Safety

The software that you have purchased is used to control the movements of a Coordinate Measuring Machine (CMM). It has been designed to cause the machine to operate in a specified manner under operator control, and has been configured for a specific combination of CMM and Renishaw UCC controller.

Renishaw has no control over the configuration of the system with which this software is to be used, nor of the mechanical layout of the machine. Therefore, it is the responsibility of the person operating the software to:

- Ensure that all safety guards are in position and are working correctly before operation – if applicable;
- Ensure that any manual overrides are functional before operation;
- Be thoroughly familiar with the CMM and its controller, and to know the location of all emergency stops;
- Ensure that any moves that the machine will be instructed to make, under program control, will not cause the machine to inflict damage upon itself or upon any person in the vicinity of the machine.

Please refer to the comprehensive on-line help for further information on new features in this release. The on-line help is accessed by clicking the Renishaw icon in the top left corner of the screen.

Version history summary

	7.1 sp12	7.2	UCCSuite 4.0	UCCSuite 4.1	UCCSuite 4.2	UCCSuite 4.2.1	UCCSuite 4.2.2	UCCSuite 4.3	UCCSuite 4.3.2	UCCSuite 4.3.3	UCCSuite 4.3.4	UCCSuite 4.3.6	UCCSuite 4.4
UCC1	Y	Y	X	X	X	X	X	X	X	X	X	X	X
UCCLite	Y	Y	X	X	X	X	X	X	X	X	X	X	X
Native Integration	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X
Renicis	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X
Revo	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MCU-5	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UCCLite-2	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Vista	X	Y	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y
Revo RSH500	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y
Revo RSP3-3	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y
Rotary table support	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y
Thermal compensation with Revo	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y
Thermal compensation with PH10	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y
64 bit Windows XP & Vista	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y
Surface Finish Probe (Alpha version)	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y
Read head interpolator interface	X	X	X	X	X	X	X	X	X	X	X	Y	Y
UCCassist II Error Mapping	X	X	X	X	X	X	X	B	B	B	B	B	Y
Revo RSH175	X	X	X	X	X	X	X	X	X	X	X	X	Y
MCUW	X	X	X	X	X	X	X	X	X	X	X	X	Y
MCULite-2	X	X	X	X	X	X	X	X	X	X	X	X	Y
UCC Fusion	X	X	X	X	X	X	X	X	X	X	X	X	Y
PH20	X	X	X	X	X	X	X	X	X	X	X	X	Y
UCCserver – Thermal Reporting	X	X	X	X	X	X	X	X	X	X	X	X	Y
UCCserver – Builder Restrictions	X	X	X	X	X	X	X	X	X	X	X	X	Y
UCCserver – RWMachineIO	X	X	X	X	X	X	X	X	X	X	X	X	Y
UCCAssist2 – Tuning for scanning	X	X	X	X	X	X	X	X	X	X	X	X	Y

UCCsuite	UCCserver
7.1 sp13	Not Included (but use 4.1.1)
7.2	-
UCCSuite 4.0	-
UCCSuite 4.1	UCCserver 4.10.01
UCCSuite 4.2	UCCserver 4.20.03
UCCSuite 4.2.1	UCCserver 4.30.00
UCCSuite 4.2.2	UCCserver 4.30.01
UCCSuite 4.3	UCCserver 4.30.06
UCCSuite 4.3.2	UCCserver 4.30.06
UCCSuite 4.3.3	UCCserver 4.30.06
UCCSuite 4.3.4	UCCserver 4.30.06
UCCSuite 4.3.6	UCCserver 4.30.06
UCCSuite 4.4	UCCserver 4.30.11

Key	
Red	Option is not available
Orange	Option beta level
Yellow	Option available

Software release (UCCSuite 4.4)

The RSP2 probe file has had a number of changes in this version of the software, therefore it will be necessary to clear RSP2 calibrations and re-calibrate to take advantage of the new parameters.

General notes

Supported operating systems
Windows XP
Windows Vista (Business)
Windows 7 (Professional)
Windows 64bit XP
Windows 64bit Vista (Business)
Windows 7 64bit (Professional)

New Functionality

PH20

This is the first version of software that supports the PH20 head. Please note that your UCC controller will require a specific PH20 license key to enable the PH20 functionality.

UCC Fusion controller

This is the first version of software that supports the UCC Fusion controller.

MCUW

This is the first version of software that supports the wireless MCU.

MCULite-2

The MCULite has been updated to include a “Head mode” button which allows the PH20 head to be moved with the Joystick.

Support for the following styli has been added.

RSH 175 Compatible Styli			
Part Number	**Diameter (mm)**	**Length (mm)**	**Material**
A-5000-7805	0.5	10	Tungsten carbide
A-5000-7806	1.0	10	Stainless steel
A-5000-7807	2.0	10	Stainless steel
A-5000-4156	6.0	10	Stainless steel
A-5000-7808	1.0	20	Tungsten carbide
A-5000-3822	2.0	20	Tungsten carbide
A-5003-7852 (Custom)	3.0	30	Carbon fibre

9944 – Support for individual axis speeds.

