section was wrong for all axes present, except one.
155824	**Stage Mapping - Error when saving a *.emap file**
	The default path used to save a stage mapping file was not taking in to account the preferences settings, but was pointing to the root of the "C:" drive. On certain Windows installations, for security reasons, the write access rights for this location are blocked, preventing the stage mapping from saving correctly the *.emap file.
154942	**Startup - Relative move and Absolute move were not working**
	On the Use Controller panel, the axis was not moving when clicking on the buttons Relative move or Absolute move.
152677	**System Configuration Manager - Add IP manually function was not working**
	It was not possible to add manually add a bus by specifying the IP address.
150343	**System Configuration Manager - The download progress bar was not providing a very accurate information**
	The information displayed on the progress bar when downloading a System Configuration file was deceptive about the real progress of this process.
130589	**Terminal - Double floating point values not displayed properly**
	Double floating point values close to range limits (±1.8E308) were not being displayed properly and the floating point precision was increased to 15 digits (instead of 8 digits).

7. RELEASE 4.22A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Production Software Package – PSWP 12-2019	
Date of release:	2019-12-20	
Versioning and concerned products:		
AccurET Modular version 3.18A	AccurET 48 HW REV2	AccurET 300
	AccurET 400/600 HW REV2	AccurET VHP48 HW REV2
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET light version 3.18A	UltimET light PCI	UltimET light TCPIP
	UltimET light PCIe	
Software and APIs	EDI version 4.22A	ComET version 4.22A
	IMP version 1.03A	XT API version 1.00B
Main new features introduced with this release:		
AccurET Modular	AccurET EtherCAT improvements: better support of Station Alias (axis number), new flexible PDO objects and possibility to share data like RTV.	
	New braking distance monitoring for an increased safety.	
	Faster setting of the Trigger feature thanks to new commands available.	
	I/O management through RTV now available.	
ComET	Setting tool enhancements: support of EtherCAT mode.	
	QuiET tool enhancements: individual tuning of X and Y static masses.	
	ZxT tool enhancements: support of USB connection.	
	Minor cosmetic improvements to the user interface.	
EDI	Update of the UltimET light PCI/PCIe driver.	
	Renaming of the AccurET USB driver.	
	Drivers' signature for Windows and RTX operating systems.	
	Addition of functions for configuring Fast I/Os.	
Warning notice:		
ETEL will no longer support any action (neither on feature changes, nor on bug fixes) for AccurET and UltimET light firmware versions 2.xx and older. These firmware were designed and released until 2012 to run on AccurET rev.1 discontinued since then.		
Compatibility breaks:		
There are 9 compatibility breaks: 2 on EDI, 2 on ComET and 5 on AccurET. For further details, refer to the corresponding readme files.		
Notes concerning this release:		
All above versions have been developed and qualified to be operated together. Users upgrading FW/SW to the most recent versions must do so on all products simultaneously (UltimET, AccurET, EDI, etc.). Operation of multiple products with non-synchronized FW/SW releases is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
The following products produced after 2020-01-10 will contain this software package until further notice:		
• Firmware for AccurET Modular 48 HW Rev2 / 300 / 400-600 HW Rev2 / VHP48 HW Rev2 / VHP100: **3.18A**		
• Firmware for UltimET light PCI / PCIe / TCPIP: **3.18A**		
Internal reference number: 771421 ver./rev. 12/A.		

7.1. Compatibility breaks

There are two compatibility breaks with this release:

- Reference number: 148379 → Force Control - Wrong filters taken into account in the identification.
- Reference number: 142026 → Identification - Tracking error during identification of a Gantry.

The compatibility breaks are highlighted in red in the tables below.

7.2. Deprecated features

None.

7.3. Additional remarks / DLL versions / etc.

ComET 4.22A is based on EDI 4.22A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

7.4. List of new features

Reference number	Description
108759	**General - ComET singleton behaviour**
	ComET is a singleton application. Before, a user starting ComET with an instance already running was not properly informed of the existence of this instance. Now, the application icon of ComET starts blinking in the Windows taskbar to sign the user that the application is already running.
142976	**Multi-Axis Scope - Displaying the registers' full name on the scope**
	On the Multi-Axis Scope, a tool-tip with the full name of the register appears when hovering the ComboBox with the register being traced. Additionally, the register text is now displayed in full in a multiline textbox on the dialog box appearing after pressing the button "More...".
149134	**Processor Load - Default selected firmware**
	The behavior of the Processor Load tool was modified to select by default the last entry in the "Firmware" listbox dropdown control, corresponding to the most recent firmware available for the selected Device type (before it was the first entry).
140580	**QuiET tool - Static masses X and Y can be tuned individually**
	In the leveling tool, additional check boxes have been added so that the user can manually tune either mass X or Y, or both. The previous result obtained for the unselected axis is kept.
149604	**Setting - Support of EtherCAT mode**
	It is now possible to set a drive configured in EtherCAT mode using the USB communication interface.
132480	**ZxT tool - USB connection added**
	A single ZxT module (without any other axes) can now be commissioned using a USB connection, instead of the compulsory UltimET as in previous versions.

7.5. List of corrections

Reference number	Description
144655	**Advanced Feedforward Tuning - Friction: Recurrent error speed is set too high**
	On the "Advanced Feedforward Tuning" tool, under the Friction and Acceleration panel, the speed is set too high error could be triggered erroneously at the beginning of the process using the default tool configuration.

Reference number	Description
147118	**Console - Console tool not working with a rotary axis with software limits enabled**
	The Console tool was not taking into account the software limits in case of a rotary axis.
147083	**Console - Impossible to add axis**
	No axes were visible in the Console tool for the configuration of a ZxT device with additional axis.
100153	**Controller Backup - Backup freezes when AccurET is in "wait for program" state**
	The controller backup was failing when a USB communication is established with the AccurET and the boot mode is modified (reboot of the controller with a download key present).
146987	**Editor - On the "Upload registers" dialog box, the number of depths to upload not correctly taken into account**
	On the Upload registers dialog box, the number of depths was being forced to "Upload valid depths" when the checkboxes "Upload all registers types" or "Upload without monitoring" were selected, instead of respecting the user's selection on the radio buttons.
148379	**Force Control - Wrong filters taken into account in the identification**
	For the identification case 'Process Only' and 'Mode 1', the speed filter (corresponding to advanced filter #1) was erroneously taken into account in the identification, while the force reference filter #4 (corresponding to advanced filter #5) was erroneously omitted.
146294	**General - Erasing parameters or sequence during firmware download is not working**
	Since version 4.20A, the options "Erase parameters" and "Erase sequence" during the firmware download process were not working.
149155	**General - Memory leak when the warning appears on AccurET**
	When warning is toggling on AccurET, the memory of ComET increased very fast.
149537	**General - Sequence compilation and download through USB**
	Using the USB communication interface, an unexpected compilation error "No device found for target axis" was generated when downloading on the second axis a sequence containing references to the first axis.
126895	**Identification - Missing configuration information in saved file**
	In the Advanced Identification tool, the information about the input/output signal registers was missing.
142026	**Identification - Tracking error during identification of a Gantry**
	The Gantry absolute tracking error limit (K30:1) was not taken in account when establishing the noise level to inject during an identification. As such, if this limit was set lower than the axis absolute tracking error limit (K30:0), a Gantry tracking error could be raised during the identification.
130946	**Identification - Wrong units for stiffness identification with a rotary axis**
	The units for stiffness were incorrect for a rotary axis (dB N/t instead of dB Nm/t) and were expressed in dB. Now, the units are expressed in N/µm for linear stiffness and Nm/deg for rotary stiffness, with a logarithmic scale.
126429	**Multi-Axis Scope - Wrong depth of a trace on the scope**
	When tracing a register's depth that is supported on one type of AccurET (e.g. M7:1 on a ZxT FW) and then changing the axis to another type of AccurET not supporting the same number of depths, the register's depth to be traced was wrong and it was not possible to change.
128291	**Multi-Axis Scope - "Save curve in a file" and "Export to Excel" options under the "File" menu not working**
	When starting an acquisition without having user focus on the "Multi-Axis Scope" tool, by using for e.g. the F3 or F6 keys, both options "Save curve in a file" and "Export to Excel" under the "File" menu are available for selection by the user, but their functionality was not working.
148535	**Setting - Bad units displayed on the Position feedback configuration panel**

Reference number	Description
	In case of a linear axis, the units were incorrect at the very first display of the Position feedback configuration panel in editor mode.
148756	**Setting - K58 not properly set**
	K58 was incorrectly set during the drive setting for two specific limit switch modes (limit switches on DIN9/DIN10 and L1/L2). In addition, there was an error if the home switch and limit switches were both set to digital inputs.
124369	**Setting - Position loop auto-tuning remains blocked with rotary TTL encoders**
	When using low resolution rotary TTL encoders, the excitation for the identification of the position loop could be set incorrectly to zero, blocking the identification process and thus preventing it from executing to the end.
124368	**Setting - The command AUT=2 could fail following an auto-setting**
	During an auto-setting, the computation of the information required for searching the motor phases (command AUT=2) was not taking into account the stall current (K84:1). As such, the command AUT=2 could end in error.
115115	**Unit Converter - Incorrect tooltips**
	Some registers related to the DSC product were present on the tooltip in the Unit Converter tool.
109922	**Viewer - Acquisition file name not fully visible**
	A selected filename is not visible if its length is longer than the size of the corresponding dropdown listbox control. Now, the full filename is also displayed on a tooltip when hovering the mouse over the corresponding control. The same is available for the "Math function" textbox control.
149526	**ZxT tool - Closed-loop transfer function calculation correction**
	The calculation of the closed-loop transfer function has been corrected. This results in minor differences in the displayed Bode plots for diagonal terms (except at frequencies beyond 1kHz), but large differences over the entire frequency range in the off-diagonal terms corresponding to couplings between linear Z and rotational Rx/Ry axes.
148878	**ZxT tool - Lead-lag filters correctly calculated**
	Lead-lag filters are correctly simulated and do not cause any software error if a double lead or lag filter is defined.
148876	**ZxT tool - No error when selecting "No Axis Connected"**
	When selecting "No Axis Connected" in the "Feedforward Tuning" tab, the error message is avoided.

