

Release notes for XYZTEC Condor Sigma Software, version 5.11, build 7311

The XYZTEC equipment should be connected and switched on. Make sure to login as a user with administrator privileges prior to starting this installation.

READ THIS CAREFULLY BEFORE INSTALLING THIS NEW SOFTWARE VERSION

- Please note that updating the software on systems with customer specific software changes cannot be guaranteed to work directly. Customer specific hardware or software support cannot be tested prior to release. It is therefore recommended to only update these systems after an image of the system's hard drive has been made, so that it is easy to revert to the exact same situation as before the upgrade. Contact support@xyztec.com for help in case of problems,
- Installation is supported on any desktop edition of Windows 7, Windows 8/8.1 as well as Windows 10 (not the mobile, IoT nor embedded editions).
- There are issues with Windows 8/8.1, some USB 3.0 chipsets and the built-in driver for composite USB devices. These may be solved with the latest firmware for the USB 3 chipsets and running Windows updates until completion.
For this reason it is not advised to update a working Windows 7 system to Windows 8/8.1.
- On Windows 8/8.1 systems with both USB 3 and USB 2 ports, connect the Sigma to one of the USB 2 ports.
- Backup the SPC Database before performing an upgrade.
- This software minimally requires the .NET 4.5 framework. If not installed the installer will prompt you to install the .NET 4.5 framework either automatically or manually.
- SQL server 2012 SP1 or SQL server 2014.

Note the following breaking changes when updating:

From 5.9 or older

- When using IDS cameras, please update the driver to version 4.90.1 or newer
- When using any of the inputs to trigger the Sigma to stop a continuous test, this should be reconfigured. This function is now implemented by the more versatile, but optional, 'Trigger by Digital Input' module.

From 5.8 or older

- The scope of a pattern or fiducial is more restricted then before. When converting an automation script created with 5.8 or older, the software will warn when detecting use beyond the restricted scope. The fix is pretty straight forward but must be done.
So after updating we advise to view each automation and watch out for these kind of warnings.
- The default 'travel distance' for finding focus is now $2 * \text{the focal depth}$ (as supposed to $2 * \text{the default focal depth}$ which will be $2 * 30 \mu\text{m} = 60 \mu\text{m}$)

From 5.7 or older

- Note that if digital IO has been used before (wafer table, external trigger, blowing debris after a test, contactless cavity cleaner) these need to be re-enabled in the 'Modules' section under 'IO Configuration' in the 'Configuration tester' tab.
- User passwords may have to be redefined

From 5.5 or older

- When updating from version 5.5 or before, the device driver for the Visiosens camera needs to be updated as well. Please de-install the current driver first. Then install either 'VFUDriverx64_v2_1_0.msi' or 'VFUDriverx86_v2_1_0.msi'. After installation of this package these will be in the 'Resources\Install\Microsoft' subdirectory of the installation directory (usually in 'C:\Program Files (x86)\XYZTEC\Condor Sigma').

NEW FEATURES AND CHANGES

Version 5.11 - build 7349

1. Lock 'go online local' button until robot has indicated it is finished (un)loading

Version 5.11 - build 7311

1. Ability to read calibration data written with v5.14

Version 5.11 - build 7284

1. Broken encoder cables will be detected
2. DSP firmware 5.10.7284 contains the following improvements
 1. Broken encoder cables will be detected
 2. Homing position may be shifted
3. Safer touchdown, improved protection

Version 5.11 - build 7227

1. Secs/Gem supports a wider range of device ids
2. Possibility to define a sensor specific work area for GR&R
3. DSP firmware 5.10.7241 contains the following improvements
 1. Handles situation where the force exceeds the limit force of a non-destructive test before a move starts (like v5.11.6626)

Version 5.11 - build 7206

1. Use virtual arrow keys to move the stage works again

Version 5.11 - build 7172

1. 1. Sensor specific work area in z-direction, during calibration

Version 5.11 - build 7118

1. More robust PLC communication
2. More reliable CJC action

Version 5.11 - build 7097

1. Improvements in manual functions to move to initial and unload position

Version 5.11 - build 7096

1. Tool clean blow time should now have a more accurate duration
2. Addressed the fact that the CJC function, when operated manually, would not always complete

Version 5.11 - build 7086

1. Solved the issue where the camera leds could not be switched on when using an IDS camera that had been configured with software version 5.12 or newer.

