

## December 2017 Version 2.0.2

Thank you for choosing HBM for your test, analysis and measurement task. This document shows the released product package of eDAQXR. Please always check whether an updated version is available at: <http://www.hbm.com>. Please note that the firmware has been optimized. We recommend installing the latest firmware on all existing modules.

## What's new?

### Modules / Firmware

- **Firmware**
  - eDAQXR Firmware Version 2.0.2
  - MX Module Firmware Version 4.10.4.0
    - Included in eDAQXR firmware to update from the Web Interface.
- **Module Support**
  - Support for Quantum MX840B
  - Support for Quantum MX460B and MX460B-R
  - Support for EHLS SMITC Modules
  - Support for EGPS-200 and EGPS-200-Plus

### Software Tools / Libraries

- **Software Updates**
  - eDAQXR Emulator v2.0.2

### Documentation

- **New Documentation**
- **Updated Documentation**
  - eDAQXR User Manual

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### Accessories

- **New Accessories**
- **Updated Accessories**

A complete listing of all supported modules, accessories, and documentation of the SomatXR line is available at the end of these release notes.

## Notes about the eDAQXR firmware v2.0.2

- **New Features**

- **Support for EHLS SMITC smart modules.** Previously EHLS SMITC smart modules were not supported. Support for these modules has been added.
- **Support for two point scaling.** Added support for two point scaling (using auto ranging for precision data measurements where applicable).
- **Inverting of analog output signal.** Added support for the option to invert the analog output signal when the scaling slope is negative for any EBRG or EHLS channel that supports analog outputs. See the Help system for more details.
- **HBM Push Notifications Support.** Support for HBM Push Notifications service is now available as a means of receiving notifications similar to that of email notifications in prior releases, except via the new push mechanism to the HBM Push App available on iOS platforms. More information is available in the help system.
- **User configurable SXR fields.** Support for user configurable SXR fields was added. Columns within the GUI can now be added and renamed as the user requires. This feature allows the user to better specify aspects of their test setup which may not be readily available as a sortable or searchable piece of information. More information is available in the help system.
- **Support for the MX840B.** Support for the MX840B (IP20) module has been introduced in this release. More information is available in the help system.
- **Support for the MX460B and MX460B-R.** Support for the MX460B (IP20) and MX460B-R (Rugged) module has been introduced in this release. More information is available in the help system.
- **Support for “Up scale” and “Down scale” options in Shunt control dialog window.** Up scale and down scale check boxes have been added below the “Normal” and “Opposite” boxes. This is only applicable when installing shunts while a test is running.
- **Equivalent strain calculator support.** Support for using an Equivalent Strain calculator when setting Physical span was added when the shunt scaling mode is selected.
- **Support for Over Range Detector computed channel.** Added a new Over Range Detector computed channel that can be used to detect Min/Max Alarm parameter levels being exceeded and provide the pertinent information in the Log file. The output of this computed channel can be used to drive LED indicators using digital output channels. See the Help for more information.
- **Support for Bridge Full 4 wire and Half 3 wire options on MX840 and MX411 and Potentiometer 5 wire and 3 wire options on MX840.** Added support for 4 wire Full and 3 wire Half bridges (strain gage, piezoresistive, and inductive) on the MX840B and MX411B. Added support for 3 wire Potentiometers on the MX840. When these sensor input modes are used, the excitation sense lines are internally shorted to the excitation supply lines.
- **Support for MX840B, MX840B-R thermocouple adapter types.** MX840B and MX840B-R thermocouple types B, E, J, N, R, S, and T (in addition to type K) are now supported.

