

ArcAir

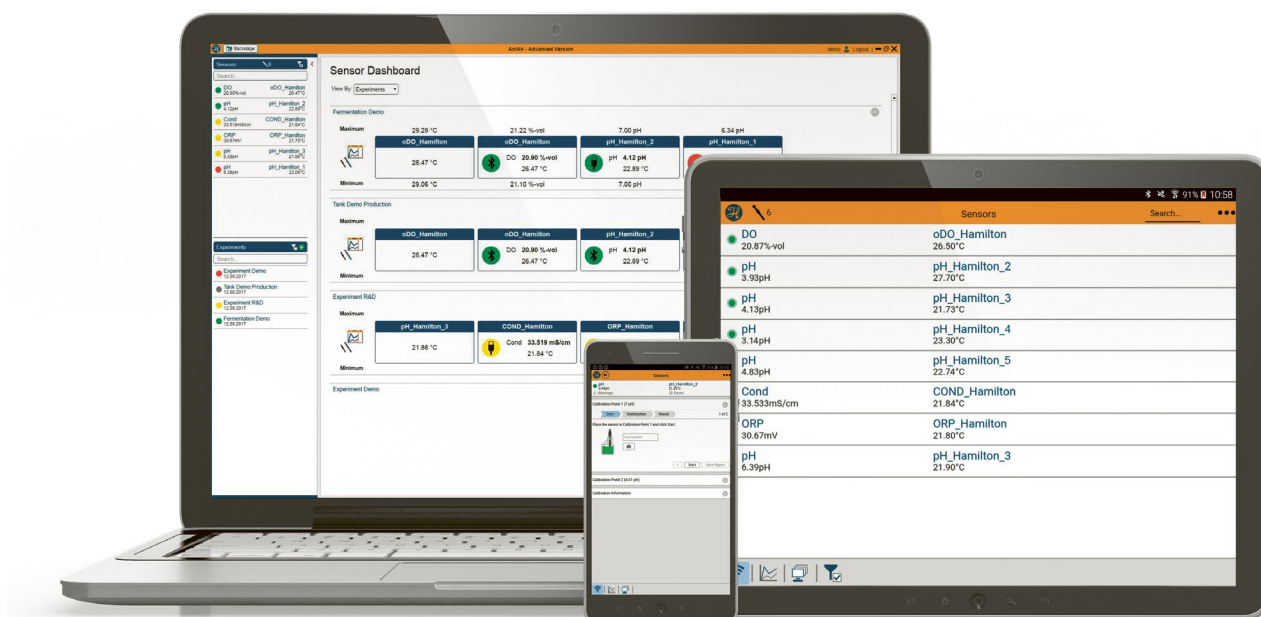


Table of content

ArcAir 3.11.1	2
ArcAir 3.10.1	2
ArcAir 3.9.2	3
ArcAir 3.8.1	5
ArcAir 3.7.6	6
ArcAir 3.7	6
ArcAir 3.6	7
ArcAir 3.5	8
ArcAir 3.4	9
ArcAir 3.3	10
ArcAir 3.2	10
ArcAir 3.1	11
ArcAir 3.0	12
ArcAir Software Update	14

ArcAir 3.11.1

We are pleased to announce the release of ArcAir Version 3.11.1. This version delivers important updates to user management, sensor communication, experiment handling, overall application stability and support for our new products. Users benefit from new functionality, improved usability, and a range of bug fixes.

Key Features	Sensor Communication: Bluetooth signal strength indicator and unique sensor ID improvements.	
	Experiments: Improved stability, export enhancements, and bug fixes.	Base Application: Audit trail corrections, firmware update handling.
	Dashboard & Sensor List: extended filters, and UI corrections.	Sensors: Enhancements for Dencytee, VisiFerm mA, and RS485 sensor handling. Addition of GlucoSense sensor.

Improvements	Description
Sensor Communication	<ul style="list-style-type: none"> Added Bluetooth signal strength indicator to display connection quality Bug fix: clarified pop-up dialogs
Base Application	<ul style="list-style-type: none"> Audit Trail report information display corrected Translation updates, including Japanese changes Database migration issue resolved (v3.6 → v3.9.2) Discontinuation of Arc Wireless Converter
Experiments	<ul style="list-style-type: none"> Bug fix: prevented incompatible sensor combinations in experiment creation Bug fix: improved connection handling for VCD sensors in read-only mode Bug fix: UI stability improved after long-term experiments and frequent database switches
Sensor List & Dashboard	<ul style="list-style-type: none"> Display of two main values supported on dashboard and sensor list Filters extended to include new sensors Bug fix: sensor list now updates correctly after temperature unit changes Bug fix: resolved connection failures after Windows 11 system lock Bug fix: dashboard UI issues corrected
Sensor Functionality	<ul style="list-style-type: none"> Info page updated: warnings and errors no longer greyed out Bug fix: added missing “Done” button during conductivity calibration Bug fix: corrected times in data logging reports Bug fix: report generation restored from saved database data
Sensors	<ul style="list-style-type: none"> Dencytee RS485: Verification with Basic now supported VisiFerm mA: Bug fix for empty settings display VisiFerm RS485 family: Bug fix for overridden parameters in mA/ECS interfaces Introduction of GlucoSense sensor

ArcAir 3.10.1

We are pleased to announce the release of ArcAir Version 3.10.1, which includes new features, improvements, and bug fixes.

