

Release Notes

Perception & GEN Series Firmware

Version v8.94

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1 Update information

These release notes describe changes in Perception (including GEN series firmware) V8.94.

2 Mid and long-term support roadmap

Starting with Perception V8.00 some legacy features, mainframe and card support are no longer present. (A Perception V7.6x maintenance version is available for critical bug fix support.)

2.1 Supported on latest Windows versions

2.1.1 Running Perception

Including all updates until July 2025:

- Windows 10 Pro 20H2 and higher (64 bit only)
- Windows 11 Pro

Installation requirements:

- Dot Net Framework V4.8.1 (distributed with Perception installer)
- Microsoft Direct3D® capable graphics card.

2.1.2 Network license server

The license server for network licenses can run on Windows 10 or Windows 11. Note that Windows Server 2008 is the last version of Windows Server which can be used to run the license server.

2.2 Downgrade

Perception V8.94 can be downgraded to the following versions.

Note: When an EtherCAT card is installed, a downgrade to any version before V8.28 must go through version V8.28 first to ensure EtherCAT functions correctly when in use.

- Perception V8.9x
- Perception V8.8x
- Perception V8.7x
- Perception V8.6x
- Perception V8.5x
- Perception V8.4x
- Perception V8.3x
- Perception V8.2x
- Perception V8.1x
- Perception V8.0x
- Perception V7.6x
- Perception V7.5x

2.3 Upgrade

Perception V8.94 can be upgraded from the following versions.

Note: Follow the instructions provided below the specific release when upgrading from a lower version to that release or higher version

- Perception V7.5x
- Perception V7.6x
- Perception V8.0x
- Perception V8.1x
- Perception V8.2x

Note: When an EtherCAT card is installed, an upgrade to any version later than V8.28 must go through version V8.28 first to ensure EtherCAT functions correctly when in use.

- Perception V8.3x
- Perception V8.4x
- Perception V8.5x
- Perception V8.6x
- Perception V8.7x
- Perception V8.8x

Note: When using Configure Boot settings with a GN800B board, upgrading to any version later than V8.82 requires saving the current Configure Boot settings as a workbench(pVWB) file before starting the upgrade. After the upgrade, reload the workbench(pVWB) file and store the configure Boot settings again to ensure the configured boot settings function correctly when in use.

- Perception V8.9x

3 Perception Versions

Version	Description	
	Perception Standard	Free
1-PERC-AD-0x	Perception Advanced	Paid
1-PERC-VA-0x	Perception Viewer Enterprise	Paid
1-PERC-E64-0x	Perception Enterprise	Paid

Perception supports the following application extensions:

Version	Description	
1-PERC-OP-EDR	eDrive application (setup, live and efficiency mapping table)	Paid
1-PERC-OP-STL	Advanced High Voltage/High Power analysis according STL standards	Paid
1-PERC-OP-HIA	High Voltage Impulse Analysis	Paid
1-PERC-OP-CSI	CSI Runtime extensions (Customized Software Interfaces)	Paid

4 Known Issues

Perception recording	When in Perception -> Settings -> Acquisition all optional storage is disabled, the recording will not stop the normal way. It will stop after a timeout of several minutes.
Split recording and RTFDB functions	When using the option for split recording (in Perception go to File -> Preferences... -> Perception -> Recordings) together with one of the RTFDB functions TimedMean(), TimedStdDev(), NumSamplesMean() or NumSamplesStdDev(), the different parts of the recording will remain locked until the end of the acquisition.
Limit of 900 sweeps when using split recording using the mainframe disk	When a recording is made to the drive in a mainframe and split recording is active, after 900 sweeps, the recording continues but no longer as a split recording. Also, a continuous recording can be split every 'x' seconds, if this is the case, the same will stop and the number of splits in continuous and sweeps is added together and cannot exceed 900. Workaround: The user can record to the PC drive instead of to the mainframe drive. Alternatively, the user may stop and start the recording again after a large number of sweeps.
Perception does not update settings modified through the fieldbuses	If Perception is connected and mainframe settings are change via CAN acquisition control, Perception doesn't update setting with new value. Workaround: disconnect and reconnect to the mainframe.
Workbench behavior with ePower (using GN800B card)	Loading a workbench saved with Perception 8.70 or an earlier version with a GN800B card into Perception 8.80 or later, may result in an incomplete ePower setup. A manual channel assignment must be carried out in such cases.
FFT Export of different sample rate FFT traces	When using the action "FFT export" to export all traces in a Spectral display, if all traces do not share the same sample rate, the exported frequency vector is based on the last trace of the y(t) display, To get an accurate Frequency vector, export only Spectral display's that contain traces with the same sample rate.