- **Optimizations**

- **Limitations with channel rezeroing removed.** Fixed previous limitation on channel zeroing to properly zero channels even when the current sensor input exceeds the current measuring range (using auto ranging for precision data measurements where applicable).
- **Help System search window.** Made the search capability in the help system available when first opening the help system, instead of it becoming available only when you expand the size of the help system.
- **Metadata extensions.** Significantly extended channel metadata objects stored in the SIE file. See the Help system for a comprehensive listing of all channel metadata objects.
- **Significant optimization rendering channel select dialog.** Significant improvements have resulted in much faster rendering of the channel select dialog when dealing with thousands of channels.
- **Channel count for all channels tab.** The channel count has been extended to include the all channels tab.
- **MX840 interface supporting new "Track Sign" parameter for encoders.** Extended the MX840 interface to support a new "Track Sign" parameter for encoders. For the Encoder counter input mode, setting this to true allows the user to track angular position; setting it to false allows the user to track cumulative angular movement independent of direction. For the Encoder frequency input mode, setting this to true allows the user to track directional angular velocity; setting it to false allows the user to track unsigned angular velocity independent of direction.
- **Warnings added when channels do not apply to task.** Extended the user interface to provide warnings when selected channels are not applicable to a setup task (i.e. zero, shunt scaling, or two point scaling).
- **Considerable improvements to Min/Max charts.** The Min/Max charts have been optimized in general, to improve usability, readability, and intelligibility.
- **Freeze all charts option.** Extended support of the charts freeze functionality to include a freezing of all charts option.
- **Charts can now be maximized.** Extended chart support to include an option to maximize a chart within the display area.
- **Sortable all input channel list by the collect column.** Extended support of sorting the channels in the all input channel list to include the collect column.
- **All channels option for setting y-axis scaling modes in strip charts.** The y-axis scaling mode previous required the user the select one channel at a time. This was true of both the Stacked and Multiple y-axis chart types. A new "All channels" option has been added to set the y-axis scaling to multiple channels at a time.
- **GUI check on Pre/Post trigger times.** Previously it was possible to set a Pre/Post trigger time such that it did not coincide with the sample rate. The GUI has been optimized to check for this occurrence and warn the user accordingly.
- **Spectrum Plot performance enhancement.** Previously the performance of the spectrum plot would suffer when setting the min/max range to a small subset of the available frequency range. The Spectrum Plot component has been optimized to work efficiently in these use cases.
- **Analog Meter tick marks now configurable.** Previously in Analog Meters, the number of ticks in the meter could become so numerous that it became difficult to gather relevant data from the meter. A new automatic intelligent algorithm for determining the optimized number of ticks has been implemented as well as user configurability.
- **FPGA update rescue option removed.** The architectural differences in the eDAQXR compared to the CX23-R make the FPGA update rescue option moot in the eDAQXR and so the option was removed on the eDAQXR platform.

# RELEASEnotes



- **eDAQ legacy layer version enforcement.** The system has now been optimized to enforce the eDAQ legacy layers be a particular version in order to run properly with the eDAQXR system.
- **MX471 and MX840 CAN channel enforcement.** The system has now been optimized to enforce the MX471 and MX840 CAN channel maximum of 128 CAN channels.
- **Resizing of charts.** Previously the chart borders were extremely thin resulting in a difficulty to resize them. The sensitivity area around the chart borders has been increased to improve usability and reduce frustration.
- **Large channel list and chart invocation enhancement.** Previously when attempting to drag and drop a chart from a very large channel list, rendering issues and usability issues would result. These issues have been corrected.
- **Various GUI usability enhancements.** The GUI has continued to undergo enhancement both from an efficiency and usability standpoint, especially in the realm of large channel counts, and in areas which had the potential to have very large numbers of entries.