8. RELEASE 4.21B

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Intermediate Release – RELEASE 08-2019	
Date of release:	2019-08-30	
Versioning and concerned products:		
Software and APIs	EDI version 4.21B	ComET version 4.21B
		XT API version 1.00B
Main new features introduced with this release:		
EDI	These corrective versions fix a potential problem with the System Configuration Manager tool and the related EDI functions. Indeed, a bug could occur when the system image contained a sequence with an "autostart" function that executes a *SAV command.	
ComET		
XT API	This corrective release fixes the conversion calculations that were incorrect when having an angle offset between the Wafer and the Stage coordinate reference systems.	
Warning notice:		
It is recommended to upgrade EDI and ComET with these new versions where the System Configuration Management is used.		
Compatibility breaks:		
None		
Notes concerning this release:		
Above versions have been qualified with AccurET firmware 3.17A and UltimET light firmware 3.17A. It is therefore strongly recommended to use the same configuration. Operation with other configuration is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
No modification on the production. The manufactured products will still contain the same firmware version until further notice**:**		
• Firmware for AccurET Modular 48 HW Rev2 / 300 / 400-600 HW Rev2 / VHP48 HW Rev2 / VHP100: **3.17A**		
• Firmware for UltimET light PCI / PCIe / TCPIP: **3.17A**		
Internal reference number: 771421 ver./rev. 11/A.		

8.1. Compatibility breaks

None.

8.2. List of corrections

Reference number	Description
148459	**System Configuration Manager - System Configuration Manager generates error -214 (No drive present) with an UltimET containing a sequence with an autostart function that executes a *SAV command.**
	On a *SAV command, UltimET needs more time to detect the presence of the TransnET communication bus. EDI has been modified to wait an additional time for the TransnET to recover, if its presence was already detected previously.

9. RELEASE 4.21A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Production Software Package – PSWP 06-2019	
Date of release:	2019-07-05	
Versioning and concerned products:		
AccurET Modular version 3.17A	AccurET 48 HW REV2	AccurET 300
	AccurET 400/600 HW REV2	AccurET VHP48 HW REV2
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET light version 3.17A	UltimET Light PCI	UltimET Light TCPIP
	UltimET Light PCIe	
Software and APIs	EDI version 4.21A	ComET version 4.21A
	IMP version 1.03A	XT API version 1.00A
Main new features introduced with this release:		
AccurET Modular	EtherCAT Touch Probe feature.	
	Force Control enhancement for faster touchdown detection.	
	Improved TTL encoder integration.	
	VHP100 protection.	
UltimET light	Support of TELICA dual-gantry system.	
ComET	Improved settings tool for incremental EnDat and TTL encoders.	
XT API version 1.00A	First release of the library for controlling CHARON2 XT systems.	
Warning notice:		
It is mandatory to upgrade any AccurET VHP100 to this firmware 3.17A. There is a risk of hardware damage when using the previous firmware versions.		
Compatibility breaks:		
There are minor compatibility breaks that are described under the specific readme files (3 for AccurET and 2 for ComET).		
Notes concerning this release:		
All above versions have been developed and qualified to be operated together. Users upgrading FW/SW to the most recent versions must do so on all products simultaneously (UltimET, AccurET, EDI, etc.). Operation of multiple products with non-synchronized FW/SW releases is not guaranteed and not supported by ETEL S.A.		
Information about production deployment:		
The following products produced after 2019-07-08 will contain this software package until further notice**:**		
• Firmware for AccurET Modular 48 HW Rev2 / 300 / 400-600 HW Rev2 / VHP48 HW Rev2 / VHP100: **3.17A**		
• Firmware for UltimET light PCI / PCIe / TCPIP: **3.17A**		
Internal reference number: 771421 ver./rev. 11/A.		

9.1. Compatibility breaks

There are two compatibility breaks with this release:

- Reference number: 139617 → Setting - The limits of the Di/Dt was not corresponding to the hardware manual.
- Reference number: 137904 → Force Control - Approach with constant speed

The compatibility breaks are highlighted in red in the tables below.

9.2. Deprecated features

None.

9.3. Additional remarks / DLL versions / etc.

ComET 4.21A is based on EDI 4.21A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

9.4. List of new features

Reference number	Description
137904	**Force Control - Approach with constant speed**
	If the firmware version is 3.16A or later, the force control tool now activates the force control by default with constant speed approach (bit #2 of K302 set).
137066	**General - Indicate to the user that the drive is in wait for program**
	In case of connection problems, the drive did not make any difference between some different situations: wait for program status, drive off, no USB drivers. In all cases the error no drive present was displayed. Now a suitable message is displayed for some of these cases and the message indicates suggestions for the user.
135715	**Setting - Check index signal with TTL encoder**
	Since the firmware version 3.17 of AccurET, M39 (Index quality) is compatible with TTL. This new functionality has been also added on Display & Adjust function of the Encoder setting.
136798	**Setting - Missing phasing and homing process with incremental EnDat**
	There was an incompatibility between the AccurET firmware 3.16A and ComET regarding the setting of an incremental EnDat. Now ComET is supporting also this firmware.
139617	**Setting - The limits of the Di/Dt was not corresponding to the hardware manual.**
	On the setting tool, the limits of the Di/Dt were based on the controllability of the current loop. This was not good enough to protect the AccurET. Now the new limits are in accordance to the values indicated on the hardware manual chapter Ratings.
124222	**ZxT - Progress bar for factory offset search (Search Zero)**
	The progress of the factory offset search is now displayed by a progress bar.

9.5. List of corrections

Reference number	Description
143585	**Advanced Feedforward Tuning - Acquisition Range Error**
	Depending of the Min / Max position used on the cogging, the error Acquisition Range Error was occurring after the end of the process. Now if the Min / Max positions are not set appropriately the user is informed before the process begins.
145765	**Controller Backup - Upload error in wait for program mode**

Reference number	Description
	Backup drive tool was displaying the error unable to retrieve FW block list during parameters upload in wait for program mode.
145768	**Controller Backup - Error uploading parameters in wait for program mode**
	During the upload parameters process, if an error is produced when the drive is in wait for program mode, a message dialog is displayed to inform the user that a problem was detected in the access to fw blocks.
145612	**Force Control - Tool did not check non supported Kd gain for mode 0**
	The tool now checks that no Kd gain is set. If it is set, it shows an error message and prevents the user to continue the tuning and identification process.
144258	**Identification - Error on gantry identification**
	An error was generated at the end of the identification process on a gantry (Mode 1) since ComET ver 4.20A
140214	**Identification - Motor coil identification issues**
	Motor coil identification presented some transfer function calculation issues for VHP48 QUIET & VHP48 ZXT products. Additionally, some current limit considerations where not applied to all VHP products.
135179	**Identification – Abrupt movement generated.**
	The external force reference is active for some moment at the beginning of the identification process. This produced an abrupt movement when this external force reference was pointing to a high value register.
146512	**Identification: Two-phase motor coil identification with AccurET VHP failed**
	Two-phase motor coils identification computation was erroneous in certain cases depending on the setting of the motor phase and phase inversion settings (register K56).
136924	**QuiET – Feedforward model was not checked**
	The QuiET tool compares now the feedforward model set in the tool with the setting in the QuiET controllers. An error message is displayed when a mismatch is detected upon connecting to a system, loading a new file or modifying the feedforward model set in the tool. It is not possible to execute static masses or feedforward model tuning while the mismatch exists. The status field of the corresponding user interfaces inform the user of the problem.
136602	**Setting - Auto setting failed with dual feedback**
	All types of dual feedback other than 1Vptp on the payload and TTL on the motor were not correctly managed during the autosetting process.
142963	**Setting - Dual feedback with HSEI encoder**
	Different issues have been resolved: - When the user selects EnDat on the Motor Encoder, the HSEI selected on the payload was incorrectly changed to a 1Vptp. - When the user moves back and forth between the Motor panel and the Position feedback panel, several save and reboots were done. This had an impact on the execution time. - In edit mode, the first time the user opened the Position feedback panel, the indirect movement conversion ratio was incorrect. - In some cases, with Endat selected, the encoder reading way inversion (register K68) was wrongly set during the Auto setting.
136504	**Viewer - Trace M43 was only displayed in INC on Viewer tool.**
	Register M43 requires a non-linear conversion from INC to ISO. This conversion is now implemented in the viewer but this requires reading additional properties from a connected device. The conversion is done only when a connected device is found that has similar properties to the device from which the trace was acquired. If such a device is not found, an error message is shown to the user indicating that only INC units are available.