The downloadable software has been modified so that each of the three Cartesian axes can have different maximum speeds and accelerations. Therefore, moves involving more than one axis are no longer restricted to the slowest axis in the system. Support for commissioning individual axis speeds has been added to Assist2 which ultimately modifies the KacclnX, KacclnY and KacclnZ parameters in the cmm mini file.

9925 & 10384 - CMM Air supply health check

Some CMMs have the air pressure sensor on the cmm side of the air solenoid. Therefore, the UCC now has a delay after energising the air solenoid to allow air through to the cmm, which activates the pressure sensor. The air supply solenoid will not be energised, allowing air onto the cmm, until configure for motion has been performed. The following parameters have been added to the machine ini file to control the air logic:

TimeoutOnWaitForHealthyAir = 10 seconds
AirPressureSwitchDebouncePeriod = 1 second
AirLossToValveOpeningTimeDelay = 2 seconds

TimeoutOnWaitForHealthyAir
This is the time the UCC spends waiting for an air ok signal from the air pressure sensor after energising the air solenoid. The wait will terminate as soon as healthy air is reported by the sensor. If the sensor does not report healthy air during the time out period an error is generated.

AirPressureSwitchDebouncePeriod
This is the amount of time the air pressure sensor must continuously report healthy air for the UCC to deem the air supply is good.

AirLossToValveOpeningTimeDelay
This is the amount of time the UCC will wait, after the air pressure sensor reports an air fail, before de-energising the air solenoid.

Bug Fixes

9175 - RSP3 Gravity measurement
The move used to measure the effect of gravity on the RSP3 probe is now only done at the A0B0 orientation.

10056 - Incorrect polar map generated at high A elevation
The method of acquiring the data, for the polar map analysis, has been modified to include measurement close to equator of the calibration sphere.

10217 - RSP2 calibration failure if unsupported tip is attached
The RSP2 calibration routine would get all the way to the polar map data acquisition and then fail if UCCServer had been used to build an unsupported tool tip. The calibration routine now check the tool configuration at the beginning to inform the user that the tool is invalid.

9175 - RSP2 & RSP3 Gravity measurement
The time taken to measure the gravity effect on these probes has been reduced by only collecting data at the A90 position.

9918 - Improved movescan error messages
The error reported to UCCServer form movescan COM has been improved to pinpoint the function within the UCC that caused the error.

9995 - Check for speed override at beginning of calibration
The calibration COM now checks that the speed override is above 90% before commencing the calibration routine. It used to check that the speed override was 100% but some MCUs / Joysticks could not get to exactly 100%.

10492 - 'n' point calibration point redistribution
The calibration routine that calculates where the points should be taken on the calibration sphere has been modified to always take the number of points the user asked for. Previously, points that would have collided with the stalk of the calibration sphere were discarded thus reducing the number of points. The routine now redistributes the points when it detects a stalk collision condition.

9376 - UCCLite-2 speed limits ineffective
We have changed the way speed and acceleration limits are checked on 3 axis UCCLite-2 systems. So the capping on these systems will now behave correctly.

9680 – Prevent speed override effecting backoff move during joystick touches
The speed override used to modulate the speed of the backoff move performed by the controller when a Joystick touch was taken. This has been suppressed as it can have a detrimental effect on the metrology of the joystick point and can confuse the user if the speed override is at 0%.

Installation Manager

New Functionality

UCC Shell extension
It is now possible to hover over a downloadable file and the resulting tool tip will display the downloadable version information.

Support for Windows 7
The installation manager has been updated to include support for Windows 7. A complete list of supported operating system can be found in the operating system table in the "General Notes" section of these release notes.

UCCServer 4.30.11

The version of UCCserver has stepped from version 4.30.06 in the previous release up to 4.30.11 in this release.

Changes - 4.30.06 to 4.30.07

Stylus Builder restrictions – Builder will now only present the supported styli for Revo RSP2

Thermal Reporting – Support of various new commands such as ReadAllTemperatures(), Thermal datums for the part and Host provided temperature input. Further details on this can be found on the Client developers page in CMM support on www.renishaw.com

Acceleration for ScanOnCurve changed to be controlled by ScanPar.Accel and not GoToPar.Accel

AutoEngageServos default value is now configurable for all new environments in UCCserver.ini.

```
[server]
AutoEngageServosDefault=false
```

The default for this value is changed to false, so new installations will build environments with this flag false unless the ini file value is set to true.