- **Bugs Fixed / Issues Resolved**

- **IEPE sensor on EHLS issue.** Fixed an issue with the system error resetting on test start when an HBM SDB IEPE sensor was used to define an EHLS IEPE channel.
- **GPS stale data on cable disconnect issue.** There were issues with the GPS channels not properly generating stale data output values when the cable was disconnected, and not properly acquiring valid data output values when the cable was reconnected. These fixes apply to both the Garmin GPS and EGPS-200 modules.
- **IEPE TEDS sensor issue with Units parameter.** Issue with the SXR file Units parameter not being set properly for IEPE TEDS sensors (at least when the TEDS defined Units is  $m/s^2$ ).
- **GPS regulation on powerup or reboot using EGPS-200.** Issue with GPS regulation not starting on a power cycle or reboot until a test was started with at least one GPS channel. This issue was for the EGPS-200 only; the Garmin GPS never had this issue.
- **GPS regulation with EGPS-200 issue.** Fixed an issue with MX modules losing sync (which caused the system to reset on error) when the EGPS-200 stopped supplying PPS timing heartbeats. This only occurred when the system preference to use GPS regulation was enabled.
- **Rendering Add channel hardware tree.** When using multiple eDAQXR's in a networked configuration, in certain situations, the Add channel hardware tree would not respond to slave eDAQXR nodes being unplugged. This issue has been corrected.
- **Issue with EX23R when using MX modules.** MX modules would on occasion lose synchronization when they were connected to EX23R ports 5 or 6 (which use different Ethernet physical hardware compared to the other 8 ports). This issue has been corrected.
- **SDBX Importer issue with MX411.** Issues that resulted in some SDBX files failing to import where quarter bridges for MX411 were involved. This issue has been resolved.
- **MX411 speed change issue.** When using the eDAQXR in a networked eDAQXR environment, changing the speed mode on an MX411 would result in unstable and unreliable behavior. This issue has been resolved.
- **New display tab when using Save as functionality for tabs in the display view.** Issue where using the Save as feature for the displays for the first time caused a new tab not to be created. This issue has been corrected.
- **Error resets with Pulse Counter or Encoder on MX840 modules.** Fixed a bug in the MX840 interface that sometimes caused the system to error reset when the Units string was changed on a channel defined to use the Pulse counter or Encoder counter sensor input mode.
- **EGPS-200 "accel\_y" channel incorrectly set.** The default range min for the EGPS-200 "accel\_y" channel was incorrectly being set to 4 instead of the desired value of -6. This issue has been corrected.
- **SIE files beginning with a space character could not be downloaded.** In previous releases, SIE files beginning with a space character could not be downloaded from the user interface. This issue has been corrected.
- **Camera rotation not working for specific angles.** Using certain Axis cameras, the rotation angles specified in the SXR file would at times not be honored and recorded accordingly in the SIE file. This issue has been corrected.
- **Burst Message Logger DataMode small trigger time issue.** Under certain conditions, the Burst Message Logger DataMode would not take SIE data if the pre/post trigger time was very small. This issue has been corrected.
- **TEDS disconnection and connection events affecting bin data.** Previously when disconnecting or connecting TEDS sensors, bin data would be changed automatically. This issue has been corrected.
- **Digital meter with two or more cameras issue.** Previously when attempting to run a digital meter with two or more cameras, the digital meter would be blank with no channels



shown. The hardware view is the only way to view live video now, outside of starting an SIE test.