Key Improvements	Enhancements to experiment functionality	Improved database handling and stability
------------------	--	--

Improvements	Description
User Management	<ul style="list-style-type: none"> Bug: Process group selection disappears when switching tabs in User Management Bug: Cannot assign process group with a custom admin role Bug: Existing data not pre-filled when editing process groups Improvement: Account lockout replaced with increasing delay after each failed login attempt (security enhancement)
Sensor Communication	<ul style="list-style-type: none"> Bug: Program hangs after deleting a duplicate sensor and closing ArcAir Bug: Sensor appears duplicated when connected via both BT and USB after renaming Bug: Sensor remains displayed after physical USB disconnection

Improvements	Description
Sensor Password (S-Level)	<ul style="list-style-type: none"> Improvement: Users are now informed when changing the S-Level password on a sensor
Base Application	<ul style="list-style-type: none"> Improvement: Renamed “Backstage” to “Settings” and “Settings” to “General Settings” Bug: Dialogs unusable on iOS (AA 3.7.31, iPhone 13, iOS 17.3.1) Improvement: Full-screen support for iOS app Bug: Keyboard hides input fields on iOS; fields not scrollable into view
Windows-Specific	<ul style="list-style-type: none"> Improvement: Latest serial drivers for Arc USB power cable included in setup Bug: Instability after PC sleep mode Improvement: Log files now record power state changes Bug: ArcAir crashes on startup due to system data permission issues Bug: Use of non-ASCII characters in Measuring Point name causes errors
Database	<ul style="list-style-type: none"> Bug: Clicking a sensor causes indefinite loading (wheel of death) Bug: Umlauts in Measuring Point names cause issues
Audit Trail	<ul style="list-style-type: none"> Bug: Exported PDF does not match ArcAir data; username not always transferred on iPhone
Data Synchronization	<ul style="list-style-type: none"> Bug: User account transfer progress stuck at 5% Bug: Poor PC to iOS mobile connectivity Improvement: Mobile report file names now use sequential numbers
Experiments	<ul style="list-style-type: none"> Improvement: Button label changed from “Scan off” to “Turn Scan off” Improvement: Enhanced experiment stability Improvement: 3s interval no longer allowed for Incyte/Dencytee experiments Bug: Lost sensor connection causes prolonged loading in experiments Bug: Experiment/ArcAir performance impacted by database issues Bug: Cell factor not displayed correctly in Incyte experiment data Bug: Warning not always shown when exporting experiments Bug: Frozen values for Incyte/Dencytee sensors Improvement: No value is now written when sensor data is missing (previously reused last value)
Configuration, Setup, Delivery	<ul style="list-style-type: none"> Improvement: Inno Setup script updated to use .NET Framework 4.8
Security	<ul style="list-style-type: none"> Various security updates implemented
Sensor List & Dashboard	<ul style="list-style-type: none"> Bug: Filter appears enabled even when no filter is applied

ArcAir 3.9.2

We are delighted to announce the release of ArcAir 3.9.2 in August 2023. ArcAir continues to provide effective and secure communication for the control, validation, and management of all Arc sensors. In this update, we have implemented significant features and improvements to further enhance user experience and system performance. Here are the key features introduced in this update:

Key Features	Incyte Arc Integration - Enhancements and Improvements	Dencytee Arc Integration - Updates and Advancements
	Operator Level S password improvement	Advanced Handling for Sensors with the Same Measuring Point Name
	Compatibility for Upcoming Sensors	General Updates, Bug Fixes, and Improvements

Incyte Arc Integration – Enhancements and Improvements

We are excited to share the latest advancements to the Incyte Arc integration as part of our ongoing commitment to provide an enhanced user experience and the best possible performance.

Dencytee Arc Integration – Updates and Advancements

We are thrilled to announce significant updates to the Dencytee Arc integration, featuring various enhancements designed to optimize your user experience and deliver improved performance.

Operator Level S improvement

We’ve optimized the process of updating the Operator Level S password. You can now conveniently manage these passwords across your PC, tablet, mobile, and sensors, making it easier than ever to secure your sensors against unwanted tampering.

New handling for sensors with the same measuring point name

We've revamped our database management of sensors to ensure better system stability and reliability, offering you an improved ArcAir experience.

Compatibility for upcoming sensors

At Hamilton, we're constantly innovating, particularly in terms of sensors for biopharma applications. We've designed ArcAir 3.9.2 to be ready for integration with our new Arc sensors, set to further enhance the Process Analytics product portfolio.

Security improvements

Our priority remains to ensure the highest level of security while providing a seamless user experience. In this regard, we have incorporated all necessary security enhancements to further safeguard your data and interactions.