ScanOnCircle() scanning a plane would perform the wrong number of revolutions (too many) if the surface angle argument is above SfAThreshold in parameters section of the Advanced Tree

TemperatureLogging flag added to respond to temperature commands. The flag is "TemperatureLogging" in the [Log] section of UCCserver.ini

Changes 4.30.07 to 4.30.08

XML file corruption / Crash. If the machine's XML file is corrupted then it is archived and regenerated. Error is reported to Error Tab

Components in Machine - Components moved from Environment to Machines for future access by clients

New Knuckle added – M5 to M4 (M-5000-9301)

Graphics rendering crash – Changes made to resolve UCCserver crash conditions occurring during specif rendering tasks.

Changes 4.30.08 to 4.30.09

Get(Tool.A(), Tool.B()) bug fixed where it was returning the nominal tool's values at start up rather than the actual current head angle

Add new Knuckle – M3 (for RSP3)

Star Stylus - Add new Star Stylus A-5000-3626

Write failed prb - If a Calibration fails the system will now write failed prb file for diagnostics

PH20 support :-

PtMeas(Tool.Alignment(),Touch()) - Extension to PtMeas command to include Tool.Alignment() added in version 4.30.09B2 or later (4.4.0.11) Touch() supported in 4.30.10

RWReQualify() - Addition of new command – RWReQualify(TipCorrect())

Calibration Plane added – Calibration plane for the TipCorrect function for PH20

MiniDump file - DebugInfo.dmp file created on UCCserver crash – saved in %temp% directory

Save Machine XML to temp file – Saves to a temporary file while machine xml is saved to prevent loss of data

Tool Properties data type – Tools tab now displays the property type

PH20 Head Reference Lost Error – Error is now reported when the head reference is lost – PH20 must be re-homed in this case

RWMachineIO – New command added to support the uncommitted inputs and outputs on the UCC hardware. Further details to be found in separate integration documents.

Changes 4.30.09 to 4.30.10

DMEVersion = 1.7 – Command GetDMEVersion returns # DMEVersion("1.7")

N Point Calibration default = 11 – The Qualification section of the calibration routine default has been changed to 2 levels with 5 points and 1 point on the top. This allows for enough points to be obtained for the PH20 pretravel variation map to be generated. This couples with the calibration change that re-distributes the points to avoid the sphere's stem, rather than just losing the points.

Multiple Head Angle Selector Calibrations on HAM machines – Multiple calibrations using the "Dartboard" would fail on a Horizontal Arm Machine where the PH10 is mounted with the B axis of rotation along the –ve Y axis. This was due to the calculations for the clearance moves around the sphere assuming a standard PH10 orientation. This is now fixed.

PH20 Infered Calibration and PH10 mode – Ph20 can be used at any angle if a calibration is done for the selected Tool at A0,B0. The angle is selected using a GoTo() 5 axis or 2 axis. Then at any specific angle, a SetTool() or ChangeTool() can be used to apply the calibration at that angle. This will then act in a PH10 equivalent mode.

PH20 Default parameters – When a PH20 tool is created it will start with PH20 default parameters. Previously it would adopt the values of the trigger modules which are set up for TP20, but these are now overridden.

PH20 Z axis length value update – Previous versions of PH20 had a discrepancy in the Z axis which cause the Rack location wizard to incorrect by 1mm in Z. This would mean that the Rack Locate wizard locations would need to be corrected using the "Record" button to capture the position for each port manually. This should no longer be necessary, unless there is an XY lateral offset.

PH20 Small vertical bores use CMM touch – Issues of run-out of the tip exist when measuring in a small vertical bore. When measuring small bores, if the Quill is kept on the centre axis, it is possible for the tip to collide with the bore while rotating to the next position. To overcome this problem a central zone is defined where the A axis is near to 0 degrees. In this zone the FixedQuill or AllAxes Head Touches are overridden by FixedHead touches. Outside of this zone then all touch types are executed as requested. This override function is designed to resolve issues with small bore measurement and measurements where the B axis is

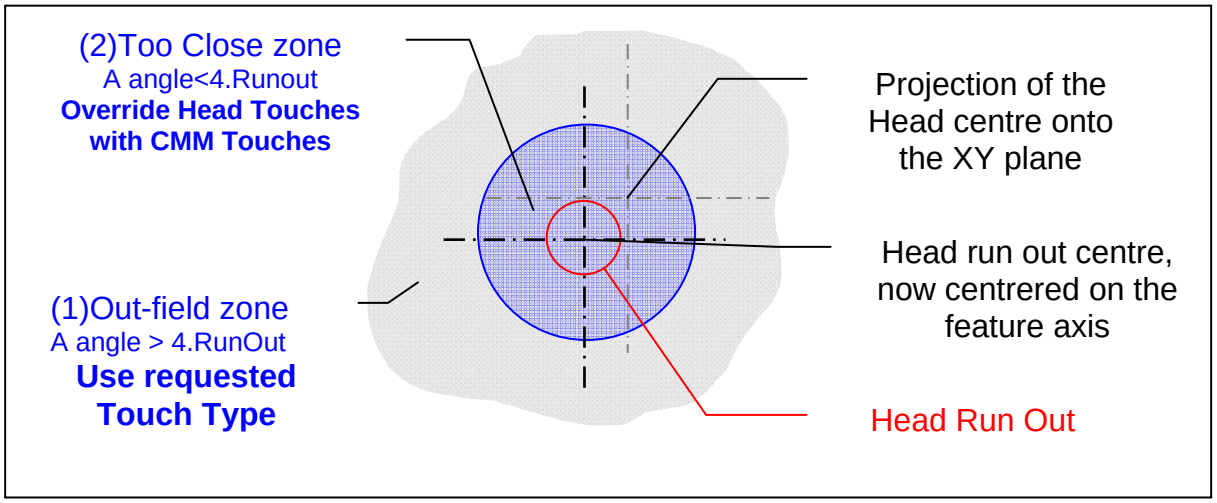
not facing the surface again with A near 0. The system cannot distinguish between points in a bore, or just on a plane. It has therefore been necessary for the override test to be conducted on all PtMeas requests, whether in a bore or not.