Version 5.11 - build 7082

1. Released

Version 5.11 - build 7075

1. Accepts partially incomplete .inf wafermap files

Version 5.11 - build 7074

1. WafTech systems: Disable 'goto online local' button when putting or getting a wafer
2. Refuse any commands from a wafer loader when 'online local' is pending
3. Solved communication error with Rorze wafer loader

Version 5.11 - build 7038

1. The standalone application to test a tweezer shows the status bar correctly

Version 5.11 - build 7033

1. Support for recovery of a wafer from Waftech loaders
2. File export more robust for non-existing directories
3. Better support for 'matrix in matrix'

Version 5.11 - build 7012

1. Automatic recovery from corrupted configuration files

Version 5.11 - build 7010

1. Draw candidate fiducials differently

Version 5.11 - build 7006

1. The safety switches may now be activated again

Version 5.11 - build 6996

1. The ability to move a wafer cleaner up directly after start now works again. This bug was introduced after build 6927

Version 5.11 - build 6988

1. In configurations where methods may be looked by barcode up from a MES system, explicit method selection via a combo box now also works

Version 5.11 - build 6984

1. Support sending list of recipes to Waftech type of wafer loaders
2. No longer display error message when connecting to a Waftech type of wafer loader

Version 5.11 - build 6976

1. Better Japanese
2. Slightly more robust focussing and fiducial recognition

Version 5.11 - build 6970

1. Fixed an issue whereby the mapping of Visions cameras to stage positions would fail
2. Removed cause of memory leak

Version 5.11 - build 6963

1. To avoid the error message 'Shearheightclampmotor exceeded his max. RMS current', one may increase the 'Max I²t clamp current'

Version 5.11 - build 6957

1. The AOI method now works with a custom measurement
2. Improved formula editor
3. Better display of a jig's conversion factor in calibration reports
4. Restoring the database works more reliably
5. Avoid moving axes with a speed of 0
6. The dialog for changing a tool supports resetting the relative position indicators
7. When cancelling closing the dialog for changing a tool current values remain
8. Better error message when a fiducial is not recognized
9. Support a buzzer, controllable via one of the built-in analogue IO ports.
The buzzer optionally sounds when, in automation, fiducial recognition requires manual intervention

Version 5.11 - build 6912

1. Simple SPC export over serial port now optionally switches display unit when measured force

exceeds a value

2. Added auto hook setting

Version 5.11 - build 6864

1. Added some missing DLLs to the installer

Version 5.11 - build 6859

1. Improved Chinese
2. Better default parameters for the calibration methods

Version 5.11 - build 6851

1. Visualisation of automation and tool
2. Simplified the process of teaching an automation ('easy automation')
3. Programming an automation under a camera
4. On systems with a wafer table: Ability to use 'framed' wafers that do not need lifting pins wafer lifting pins
5. Measurement toolkit
6. Major improvements with Automatic Optical Inspection (AOI):
 1. Auto measurement toolkit
 2. Overview screen that shows the measurement results and the result picture
7. Deep access test (test under camera as opposed to under the microscope)
8. Tool visualisation on camera screen
9. When running automation, messages that require user action are much better visible (for example white text in a red rectangle in the center of the screen)
10. Grading overview screen
11. Export of the test position (X,Y,Z and P) is now possible
12. In the screen showing all methods, filter methods on user group
13. Better backup and recovery of the SPC database. Improved initial database creation process. Improved support for changing the database connection string (when using a centralized database).
14. Apply concentricity correction