General bug fixes and improvements

In our continued commitment to enhance user experience, we have tackled and resolved numerous minor bugs and issues in this update. Additionally, various incremental improvements have been made across the system to ensure smoother operations and further elevate your ArcAir experience. A summary of the most important fixes are detailed below:

Improvements	Description
Incyte Arc integration – enhancements and improvements	<ul style="list-style-type: none">• Initiation of data logging now showcases sensor timing table• Incyte Arc clear zero now necessitates an additional fscan clear zero command• Unexpected autonomous start of sensor cleaning detected in verification menu• Post-failure Incyte Arc verification report now available• Enhanced efficiency through optimization of verification process change
Dencytee Arc integration – updates and advancements	<ul style="list-style-type: none">• Active correlation model information now displayed• New offline correlation creation for Dencytee RS485 appears greyed out• Dencytee correlation functionality on mobile devices
User management	<ul style="list-style-type: none">• “Unassigned” sensors not displayed on dashboard for quality manager user role when filter is set to “process groups”
Auto sensor logout	<ul style="list-style-type: none">• Calibration mode now prevents automatic disconnection• Auto-logout disabling for experiments and incyte logging encounters failure• Sensor connection timeout averted during lengthy operations
Login – logout	<ul style="list-style-type: none">• Introduced optional visibility for typed-in user passwords• After user password expiry, system access still possible with old password: One-time use before mandatory password change required
Audit Trail	The Audit Trail has been updated to include the following actions: <ul style="list-style-type: none">• Application of calibration data (Single-Use)• Modification of settings (any)• Product calibration• Verification• Communication validation• Sensor connection• Factory reset (all sensors)
CO₂NTROL	<ul style="list-style-type: none">• Text update implemented for CO₂ calibration• Inaccurate S/R ratio displayed in calibration information now corrected
pH	<ul style="list-style-type: none">• Indication for previous buffer has been removed
Sensor communication	<ul style="list-style-type: none">• Endless loop issue encountered when ArcAir connects to the sensor• Connection failure detected with cable use• VisiFerm sensor connection disconnection issue identified, resulting in partial ArcAir freezing• Problems arise when rapidly connecting/disconnecting a sensor
Replace Hamilton USB Bluetooth converter	<ul style="list-style-type: none">• Connectivity issue identified with some sensors when using internal Bluetooth• Hamilton Arc Wireless Converter unavailable for Bluetooth settings configuration
VisiFerm RS485 sensor	<ul style="list-style-type: none">• Temperature unit absent for cleaning cycles in VisiFerm RS485 ECS• Error detected in record measurement variables within tab settings• Factory reset for VisiFerm DO RS485-ECS unavailable, causes ArcAir freezing• VisiFerm RS485 units inconsistent: Max and Min remain mA when set to nA• Removal of humidity and pressure edit fields
Other	<ul style="list-style-type: none">• Additional minor improvements and fixes were implemented throughout the software

ArcAir 3.8.1

In August 2022, ArcAir 3.8.1 is launched. ArcAir enables efficient and safe communication for control, validation and management of all Arc sensors. The following key features are included in this update:

Key Features	Internal Bluetooth or a 3 rd party external Bluetooth dongle integration	Compatibility for upcoming sensors
	GMP improvements	General Improvements

Internal Bluetooth or a 3rd party external Bluetooth USB dongle integration

ArcAir can now be used with your computer's internal Bluetooth chip or using an external 3rd party Bluetooth USB dongle. When this is enabled, ArcAir can be used in environments with up to at least 100 Arc sensors over Bluetooth.

For details on how to activate and use this new feature please look at the Chapter «Configuring your Bluetooth Connection» in the Hamilton Arc Operating Instructions (REF 10071115). Please ensure that the minimum Bluetooth version of 5.0 is used to ensure all functionality.

Compatibility for Visiform and Visitrace RS485 sensor families

Hamilton is committed to bringing innovation, especially regarding sensors for biopharma applications. ArcAir 3.8.1 is ready for the new Arc sensors that further improve the Process Analytics product portfolio.

Sync All button

The Sync All button allows the user to synchronize Arc View Mobile devices with user data, report data and the audit trail with a click.

General Improvements

Improvements	Description
Log a software version change in the Audit trail	Whenever ArcAir is started, the version of ArcAir is recorded in the Audit trail.
Information in the Audit trail	The information tab in the audit trail is now recorded correctly in the audit trail report.
Improve the ability to turn on and off hardware acceleration (Intel Iris XE Graphics bug)	In some cases, ArcAir does not function correctly when used with Intel Iris XE Graphics and hardware graphics acceleration. Hardware acceleration is now selectable in the installation menu and automatically deselected if Intel Iris XE graphics is detected.
ArcAir does not start up if the database is not available	ArcAir now creates a database and starts up successfully if the Database is not available.
Transfer Audit trail from mobile to PC	Further optimization of Audit trail transfer.
Addition of information to the export file of an experiment	The following data was added/adjusted on an experiment export. <ul style="list-style-type: none"> • Firmware version of the sensor • Connection type • Incyte Arc Advanced: Cell Density unit/factor • Incyte Arc Advanced: Dencytee Arc: Correlation model in use • Incyte Arc: Checksum of correlation model • Incyte Arc: Creation Date and Time of Correlation Model • Change Record time column to date-time format (remember that this can be more than 24h)
Addition of color bar to Experiment screen	To easily identify the sensor and bar, the bars have now been colored the same as the sensor in the experiment screen.
Add a dialog to ask the user to export data after an experiment is manually stopped	Users will now be asked if they would like to export their experiment data when they stop an experiment.
Ability to save a report for a failed Calibration, Verification, etc. for all sensors	It is now possible to save a report for a failed calibration.
Change CO ₂ calibration reports	The calibration report has been corrected.
Spinning wheel when connecting to a sensor at startup	A bug if you try to connect to a sensor right after startup been fixed.
General Improvements and bug fixes	Various other known and valid improvement requests provided by users have been implemented.
Increase of default sampling time of experiments	Default sampling time of experiment is now 30 seconds to allow for faster exports.