The zone is determined by a combination of the RunOut of the head. (Runout is calculated internally from the Head calibration data) and a multiplier parameter (see below) The test of zone is calculated based on the PtMeas Approach point. The parameters to control the multiplier for the zone are found in the UCCserver.ini File and are :-

[HeadTouch]
TooCloseZoneMultiplier=4
MidZoneMultiplier= 4

NOTE – These parameters should both be set to the same value – the default is 4. By setting the values to 0, this function is turned off.

Diagram of Zone to determine PtMeas Touch type override conditions



New Item - PAA CF Special added – A new 100mm long PAA added to the PartsCatalog

Create Tool function – A Client can now create a tool without having to use the UCCserver User Interface. The client must select the angle required (Using a GoTo() or the Joystick) and then call ReQualify(). The action of ReQualify will first create the Tool and then calibrate it. This is coupled with the removal of the CreateOrientation flag in the Advanced tree parameter section.

MCULite button press fixes – Fixes to problems where “Done” was returned incorrectly and a Head Locked error was generated when “Engage” button pressed.

Changes 4.30.10 to 4.30.11

PH20 Small Bore – Override Zone defaults changed to both be 4. This means that the default state is for the small bore override function to override FixedQuill touches (type 1 touches) with CMM Only (type 0 touches) only. AllAxes touches are never selected in this case.

GetProp(Tool.PhysicalName()) – New property added to allow the client to ask what real tool any Logical tool represents

RSH500 – Support for 3 new styli

2x20 Silicone Nitride (A-5003-1730)
2x30 Silicone Nitride (A-5003-7573)
2x40 Silicone Nitride (A-5003-7269)

Add new prop GetProp(Tool.PhysicalName()) – As a logical tool does not have all the attributes available as properties this new method is needed to allow the Client to gain information from the tool name

UCCassist-2 Version 2.0.0.56

New Functionality

Error mapping
The CMM error mapping GUI in Assist2 is now fully supported in this version of UCCSuite.

Fusion Controller
Commissioning support has been added for the Fusion controller.

Tuning for scanning
This new action allows three tests to be performed in order to evaluate the machine's ability to perform 3 axis scanning. The first test is a free space circular move which visualises how well the circular trajectory of the machine is performing. The second test is a circular move with some interference between the probe and an artefact. This allows the open loop (no control of the probe deflection) scanning performance to be evaluated. The third test is a proper scan of an artefact to evaluate how well the closed loop (deflection under control) is performing.

Retrofit interpolator interface board
Support for commissioning the interpolator board, which interfaces with a variety of scales to convert to the quadrature signal required for the UCC, is included in the release.

Bug Fixes

9861 – Setup of thermal reference position
The temperature compensation model in the UCC has support for setting the thermal reference position of the CMM. This position is the origin of the thermal compensation model and the CMM is deemed to expand and contract relative to this origin. Assist now provides the ability to enter the location of the origin position.

10186 – SPA firmware updater
The diagnostic sequence has been updated to include a SPA firmware update action. This action supersedes the old executable images that were used to update the SPA firmware. The old executables should **NOT** be used to update the SPA firmware any more as this can program the SPA with the wrong firmware.

10259 – Maintenance wizard
A maintenance wizard has been added to allow users to customize the instructions presented in the resulting maintenance sequence.

10199 – Motion gain measurement
The motion gain filter coefficient is now measured the first time the probe is calibrated during the machine commissioning and the value is stored in the CMM ini file. This avoids the need to measure the motion gain filter coefficient during subsequent probe calibrations. Therefore this prevents any collisions, especially when calibrating cranked styli with RSP3, with the calibration sphere.

Service pack 6 (UCCSuite 4.3.6)

This service pack introduces support for the read head interpolator board to support retrofit activities.

New Functionality

9745 - Read head setup action in Assist2.