Version 5.11 - build 6668

4. Fixed occasional out-of-memory exceptions
5. In service mode, override user defined work area limits with machine limits (To make calibration of touchdown sensor and clamp current easier)
6. Possibility to have the RMU move up automatically when tweezer gets hot (when too close to a heated work holder)
7. Wafer map align with camera
8. When testing multiple wafers of the exact same kind, re-alignment is no longer required
9. Jaw clean process (CCC) is now part of a method and may be called from automation
10. When moving the wafer pins up while a wafer is detected, the procedure will be aborted in case a vacuum loss is detected
11. The vacuum to a wafer table will not be released temporarily before cleaning when unloading a wafer manually
12. Push a wafer down directly after it has been brought by a wafer loader
13. Ability to override the sample frequency in shear and pull methods
14. Ability to end a test gracefully when an input is triggered
15. Ability to trigger an output when a force is exceeded during a measurement
16. DSP firmware 5.11.6668 contains the following improvements
 2. Possibility to gracefully stop a test in progress (build 6626)
 3. Handles situation where the force exceeds the limit force of a non-destructive test before a move starts (build 6626)

4. Possibility to block downward movements when a sensor temperature is too hot

Version 5.11 - build 6610

1. Support for variable width lead frame loader
2. Support for PLC based lead frame handling module with variable width
3. Support for Keyence SR-700 barcode scanner
4. Automated Optical Inspection method using computer vision to calculate grading after total ball shear of multiple balls

Version 5.10 - build 6747

1. Update redistributable DLL for Visiosens cameras.
This fixes a compatibility problem with Windows 10 version 1803 (April 2018 update)

Version 5.10 - build 6680

1. Restored visibility of control for contactless cavity (jaw) cleaner

Version 5.10 - build 6662

1. Small improvement in xy table map recording
2. Solved a bug that would cause the system to crash when taking a picture with an IDS camera directly after changing its resolution

Version 5.10 - build 6634

1. Better support for dimmable lights on IDS cameras

Version 5.10 - build 6624

1. Automation: Take picture before/after measurement now uses original camera settings
2. Automation: Matrix location is displayed as a remark

Version 5.10 - build 6610

1. When exiting the application, power to the stages will be reduced
2. When, in automation, an error occurs with a fiducial, matrix or pattern, the automation will be stopped

Version 5.10 - build 6599

1. Results of Probe tests and loop height tests now also appear in grading screen

Version 5.10 - build 6543

1. Many improvements in automation:
 - Shape based fiducials
 - Display a visualisation of the automation
 - Significant reduction of the number of moves in an automation with fiducials or other image processing functions.
(By default all fiducials will be visited prior to the start of the automation. This reduces the number of moves from tool to camera and back a lot)
 - When opening the fiducial editor or the test image processing the system will move to the correct position under the camera directly
 - Improved image processing. The rotation of the detected region may optionally be ignored. This makes the image processing more stable (less sensitive to the actual position)
 - When teaching image processing, unwanted direction changes are avoided (these used to occur when an object's angle were close to 90 degrees)
 - The editor has advanced selection options
 - Test image processing entries can be tested by clicking the Action button directly in the editor
 - Possibility to move to the position of a fiducial or test image processing command directly

from the editor

- Tool visualisation with tool rotation and tool size. Possibility to change the tool width and tool depth.
 - Matrix visualisation with the possibility to select multiple cells
 - Possibility to show text when waiting for the operator to press a button
 - Better diagnostics by showing the last four messages and improved logging
 - Better sensor selection in the automation editor (only available sensors can be selected, including some less often used force ranges like 250 gf and 5 kgf sensors)
 - Possibility to move the stage to a position by double clicking in the live camera image (with visualisation)
 - No longer show the grading dialog in situations where a measurement result would lead to a fail (due to the SPC rules) in methods with a default (auto) result code. (Grading can always be enforced, by not enabling the auto result code)
 - It is only possible to select fiducials, pattern or matrices that are defined in the parental automation entry
 - Control blow and heat function of a heated cleaner
 - Reversed direction if y-axis and p-axis in joystick controls that were used to find a fiducial's location in automation
2. In the query screen the grouping and sorting is correctly stored and displayed after loading
 3. Making pictures of all measurements no longer depends on the grading settings
 4. Support for a lead frame loader
 5. More accurate positioning by using a camera mounted on the tool position for recording exact positions of a known xy-table map
 6. When configured for remote control (Wafer loader or Secs/Gem) and running an automation, or when unloading a wafer, the 'go online remote' and 'go online local' buttons are disabled
 7. When under remote control (of a wafer loader or Secs/Gem) the joystick buttons will be disabled
 8. Device drivers are signed
 9. Support for IDS camera enabled by default
 10. DSP firmware 5.10.6407 contains the following improvements
 - Possibility to store table map in flash of the Sigma (as opposed to storing it on the computer's hard disk)
 - We now have calibration, xy table mapping and scaling
 - Notify host software when enabling joysticks caused motions to be aborted
 - Restore sample frequency after flashing configuration
 - Different stage mapping (map for each camera)