- **Min Max Chart processing issue.** When freezing a Min Max Chart, the numbers for the Min and Max continue processing despite having frozen the chart. This issue has been resolved.
- **Restarting CX during MX firmware update.** Previously under certain conditions, it would be possible to restart the system while performing a firmware update on an MX module. This issue has been corrected.
- **Chart rendering with the same channel across different chart types.** Previously when using the same channel in different types of chart types, within the same chart tab, would result in rendering issues with the data. This issue has been corrected.
- **Sensor database rendering issue.** In previous releases, manipulating the sensor database tree would not be persisted if the user left that view and returned to it. This issue has been resolved.
- **SDB Sync usability disconnect issue.** In certain situations, the SDB Sync button would not operate as intended. If a channel was selected, the button should be enabled, however there was discontinuity between the button being available and the right click options available to the user for that channel. This issue has been corrected.
- **Certain characters within “Save data file as” option causing test errors.** When using certain ASCII characters in the “Save data file as” dialogue option, the GUI could get into an undesirable state requiring a browser refresh to correct. This issue has been corrected.
- **Chart channel drop into non active chart issue.** In certain situations when dropping a channel onto a non active chart, the wrong channels would be selected for the active chart. This issue has been corrected.
- **SIE file sorting preferences persistence.** Previously the sorting order, if set by the user in the SIE file area would not persist when leaving that area of the GUI and returning. This issue has been corrected.
- **Hardware sensor tree sync with Input channel sensor tree.** In certain situations, the hardware sensor tree would lose sync with the input channels sensor tree. This issue has been corrected.
- **Charts created using the same channel issue.** Previously when opening up multiple charts using the same channel, and then closing one of those charts caused the still active charts to stop getting data to display. This issue has been corrected.
- **SDBX database import issue.** Previously when attempting to import an HBM SDBX database containing fairly uncommon sensor types, the database import would fail. This issue has been corrected.
- **SDB sensor add to both eDAQ legacy layer channels and MX channels.** Previously it was not possible to add SDB sensors to multiple eDAQ legacy layer channels if there were also MX channels present in the selection. This issue has been corrected.
- **Inconsistency with SDBX edited icon in GUI.** Previously under certain conditions, the SDBX edited icon in the GUI would not update properly when actions warranting an update were performed. This issue has been corrected.
- **Inconsistency with “Select views” dialogue.** Previously under certain conditions, when you click the “eye” icon to select the desired views, the default views that are selected would not match what is currently displayed. This issue has been corrected.
- **GPS Raw message channel issue.** Previously when attempting to run a test which included the Raw GPS message channel, the test would not start and an error would result. This issue has been corrected.
- **TEDS edited flag incorrectly set issue.** Previously in certain situations, some TEDS sensors were incorrectly flagged as TEDS edited when the test setup was saved after the TEDS sensor channel was added to the test with no changes made to the channel. This issue has been corrected.

- **Known Issues And Advisories**

- **Excel Import/Export of channel information.** This functionality is very limited at this point. This will be implemented in future releases
- **Issue with propagating changes in the hardware panel.** Changes made to test setup parameters in the Hardware page are currently not propagated to computed channels, output channels, DataModes or display charts like they are when changes are made using the Input channel spreadsheet. Until this is fixed, users should keep this in mind when using the Hardware page to edit channels if the test setup contains computed channels, output channels, DataModes or display charts.
- **Sensor Database support.** The database format is based on what Catman uses today. This has limited functionality at this time, but will evolve over time.
- **Web browser exceptions.** The web browser interface will sometimes lock up or not properly reflect the actual states of the hardware or test. Refreshing the browser will usually correct this.
- **SIE file naming issue.** The "Save data file as" option in the Test Control page persists from one test run to the next only in the Normal test run mode. It does not persist in the Cyclic or Remote control run modes.
- **Recommended browsers.** The recommended browsers when using the CX23-R web interface are up to date versions of Chrome and Firefox. The web interface may work on other browsers but may result in degraded or undesirable operation.
- **Setups utilizing multiple video channels from a multi-channel video encoder is not supported.** Although the eDAQXR will allow the user to specify multiple video streams from a multi-channel encoder, using more than one channel from a multi-channel encoder is not supported, and configuring a test with this configuration may in not as-configured results, and is at the user's own risk. It is recommended the user only use one channel on a multi-channel video encoder.
- **Live video displays when using the Axis m7001 video encoder.** The Axis m7001 encoder can be used, but there are limitations on video display capabilities with this old and now discontinued Axis product. Video frames will be properly stored in the SIE file; however, viewing of the video frames is supported in the Hardware view only. As such, video frames cannot be displayed when the SIE test is running.
- **Caution when using Netgear networking interfaces.** Certain Netgear switches and routers have been known to not work reliably when connected to the Host port of the eDAQXR. The problem will manifest as the Netgear networking interface showing the eDAQXR is not connected when in fact it is. In certain situations, a power cycle of the Netgear networking interfaces can correct the problem. For these reasons, it is strongly recommended that for any high availability or high assurance test platforms, that Netgear networking interfaces not be used to connect to the eDAQXR Host port.
- **Caution when using Firewire with MX Modules.** In certain atypical usage scenarios, MX modules can lose PTP sync when a test run is restarted after a reboot. See the help system topic that discusses setting up the eDAQXR system for more information.