The new interpolator interface board, used to interface various scale and read head to the UCC quadrature scale input, is supported in this version of the software. A new Read head configuration action has been added to the miscellaneous tools in the diagnostics tree. This action is used to communicate, via USB, directly to the board in order to setup the board.

Error mapping user interface timeout extended

The error mapping user interface, used to acquire the laser data and generate the correction map, will cease working on the 1/4/2010. This service pack extends this time out to 1/10/2010.

10180 Option added to remove uncertainty calculation

During the CMM verification stage of a retrofit it is sometimes difficult to bring the CMM into specification with the uncertainty calculations enabled. This is usually due to the ambient temperature being too far from 20 DegC causing a large uncertainty budget. Therefore, for customers who are not interested in the machine being passed to the UKAS certification level an option has been added to Assist2 to switch off the uncertainty calculation. Obviously the Certificate of calibration will not show the UKAS logo and will show the uncertainty as N/A.

Bug Fixes

None.

Service pack 5 (UCCSuite 4.3.5)

This service pack release addresses the registry location of the UCCServer application.

New Functionality

None.

Bug Fixes

10193 Registry entry for UCCserver location incorrect

The registry entries, that identify the location of the installed version of UCCserver, had the wrong path in UCCSuite 4.3.3 and 4.3.4 . This would affect applications that used the path to automatically launch UCCServer.

Service pack 4 (UCCSuite 4.3.4)

This service pack release addresses some minor software issues shown below in the bug fixes section.

New Functionality

Beta support for the RSH175, using only a Ø6x10 stylus, is included in this service pack however only limited testing of the metrology has been performed so far.

Bug Fixes

9710 MCU DRO will not count beyond 9.999 metre.
The downloadable software has had the restriction removed that prevented the MCU LCD from displaying axis travel greater than 9.999 metres.

10065 RSP3 - B axis rotating on backoff
This fixes the unwanted rotation of the Revo head after a touch has been taken with the RSP3.

Service pack 3 (UCCSuite 4.3.3)

This service pack release mainly addresses the metrology problem identified with the Revo polar map. There are a number of smaller issues also addressed and details can be found in the bug fixes section below.

New Functionality

Support for the following styli has been added.

RSH 250 Compatible Styli			
Name in UCCServer	**Diameter (mm)**	**Length (mm)**	**Material**
M2_STY_D3R_L40_EWL40_D2CF	3.0	40	Carbon fibre
M2_STY_D3R_L30_EWL30_D2CF	3.0	30	Carbon fibre
M2_STY_D4R_L20_EWL20_D1.5SS	4.0	20	Stainless steel

Bug Fixes

9878 Polar map improvements.
The maths that performs the polar map identification has been improved to generate a better map at A90.

9962 Data offset when measuring 10mm step during step gauge verification
This is actually related to 9897 and is therefore also fixed in this release.

10089 REVO serial number incorrectly read on power up
The head firmware is now instructed to re-read the head serial number once voltages have stabalised.

10091 MCU speed override check too rigid.
The speed override check at the beginning of the probe calibration now uses 90% as its test value thus allowing for variation in the analogue electronics associated with the potentiometer.

Service pack 2 (UCCSuite 4.3.2)

This is a minor software release to address an issue with tool changing.

New Functionality

None

Bug Fixes

Switching between TP200 & SP25 results in a probe not nulled state

When tool changing from a TP200 to a SP25 the system incorrectly reports the SP25 probe as “Not Nulled”. This happens even though a probe file existed for the SP25. The bug was introduced in the 4.3 release of the software.

Software release (UCCSuite 4.3)

The RSP2 probe file has had a substantial number of changes in this version of the software, therefore it will be necessary to clear RSP2 calibrations and re-calibrate to take advantage of the new parameters.

General notes

New Functionality

Xp and Vista x64

Support for 64 bit versions of Windows Xp and Vista. (except for XC80 drivers - see below)

Bug Fixes

Probe installation parameter determination

An additional analysis routine has been added to the Revo probe calibration to better identify the E axis offset and tip offset along the x axis. This will primarily improve diameter measurements with this probing system.

Measurement variation with B axis rotation

Improvements to the touch point control routine implemented by the UCC have been made to eliminate the size variation that is present when you measure the size of a part with A=0 at a number of B orientations.

Measurement variation with A axis rotation

Improvements to the probe calibration have been made to reduce the size and form errors reported by the system at varying A angles. For example, measuring a ring gauge in the XY plane and then subsequently the same ring gauge in the ZX plane will give the same result.

Improved deflection regulation

A new deflection controller has been implemented to regulate the deflection of the RSP2 during scanning. This algorithm means the control system is now capable of working with a larger range of stylus configurations. The following table identifies styli have been tested and are the only ones supported by this version of software. Users should try to use a stylus from the table for their inspection program but if this is not possible additional styli could be made available after some testing by Renishaw.