Version 5.9 - build 6480

1. Support for a customer specific recipe name lookup based on barcode
2. Support for user entered area in a method for calculating pressure

Version 5.9 - build 6373

1. Possibility to clean the wafer before unloading

Version 5.9 - build 6366

1. Support for pusher with multiple wafer formats
2. Introduced the concept of 'maintenance tasks'. The working of a sensor's touchdown circuit may be tested automatically.
3. Better default travel distance for finding focus
4. First setup for better tooling for the Sigma's production process

Version 5.9 - build 6345

1. Moves to the sensor specific positions named initial/unload/clean from the 'MU setup' screen will now be performed with sensor high
2. In camera parameters, the 'Focus Area' will only be set when explicitly stored before

Version 5.9 - build 6312

1. Ability to choose focus area

Version 5.9 - build 6255

1. RMU firmware 5.9.6255
 - Ability to test touchdown circuit
2. Field of View can be found automatically
3. Introduced a 'scratch' method

Version 5.9 - build 6234

1. When assigning a joystick button to the CCC function, releasing the button will stop cleaning
2. The highest available resolution of IDS and Visiosens cameras may be used. (Not always recommended as it will slow down fiducial recognition)

Version 5.9 - build 6197

1. Support for dome light or coaxial light on an IDS camera
2. When using more Sigma bond testers whose measurement data is stored in one, centralized, database, one may filter results on a particular bond tester

Version 5.8 - build 6366

1. Default travel distance for finding focus is now $2 * \text{the focal depth}$ (as supposed to $2 * \text{the default focal depth}$ which will be $2 * 30 \mu\text{m} = 60 \mu\text{m}$)

Version 5.8 - build 6353

1. When under remote control (of a wafer loader for example) the arrow keys would not be enabled to correct a fiducial error

Version 5.8 – build 6291

1. Changed the parameters for the autofocus function to use 'Travel distance find focus' instead of 'Focal depth'. This allows more accurate tuning (in the previous version the algorithm would use a travel distance of $2 * \text{FocalDepth}$, which is not enough when testing warped wafers using a camera with a lens system that has a very small focal depth, like the Navitar.

Version 5.8 - build 6197

1. Automation supports nested fiducials inside a matrix

Version 5.8 - build 6192

1. Virtual joysticks: Step size configurable
2. Multiple wire detects in a matrix

Version 5.8 - build 6152

1. When making a backup of the system's configuration, the SPC database will be backed up as well (but only when the application has been started with administrator privileges)
Automation methods will no longer be backed up with the methods
2. Supports a vacuum detect sensor on wafer tables.
Optionally the vacuum detect sensor (when connected to the inputs for safety switch 3) may abort all movements when vacuum is lost (wafer handling).
3. DSP firmware 5.8.6144 contains the following improvements
 - Support for concentricity correction for rotating tools (not yet available in PC software)
 - Optionally aborts all movements when any of the safety switch inputs are enabled and

activated

4. RMU firmware 5.8.6136
 - Improvements in locking the head rotation
5. Auto-brightness for IDS camera
6. Parameters for the cleaning process for a tweezer tip's cavity can be changed by the end-user
7. Optional Secs/gem support (upload/download of recipes + start testing under control of a secs/gem host)
8. Optionally improved fiducial recognition using a 3rd part image recognition module (Halcon)
9. Possibility to provide multiple fiducials to find a location (for alignment)
10. Has built-in editor for defining data exports