10. RELEASE 4.20A

NEW SOFTWARE RELEASE FOR ACCURET/ULTIMET PRODUCT FAMILY		
Type of release:	Production Software Package – PSWP 12-2018	
Date of release:	2018-12-14	
Versioning and concerned products:		
AccurET Modular version 3.16A	AccurET 48 HW REV2	AccurET 300
	AccurET 400/600 HW REV2	AccurET VHP48 HW REV2
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET light version 3.16A	UltimET Light PCI	UltimET Light TCPIP
	UltimET Light PCIe	
EDI version 4.20A	**ComET Version 4.20A**	**IMP Version 1.03A**
Main new features introduced with this release:		
AccurET Modular	EtherCAT compatibility (requires specific AccurET hardware P/N)	
	Incremental EnDat2.2	
	Intermittent Dual Encoder Feedback	
	Continuous Traces	
	Faster Compiled Sequence with execution stack in fast internal memory	
UltimET light	Continuous Traces	
	Faster Compiled Sequence with execution stack in fast internal memory	
EDI	Continuous Traces Acquisition	
ComET	ZxT tool: possibility to perform feedforward tuning and simulate the regulator	
	Possibility to perform cogging measurement in a single direction	
	Warning to user when firmware / register download attempted on wrong device	
Warning notice:		
It is mandatory to upgrade any AccurET VHP100 to this firmware 3.16A! There is a risk of hardware damage when using the previous firmware versions.		
Compatibility breaks:		
There are minor compatibility breaks that are described under the specific readme files (1 for AccurET, 1 for ComET and 2 for IMP).		
Notes concerning this release:		
None		
Information about production deployment:		
The following products produced after 2018-12-17 will contain this software package until further notice**:**		
• Firmware for AccurET Modular 48 HW Rev2 / 300 / 400-600 HW Rev2 / VHP48 HW Rev2 / VHP100: **3.16A**		
• Firmware for UltimET light PCI / PCIe / TCPIP: **3.16A**		
Internal reference number: 771421 ver./rev. 10/A.		

10.1. Compatibility breaks

There is one compatibility break with this release:

- Reference number: 128938 → Identification - Enhance of identification noise injection process to be more robust with respect to possible i2t, overcurrent or tracking errors.

The compatibility breaks are highlighted in red in the tables below.

10.2. Deprecated features

None.

10.3. Additional remarks / DLL versions / etc.

ComET 4.20A is based on EDI 4.20A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

10.4. List of new features

Reference number	Description
129865	**Advanced Feedforward Tuning - Cogging: changing MMD value while window is open.**
	Now when we start the cogging measurement, we set the registers the K201 at 0 (no concatenate motion) and the K202 at 1 (S-Curve profile).
129861	**Advanced Feedforward Tuning - Cogging: timeout with infinite rotary axis**
	Now if we are with a rotary motor, and if the position is not between -0.2 and 1.2tr, the tool will execute an homing.
129266	**Dual Axis Force Control Tool - Power off the axes**
	At the end of the tests the axes are now powered off.
137627	**Force Control - Edit upper limit after touchdown KL314**
	The user can now see and edit the upper position limit after touchdown, KL314.
135711	**Force Control - Show Partial Identification Results**
	Now the Force Control tool always shows the results of a successfully completed identification, even if the final step of the identification procedure (find stable controller parameters) or the tuning fails. Simulation and manual tuning is enabled.
131616	**Force Control - Buttons to copy force control parameters from axis or Stability tab**
	The user can now copy the current force control setting of the axis to the regulator panels of the Identification or Stability (simulation) tab. He can also copy a simulated regulator from the Stability tab to the regulator panel of the Identification tab.
133685	**Force Control - Identification of mode 0 force control with controller in the loop**
	The possibility to do an identification with the mode 0 force controller in the loop was added to the Force Control tool.
129813	**Force Control - Improved estimator tuning**
	The data processing is now better adapted to the actual calibration motion.
131613	**Force Control - Inconsistent Scope setup for force control test features**
	For the estimator and force control test features, the Force Control tool enforced a default Scope setup for the test only if the Scope was not already open. If the Scope tool was already open, the test was performed with the current Scope setup. This was not clear to the user. Now the user can select between enforcing the default Scope setup for the test or the current Scope setup with a check box next to the test

Reference number	Description
	buttons.
132808	**General - Add link to the technical files on the help menu.**
	On the doc directory of ComET, there are some technical files which can be now open from the Help menu of ComET.
123211	**General - Not convenient button focus after a firmware download**
	Now the focus after the download firmware is on the Close button.
136527	**General - Separate the Rx/Ry position loop.**
	For the tools Filter Design and Regulation, we are now supported the new regulator for RxRy. This one has a position loop for each axes (Rx and Rx).
105344	**General - UltimET advanced on ComET**
	Now UltimET advanced is visible on ComET
130686	**General - Warning list**
	There are now two possibilities to have access to the AccurET/UltimET warning list. It can be found in the help menu of ComET or by pressing F9.
126950	**Identification - Add measurement information on the identification results file.**
	Add on the identification results file, the information of the specify noise injection point and identification transfer function unit.
128938	**Identification - Enhance of identification noise injection process to be more robust with respect to possible i2t, overcurrent or tracking errors.**
	Two problems have been identified and addressed: 1. The maximum values for the criterias checked during the increase noise process were verified 1 extra cycle after the change of the noise gain. A synchronous acquisition, which was blocking the verification one cycle before has been replaced by an asynchronous acquisition. 2. The max value was taken after the filters, so indeed the action of this filters was mitigating the signal, thus the noise gain was increased too much for certain axes (arising i2t, overcurrent or tracking errors). Now, the inspection of max values have been placed before filters (more conservative) to avoid the mentioned errors.
131008	**QuiET Tool - Check of controller's feedforward configuration**
	The tool now notifies the user if he is using a system definition of a stage without Z axis, but the QuiET controllers have feedforward configuration set for Z motion.
95976	**Setting - Add Dual feedback.**
	This is now possible to set a dual feedback with the Setting tool.
138537	**Setting - Rename Dual encoder feedback to respect the name written on the documentation**
	The new name is now Permanent dual encoder feedback.
123254	**ZxT Tool - Feedforward Tuning**
	The feedforward compensation of the stage X/Y motion can now be tuned.
132924	**ZxT Tool - Regulator Simulation**
	It is now possible to simulate the frequential behaviour of different settings of the ZxT position loop based on the recorded identifications.

10.5. List of corrections

Reference number	Description
135441	**Advanced Feedforward Tuning - Motion time limited to 180sec for the friction.**
	Now the timeout for the motion is proportional to the motion time.
130989	**Advanced Feedforward Tuning - Timeout when using infinite rotary motion (MMD=24)**

Reference number	Description
	When the tool was started with MMD=24, and if we were executed a second time the cogging measurement, the motor was in infinite rotary motion.
130945	**Advanced Feedforware Tuning - Cogging measurement sends position reference values out of KL34/35.**
	During the cogging measurement, a position was sent over the software limit. Then in MODESL=4 the measurement was not possible.
137965	**ComET Identification of Position loop could fail due to Linear amplifier overcurrent error on VHP100**
	Position loop can fail with an overcurrent error for VHP100 under some conditions (this is a very sensitive product for identification process). However, this is only happening when the user is letting the noise injection at position reference. The identification is working well if the noise is added on current reference (it can be done by means of the corresponding checkbox). So the solution proposal for the moment is to check by default this option (the one which is working) when VHP100 product is detected, so that the user can directly start the identification without worrying of enabling the corresponding option.
123785	**ComET Viewer generates an error when trying to open a file from Roll acquisition**
	ComET was returning a generic error as the file format is not recognized (because roll acquisition files preserve an old data format). The message has been adapted in case the file corresponds to a roll acquisition.
138559	**Dual Axis Force Control Tool - Improved error handling**
	When an exception occurs during program execution, the user is now notified and the tool interface is updated with the current system status.
129265	**Dual Axis Force Control Tool - .mat file creation**
	A .mat file is created to store the results of the tests. If it is not possible to create this file (due to write permission for example) it is not possible anymore to continue the tests and an error is produced.
134331	**Force Control - Cursors were reset when switching between raw or filtered data**
	The data cursors now maintain the same frequency value when changing the focus between raw or filtered data.
133786	**Force Control - Tool was not working with user position offset (ML4)**
	The tool was only reading the internal positions M0/M1 in [dpi], and did not work with a user position offset ML4. Now the tool considers only user positions M6/M7 and also works with an offset ML4.
129965	**Force Control - Estimator test optimized motion was not updated**
	The optimized motion profile for the estimator test is now updated after each tuning.
131374	**Force Control - New simulation button and faster identification data loading**
	A simulation button was added to the 'Stability' tab to make the simulation feature more visible. The speed of loading and displaying different transfer functions was optimized.
138030	**Frozen identification control diagram after RSD execution or loss of communication**
	When a user executes a RSD command or there is a loss of communication and at the same time the identification tool is open, the displayed identification control diagram can become frozen. When a loss of communication takes place, there can be still some drives access coming from the identification tool. As these drives are not present in the bus anymore (at least till reconnection established), this access entails some nullpointer exception generating a frozen effect in the control diagram. To solve this issue a proper access control to drives structures has been implemented.
136907	**General - Add an error when a download of register or sequence is done on the wrong axis**
	If the download process is executed to a wrong axis number, an error will warn the user of this bad use.
139656	**General - Download registers with option Erase before download is not working.**