ArcAir 3.7.6

In May 2022, Hamilton Process Analytics launches ArcAir 3.7.6 version of its ArcAir application. ArcAir enables efficient and safe communication for control, validation and management of all Arc sensors. The following is included in this update:

- ArcAir is now compatible with Android 12 mobile devices
- Improvements to Denyctee Arc features
- Improvements to the experiment export feature

ArcAir is now compatible with Android 12 mobile devices

Due to a change in Google's Android system, the ArcAir application could no longer function correctly. Adjustments have been made to ensure ArcAir now functions correctly on Android 12 mobile devices. This includes fixes:

- The white screen at startup of ArcAir on some Android 12 devices
- Log files are created again

Improvements to Denyctee Arc features

The verification process has been updated as well as updates to service level functionalities.

Improvements to the experiment export feature

Experiments with an extremely large amount of data points can now be exported.

ArcAir 3.7

In February 2022, Hamilton Analytics launches the new ArcAir 3.7 version of its ArcAir application. ArcAir enables efficient and safe communication for control, validation and management of all Arc sensors. The following is included in this update:

- Improvements to the Experiment feature
- Compatibility with upcoming Arc sensors
- General Improvements

Experiment Improvements

- The layout of the experiment functionality of ArcAir was improved for increased useability and the display was optimized for small screens
- AutoScale functionality was added to the experiment feature to allow for easy and automatic scaling of the Y-Axis.

Compatibility with upcoming Arc Sensors

Hamilton is committed to bringing innovation, especially regarding sensors for biopharma applications. ArcAir 3.7 is ready for the new Denyctee Arc sensors that further expand the Process Analytics product portfolio.

General Improvements

Improvements	Description
Downgrade from Advanced to Basic occurs without an info dialogue	When downgrading from Advanced to Basic a dialogue is now shown.
Approving a report now shown in the audit trail	When a report is approved, this is now indicated in the Audit trail.
Adding an electronic signature is now added to the Audit trail	When an electronic signature is added to a report it is now also documented in the Audit trail.
Changing an offset value in Settings causes an error	Offset in Incyte Arc Sensors can now be changed without inducing an error.
Improvements to CO₂NTROL calibration	Various Improvements to the CO ₂ NTROL calibration screen and procedure.
Database improvements	The Mobile Database structure was adapted to the structure of the PC version.
Difficulty with adjusting Y-axis in experiments	Improved performance of Y-axis adjustment was introduced.
Display a spinning wheel with updated percentage values when exporting an experiment	When exporting an experiment, a % of the export time is now displayed.
F scan is not displayed with negative values	The Scan is now displayed with an AutoScaled Y-Axis.
Reports do not show the date completely	When using some default system fonts, the time on some reports was cut off. This is now fixed.
CO₂ Measurement Error	ArcAir reported 'Temperature is out of maximum range', incorrectly with CO ₂ NTROL sensors. This now displays «CO ₂ exceeds air pressure»
2nd transfer of users failed	When transferring users from PC to Mobile, users can now do this as many times as necessary.

Improvements	Description
Mobile connection screen not always visible	Role right «Mobile connection» now added to allow specific users to connect and sync with mobile devices
Sensors are not displayed correctly after users with process groups are sent to mobile	Process groups are now transferred correctly, and all sensors associated with the specific process group are now visible.
General Improvements and bug fixes	Various other known and valid improvement requests provided by users have been implemented

ArcAir 3.6

In June 2021, Hamilton Analytics launches the new ArcAir 3.6 version of its ArcAir application. ArcAir enables efficient and safe communication for control, validation and management of all Arc sensors. Compared to the previous software versions, ArcAir 3.6 includes:

Six Sensor Experiment Graph

With the new ArcAir Experiment function, up to six Arc sensors can be monitored and measurement data can be recorded at the same time.



The data is now exported to an Excel file (.xlsx) instead of .csv. Incyte Arc can now be monitored together with other Arc sensors in one graph. For more information about the experiment function and description of the individual sensors, please refer to the Arc System Manual Ref 10071115 or corresponding operating instructions of the individual sensors.

Note: Before installing ArcAir 3.6 make sure that the measurement data from the ArcAir 3.5 «old chart functionality» is exported. The old specific chart functionality of Incyte Arc is no longer available in ArcAir 3.6.0.