RSH 250 Compatible Styli			
Name in UCCServer	**Diameter (mm)**	**Length (mm)**	**Material**
M2_STY_D0.5R_L10_EWL3_D0.5TC	0.5	10	Tungsten Carbide
M2_STY_D0.5R_L20_EWL7D0.3TC	0.5	20	Tungsten Carbide
M2_STY_D1R_L10_EWL4.5_D0.7SS	1.0	10	St Steel
M2_STY_D1R_L20_EWL12.5_D0.8TC	1.0	20	Tungsten Carbide
M2_STY_D1R_L27_EWL20.5_D0.7TC	1.0	27	Tungsten Carbide
M2_STY_D1.5R_L30_EWL25_D1TC	1.5	30	Tungsten Carbide
M2_STY_D2R_L10_EWL6_D1SS	2.0	10	St Steel
M2_STY_D2R_L30_EWL25_D1.5TC	2.0	30	Tungsten Carbide
M2_STY_D2R_L40_EWL35_D1.5TC	2.0	40	Tungsten

			Carbide
M2_STY_D3R_L10_EWL7.5_D1.5SS	3.0	10	St Steel
M2_STY_D3R_L20_EWL17.5_D1.5SS	3.0	20	St Steel
Custom	3.0	30	Carbon Fibre
M2_STY_D3R_L50_EWL42.5_D2CE	3.0	50	Ceramic
M2_STY_D4R_L10_EWL10_D1.5SS	4.0	10	St Steel
M2_STY_D4R_L50_EWL50_D2CE	4.0	50	Ceramic
M2_STY_D5R_L10_EWL10_D2.5SS	5.0	10	St Steel
M2_SP_STY_D5.5R_L10_EWL10_D2.5SS	5.5	10	St Steel
M2_STY_D6R_L10_EWL10_D2.5SS	6.0	10	St Steel

RSH 350 Compatible Styli			
Name in UCCServer	**Diameter (mm)**	**Length (mm)**	**Material**
M2_STY_D1R_L10_EWL4.5_D0.7SS	1.0	10	St Steel
M2_STY_D2R_L10_EWL6_D1SS	2.0	10	St Steel
M2_STY_D2R_L20_EWL14_D1.4SS	2.0	20	St Steel
M2_STY_D4R_L10_EWL10_D1.5SS	4.0	10	St Steel
M2_STY_D5R_L10_EWL10_D2.5SS	5.0	10	St Steel
M2_STY_D6R_L10_EWL10_D2.5SS	6.0	10	St Steel
M2_STY_D6R_L50_EWL50_D3CF	6.0	50	Carbon Fibre
M2_STY_D8R_L11_EWL11_D2.5SS	8.0	11	St Steel

RSH 500 Compatible Styli			
Name in UCCServer	**Diameter (mm)**	**Length (mm)**	**Material**
M2_STY_D3R_L50_EWL42.5_D2CE	3.0	50	Ceramic
M2_STY_D6R_L10_EWL10_D2.5SS	6.0	10	St Steel
M2_STY_D6R_L50_EWL50_D3CF	6.0	50	Carbon Fibre

During the stylus testing we have occasionally observed a 2KHz resonance, in the reported scan data, on some systems while measuring ring gauges. The effect manifests itself as a large form error and is dependant on both scan direction and stylus length. If you come across this phenomenon try reversing the scan direction. It is believed to be a mechanical resonance in the stylus holder and is currently being investigated by the probe design team.

Critical angle scanning

When scanning near the critical angle it becomes impossible for the head to rotate in a direction appropriate to correctly control deflection. In this case an alternative method of measuring the particular feature should be used. For example, Head touches CMM touches or a cylindrical method.

Calibration speed override

At the beginning of a probe calibration the software checks that the MCU speed override control is set to 100%. If it is not the probe calibration routine will not begin.

Scanning recoveries

Move scan 2D and Cylinder scanning algorithms now support lost surface recovery. The recovery sequence is the same as it was in the original 2D Scan and Cylinder Scan commands. There is still some work to be done in UCCServer to make this functionality available to the client software.

Wrong number of revolutions during helix scan

While machine scanning a bore with a RSP3 + cranked stylus the CMM would miscount the number of revolutions performed and thus perform a straight line scan along the surface and parallel with the centre line of the bore. This had a knock on effect where RSP3 Helix scans with a large helix step, and low scan accelerations could oscillate along the axis of the scan. This is fixed in test candidate 4.3.0.17

Axis overdrive error when MCU speed override at 0%

A combination of the speed override at 0% and a coincident move (move of zero length) caused a large demand to be requested in the servo control system.

Ability to override the false trigger recovery

The following parameter has been added to the CMM configuration file:
[MoveConfiguration]
ControlFalseTriggerDetection=1
Set it to 1 to enable false trigger detection and 0 to disable.