Reference number	Description
	In some cases, the new command was not executed or can be executed on a group of registers not present on the downloaded file.
129583	**General - Download sequence from file does not work**
	It was not possible to download sequence from file if the file was in UNIX format.
137099	**General - Pre-compiled sequence does not work if there is only one axis on the parameters file.**
	If we had only one axis on the parameters file used for the pre-compiled sequence in ISO, this process was not working.
130277	**Identification - Not possible to execute position loop identification on the virtual axis Ry.**
	If there was another axis after the virtual axis, for example my virtual axis is 5 and there is the axis 6, the option Measurement on Ry was not present on the identification tool for a Position loop measurement.
119564	**Identification - Wrong results using raw/filtered data radio button: wrong resulting cursors position, wrong gain field value.**
	The cursors position and the gain field value are incorrectly updated in the cursor panel of the identification tool when the raw/filtered data combo box is used. This is due to a cyclic recursive update of values coming from a wrong control of listeners chain update process.
126707	**Identification - ZxT: combo box not updated correctly.**
	The combo box Measurement on Ry was not updated correctly.
132152	**QuiET Tool - More specific system status display for the different applications**
	The different applications have different levels of prerequisites for running. The System Status display refers now to the application specific prerequisites instead of minimum prerequisites common to all applications. Previously, the user did not get sufficient information in case the application could not be started.
138530	**QuiET Tool - Incompatibility with Windows 10**
	The QuiET and other Matlab based tools were sometimes not properly working under Windows 10, depending on the Windows 10 setting. This was caused by a bug in Matlab 2015a and is solved now by compiling the tools with R2017b.
129979	**Register editor - ComET Register editor blank at reconnections**
	With a communication USB it was possible, after a RSD, to have the register editor empty.
134544	**Scope contextual menu (used to hide graphical components) does not show up when scope tool is docked.**
	The frame component of the scope tool changes some properties when it is docked. Some visibility properties were blocking the contextual menu display. Attaching the contextual menu to a subcomponent with suitable properties fixed the problem.
129519	**Setting - Limit switches Active HIGH not taken into account.**
	With the limit switches the K32 was not correctly set.
131749	**Setting - On the Motor environment panel, the DIN status of the limit switches is never updated.**
	The status of the limit switches was not updated.
139854	**Setting - Oscillation during auto-setting of the current loop.**
	Now, during the auto-setting, the current loop identification is not executed for frequency lower than 156Hz.
136799	**Setting - Wrong index with Endat**
	During the drive setting, at the first time we select Endat22, we were wrongly testing the index.
132735	**Stage Mapping - Error when copying an excel table.**
	It was not possible to copy a correction data table from Excel to the stage mapping tool.

Reference number	Description
135900	**System Reporting - some fields were obsolete.**
	Some fields were defined for old product. --
127273	**Wrong value and units in trigger panel when trace value is used as trigger configuration.**
	The value & units of the trigger panel in Scope tool were not updated if the trigger configuration corresponded to a trace value and the corresponding trace was changed (on the trace panel) by another one. For example, if the trigger was focused on the first trace defined as MF31 [A], if the user wanted to change the register of this trace by M14 [m/s^2], the units of the trigger panel remained to [A] even though the register was updated by the new one (M14). Now, the value and the units are properly updated.
139365	**ZxT Tool - Changing number of tip/tilt directions did not work**
	The number of tip/tilt directions could not be changed because the required function was not added to the compiled tool. This is now corrected.
131879	**ZxT Tool - Better handling of incomplete data for tip/tilt limit stroke search**
	The user is now informed if the result data is incomplete, in particular when some Z levels are skipped because they exceed the mechanical stroke. The manufacturing log data is computed correctly, only based on the actual measurements.
131880	**ZxT Tool - Configure file name for advanced identification containing current z level**
	An error occurred when configuring a basis file name containing the current z level for a series of identifications. This is now corrected.

11. RELEASE 4.17A

NEW SOFTWARE RELEASE FOR AccurET/UltimET PRODUCT FAMILY		
Type of release:	Production Software Package (PP08) – PSWP Q4 2017	
Date of release:	2017-12-07	
Versioning and concerned products:		
AccurET Modular firmware Version 3.14A	AccurET 48 HW REV2	AccurET 300
	AccurET 400/600 HW REV2	AccurET VHP48 HW REV2
	AccurET VHP100	AccurET VHP48 ZxT
	AccurET VHP48 QuiET	AccurET VHP100 QuiET
UltimET Light firmware Version 3.14A	UltimET Light PCI	UltimET Light TCPIP
	UltimET Light PCIe	
EDI Version 4.17A	**ComET Version 4.17A**	**IMP Version 1.01A**
Main new features introduced with this release:		
AccurET 3.14A	Continuous Trigger	
	Extend the number of TransnET RTV slots to 16 for reading and 16 for writing	
	New dual axis force control	
UltimET 3.14A	None	
EDI 4.17A	Support of RTX 2016 and RTX 64	
	Functions for Continuous Trigger	
	Functions for control of acquisitions	
	Signed drivers for UltimET PCI, UltimET PCIe & USB, under Windows 7, 8, 10	
ComET 4.17A	Force control setting tool for dual axis systems	
	Improvement of ZxT tool	
	Improvement of error and warning list	
IMP 1.01A	Continuous Trigger management	
	Bounds & kinematics evaluation between two trajectory points	
	Save PVT list to repeat execution without re-generating trajectory	
	Add trigger/time mark on way point	
	Double triggering issue solved	
Warning notice:		
There is no warning notice within this release.		
Compatibility breaks:		
There are minor compatibility breaks that are described under the specific readme files (2 for AccurET, 3 for ComET and 3 for IMP).		
Behavior changes:		
There is no behavior change within this release.		
Notes concerning this release:		
None		
Information on production release for the AccurET/UltimET product family:		
The software package installed in production from 2017-12-11 on our products contains the following versions**:**		
• AccurET Firmware for AccurET 48 **HW Rev2** / 300 / 400-600 **HW Rev2** / VHP48 **HW Rev2** / VHP100: **3.14A.**		
• UltimET Firmware for UltimET Light PCI / PCIe / TCPIP: **3.14A.**		
• EDI versions compatible with this package: **4.17A** (32bits and 64bits).		
• ComET on software DVD: **4.17A**.		
This package is referenced in TIS Document Nb.: 771421 ver./rev. 09/A.		

11.1. Compatibility breaks

There are three compatibility breaks with this release:

- Reference number: 123602 → Multi-Axis Scope - We lose the zoom when we modify an option on the Scales or Traces panels.
- Reference number: 122983 → Multi-Axis Scope - Bad setting of the sampling period on UltimET in some synchronized acquisitions.
- Reference number: 122553 → Multi-Axis Scope - FFT plot dB conversion formula.

The compatibility breaks are highlighted in red in the tables below.

11.2. Deprecated features

None.

11.3. Additional remarks / DLL versions / etc.

ComET 4.17A is based on EDI 4.17A. Please refer to EDI's corresponding Release Notes for additional information about changes potentially affecting the behaviour of ComET.

11.4. List of new features

Calls Id	Description
122248	**Dual Axis Force Control Tool - New tool available to tune systems using dual axis force control**
	A new tool has been developed in order to set and tune a system using the dual axis force control features.
129051	**Force Control - Automatic homing of force control axis**
	A homing is now done after powering on the axis if it is not indexed.
123241	**Force Control - Coherence plot**
	The coherence spectrum of a force control loop identification can now be displayed in the Force Control Tool.
129050	**Force Control - Enhanced identification and simulation features**
	It is now possible to identify the complete force loop (mode 1) separately. The user can select different transfer function diagrams, simulate different settings and save/load identification files.
129049	**Force Control - Estimator test feature**
	The force control tool contains now an estimator test feature.
129052	**Force Control - Minimum modulus margin for tuning can be increased by user**
	The user can now increase the minimum modulus margin all tested parameter sets need to fulfil to avoid instabilities.
119474	**Force Control - do not work in negative direction**
	Support of feedback calibration and force control tuning with contact in negative encoder direction.
122767	**General - Add option to upload register without monitoring**
	When uploading register, by default we upload the M, MF and ML. Now there is a new option to avoid the upload of those monitoring
126952	**General - ComET does not remember the position and size of the application window once the program is closed**
	When ComET program is closed and we execute it again, the application opens without respecting the window position and size of the last use before close.
119843	**General - QuiET and ZxT tool not on W32 bit Windows**

Calls Id	Description
	Add an error when we try to open an external tool (QuiET or ZxT... and all tools based on MatLab) on Windows32.
119253	**Logging tool - Log the info in a file**
	Preferences: By default the option for the Logging tool Erase log file at ComET start is now at false. Preferences: The path of the log file in the Logging tool setting was not correct. Logger: When the log file reaches the limit size defined in the preferences, a second file is created (comet4_1.log). Once this second file is created, it will always be the current log file. The next time, when the limit is reached, this current log file is copied into comet4.log and comet4_1.log is reinitialized.
122195	**Multi-Axis Scope - Trigger Selection: refresh of the computed sampling time**
	In the Trigger Selection, the Computed sampling time was not refreshed automatically.
123841	**Multi-Axis Scope - Unit not memorized when closing scope**
	The unit of the traces will appear now as they were selected when closing ComET.
123602	**Multi-Axis Scope - We lose the zoom when we modify an option on the Scales or Traces panels**
	Now the scope will keep (if possible) the viewport when we modify any view options (unit trace, select/unselect curve, type of trace).
127903	**Setting - Add motors used by systems.**
	Add motors used by Tucana, Aquarius and ZAO ETEL systems.
126593	**Setting - Adding stabilization time field for open loop stepper**
	For the stepper, add the possibility to set the Stabilization time (K194)
129043	**ZxT Tool - Advanced display features for limit stroke search**
	New display features were added to the limit stroke tab to give more information and make the display more user-friendly.
129047	**ZxT Tool - Manufacturing log**
	It is now possible in the advanced version of the ZxT tool to export a manufacturing log of the limit stroke search.
123290	**ZxT Tool - Variable number of tip/tilt directions for limit stroke examination**
	The user can now set the number of tip/tilt directions when examining the tip/tilt limit stroke. The search directions are then equally distributed over the complete range.