## eDAQXR System Overview

The following information defines the scope of the eDAQXR system relative to the TCE/eDAQ system. Functionality that is not supported in this first release is noted.

### Legacy eDAQ layers

The following legacy eDAQ layers are supported, with restrictions noted where applicable. Layers not listed are not supported.

NOTE: It is critical that you verify that the latest firmware is loaded on your existing legacy eDAQ layers before removing the legacy eDAQ processor. There is no ability to upgrade firmware with the new EXRCPU.

- **EBRG – Layer Firmware v1.3**
  - AOM file format for analog out is not supported in this release
- **EHLS – Layer Firmware v1.12**
  - AOM file format for analog out is not supported in this release
- **EDIO – Layer Firmware v1.10**
  - GPS port will not be supported
  - Vehicle Bus modules will not be supported
- **EITB – Layer Firmware v1.5**
- **ENTB – Layer Firmware v1.0**

### EDAQXR processor “EXRCPU”

- Axis cameras are supported (limited to the officially supported list).
- Serial Bus modules are not supported.
- The following MXB modules are supported
  - MX1615 B / BR
  - MX1601 B / BR
  - MX1609 KB / KBR
  - MX840 B / BR
  - MX460 B / BR
  - MX411 BR
  - MX471 B / BR
  - MX878 B (Limited Functionality – See Help System)



## **Channel and Test Setup**

This section lists current functional issues that TCE/eDAQ users will likely view as deficiencies. Most of these (and possibly all) will be addressed in future releases.

- There is currently no support for multiple runs. All test runs are currently treated as autonomous runs. A new SIE file is generated for every test run.
- There is currently no support for locking sensor scaling “calibrations” (e.g., after a shunt scaling task is executed, the user needs to be careful to not change the parameter values associated with this experimental task).
- The eDAQXR currently supports Zero and Shunt scaling tasks in an interactive mode only. The user needs to be patient and wait for all channel readings to become stable for each step in the task.
- There is currently no support for automatic zeroing before the start of a test run.
- There is currently no support for “back calculating” lead wire resistance.
- There is currently no provision for assigning data types to channels. All legacy eDAQ and MXB channels are sourced and stored in the SIE file as 32 bit floats. All other channels are sourced and stored in the SIE file as 64 bit floats (including CAN, GPS, and digital input channels).

## **Networking**

Networking is handled much differently in the eDAQXR compared to the eDAQ. There is currently only one networking mode supported. Mode 1 networking is a “seamless” mode where the test is setup and executed using only one node that we call “master”. The other nodes on the network source data only and we call these nodes “slaves”. Normally, the user only connects to the “master” node for all test setup and test control tasks.

- Currently only one “slave” node and the “master” node configuration is supported
- MX modules are not yet supported with a networked system
- SMSTRB4 modules are supported on the master node only.
- AOX files that contain the scaling information for the EHLS and EBRG analog output signal must be downloaded from each network node independently.
  - Computed channels and DataModes:
- Some of the eDAQ computed channels currently have no use in the eDAQXR and are not supported (e.g., Engineering Scalar and Integer Scalar).
- Power Saver computed channel is not supported.
- Time at Level (multi-dimensional) DataMode is not supported.