Continuous motion from ScanOnCircle

Miscalculating the number of revolutions performed during a scan was causing the controller to scan the defined circle indefinitely.

Installation Manager

New Functionality

64 bit operating system support

64 bit versions of the UCCLite-2 USB drivers are now included as part of the software distribution. Drivers for the laser calibration equipment used for machine mapping – XC80, however are not included so this functionality is not supported on 64 bit systems.

Bug Fixes

Ordering of version numbers

The version number list presented in the advanced user interface is now in ascending version number order.

Upgrade of server environment

The server environment would not be upgraded if the user had rolled back to a previous version of software and then re-installed the original version. For example, Install 4.3, roll back to 4.1 and then install 4.3 again. Any changes made to the environment while in the 4.1 installed state would be lost when moving from 4.1 back to 4.3.

UCCServer 4.30.06

New Functionality

Note – Majority of changes below were introduced as part of UCCserver 4.30.02 unless otherwise stated

Known Issues

An issue exists with UCCserver where some properties (example ScanPar.MeasMethod, ScanPar.Tilt, ScanPar.Advance for the RSP2 and CalibrationTolerancePar for the RSP3) are not visible when a Tool is first built. When UCCserver is closed and reopened these values will then appear.

Also an issue exists where editing of Assemblies can cause the ED() parameter to be incorrect as it is not updated. Building of assemblies and then editing to create a different tool should be avoided. New Tool should be created using the builder.

PtMeasSelfCenter() / PtMeasSelfCenterLocked()

New I++ specification commands PtMeasSelfCenter and PtMeasSelfCenterLocked added. This function is available for analogue scanning probes, such as SP25 and Revo RSP3, but is not supported for Touch probes or for Revo RSP2.

The command is used to locate the bottom of a cone or “V”. The tip is positioned approximately above the feature. It will search parallel along the axis of the feature until it hits the surface. Then it will scan down to thebase of the feature and will return a point at the position where the tip “engages” with the bottom of the feature.

For this version the PtMeasSelfCenterLocked() function is not fully implemented and is the same as the PtMeasSelfCenter() command. In this case therefore, the LMN locking plane is ignored and the tip can move out of plane.

Bug fixed in 4.30.06 where a disableUser() would cause the PtMeasSelfCentre command to fail.

Extend GetChangeToolAction to include star styli tip changes

Removed the setting of XYZ to 0 if the new tool had the same assembly and head orientation as the current tool.

Updating PartsCatalog with RSP3 modules

Added RSP3- 1-4 module and stylus holders to PartsCatalog.mxc. NOTE that the pre-existing "RSP3" module has been superseded by the new "RSP3-3" module. Any existing Tools and Assemblies containing the "RSP3" should be deleted and recreated using the "RSP3-3" module instead.

Automatically select and import machines with environment

When starting server environments will look for a machine by the same name and this will be saved in the environment as the "last used machine".

When selecting an environment the last used machine will also be selected.

When an environment is exported the last used machine for that environment will also be included in the zip file produced.

When importing an environment the machine data will be automatically imported with the machine setup.

The properties report now shows the active machine and machine setup.

Support Surface finish probes

Initial Beta support is added for Surface Finish Probe. For full details of operation refer to the Integrator's guide for Surface Finish probe.

RWScanOnSection command is added

This command is added for testing only. For full details of operation refer to the Integrator's guide for RWScanOnSection.

Changes / New Items added to Catalogues

RSH-175 (Revo Stylus holder) This is added for testing only and is not supported in the online mode
M2 SP STY D5.5R L10 EWL10 D2.5SS (Stylus)
M5 STY D15CS L95 EWL40 D5SS ZEISS (Stylus)
TP200 SF-LF was separated into 2 different parts as there are 2 part numbers - TP200_SF (Standard Force) & TP200_LF (Low Force) modules were created to replace the TP200 SF-LF.
TP200B body was added.
TP20_NI body was added.
PH20 Model added
MH20 Model added
MH8 Model added

Changing RSP2 cylinder scan search move from 3-axis to 5-axis

When running either ScanOnHelix() or ScanOnCircle() with an RSP2 and Movescan switched on, the search move can now be performed in a variety of different ways. Users can configure this using the Advanced Tree->Environment Parameters flag "HelicalTouchType". This is an integer that consists of the total value of the required parameters:

Bit 1: 3-axis search moves = 1 (default)
Bit 2: 5-axis search moves = 2
Bit 3: Search move is normal to surface = 4
Bit 4: Search move is normal to cylinder axis = 8 (default)
Bit 5: Adjust target search point for Sfa OFF = 16 (default)
Bit 6: Adjust target search point for Sfa ON = 32

So to set:
A. 3-axis Search moves & normal to surface,
set HelicalTouchType = (4+1) = 5.
B. 5-axis Search moves & normal to surface,
set HelicalTouchType = (4+2) = 6.
C. 3-axis Search moves & normal to cylinder axis,
set HelicalTouchType = (8+1) = 9.
D. 5-axis Search moves & normal to cylinder axis,
set HelicalTouchType = (8+2) = 10.