11.5. List of corrections

Calls Id	Description
129135	**Advanced Feedforward Tuning - ISO units problem.**
	If the tool was open before the connection, the ISO units were always linear.
129136	**Advanced Feedforward Tuning - The cogging process failed with a generic error**
	If the homing speed (KL42) was badly set (could be the case with EnDat) the cogging process failed with a generic error. Now we advise the user to set correctly the homing speed.
126301	**Controller Backup - System error when trying to open communication**
	When using the Previous button of the controller backup, we sometimes had an error: System error.
128443	**Controller Backup - The boot and the sign blocks must be not allowed**
	Now, it is not possible to upload boot and sign blocks.
126302	**Controller Backup - The firmware used to determine the block to upload is not the current one.**

Calls Id	Description
	If the communication was not open when opening the tool, the firmware used to select the blocks was sometimes not correct.
126237	**Download Firmware - Sequence not correctly erased when downloading new firmware in AccurET**
	With AccurET firmwares 3.02A to 3.03A it was not possible to erase sequence and/or parameters during a download of the firmware.
125239	**Driver**
	In some cases the USB driver was not working correctly. The new signed driver solves this problem.
126821	**Filter Design - Wrong fields for 1st order low pass filter.**
	In certain conditions, the damping field for a 2nd order low pass filter was visible when selecting a 1st order low pass filter which was wrong. The opposite was also possible.
121736	**Force Control - Auto-generated sequence using "Create a Sequence" cannot be used as it is.**
	Force Control: Auto-generated sequence using Create a Sequence was not adding suffix in case of float, double or long. As well the depht of a register was written after the axis number it must be the opposite e.g. KPFC:1.5.
129134	**Force Control - ISO units problem**
	If the tool was open before the connection, the ISO units were always linear.
119631	**Force Control - Message after tuning of the offset and inertia.**
	Message has been changed to Estimator tuning finished with success or Sensor offset and inertia tuning finished with success. All parameters were set in the drive, but not saved.
129137	**General - Download firmware: sometimes the "next" button has no effect**
	With download firmware, in some cases, on the panel where we can select which operations we want to do, the next button had no effect.
120068	**General - Dummy connection at the end of the process.**
	If we were not connected when we start the pre-compile process, the tool did not close the dummy connection at the end of the process.
123881	**General - Offline compiler ComET ISO conversion needed in an AccurET sequence from another axis**
	With pre-compiled process, if the sequence for the drive has some ISO conversions for the second axis, those conversions were not correct.
120347	**General - Offline sequence compiler does not accept axis higher than 32**
	With pre-compile process, an axis number bigger than 31 was not correctly detected.
129125	**General - Pop-up open on the other monitor**
	When we have a PC with two monitors, the pop-up was sometimes open on the other monitor than the one used by ComET.
123590	**General - Pre-compile sequence from window not active**
	In the ComET drop down menu Download/Upload/Pre-Compile, the feature Pre-compile Sequence from Window was always disabled.
128293	**IO Control - Wrong reservation of the DOUT.**
	When using DOUT mask stage protection (C12 and C13), the IO control tool was not setting correctly the reserved DOUT.
129128	**Identification - Bad unit of Kt factor**
	When performing an identification Full TF on a rotary axis, the Kt unit was N/A in the dialog box to confirm instead of Nm/A
128389	**Identification - Fails in some systems with overcurrent or tracking error.**

Calls Id	Description
	From ComET4.15A there is a change of monitoring for the max measured current level involved in the acceptance criterias for the search noise level algorithm. This change allows the algorithm to push the noise level at higher values to get better identification quality, however this new procedure is less conservative than the old one. Additionally the algorithm to search the noise level has a delay of one cycle which generates a desynchronization between max values acquisitions and noise level setting. The combination of both previous points entails an overcurrent or tracking error during identification process at high frequency for some specific machines. The old monitoring (with which the identification process was successfully executed) has been re-taken for the next release (4.17A), so we come back again to a more conservative search noise level algorithm for current criteria. However, this issue will be reviewed in posterior releases to establish a definitive solution.
129127	**Identification - Impossible to save curve in file with firmware newer than ComET**
	When having an AccurET firmware version newer than the ComET version, and there is a new conversion factor on this AccurET firmware, it was not possible to save curve in a file. Now a warning popup will appear and the unknown conversion factor will be set at 1.0.
129126	**Identification - On saving file, the position of the noise injection is not present.**
	When saving curve into a file, the position of the noise injection was not present.
127495	**Identification - Sometimes ComET crashed when executing RSD command.**
	Sometimes ComET crashed when executing RSD command.
128356	**Identification - The plant transfer function of the Z-axis on a ZxT system is not correct.**
	The force of only one motor was used in order to compute it. To get a correct calculation, all the motors are taken into account.
125325	**Identification - With a ZxT the current loop have an error at the end of the analysis.**
	With a ZxT the current loop analysis finished with an error.
126626	**Identification - Wrong input and output register displayed in ComET motor's coils identification diagram**
	Wrong input and output register displayed in ComET motor's coils identification diagram
126951	**Identification - Wrong results for Advance Identification (gain shift)**
	The acquisitions for identification function are provide in increments. For Advanced identification, the gain in the bode diagram has a shift due to a wrong factor inc-->iso calculation. When both input-output values of the transfer function belongs to the same magnitude, as it is the case for the position transfer function (M1/M0) or the current transfer function (MF31/MF30), both factors are cancelled in numerator and denominator so the user gets correct results. However, when these belong to different magnitudes as it is the case for the mechanical transfer function (M1/MF31), the wrong factors are not cancelled so it entails a wrong factor result which produces a shift in the bode diagram gains.
126402	**Identification tool - Wrong unit for Kt for rotary axis**
	When performing a Full TF identification on a rotary axis, the Kt unit was N/A in the dialog box to confirm instead of Nm/A
129129	**Monitor - Bad reconnection of axis**
	When losing the communication with the selected axis (e.g. during a RSD command) then this selected axis is modified by the current one.
122983	**Multi-Axis Scope - Bad setting of the sampling period on UltimET in some synchronized acquisitions**
	If the trigger is a register of an UltimET, then the sampling time of the acquisition can only be 50us or a multiple of 100us. As well, the delay before or after acquisition can only be a multiple of 100us.
124551	**Multi-Axis Scope - Can't open graph Set-up menu when no trace is selected**
	When clicking on the Set-up button in the graph tool in ComET if no trace was selected, nothing was happening. Now there is a message: No trace selected, please select at least one
123606	**Multi-Axis Scope - Cannot zoom the curve**
	If the scope was showing a trace type int32 with an amplitude bigger than 2^31, it was not possible to zoom.

Calls Id	Description
126338	**Multi-Axis Scope - ComET crash when trace acquisition & trace upload are simultaneously used.**
	If an acquisition is uploading data at the same time that a trace file (or a trace export) is carried out, there are some shared structures at DSA EDI level which are concurrently accessed from different threads. As the upload process is not thread-save, an undesired concurrent access is produced. A lock (mutex) mechanism has been implemented to prevent the concurrent undesired access and guarantee a correct behaviour.
124552	**Multi-Axis Scope - ComET hangs when changing trace data with same units**
	Sometime when changing trace from one monitoring to another one with the same unit (e.g. M40 to M43), the graph ComET was hanged for several minutes.
122553	**Multi-Axis Scope - FFT plot dB conversion formula**
	The dB values reported by ComET after FFT were calculated with 20*ln(linear) instead of 20*log(linear)
123781	**Multi-Axis Scope - In some cases, the vertical zoom was not working.**
	In some cases, the vertical zoom was not working.
129130	**Processor load - Bad features timing update**
	When changing type of device, the time of the features were badly updated.
129034	**QuiET Tool - Numbers in axis menu of main GUI were shifted by +1**
	The main GUI shows now the correct axis numbers. Internally, the software has always used the correct numbers.
119927	**S-Curve Profile - Error on rotary actuators.**
	If we had a negative move with rotary axis, the K209 was not set correctly.
129132	**Scope - Bad trigger selection when losing the communication**
	If we lost the communication with the selected axis (e.g. during a RSD command) then this selected axis was modified by the current one. This was the case for the trigger selection and the trace selection.
123334	**Setting - 'Controller maximum stroke' value is wrong**
	In the Position feedback panel, the Controller maximum stroke was badly set.
121355	**Setting - Error when setting DynX system**
	When using DynX system, there was an error when living the panel system
119940	**Setting - Impossible to close drive setting window**
	If no communication was opened, it was not possible to close the Drive setting.
126238	**Setting - Invert encoder problem**
	In editor mode, with an encoder different than 1Vptp, when opening the panel Position feedback panel, we had some modifications of register (K241 and KL55).
127207	**Setting - On the motor definition the unit of the stall speed are not in rpm**
	Stall speed unit was t/mn now it is rpm.
122693	**Setting - Setting for stepper motor not working**
	Motor selection: it was sometime not possible to use stepper; the Steps/turn parameter was inaccessible.
119613	**Setting - Size of motor series RTMBi.**
	Adjusting size of the motor series field.
124066	**Setting - Stepper motor, data is displayed as a synchronous motor**
	With a new setting, the drive setting was not memorizing the motor type stepper.
129133	**Setting - Stepper, "Total inertia" field: wrong unit.**
	On the panel test, for a stepper, “Total inertia” field had a wrong unit.
126527	**Setting - Wrong encoder selection.**

Calls Id	Description
	If we were on the panel encoder and we came back to the panel motor, then we changed the motor type to stepper in open loop, the encoder selection was then wrong.
128518	**System Configuration Manager - If the extension .zip is not present, then the backup file will be unusable.**
	The tool was not able to use backup file if the extension .zip was not present. Now it forces to have an extension file .zip. Moreover, the default location of the file will be the user home.
129131	**Unit converter - Inc limited to int value**
	The inc was sometimes limited to int value
128189	**ZxT Tool - Tip/tilt limit stroke search did not start**
	It could happen that the default Z values limited by MINSL and MAXSL were rounded off in the wrong direction by the GUI. The user did not get any error message in this case because the error was not introduced by a user modification. Now, the values are rounded off correctly and the user will get a message in any case.