Note: If Incyte Arc is used via Bluetooth, no other Arc sensor can be added to the experiment. When connected via cable, Incyte Arc can be combined with the other Arc sensors.

Compatibility with CO₂NTROL

Hamilton is committed to bring innovation, especially regarding sensors for biopharma applications. ArcAir 3.6 is ready for the new CO₂NTROL DCO₂ Arc sensor.

Incyte Arc General Improvements

The following are the most useful features and bug fixes implemented in ArcAir 3.6.0.

Improvements	Description
Change export file format to excel (.xlsx)	Export file format has changed (from .csv to .xlsx for better compatibility).
Export File	More Information in Excel file on events and comments.
Remove ArcAir light version	ArcAir Basic is now available for free, therefore light version is no longer needed.
Manual Offset and Cell Factor change	Now the manual offset and cell factor can be changed during an experiment under the Incyte Arc settings.
Visualization of the connection type	When connecting Arc Sensor, the connection type (serial USB connection or Bluetooth) is displayed in the status Connection type.

Improvements	Description
Display Mark Zero and Clear Zero	Display Mark Zero and Clear Zero on the mobile phone and enable and disable at the correct process step.
Delete Audit trail data from mobile after transfer	Now the audit trail data on the mobile phone are deleted after successful transfer to the PC.
Verification Report	Verification report for VisiFerm mA / CO ₂ NTR0L show both verification point pressure / humidity values.
Report ID Number generation	The report ID is now sequential ensuring no duplicate ID numbers.
Optimization of User Profile data transfer	The speed of User Profile data transfer to the Arc View Mobile has been optimized.
Login Username	Disable auto capitalize on mobile username input.
COM Port conflict with internal Bluetooth interface	Automatically recognize all Hamilton equipment on the standard serial ports. Allow user to edit the list of allowed serial devices in ArcAir.
Count Autoclave cycles	Allow counting autoclave cycles in VisiFerm mA.
Incyte Arc cleaning during logging	Enable manual and automatic cleaning during Incyte Arc data logging.
Experiment Graph Improvements	Improvements on the graph like local timestamp, axis configuration and inconsistencies on measurement values and more.
User Roles	Remove «Sensor settings» from «Production technician» user role and change default role to «Calibration Technician».
Firmware	Disable Configuration report button in firmware settings view when no sensor selected.
Verification Step	Tooltips in the verification view for SU Conductivity sensor.
Verification View	No error occurs when verification with a zero point for VisiFerm/VisiTrace mA sensors is performed. The verification view is now refreshed with the the Verification standards.
General Improvements	All other known and valid improvement requests provided by users have been implemented.

ArcAir 3.5

In January 2021, Hamilton Analytics launches the new ArcAir 3.5 version of its ArcAir application. ArcAir enables efficient and safe communication for control, validation and management of all Arc sensors (pH, ORP, DO, Conductivity, VCD and CO₂). Compared to the previous software versions, ArcAir 3.5 includes:

- ArcAir Improvements for Use in GMP Environment
- Compatibility with CO₂NTR0L Sensor for dissolved CO₂ measurement
- Incyte Arc General Improvements

ArcAir Improvements for Use in GMP Environment

ArcAir 3.5 version will further improve use event's traceability and data safety for streamlined use in GMP environment.

Feature	Description
New Audit trail Event's Logs	<ul style="list-style-type: none"> • User log-in/log-out. Those events are logged in both cases: manually or automatically executed • ArcAir Application for Windows Operating Systems Start/Close • Creation or edit of a new user role • Assignment of new role to a user • ArcAir connection and disconnection from an Arc sensor. Those events are logged in both cases: manually or automatically executed
Updates of User Role's Rights	<ul style="list-style-type: none"> • A new user's role right has been created : «Delete Reports». By default, this right is assigned exclusively to the «Administrator» user role. Each «Delete Report» event is automatically logged in the Audit trail. • A new user's role right has been created : «System Settings». By default, this right is assigned exclusively to the «Administrator» user role. • The «Operator Level S Password» is now located under «Settings» in ArcAir Backstage

Compatibility with CO₂NTROL Sensor for dissolved CO₂ measurement

Feature	Description
Compatibility with CO ₂ NTROL Sensor	Hamilton is committed to bring innovation especially in regards to sensors for biopharma applications. ArcAir is now ready for the CO ₂ NTROL sensor, which further expands the Process Analytics product portfolio. CO ₂ NTROL is a solid-state optical sensor maintenance-free and easy to calibrate, which enables the measurement of dissolved CO ₂ in bioreactors.