Version 5.8 - build 6081

1. Customer specific export
2. More advanced fiducial recognition

Version 5.8 - build 6030

1. Support for a rotating stage (0°, 90°, 180°, 270°), using a SigmaTek PLC

Version 5.8 - build 6024

1. 1st version of hook concentricity correction

Version 5.8 - build 6005

1. Optionally export measurement results to a Rorze wafer loader

Version 5.8 - build 5988

1. Integrated customer specific data export in the application.

Version 5.8 - build 5981

1. Fixed a bug that made password of the Sigma users unreadable after change of Windows users. For backward compatibility passwords need to be changed one though.
2. The arrow keys on a keyboard may be used to control the stage and z-axis

Version 5.8 - build 5942

1. Integration with IDS cameras
2. Support for wafer table mark II
3. Support for IO controlled 'wafer cleaner' and 'wafer pusher'
4. Improved contactless cavity cleaning process

Version 5.7 - build 5893

1. Possibility to detect vacuum when using a wafer table
2. Change to the hysteresis graph. The display of the axis in the distance graph is now displayed correctly

Version 5.7 - build 5879

1. Positional correction factor can now be set as a pre-set in the method. Currently this is only available for the pull test
2. When a licensed version of the Halcon computer vision library is installed, automatic wire detection is available in automation
3. Automation now offers 'edit under camera' option
4. Allows highlighting of dies on a wafer map that have one or more configurable defects. Colour coding.
5. Supports moving to the next/previous defect on a wafer map, with one button
6. DSP firmware 5.7.5872 contains the following improvements
 - Close to the z-axis' lower limit the speed in XY-direction is now also limited when moving

upwards

7. DSP firmware 5.7.5855 contains the following improvements
 - Support for a XY-table map
8. More sorting possibilities for automation recipes
9. Integration with Rorze wafer robot

Version 5.6 - build 5819

1. Installer now installs Microsoft redistributables
2. Automatically take picture after failed measurement

Version 5.6 - build 5759

1. Support for contactless cavity cleaner
2. Possibility to take picture automatically after each measurement
3. Automation with randomized matrix

Version 5.6 - build 5666

1. Text in rightmost vertical banner is displayed top-to-bottom for Chinese, Japanese and Korean
2. Import of Wafer map file (Klarf and Inf formats). Double click the die to move to. Move to defect positions within a die.
3. Possibility to apply reverse camera-to-tool offset: Find position with the camera and move the tool to that position
4. Added support of Vietnamese. More complete German translation
5. Removed support of older Visiosens camera drivers (so install the newer version!)
6. Integration with Halcon pattern recognition / Machine vision software. The first application is a wire detect algorithm.
7. Possibility to project the rotation angle of the hook on a pull sensor on the camera image
8. Possibility to find multiple peak values in a measurement

Version 5.5 - build 5576

1. Compensation factor jig
2. Support RMU with Angular binding
3. A sensor's deflection is editable by a supervisor
4. Support for automated test of electronics (in production factory)

Version 5.5 - build 5554

1. Pressing null-button clears sensor overload
2. When calibrating, z-position can be now moved below work area by joystick

Version 5.5 - build 5542

1. When a sensor overload has occurred temporarily (for example after changing the tool) it may be cleared by the operator (by clicking the sensor overload button).
2. Japanese translation

Version 5.5 - build 5536

1. DSP firmware 5.5.5536 contains the following improvements
 - More accurate positioning when moving multiple axes simultaneously
 - Separate work area for joystick controlled movements
2. Automation program selectable by barcode reader
3. Selection of sensors/methods by form
4. Measuring height difference between objects (probe test)
5. Positional correction factor (force triangle)
6. Full hook control in automation
7. Multiple camera support for automation

8. Pull auto hook functionality with hook shift (fine pitch applications)
9. New fail and warning system (SPC warnings)
10. Overlay graphs of multiple measurements
11. Possibility to recalculate measurement results based on a 'Region of Interest'
12. Auto print feature
13. Support for foiled shear sensors

END OF RELEASE NOTES