12. RELEASE 4.16A

(Only for Windows 32-bit version).

12.1. New features

DRIVESETTING	It is now possible to set the number of phases for the stepper motor (2 or 3 phases).
MAINFRAME	Improve Help Menu in ComET for documentation.
STAGE MAPPING	It was not possible to set mapping if we were on an UltimET, AccurET QuiET or AccurET ZxT as current axis. If one of those devices was selected, all actions on the tool were disabled. Because this tool is not directly linked to the current axis, this limitation has been deleted.
PROCESSOR LOAD	Tool added on ComET
FORCE CONTROL	Improve the ergonomics of the tool
IDENTIFICATION	Possibility to perform an identificaion on Rx/Ry: • Position loop : Possibility to do it on Z, Rx or Ry. A checkbox has been added to select Rx or Ry. • Current loop : If first axis is selected the current loop of motor 1 will be identified If second axis is selected the current loop of motor 3 will be identified • Mechanical Transfer Function : Not available • Mechanical Transfer Function (position loop) : Not available • Motor's coil: Not available • Full transfer Function: Not available • Advanced Identification: Available
EXTERNAL TOOL	When we open an external tool, ComET creates now a custom etne connection for this tool. That means ComET and the external tool are using the same communication and can be used in paralell.
DWN – SYSTEM CONFIGURATION MANAGER	Possibility to pre-compile ISO sequence. For that we need to link a set of parameters of the concerning device of the sequence.
ZxT TOOL	This tool has been added to ComET

12.2. Corrected bugs

DRIVESETTING	The selection "open loop" was not taken in account for stepper motor.
	The toothless type was not saved during the drive setting. The "Forced water or air cooling" was also not saved during the drive setting.
	With communication TCP-IP on AccurET, the selected axis in the upper tool bar disappeared when using drive setting during the first reboot.

DWN	When downloading ISO register, if the encoder changes, we need to reboot the controller in order to have correct ISO units. This correction is avaiable only since AccurET firmware 3.12a.
IDENTIFICATION	Different transfer functions are generated while determining mechanical transfer function using identification tool in position loop or open loop. Open loop was not taken in account the ISO factor.
STAGE MAPPING	Set minimum size of the tool to avoid bad components.
	The tool was allowing negative step and number of point at 0, now the step must be positive and the number of point bigger than 0.
	Decimales were not shown on Origin/Step. Now the Origin and the Step are in engineer notation. They are limited to 10 digits.
	Correction unit was not available for rotary axes. Now we give only a power of ten value on the roll menu, then a label shows the unit: [m] or [t].
	Computed cyclic value was wrong. Now the cyclic stroke is a boolean value. The cyclic stroke is directly computed from “Step” and “Nb Pts”.
FILTER DESIGN	Bode magnitude plot was not appearing if last point has a very small complex value.
IO CONFIGURATION	When a Source Register is (X, XF or XL) on an "Analog OUTput", an error occurs. When we use this EDI function “getRegister()” with DsaDevice.GET_MAX_VALUE or MIN, if the register is a X, the max and min is 0. This is linked to the call 108766 A workaround is implemented: the min/max values need to be defined on ComET side for X, XL, XF.

13. RELEASE 4.15A

(Only for Windows 32-bit version).

13.1. New features

GENERAL	Some redesign in GUI has been made. Some icons & pictures.
	Error list has been updated
	AccurET hardware documentation link added in menu bar
	ComET & Firmware licenses link added in menu bar
	Win XP not supported anymore. Win 10 supported now.
MAINFRAME	No design was conceived for ComET desktop. There is a lack of ergonomy and no user friendly design is provided. Several ergonomics proposals have been implemented: • Integrate the desktop help currently docked in the desktop, inside a new Startup tool with a wizard strategy. • Re-design the current space of the desktop with a JSplitPanels strategy to organize some ComET tools inside. • Provide Docking capabilities to some ComET tools, in order to be organized inside the corresponding separated panels on the desktop. If several tools are docked in the same space panel, a tabbed pane solution is suitable. • Provide several layout choices to the user (2, 3, 4 desktop subdivisions) to customize the tools arrangement. • Keep the undocked tools capabilities, because some of them are not suitable to be docked in the desktop (drive setting, force control, console, monitor ...). So the compatibility and cohexistence between docked & undocked tools have to be guaranteed.
STARTUP	A new tool has been conceived to allow the user to rapidly start working with ComET. This is especially intended for beginners. It replaces the old desktop configuration, where the user could find a step by step startup guide.
COGGING AND FRICTION COMPENSATION	This is now possible to use the Cogging table till the software limit
	The tool uses the units define by the user on the preference
	Rename the tool to “Advanced Feedforward Tuning”
DWN	When we download a firmware into a VHP, there is now a check if this download will change the type of hardware. If yes a warning message appears and the user needs to confirm.
FILTER DESIGN	This is now possible to use a damping factor with a second order low pass filter.
IDENTIFICATION	The identification tool displays the margins (gain, phase and modulus) which are computed only on the filtered data. Now, the user can check the margins from “raw data” and “filtered data” using the selection that was provided in cursor panel.

	From firmware version 3.10 on, a new features allows the user to inject the noise after the advanced filters. ComET has to be aligned with the new functionality. Now the user can choose by means of a check box if the noise is injected after advanced filters ("Noise added on Current Reference"). Without selecting this checkbox, the noise will be in position references as usual. The 3 points identification method has been developed for this new feature. Moreover, the 3 points identification method has been also developed for previously existent identifications: * Mechanical Transfer Function (position) with noise injection in position reference. * Full Transfer Functions (noise injeciton in position reference) - Current Loop --> Open loop, close loop, sensitivity - Mechanical Transfer Function (position) - Stiffness. This new identification method provides less noisy results for high frequencies & more robustness to external noise.
	In Advanced type of identification tool there was a lack of flexibility when user introduced the input/output registers to define the ad-hoc transfer functions. The noise injection was made on the axis defined by the input signals. We could imagine the case where the user would want to execute noise injection in one axis and get the transfer funtions in another one, without making crossed signals identification between axes. That was not possible and the user was forced to define the same input axis for both input signals (because this was the "noise injection axis"). This can be confusing for the user who is not aware about the noise injection strategy. The noise injection has gotten its own axis definition. In this way, there is no more dependency between traces definition and noise injection, they have been decoupled. More flexibility has been provided to the advanced identification function.
DWN – SYSTEM CONFIGURATION MANAGER	When ComET is installed in a system a license and a disclaimer is shown to fix the limits and the responsabilities of the application. However, ComET allows the user to download firmwares on connected devices. The firmware is piece of low level software independent from commissioning application which would have to show its own disclaimer. Thus, now when ComET is going to download a new firmware into a device, a disclaimer limiting the responsabilities of this new software in the system is displayed.
VIEWER	In Viewer tool when upolading the file, we get a DMD error when the FW specified in the data file is not present in the pool of FW and the no connection is open. As the convertion factor is in the data file, we should accept to load it, may be an information should inform the user. The user cannot have all the FW, specially when the acquisition has been done with a beta version. The following strategy has been implemented: When the firmware indicated in the acquisition file is not found (because either it is not charged in the device either is not present in the fw pool folder) a dialog box is displayed announcing to the user that the lattest firmware in the pool folder will be used to make the conversion factors; if any issue is produced, the corresponding firmware copy to the pool folder is requested.
FORCE CONTROL	The Force Control tool now supports mode 1, can tune NEWFC segments and adjusts the smoothing filter on the force feedback (K192) if necessary. A new, more efficient tuning algorithm was implemented. It is now possible to only execute the identification and skip the tuning iterations. The open loop Nyquist diagram is displayed with calculated margins for each segment and automatically updated with the controller parameters modified by the user.