## Complete Listing of Modules, Accessories, Documentation and available Support Software Tools / Libraries

### Modules

• SomatXR: Data Processor with 16 or 64 GB memory	1-CX23-R-xx-2
• SomatXR: Ethernet Switch PTP	1-EX23-R
• SomatXR: Standard Amplifier	1-MX1601B-R
• SomatXR: Bridge Amplifier	1-MX1615B-R
• SomatXR: Thermo Amplifier	1-MX1609KB-R
• SomatXR: Universal Amplifier	1-MX840B-R
• SomatXR: Highly Dynamic Amplifier	1-MX411B-R
• SomatXR: CAN module	1-MX471B-R
• SomatXR: Frequency Amplifier	1-MX460B-R
• QuantumX: Measuring Amplifier / 16 channels	1-MX1601B
• QuantumX: Bridge Amplifier / 16 channels	1-MX1615B
• QuantumX: Thermocouple Type K / 16 channels	1-MX1609KB
• QuantumX: CAN Module / 4 channels	1-MX471B
• QuantumX: Analog Voltage Output	1-MX878B
• QuantumX: Digital Dynamic	1-MX460B
• QuantumX: Universal Amplifier	1-MX840B

### Documentation

• eDAQXR Data Sheet (English / German)	Version 1.1
• eDAQXR Compatible Legacy eDAQ Technical Specifications	Version 1.0
• eDAQXR Quick Start Guide	Version 1.0
• eDAQXR Safety Manual	Version 1.0
• eDAQXR User Manual	Version 2.0
• MX1601B-R Data Sheet (English / German)	Version 3.0
• MX1609KB-R Data Sheet (English / German)	Version 3.0
• MX1615B-R Data Sheet (English / German)	Version 4.0
• MX840B-R Data Sheet (English / German)	Version 1.0
• MX878B Data Sheet (English / German)	Version 2.0
• MX411B-R Data Sheet (English / German)	Version 1.0
• MX471B-R Data Sheet (English / German)	Version 1.0
• MX Modules User Manual (English / German)	Version 4.0
• MX Modules Quick Start Guide (English / German)	Version 3.0
• 1-UPX00x-2 UPS Data Sheet (English / German)	Version 2.0
• 1-SCM-R-TCX-2 Data Sheet (English)	Version 1.3
• Reference Manual For libsie	Version 1.0
• 1-SCM-R-SG120-300-1000-2 Data Sheet	Version 1.1
• 1-CON-S3005-2 Adapter Data Sheet	Version 1.1

## Software Tools / Libraries

- |                       |          |
|-----------------------|----------|
| • HBM Device Manager  | v1.0.0.1 |
| • XR Download Manager | v1.1.0   |
| • XR Emulator         | v2.0.2   |
| • libsie SIE library  | v1.1.5   |