Incyte Arc General Improvements

Feature	Description
Verification Routine	The verification routine with Incyte Arc leads to a dead end for the user. This has been fixed.
Auto scale of the y-axes	Now user are able to automatic adjust the scale of the y-axes in the Incyte Arc data logging chart.
Data Logging Changes	<ul style="list-style-type: none"> • Now user are not able to perform an inoculation more than once • Instead of entering the start time of the logging it is now able to enter the end time by the user. The date and time in the log file should then be calculated accordingly.
Improve Excel Format	Format in the Excel Sheet for CULTURE TIME and RECORD TIME is adjusted. Time format in Excel Sheet is changed to hhhh:mm:ss.
Data Record	The recording has been improved and the gaps in the chart have been eliminated.
X-Scale in the Chart	The x-scale in the chart has been improved after change from one sensor to the other.
Cell Factor Value	The boundary values for the «Cell Factor» setting of Incyte Arc has be changed to 0,01 (lower boundary) and 1000000 (upper boundary).
Unified Naming of Registers	The naming of several register has been unified to the Arc standard.
General Improvements	All known and valid improvement requests provided by users have been implemented.

ArcAir 3.4

In July 2020, Hamilton Process Analytics launched the new ArcAir 3.4 version of its ArcAir application. Compared to the previous versions, ArcAir included new features and improvements, grouped as follow:

- ArcAir Performance Improvements with Mobile Devices
- Supports Single Use VCD and Conductivity Arc Sensors
- ArcAir General Improvements

Performance Improvements with Mobile Devices

ArcAir 3.4 version improve performance with mobile devices.

Feature	Description
Complete Sensor List*	Sensor list on mobile devices has been improved to be stable and avoid online/offline instability of sensors.
Sensor List Scrolling*	The scrolling properties have been improved.
Connection to Sensor*	Connect to sensor time have been improved by 75%. Connecting failing rate has been improved by 75%.
Read Sensor Register*	All information should be read 55% faster than previous software versions.
ArcAir Startup Time*	The startup time from ArcAir has been reduced by 38%.
Number of Sensors*	Stable running with up to 101 Arc sensors.

*tested with Samsung Tab Active 2 and 101 Arc sensors in laboratory environment



Note: To reach the performance improvements above we strongly recommend to use the Hamilton Arc View Mobile based on Samsung Tab Active 2 tablets REF 10071113 (with ArcAir Advanced) and REF 10071111 (with ArcAir Basic). Contact our technical support (techsupport.pa.ch@hamilton.ch) for more details.

Supports Single Use VCD and Conductivity Arc Sensors

Feature	Description
Support Single Use VCD and Conductivity Arc sensors	ArcAir 3.4 now supports the new single use VCD, and Conductivity Arc sensors.

ArcAir General Improvements

Feature	Description
Incyte Arc Improvements	<ul style="list-style-type: none">• Change the format of the event timestamps for log files• Allow the export of the data log files while logging is running• Reset inoculation on the sensor when the stop button is pressed• Change the structure of the process settings drawer• Add new licence for Incyte Arc• Configure the min. and max. for y-axis in the fScan chart
General Improvements	All known and valid improvement requests provided by users have been implemented.

ArcAir 3.3

No official release. Only for internal use and OEM customers.

ArcAir 3.2

Integration of the New Generation VisiFerm mA and VisiTrace mA DO Sensors

ArcAir 3.2 supports the new generation of Hamilton Optical Dissolved Oxygen Sensors: Hamilton improved upon both sensor and cap design to create the most robust VisiFerm and VisiTrace yet. Upgrading both key pieces allowed the VisiFerm mA to have less frequent calibration, less measurement drift, and longer lifetime than previous optical DO sensors.

ArcAir new features to handle VisiFerm mA and VisiTrace mA sensors are listed in the following table.

Feature	Description
New Calibration, Verification, Product Calibration Wizard with humidity and pressure compensation	In order to perform a perfect air calibration ArcAir enables the compensation of humidity and pressure in the wizards.
Sensor, Cap and measurement Quality Indicator	New quality indicators indicate the sensor and cap lifetime separately. The combination of this two quality indicators defines the measurement quality. The calibration and verification reports have been accordingly updated.
Sensor Change Counter	Every change in the sensor will increment the numbers of changes in the sensor and display it in ArcAir. In the audit trail report it is now possible to track backwards changes applied by 3d party configuration tools or systems.
Turn-off LED	Now it is possible to turn off the LED if no measurement is needed.
Enter and Display Cap History	Users are now able to scan or enter the cap information in ArcAir after every sensor cap replacement. In ArcAir the history of the last 10 caps are visible for each optical DO sensor.
Product Calibration limits are adjustable	The product calibration limits are now adjustable in ArcAir service mode.
Encrypted communication with Arc Sensors and Mobiles	ArcAir on mobiles is now able to establish encrypted communication with new VisiFerm mA and VisiTrace mA Arc sensors. Indication for the encrypted version is a lock symbol in the sensor list.

The new features are detailed in Arc Operating Instructions (REF 10071115).

ArcAir General Improvements

The general functionality improvements are listed in the following table.

Feature	Description
Change calibration and verification pictures in Air	<ul style="list-style-type: none">• Due to the humidity and atm. pressure, the calibration and verification pictures have been changed• Calibration set configuration now supports all ArcAir languages
Sensor name for Single Use DO sensors is editable	Now it is possible to change the single use DO sensor name.
Add Huawei as new mobile type for ArcAir Mobile apps (China only)	Exclusively for Chinese customers, Huawei Honor tablets are now compatible with ArcAir mobile app.
Adapt all validation reports with the new sensor registers	Every new register from the new sensors is now added to the validation reports.
Chinese Characters	ArcAir now supports Chinese characters, so Chinese users can type information in the local language.
Bug fixes	All known bugs have been fixed.