13.2. Corrected bugs

GENERAL	When the UltimET driver is not well installed, opening a communication on it could freeze ComET. This was due to a software bug avoiding to free a critical section in some situation (_ekd_ultimet_irq_enable returning error). This has been corrected
DRIVESETTING	Drive setting in ComET, K63 is not set to 0 before a SLS check. There is now a warning.
	The limitation for distance between two index was 10 mm to 1 m. The limitation is now between 1um and 1m
	On the Drive Setting, the Ethernet configuration was not well informed when the Manager Mode is C1.#=5
	Drive setting with a firmware 3.01A or greater, if we have an EnDat and an indirect system, the K240 need to be set at 2 or 3 depending of the final type of motion. All other cases the setting of K240 still like today.
	If sequence with Auto-start, the sequence was executed during Auto-Setting; the sequence is now erased.
	Driver setting in edit mode cannot be closed in some cases.
	Driver setting did not take into account if a dout is already used by another function (like trigger)
IDENTIFICATION	Identification method was not working properly with VHP 100 products. The search of the right level of noise injection was not correct. It did not take into account a new factor: linear ampli i^2t. Therefore, the corresponding error (linear ampli i^2t overcurrent) was eventually reached. So, the current identification library was inoperative for VHP 100 products. Now, the new factor has been included in the process and the algorithm for search level in VHP 100 has been fixed.
	During some identifications, the process could not finish because the noise level was still too high. In this case the identification was stopped and sometimes the AccurET was in error. When the drive was in error, the acquisition was still enabled and after reset was not possible to start again a new acquisition until we sent the command ZTE.#=0 in the Terminal. Now, when stop button is pressed in identification tool, in case the acquisition is still present in wait state, ZTE.0=0 is sent to deblock the acquisition thread.
	When the identification process was launched, if an error was produced in-between the NOG packages when acquisition was uploaded, the identification tool remained with the Stop button enabled (even though the identification had already finished due to the error and should be displaying "Start" again). Then, if the user clicked on the "Stop" button, ComET freezed the whole GUI. The user was forced to close and re-open the application. Now, when stop button is pressed in identification tool, in case the acquisition is still present in wait state, ZTE.0=0 is sent to deblock the acquisition thread.
UNIT CONVERTER	When the communication bus is selected on the master and we add new line in the Unit Converter on an axis, the conversion does not work for this line. If the communication bus is the correct axis, it is work. The master device was taken into account as an item in the axis combo box list when a new unit converter row was created. The master did not exist as an axis inside this list, so an error was produced and no conversion factor was charged for this row. Now, if the current device is "Master" the first real axis of the system ("Axis 0") is taken into account for the new unit converter row.
SCOPE	When the scope and the terminal are opened and the user hits the <F6> key to start or stop the roll mode of the scope, the focus is lost on the terminal. The KEY_PRESSED event in processKey() of Scope tool was changing the focus of the current tool. The event has been intercepted and the focus changed is not carried on.
	With the scope, on the Trigger Selection if we chose the trigger mode "Position", the setting of the position was limited to an integer value

EDITOR	When uploading registers without axis number specification, EDI indicates the parameter version and specifies wrongly the axis number. This has been corrected and the axis number # is now indicated. By downloading the register, the parameter version is set now on the downloaded axis.
	When downloading a file containing registers of several axes on a subset of the axes, the parameter versions are set also on the not downloaded axes. This is now corrected, and only the version of the downloaded axes are touch. The problem does not appear for sequence download.
	Sometimes, it was not possible to go in debug mode on the sequence editor tool. The sequence had been downloaded on the correct device. Null pointer was generating problems, some protections have been implemented to avoid this issue.
	When registers are uploaded using TRA (ComET editor register upload), a header is inserted automatically. This header contains the registers's version which can be modified by the user. By uploading C registers from AccurET and UltimET together, the header was containing a version for UltimET "C" registers on UltimET, which is not possible. Another mistake was that sometime, UltimET register version was specified as '*' and sometimes as axis 63. This has been uniformised, and UltimET is always specified as '*'.
	In a compiled sequence, the following character sequence //* was bad compiled and considered as /* (Opening comment). A workaround was to insert a space between // and *. This has been corrected.
	ISO conversion for KF313 (plti_inv) has been corrected. This is a compatibility break which must be taken in account in the following case: If you have uploaded drive parameter in ISO with previous EDI or ComET version (EDI version < 4.14B, ComET version < 4.14A), you must be very carefull by downloading these ISO psarameter file with the new EDI or ComET versions (EDI >= 4.14B, ComET version >= 4.14A). KF313 is used by Force Control MODE 1 (SETFC= <ForceReference>, **1**, …)
FILTER DESIGN	The a0 coefficient has been deleted
	Filter Design does not take care about the user selected on PWR ON/OFF dialog box; this is now corrected
COGGING AND FRICTION COMPENSATION	On different situations, the measurement was not possible.
SYSTEM CONFIGURATION MANAGER	At the end of the download of a configuration, the SCM automatically reboots all devices. In case of UltimET the new firmware will be taken in account but not the new FPGA as a hard reset (power off of the UltimET) is required. There was no message to the user. Now, a warning message at the end of the download has been included.
FORCE CONTROL	The Kt calibration for axes with TTL encoders now takes into account that several position measurements at different contact force levels may coincide. The path in the preferences for the sensor reset commands file was in some cases overwritten with an empty string. This is now prevented. The Force Control tool does not send WTF commands any more, which could lead to the tuning being aborted in case of a timeout. Instead, the tool polls itself the in-window status.
	When setting the Force Estimator, after the end of "Start Autotuning" process, it was not possible to edit the registers number & depth. Sometimes also, when changing the value of the register number, the value was not updated and still stayed at the previous one. The sub-components are now correctly managed. The disable and re-enable at the end of the process is currently working, so register number and depth are available now.
	From the Force Control tool, the creation of sequence did not generate the axis number in the command. This did not allow the user to run the sequence in the UltimET and it was not possible to copy & paste line in the terminal. The axis number was needed. The sequence is now generated including the current axis number. The user can copy-paste in editor/terminal with specific axis definition for the related commands.

14. RELEASE 4.13A

(Only for Windows 32-bit version).

14.1. New features

GENERAL	All the icons of the application (mainly present in buttons) have been redesigned and uniformed with the same graphical style. Drive Setting Dialog has been also redesigned.
COMPILE DIALOG	A new checkbox has been included in compile dialog "Source Code Protection" which determines if .eseq file contains or not the source code. In this way the customer will be able to send pre-compiled sequences to his respective customers, keeping his know-how. 2 tools are concerned about this modification: *Compile Dialog. *System Configuration Manager. This new feature has been only developed for Compile dialog. About System Configuration Manager, if customer does not want to keep source code inside .bin backup blocks, he should first remove source code from flash memory and then execute the backup.
SCOPE	The limit time for acquisitions in the scope was fixed at 2 minutes. This has been increased to 1 hour.
DRIVESETTING	When we execute a drive setting with a TTL encoder, the default value for the K77 is now at -4 in order to have no interpolation. More generally, the interpolation factore range start at -4 for TTL or analog encoder.
IDENTIFICATION	2 New identification types have been included: 1) "Full Transfer Function" has been implemented in dll ident library and supported in identification tool with a new type in the corresponding combo box. 8 transfer functions are provided for this new type: position & current loop (open loop, close loop, sensitivity), mechanical position and stiffness. It is important to notice that noise is injected in position mode, so current loop transfer functions are slightly different because advanced filters are not bypassed (as it is the case for standard current loop identification). 2) "Advanced identification" has been implemented in dll ident library and supported in identification tool with a new type in the corresponding combo box. This new identification type will be able to define 2 reference signals and 2 output signals (not matter in which axis) to flexibly create ad-hoc transfer functions. Noise injection (position or current mode) will be also defined by user and the presence or not of nyquist diagram can be selected. Thus, crossed identification features will be available.
FORCE CONTROL	A new tool for Force Control Autotuning has been developed starting from release 4.13A on. Force Control capabilities have been recently introduced in AccurET products. This new tool answers to the necessity to get a functionality in ComET to automatically configure these new capabilities.

14.2. Corrected bugs

DRIVESETTING	In editor mode, with indirect motor, the reading of the inderect ratio for the encoder was wrong
	When we use a motor coming from the list of the motor brand "Other" some registers were not updated. By the way the stall speed was badly set
	In case of deactivation of the brake, the parameter K363 was not updated
	The Safety signal on digital input was badly programed and it was not possible to select FDOUT
IO CONTROL	If the AOUT was set with an offset, we did a bad calculation of the AOUT. By the way, this output was slipped up to the maximum value.

COGGING AND FRICTION COMPENSATION	Sometime we could have the error: “Acquisition range error” at the end of the measurement. This is now corrected
MONITOR	There are 3 points that have been improved in the Monitor interface: 1) Register index with more than 3 digits could not be entered (eg TD10000) 2) Register index with 5 digits could not be displayed (the index window was too small) 3) The decimal point between Register type and Register index had to be removed, it brought confusion with the syntax used in terminal where the decimal point is separating the register index and axis number.

15. RELEASE 4.12A

(Only for Windows 32-bit version).