"Adjust target search point for Sfa" changes the target search point on the surface so that in a cone the probe touches the surface at the correct height even when using a 3-axis search move (normally it would hit too low on Z).

To switch this on add 32 to the "HelicalTouchType" parameter - so for the 4 cases above:
A = (5+32) = 37.

B = (6+32) = 38.
C = (9+32) = 41.
D = (10+32) = 42.

Support for new Revo RSP2 calibration catagories for given stylus

New PartsRelationships.mxc added and support for the new parameters for calibration of specific styli added. This limits the range of styli that are supported for each stylus holder, see table above.

Archiving of Calibration Files (Added in UCCserver 4.30.05)

When a new calibration is conducted the previous calibration's prb file is saved (in the same location as the original file) with the same name, but with a date/time stamp added.

Bug Fixes

"Excessive Deflection" Error during RSP2 calibration (Fixed in UCCserver 4.30.03)

Problem fixed where the calibration deflections section was being deleted from the Tool's *.cfg file. The effect was that default values were being used for the calibration instead, and so the calibration would fail.

Get(R()) always returns 0 if RotaryTableVarCsy switched off

Fixed bug where switching off the rotary table "var" csy via EnableRotaryTableVarCsy(0) resulted in subsequent calls to Get(R()) always returning 0. Likewise, the table position reported by the daemon that is switched on via OnMoveReportE(R()), was also always 0 when the "var" csy was switched off.

ScanOnCircle() does 180 B Angle rotation with large Retracts

Fixed bug where in a retract which took the Probe Tip past the Feature Axis in a ScanOnCircle() or ScanOnHelix() would result in a 180 degree rotation in B. Now it has a limit of the Centre (returning to A(0)).

Manual Machine calibration error suppression

Suppress "Tool Not Calibrated" error whilst calibrating a Tool on a manual machine with the Manual Calibration Wizard.

ScanOnCircle() Negative radius sent

For internal circles, if the size of the bore (calculated from the parameters passed in with the command) is less than the current Tool's tip diameter, error 5175 is returned: "Bore Radius smaller that Tip Radius". The command is not attempted.

Scans with low pitch not reading all data from Movescan buffer

Not all data being presented to the client by UCCserver when data density is high. The problem manifested itself as missing data at the end of the scan, notably after Movescan had completed only the next 1000 points were read from MoveScan. Now fixed.

SP25-5 default deflections changed

Default calibration deflection values changed to 0.1 and 0.3

SCP80 Dwell time

Changed from 0 to 2 seconds

Calculating Head Angles from Vectors Tolerance issues

Improve calculation of head angles when the Head A angle will be close to 0

Timing / Dwell Updates

ChangeTool() dwells during rack change

Small Bore retracts
Fixed bug where the B Axis would do a 180 degree rotation as part of a Cylindrical scan's retract move. It is now detected when that is going to happen and the Move limited to A0 B:Current.

Fixing retract move in small bore sometimes moving through part.
Fixed bug where running a ScanOnCircle() in a small bore could result in the Retract move rotating the Head 180 degrees on the B axis or the probe attempting to move through the part.

UCCassist-2 Version 2.0.0.31

New Functionality

Start page restructure
The start page has been restructured to reduce the complexity of the first screen that that is presented to the user.

CMM Error mapping (Beta)
A new wizard has been added that allows the user to specify what equipment they are going to use to collect data during the capture process. The wizard generates a sequence that can then be used to collect and analyse the data to generate an error map for the CMM. This version of the software is limited to 3 axis CMMs but does support the new Wyler electronic levels. This new functionality is designated as beta and it is intended that CMM error mapping continues with UCCassist Mk1 while this new mapping functionality goes through it's beta phase.

Diagnostic sequence grouping
The diagnostic sequence tree structure now organizes the diagnostic actions into subgroups. A new "Custom" group has been added at the bottom of the tree. Any actions added to the custom branch of the tree, by using the sequence designer, are persisted between software version upgrades.

Read head limit switch setup
A new read head limit switch set-up action is now available during the commissioning sequence. The machine commissioning wizard allows the user to determine whether the action is needed in th sequence.

Movescan trace configuration
The movescan trace settings are now configured via the movescan trace configuration action in the diagnostics sequence and no longer via the registry.

MCG enhancement with REVO
The MCG routine is now performed with the Revo B axis in three different orientations. This is to remove the effect of geometry inaccuracies when calculating the CMM squareness corrections. This means that there are now 9 revolutions (three at each elevation) performed during the data capture.

Bug Fixes

Setup of manual heads
A manual head selection has been added to the configuration wizard.

Setup of manual heads
The wait for head to reach temperature now also waits for the probe temperature to stabilise.