ArcAir 3.1

In June 2019, Hamilton Process Analytics launched the 3.1 version of its ArcAir application. Compared to the previous version 2.0.3, ArcAir 3.1 included new features and improvements, grouped as follow:

- Incyte Arc Sensors Integration in ArcAir
- ArcAir Sensor Functionality
- ArcAir General Improvements

Incyte Arc Sensors Integration in ArcAir

ArcAir 3.1 supports Incyte Arc sensors. Incyte Arc enables real-time, and on-line measurement of permittivity, which correlates with the viable cell density. The Incyte sensor has been especially designed for monitoring the culture of mammalian and insect cells. Online monitoring of permittivity with Incyte enables the early detection of process deviations, may lead to sampling a the right time-point and supports bioprocess control.

ArcAir new features to handle Incyte Arc sensors are listed in the following table.

Feature	Description
ArcAir supports Incyte Arc sensors	<ul style="list-style-type: none">• Sensor Configuration and Verification• Data Recording• Data Display• GMP compliance like all other Arc sensors
Modelling for off-line / on-line correlation	Creation and Validation of a model for improved off-line/on-line correlation on the overall bioprocess (Feature available on demand – for more information please contact your Hamilton Local Service support as described in chapter 3).

The new Incyte Arc features are explained in detail in «Incyte Arc Sensor Operating Instructions» (REF 10072078).

ArcAir Sensors Functionality

ArcAir new features to operate Arc Sensors families are listed in the table below.

Feature	Description
Conductivity two-point calibration	Arc conductivity sensors (Cond) now have the option for a manual two-point calibration.
Change Modbus settings	The additional Modbus settings (Baudrate, Stopbits and Parity) can now be changed in ArcAir.

ArcAir General Improvements

The general functionality improvements are listed in the following table.

Feature	Description
Calibration Set* for all languages	Calibration set configuration now supports all ArcAir languages.
Experiments chart**	Overall improvements regarding sensors signal display and experiment data export.
Report settings	Report settings can now be configured independently if working with a database updated from older software versions or new one.
4-20 mA settings	Overall improvements regarding software stability when configuring 4-20 mA settings.
Mobile Device Modbus settings	ArcAir app for mobile devices improvement to guarantee stable app workflow when changing Modbus address.
VisiFerm Calibration and Verification Reports	Quality Indicator is now available on all reports, independently of the firmware version.
Single-Use ODO sensors coefficients	ODO coefficient is now fixed to two decimal places.

*Calibration not required for Incyte Arc

**Not available for Incyte Arc

ArcAir 3.0

In January 2019, Hamilton Process Analytics launched the new 3.0 version of its ArcAir software. Compared to the previous version 2.0.3, ArcAir 3.0 included many new features and improvements, grouped as follow:

- FDA CFR 21 Part 11 and EU Annex 11 Compliance
- Enhanced laboratory experiments
- General improvements

CFR 21 Part 11 and EU Annex 11 Compliance

ArcAir 3.0 (Advanced version), is ready for compliance with guidelines such as the FDA CFR 21 Part 11 for electronic records and electronic signatures, or the Eudralex Volume 4 Annex 11 for computerized systems.

The new features workflow is explained in Arc Operating Instructions (later referred as Operating Instructions, REF 10071115), and the compliance to Guidelines is detailed in Validation and Regulatory Report (chapter 13).

ArcAir Advanced new features include the following table.

Feature	Description
Audit trail	Computer generated audit trail, to independently record the date and time of GMP relevant user entries and actions.
Default User Roles	Pre-defined standard user roles, to facilitate the assignment of access rights to users. The new user roles are: administrator, calibration technician, production technician and quality manager (Operating Instructions chapter 6.10).
New Security settings	Security settings, enabling user's password management (Operating Instructions chapter 6.12). They include: <ul style="list-style-type: none">• Password length and complexity• Password expiration time• Users automatic log-out interval time
Enhanced Data Safety	Enhanced data safety, through the encryption of the SQL database and assignment of database management rights only to administrators. The database management has been moved from log-in window to the backstage.
New Reports	Automated export of reports to a digital archive pre-defined by the user (Operating Instructions chapter 6.19.2).
Electronic signature	Electronic signature, allowing users to sign ArcAir reports in paperless workflow (Operating Instructions chapters 6.18 and 6.19.1). The electronic signatures include the following signature manifestations: <ul style="list-style-type: none">• User full name and role• Signature reason (report creation/ approval)• Signature date

The features for Part 11 and Annex 11 compliance are available within the ArcAir advanced license. As per table below (Operating Instructions chapter 6.3).