15.1. New features

GENERAL	Comet 4.11A has been skipped to be aligned with EDI version (4.12A).
MONITOR	Depth information was no present in monitor tool. A new field has been included next to the register index value. This will be the corresponding depth field. The feasability of the depths per register is checked during the process.
EDITOR DEBUGGER	Debugging a sequence which needed to run in another thread than 1 was not possible with “Debugger tool”. Sometimes, it is requested to debug in thread 2 or 3 because the thread 1 is used by another process. A combo box has been introduced in the Debug Console box (just below the number of the start function). Now, the user can select the thread where the sequence will be launched.
REGISTER EDITOR	It was not possible to extend the width of the columns. A modification of the corresponding table class has been implemented to allow width column extension.
SCOPE	It was not possible too open associated application in saving process. Now, a checkbox has been included in the interface to choose between just saving or saving & open.
DRIVESETTING	Incremental EnDat2.2 (not absolute) management is integrated in AccurET
	Adding new possibility to swap limit switch with bit 4&5 of K32 (when K58=1 or 2)

15.2. Corrected bugs

GENERAL	The ESC key generates a command for all axes (such as pwr.!=0) and this is forbidden for gantry level 2 (it produces an error). Now, a gantry level 2 axis mask is initialized each time there is a connection. When an emergency stop is executed, the corresponding commands are sent to the axes excluding the slaves ones (using the according mask) in case gantry level 2 is present.
PREFERENCES	The field "Semiautomatic input" is disabled when no drive is connected (and not in the case a drive is connected). The user must able to make his selection and apply it even if not connected. The checkbox was blocked when no connection was present. Now the user can define his preferences for semiautomatic input option, no matter the conection state of the application.
DRIVESETTING	For indirect system, we need to convers a decimal value to a fraction. For that, we use an algorithm and we accept an error of precision of 1E-9. Some cases was over this limit and the drivesetting was blocked. We have change the tolerence and we create a warning instate of an error.
	Changing interpolation factor fails (KL55); During the calculation of KL55, we have a limitation to an Integer(32bits). By the way, if the kl55 was bigger than 2^32 the calculation was wrong.
	In edit mode if we open the safty panel, the depth 1 of KF84 was modify.
	Drive setting doesn't set K40=46 when EnDAT encoder
	On the tab safety, the jog was not working properly
	When working with the Safeties tab, it was impossible to leave this part of the tool when the Ubus is below than under voltage error level. Now only a warning is send.
	When using TTB motor we were calculated the i2t like ironcore motor. Now a new type of motor has been created “toothless” in order to calculate correctly the I2t. **WARNING using old ComET for this setting can burn the motor**
	When setting DYNXR table, we have some possibility to chose some motor not existing on the system

SCOPE	In the time domain graph, having the sample number on the X axis is not relevant or utile for the user. It's better to have the time in the horizontal scale like in the Scope tab. The Time domain graphic in FFT tab for Scope Tool has been corrected. The legend of X axis has been fixed to "Time in ms" with the corresponding data in the chart (instead of "samples" as before).
	For "Single" acquisitions with Scope tool, there were some situations where the refresh (enable/disable) of some menu options ("Save curve in file", "Export to Excel") was not properly done. Now "Roll", "Single" and "Continuos" functions lock the corresponding menu options ("Save curve in file", "Export to Excel") when the acquisition is started and unlock the menu options at the end of the corresponding acquisition, in that way the refresh (enable/disable) will be properly done for all kind of acquisitions.
	After stopping a roll mode acquisition, it was not possible to save the acquired data in a file as in previous version. Now, It is possible to save a ROLL acquisition in a file with format v1.0. The format v2.0 is reserved to Single and Continuous acquisitions. Formats v1.0 and v2.0 are not compatible and the user will be notified with a warning message.
VIEWER	The unit of the amplitude is missing on the vertical axis of the graph of frequency domain. • For FFT, [<ISO>] • For CPS, [<ISO>²] • For PSD, [<ISO>²] The unit has been included in the vertical axis. Mathematical functions are indicated on the axis with no unit.
IDENTIFICATION	If the installation folder of ComET V4.10A had not administrator rights (full control) for the current user logged, it was not possible to perform an identification (Identification tool and auto-tunning tool). ComET crashed because the access (open/write/close) to the identification log file (ide40_log.txt) was not well managed. Now, the acces is controlled properly.
	Current loop Identification pictures for stepper motor in open loop control were wrong. Now, pictures and texts corresponding to Position loop transfer function are avoided taking into account the same index update of the transfer function combobox.
COGGING AND FRICTION COMPENSATION	The cogging compensation with a TTL give the error "error acquiring data from device.No constant speed zone for speed xxx". This was due to the fact that we were not tacking care of the encoder resolution to give the speed stability.
	Friction and cogging compensation fails with EnDAT 2.2 encoder. With EnDat, at the end of the process we use the command SET=M0 instead of the homing process
	It was not possible to implement a cogging compensation table if the stroke was less than the magnetic period. Now only a warning will appears.
	At the end of the measurement we have some exception: Acquisition range error. This is the case when the min. Pos. or/and Max Pos is egale to the limit soft. Now an error appears at the beginning of the measurement.
	In edit mode with an EnDat, if you open the feedback menu, the KL55 was badly recalculated
	Wrong unit in message box. Now we indicate the unit according with the type of motor (rotary or linear axis).
S-CURVE PROFILE	Units were not consistent with the preferences.
	On the graphic, now the unit are given in engineer mode "SimpleFormat.SCIENTIFIC", Y scale name has been modified.

16. RELEASE 4.10A

(Only for Windows 32-bit version).

16.1. New features

GENERAL	ComET 4.10A uses EDI4.10A dlls (Windows 32 bits)
	ComET4.xx and EDI4.xx does not support old DSC-DSMAX family. For DSC-DSMAX family, ComET2.xx and EDI3.xx must be used
	AccurET VHP100 and UltimET PCI Express are now supported.
	Drivers are available for cards: UltimET PCI, UltimET PCIe and USB.
	ComET 3.xx versionning has been skipped to be in line with EDI
	Compiled with VisualStudio2010 & Java JDK 1.7.0.03
	New Tool: Viewer.
	The third-party adobe acrobat reader installer has been removed from the ComET CD due to adobe license requirements that were not suitable for our ComET release package.
PREFERENCES	In Preferences->Workspace we can enable or disable the display of help in workspace. When there was no help, the background color was black. Now it has been changed to the blue color of the application.
	The Preferences Editor has been updated with a new option: "Emergency Stop". The user can define the type of command to execute in this situation (HLT, HLB, HLO or ERR). The modification has been implemented as following: When the key <ESC> or the "Emergency Stop" button is pressed, the type of command configured in preferences (HLT, HLB, HLO or ERR) is executed (by default HLO). Finally the END command without parameter is sent (all threads are stopped without taking into account the register K144).
EDITOR DEBUGGER	Shortcuts for debugging functions implemented: F5 →Play/Continue execution. F10→Step execution. Shift+F5→Stop execution.
	Source Code Protection: Now it is possible for the user to choose if he wants to download a sequence with source code + binary code or only the binary code. "Download options" has changed to a radio button strategy with 3 possible options: 1. Don't save sequence in Flash Memory. 2. Save sequence in Flash Memory after downloading. 3. Download ONLY Compiled Code & Clean Flash Memory (Source Code Protection).
	Modification in Thread Mask interface: The previous combobox did not allow the visibility of thread mask for all axis. Once an axis was selected, the specific thread mask was displayed. All thread mask should be visible at a glance. Finally, a checkbox table has been developped to allow the desired visibility. The functional behavior remains the same.
SCOPE	Curve saving in Roll acquisition mode has been deactivated (for new format file), due to not same frequency between traces guarateed.
IDENTIFICATION	The Nyquist diagram remains in a not-distorted circle shape regardless resizing operations.
	New text for Identification Diagrams.
FILTERDESIGN	Add the possibility to set an inverted notch
	Use the new possibility given by the version 3 of the AccurET firmware: - Expend advanced filter parameters from 2 to 1000 - Use new command SAF to download the advanced filter - Possibility to set up to 8 filters
DRIVESETTING	Optimize the current loop regulation for the auto-setting process and add a low pass filter

VIEWER	New tool for this ComET version: The Viewer is a tool intended for scope acquisition visualization. We can establish 3 possible sources for graphic display on Viewer: 1. *File source*: The user can upload a scope acquisition previously saved in a file. 2. *Direct Scope*: The user can upload some traces coming from the last scope acquisition (scope tool has to be open to carry on the process). 3. *Math Function:* The user can execute some mathematical functions between traces previously charged in Viewer tool. It is important to notice that this can be used either as an offline either as an online tool. First option ("File source") allows the user to work without need of hardware connection, whereas "Direct Scope" option needs a bus communication and Scope tool opened with recent acquired traces. Up to 16 traces can be loaded in Viewer tool.

16.2. Corrected bugs

GENERAL	Old DSC format in saving curve functionality was remaining in current ComET4 version. It has been removed.
DRIVESETTING	It was not possible to do a drive setting with an AccurET300 under 50V of DC bus
	When we were using a brake controlled by the firmware and when the axis was vertical, the brake was not open when we were asking to move the motor by hand
	The value of the overcurrent with a stepper in close loop was to high
	Some current value with a one phase motor was badly calculated
EDITOR DEBUGGER	When Editor window changes to debug mode there was no control in the menu option "File/Recent". The menu item was accessible and operational which means you could put another sequence in the editor while it was in debugging mode. This was an undesired behavior. Now the check of debug mode is done for this menu item to enable or disable accordingly.
	Each Time that we change the Communication Connection by means of the bus combobox, the Devices FW of the corresponding new bus connection will be checked. If these FW are greater or equal to 2.07A the debug sequence bar in the top of the Editor will be enable. On the other hand, if some FW is lower than 2.07, the top bar will be disable. Thus, possible debugging features malfunction for ancient FW will be avoided.
IDENTIFICATION	The noise injection in the identification diagram images of: Current, Mechanical Transfer Func. and motor's coil where not correct. The advanced filter has been bypassed.

16.3. New features due to EDI 4.10A (13.05.2014)

LIB 4.10A, EKD 4.10A, DMD 4.10A, ETB 4.10A, ESD 4.10A, DSA 4.10A, TRA 4.10A, ETN 4.10A, ESC 4.10A (only for 32-bit version).	
GENERAL	Add Metadata handling
EMP	Addition of new library for parsing
DSA	Add two functions for advanced filters: - dsa_set_advanced_filter_s - dsa_set_advanced_filter_a