## Accessories

- |   |                   |
|---|-------------------|
| • Xcode to Xcode Adapter w/Mount                        | 1-CON-S3005-2     |
| • Fastener CaseLink-Rug, 160mmx80mmx12mm                | 1-CASELINK-RUG-2  |
| • 2 Unit Mounting System, 200mmx130mmx50mm              | 1-CASEMOUNT2-2    |
| • 3/4 Unit Mounting Syst,295mmx130mmx50mm               | 1-CASEMOUNT3-2    |
| • Universal Mounting Bracket                            | 1-CASEMOUNT-UMB-2 |
| • Voltage conditioner .3M 840BR adapter                 | 1-SCM-R-VC60-2    |
| • ¼ bridge 1000 .3M 840BR Adapter                       | 1-SCM-R-SG1000-2  |
| • ¼ bridge 350 .3M 840BR adapter                        | 1-SCM-R-SG350-2   |
| • ¼ bridge 120 .3M 840BR adapter                        | 1-SCM-R-SG120-2   |
| • K type thermal couple .3M 840BR adapter               | 1-SCM-R-TCK-2     |
| • E type thermal couple .3M 840BR adapter               | 1-SCM-R-TCE-2     |
| • ICP, with BNC .3M 840BR adapter                       | 1-KAB430-0.3      |
| • AC/DC power supply unit (24 V, 120 W)                 | 1-NTX003-2        |
| • Power supply cable (CX23-R to MX module)              | 1-KAB2110         |
| • Power supply cable (low loss) with exposed wires      | 1-KAB2115         |
| • Mounting brackets                                     | 1-CASEMOUNT       |
| • Ethernet cable (CX23-R / EX23-R to MX module)         | 1-KAB2100         |
| • Ethernet cable (CX23-R / EX23-R to PC / access point) | 1-KAB2106         |
| • Ethernet cable (CX23-R to EX23-R)                     | 1-KAB2107         |
| • Push-pull sensor cable                                | 1-KAB183          |
| • Break away sensor cable                               | 1-KAB184          |
| • Digital I/O cable with exposed wires                  | 1-KAB2101         |
| • GPS/AUX adapter (CX23-R to EGPS-5Hz)                  | 1-KAB2102         |
| • CAN adapter (CX23-R to SomatCR KAB292)                | 1-KAB2104         |
| • GPS/AUX cable with exposed wires                      | 1-KAB2108         |
| • CAN cable with exposed wires                          | 1-KAB2109         |
| • Precision GPS Receiver-200Hz                          | 1-EGPS-200-B-2    |
| • Precision GPS Receiver-200Hz-PLUS                     | 1-EGPS-200-P-2    |
| • EGPS-200 GPS Antenna                                  | 1-EGPS-200-ANT-2  |
| • EGPS-200 GPS Template – RTK                           | 1-EGPS-200-TEM-2  |
| • Trigger Cable for EGPS-200                            | 1-SAC-GPSTRIG-2   |
| • Cable Extensions                                      | 1-SAC-EXT-MF      |

## Accessories (cont'd)

- |   |               |
|---|---------------|
| • Full-bridge adapter (to eDAQ M8 connector)<br>(4 wire - no sense line)    | 1-KAB2117     |
| • Quarter-bridge adapter (to eDAQ M8 connector)<br>(3 wire - no sense line) | 1-KAB2118     |
| • Voltage adapter (to eDAQ M8 connector)                                    | 1-KAB2119     |
| • ¼ Bridge Adapter (ODU 14 pin to M8F connector)                            | 1-KAB2122-0.3 |
| • CX23 + eDAQ sync cable (M12 to LEMO)                                      | 1-KAB2111-2   |
| • GPS Receiver - 5Hz Update   | 1-EGPS-5HZ-2  |
| • Pelican Case - eDAQ-lite/SXR  | 1-PEL1520-2   |
| • Pelican Case - eDAQ/eDAQ-lite/SXR   | 1-PEL1600-2   |
| • AC/DC Power Supply (24 V, 30 W) ODU 4p                                    | 1-NTX002      |
| • Plug (ODU 4p push-pull)   | 1-CON-P1001   |
| • Power supply (ODU, 5 m, open)   | 1-KAB294-5    |
| • Connecting elements   | 1-CASELINK    |
| • Carrying handle   | 1-CASECARRY   |
| • 4 protective caps for ODU sensors   | 1-CON-A2013   |
| • 2 protective caps for ODU system  | 1-CON-A2014   |
| • FireWire ExpressCard adapter  | 1-IF-002      |
| • FireWire intermodule (ODU, IP68, 2 m)                                     | 1-KAB272      |
| • FireWire PC (ODU / FW, IP68, 3 m)   | 1-KAB276-3    |
| • FireWire (module to PC, IP68, 5 m)  | 1-KAB293-5    |
| • Ethernet cable (IP65/5m)  | 1-KAB273-5    |
| • Connector (ODU, 14 pol, IP68)   | 1-CON-P1007   |
| • Plug (ODU 14p break-away)   | 1-CON-P1016   |
| • 1-wire-EEPROM DS24B33   | 1-TEDS-PAK    |
| • 10 Connectors thermo mini (type K, RFID)                                  | 1-THERMO-MINI |
| • QuantumX: UPS   | 1-UPX001-2    |
| • SomatXR Uninterruptable Power Supply                                      | 1-UPX002-2    |