5 Perception

5.1 New Features in Perception

Spectrogram Display	A new display has been added to Perception. The Spectrogram Display enables further frequency analysis in Perception by allowing to show how different frequencies change over time, thus displaying simultaneously, time, frequency and FFT magnitude. A Spectrogram Display manual is available with Perception 8.94 install which explains the display in detail as well how to get started with it. Bear in mind that the Spectrogram Display has some particularities, namely: • Only supports data in 'review mode.' Therefore, data must be acquired and stored before it can be visualized. The Spectrogram Display will not be updated while the system is in Preview or Pause mode. • The Spectrogram Display only supports one single trace. • The Spectrogram Display only supports continuous single rate data. If the data source contains more than one sample rate (continuous plus sweep data) or if there are gaps in the data (sweeps only), the Spectrogram Display will only show the results until the sample rate changes or until a gap in the data is found. • Averaging in the Spectrogram Display is currently not supported.
Automatically workbench storing also during mainframe recording	Up until Perception 8.94, when doing a recording set to be stored in a mainframe, the mainframe stored all the recorded data and, if set in the preferences, the settings used at the time of recording. However, an experiment contains not only the recorded data but also the workbench, i.e. Perception only data, such as displays and sheets loaded, the information on the Information Sheet, setpoints, etc. When doing a mainframe recording this information was not stored, even when Perception was connected at the time of the recording. This behavior has now been changed. Now, when doing a mainframe recording, if Perception is connected at the time of the start of the recording, Perception will store, in the PC, the workbench. When selecting the mainframe storage, in the Acquisition Control of the Settings Sheet, a new field to set where the workbench should be stored is displayed. This new feature can be combined with the automatic (or manually) merge files option, thus allowing to have a single file containing both the workbench and the recorded data.
Channel selection available in "Save a Copy as"	Perception allows to save a copy of an experiment, through the "Save a Copy as" option. This allows to save a copy of the experiment with only time snippets of the whole experiment. It is now possible to also save only certain data sources into the experiment. This can lighten the size of an experiment, thus easing sharing pNRF files as well as speed up importing certain pNRF into other programs.
New CTs added to Sensor Database	CTT100ID, CTT200ID, CTT50ID and CTN1000ID have been added to the Sensor Database and can be used directly from the database.

5.2 Improvements in Perception

Channel selection available in Recording Automated Processing export action	It is now possible to select which channels to export in the automation export action. This feature was already supported in the standard export function (not through automation). Now the same possibility is also available in the export dialog.
New metrics added to cursor data sources	Perception provides, for each time display, several metrics derived from the cursors position. These metrics are available under each display name node in the data source tree. This allows user to swiftly assess relevant information of the waveforms in a time display. Although several datasources were already available, the list has been extended with the following: • Cursors: New node relating to measurements considering both vertical cursors - XPosDelta: The difference, in seconds, of cursor 1 and cursor 2 positions. - 1/XPosDelta: The inverse of the previous value. When both cursors are placed at consecutive level crossings of the waveform this values conveys the signal's frequency. - SampleCount: The difference, in samples, of cursor 1 and cursor 2 positions. - YValDelta: The difference of the waveform value between cursor 1 and cursor 2. • ActiveHorizontalCursor - Value: Value of the currently active horizontal cursor • HorizontalCursors - Delta: Difference of the value of horizontal cursor 1 and 2 • PassiveHorizontalCursor - Value: Value of the non active horizontal cursor
Direct upgrade from < 8.28 is no longer possible	In Perception 8.28 some critical changes to the upgrade mechanism were made, these changes mainly affected systems with EtherCAT. When upgrading from a version older than 8.28 to a version newer than 8.28 it is mandatory to first upgrade to 8.28 and then upgrade to the final wanted version. Missing this step will cause serious issues to the system, in some cases leading to a complete crash of the system. In order to prevent these scenarios it is now impossible to upgrade from a version older than 8.28 to a newer one if EtherCAT is present. In such cases, Perception will show a pop up informing that the system must be upgraded to 8.28 first and the upgrade is not carried through.

6 ePower Suite

6.1 New Features in ePower Suite

Hiding setpoints in a setpoint map	Throughout a measurement campaign some unexpected phenomenon may occur, thus leading to erroneous or outlier measurements. When displaying setpoints in setpoint maps, these outliers may distort the results and sometimes even render the readability of the maps impossible. To prevent having to redo a whole measurement procedure, Perception 8.94 introduces the possibility to hide selected setpoints. This will render those setpoints as invalid, thus they will not be shown in either setpoint maps or tables.
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7 Hardware

7.1 New Features in Hardware

Added Analog Output support for GN1202B

GN1202B receiver card now supports Analog Output modes when used in combination with one or two ISOBE5600r receiver units. An ISOBE5600r receiver unit can be ordered separately. The recorder operating mode can be configured in the Recorder Settings (Advanced Settings), with support for 12-input, 8-input/4-output, and 6-input/6-output configurations.

When Analog Output is enabled, some GN1202B input channels are reconfigured as digital output channels. These output channels can be used to loop back one or more input channels and transmit the signals over the fiber-optic connection to an ISOBE5600r. The ISOBE5600r converts the received digital signals back into analog signals, enabling analog output for measurement applications.