License	Read	Calibrate	Configure	Documentation	Users Management	Audit trail & Electronic Signature
Free	✓	-	-	-	-	-
Basic	✓	✓	✓	-	-	-
Advanced	✓	✓	✓	✓	✓	✓

Enhanced Experiments

The user experience of the ArcAir feature «experiments» for laboratory (Operating Instructions chapter 7.1), has been enhanced through the improvements listed in the table below.

Feature	Description
New Clear Button	New button has been introduced to clear all data of an experiments.
Improved experiment chart axis	<ul style="list-style-type: none"> Each of the y-axes in the experiment chart has a possibility to enter the minimum and maximum value for the axis After entering the min and max value the axis and the corresponding curve in the chart are automatically adjusted Below the chart there is a new button called «Restore axes» clicking the button removes all custom min and max values from the axes and restores the initial values Min and max values are in the limits that are provided by the sensor (those are used for the scaling of the axes at the moment) Tips about how to use the axis zooming function directly displayed when pointing on «i» icon directly in the user interface Scaling and zooming of chart is preserved when it is closed and the re-opened again The user interface on ArcAir mobile app has been improved: e.g. font sizes for the axes is optimized for small screens and the values on the y-axes are displayed without decimal places
Other Chart Graphic Improvements	<ul style="list-style-type: none"> New colors palette for the series The frame color of the sensors displayed above the chart match the color of the correlating axis Data points displayed now as circles Hint about notes has been removed from ArcAir for computers Pointer displaying information such as measuring point, temperature and time when hovering on the experiment's chart with ArcAir for computers

General Improvements

The general functionality improvements are in the following table.

Feature	Description
New languages	ArcAir user interface is available in following languages: English, German, French, Spanish, Italian, Chinese (Mandarin) and Hungarian (Magyar).
Parallel communication to sensors possible	ArcAir user level has been updated to meet the request of system integrators. Arc sensors now allow the mobile and the desktop software to establish a connection, even if they have a new version of the firmware and there is already another ArcAir existing connection logged in (with user level S). If a second connection with ArcAir is established it is «read-only».
Pop-up when database is blocked from another user	The ArcAir database can now be accessed by only one instance at a time. If a second instance tries to access the same database an error pop-up window is displayed.
Extended Sensor Profile	More settings can be now saved in the sensor profile, such as the modbus baudrate and device address.
Cal. Standard sort by manufacturer name	During pH/ORP sensor's calibration it is now possible to choose the calibration standard by manufacturer name.
Auto selection of Standards	In ArcAir mobile, the verification standard is now automatically selected according to the information in the barcode after scan: dropdown selection changes automatically.
Calibration Successfully View with more information	«Auto Recognized Calibration Standard» is displayed as additional property in the result view after a sensor calibration successfully conducted.
Customized Meas. Temperatur Settings is now visible	The «measurement settings» of optical Dissolved Oxygen sensors (oDO) and Conductivity sensors (Cond), enables now the user to define customized temperature setup.
Calibration Settings visible for VisiTrace sensors	A new feature, «Calibration settings», has been added for VisiTrace sensors.

Feature	Description
No duplicated sensors	There are no more duplicated sensors after the creation of a sensor's process group.
New Error message when FW update failed	In case of failed Firmware update the error message displayed delivers more descriptive information to facilitate troubleshooting.

ArcAir Software Update

All users who use ArcAir versions older than latest version can update free of charge.



Note: The services and products have to be purchased separately.



Attention! It is sole responsibility of the user to evaluate whether to update ArcAir to the new software version and evaluate the effort needed to validate the new software update (e.g. for GMP environment). Hamilton provides the present document, as well as the services described in the Arc System operating instruction (REF 10071115) including an ArcAir Validation & Regulatory Compliance Report (REF 10071123), to facilitate such a decision.

ArcAir Computer and Mobile Devices

ArcAir Basic for Windows operating system for computers/laptop/tablets can be updated to latest version following the procedure described in Arc System operating instruction (REF 10071115) chapter 6.4.

All customers using ArcAir App for Android or iOS on their own mobile devices can update through normal App upgrade procedure provided by Google Play Store or Apple App Store.

Arc View Mobile Update

All customers owning a Hamilton Arc View Mobile Advanced Tablet REF 10071113, as well as Arc View Mobile Basic REF 10071111, can update free of charge the embedded ArcAir App from version 3.0 or successive to the latest one. They just have to follow the procedure described in the Arc System operating instructions (REF 10071115) chapter 6.9. In case further information is required, please contact your Hamilton local service support.

In order to find your local service support please visit: www.hamiltoncompany.com/process-analytics-sensors

© 2025 Hamilton Company. All rights reserved. REF 10071124/13 - 11/2025

HAMILTON

To find a representative in your area, please visit:

hamiltoncompany.com/contact

Hamilton Americas & Pacific Rim
Hamilton Company Inc.
4970 Energy Way
Reno, Nevada 89502 USA
Tel: +1-775-858-3000
Fax: +1-775-856-7259
sales@hamiltoncompany.com

Hamilton Europe, Asia, Africa
Hamilton Bonaduz AG
Via Crusch 8
CH-7402 Bonaduz, Switzerland
Tel: +41-58-610-10-10
contact.pa.ch@hamilton.ch