Analog Output channels are reflected throughout Perception in Analog Channel Settings, the Hardware Tree, Fiber Status sheet.

Note: The ISOBE5600r must be updated to the firmware version: 3.00.26166 to support this functionality (Please contact your local HBK representative). Refer to the user manual carefully for complete system setup and configuration instructions.

8 Support items and requests

Trigger is sent out while mainframe reboots	SUPEPT-538	During reboot of a mainframe, a pulse is sent out on the external trigger- and external event outputs of the I/O connector on the mainframe. With 8.94 release this issue is fixed for the GEN7IA and GEN7TB mainframes. The outputs remain 0V during reboot with this fix.
Workbench is blocked upon opening	SUPEPT-624	An issue that resulted in ePower workbench being blocked upon loading has been fixed. The workbench still loaded correctly but no setting could be changed in Perception.
Perception flickering upon loading a workbench	SUPEPT-623	When opening a workbench, while loading the needed settings, Perception would go into a flickering loop for quite some time. Although this issue would eventually disappear once the workbench was fully loaded it caused delays opening the workbench as well as an inconvenience to the user. The issue has now been fixed and no flickering should be observed when loading a workbench.
Missing connection to a digitizer displayed only as a warning and not as a critical error	SUPEPT-616	In setups with isolated digitizers, it can happen that the connection to the digitizer is temporarily or permanently lost. In such cases, data for said digitizer is not acquired (since there is no connection). In previous versions of Perception, the connection loss to a digitizer was flagged as a warning in the System Health. However, since these cases can lead to data loss, the warning has been converted to an error. In case the isolated digitizer is not used and therefore the error is irrelevant, the storage of the channel connected to the digitizer should be disabled. Disabled channels will not flag any errors.
Incomplete MDF4 export	SUPEPT-608	It was observed that when exporting some recordings into MDF4, the exported file had gaps in the data. Upon investigation it was identified that the issue occurs in recordings containing long periods of continuous data. The issue has been fixed and it is expected that all recordings exported to MDF4 contain the full selected data set.
FDB Mean function produces "NaN" when cursors are at the same start and end points	SUPEPT-605	The Mean function calculates the arithmetic mean value of a waveform, based on a specified beginning and ending. The beginning and end specify how many samples are considered for the denominator of the equation used. When setting the beginning and end based on the vertical cursor of a time domain display, and when setting both cursor on the same sample, Perception yielded NaN (Not a Number). Whereas the actual result should just be the value of the sample the cursors are placed at. This issue has been fixed so that the correct value is output.
Incorrect power calculation for Power Source component	SUPEPT-622	It was observed that the Power Source component could produce incorrect power calculation results. The issue has been fixed, and the Power Source component now calculates power values correctly.
Result publishing rate via GEN DAQ API is significantly lower than the configured update rate	SUPEPT-598	When publishing result data through the GEN DAQ API, result data could be published at a lower rate than the configured update rate. This issue has been fixed, and result data is now published at the configured update rate.

Intermittent mainframe crash during shutdown	SUPEPT-614	It was observed that the mainframe could intermittently crash during shutdown. This issue has been fixed, improving overall mainframe stability during shutdown.
Calculating real-time data is stopping for unknown reason while recording data	SUPEPT-595	When recording data, real-time calculations could unexpectedly stop, causing calculated data to become unavailable for affected channels. Improvements have been made to the handling of real-time calculations to address this behavior. These changes are intended to improve the reliability of real-time calculations during recording.
Improved restoration of Default Network Settings	SUPEPT-628	After a firmware update, resetting the network settings could prevent the mainframe from restoring the expected default DHCP configuration. Improvements have been made to the handling of network configuration restoration to improve the reliability of DHCP connectivity after a network reset.

9 Deprecated support

The following is no longer supported within Perception:

- GPS2750
- GN610 (without B) Perception 8.72 is the last release supporting this acquisition card

Dropped support and maintenance of MU Basic Sheet:

- The MU Basic sheet will no longer be supported or maintained. Reported bugs or requests will not be fixed, improvements and new features will not be added.
- All new development in regards to measurement uncertainty will be included as part of the MU for setpoints, which is an integral part of the ePower Suite.

10 Supported Genesis HighSpeed Mainframes

The following Genesis HighSpeed Mainframes are supported:

- GEN2tB
- GEN4tB
- GEN7tA
- GEN17tA
- GEN3i
- GEN3iA
- GEN7i
- GEN7iA
- GEN7tB
- GEN17tB
- BE3200

Update:

- GEN3t is fully supported until Perception 8.80. The Gen3t daily testing has been stopped for future releases.

11 Supported QuantumX Modules

Note: The support of QuantumX Modules in Perception will stop with future versions of Perception! QuantumX modules can be integrated in systems with tethered mainframes using the CAN-interface together with a QuantumX MX471C.

The following QuantumX models are supported:

- MX1609KB
- MX1609TB
- MX471B
- MX809B
- CX27B as single network access point only, no setup or control of CX27B

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