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Changelog MetiOS

Firmware **Message** & **Expert** Series

- # General notes

  - Termini used in this document:
    - "**Expert**" means **Expert Logger x00**, **Expert Vibro**, and **Expert Transient**
    - "**Message**" means **ProfiMessage**, **LogMessage xx000**

  

  - **Message**: When updating from versions **R234** and earlier to **R236** and later an intermediate update to **R235** or the installation of "**`Message-UpdaterPatch-r232.tar.bz2`**" has to be done

  - **Message**: Downgrading from **R243** and later to any earlier version is not possible.
  - **Expert**: Downgrading from **R255** and later to any earlier version is not possible.
  - Besides that: **A downgrade of the firmware is *never recommended* at any time**.

- # R259-2 (Build 18563) – 21. June 2017

  Fixed:
  - **Expert Vibro** / **Expert Transient**
    - Analog inputs adjusted prior August 2015 were over-adjusted, resulting in offset errors (was already fixed in R251 but reoccurred in R255)
  - *Differentiator*: Output was `NaN` when `dY` was zero and `dt` shorter than 1 ms

- # R259-1 (Build 18406) – 03. May 2017

  Fixed:
  - *COM-Channels*:
    - Linearisation and compensation was done on integer value instead of float value. That yielded in rounding errors and non-transmission of values. (since R255)
    - Crash in COM-Channels with datatype "*String*" when shutting down channels

- # R259 (Build 18184) – 29. March 2017

  New:
  - *Storage group*:

  - Additional Mode “Single step (Lines)”: Stored data will not be marked as “discontinued” so that in ProfiSignal trend the data is shown as continuous lines instead of single points
  - Single step mode will store blocked time data and spectra of **Expert Vibro** / AMDT
- *Status monitor* has an optional response delay
- *SDI-12*: Query of the sensors can be triggered (additional to the fixed poll cycle time)
- *FlipFlop channel* has additional selection for having the time stamp of the output data to follow the time stamp of the triggering channel (up to this release the output time stamp was always “current time”)
- **Expert Logger**: Range check on *Analog Inputs*
- **Expert Vibro** / **Expert Transient** *Analog inputs*
  - Support for 0/4 … 20 mA sensors
  - Support for external voltage divider
- Support for MOXA UPort Serial-to-USB-converter

Changed:

- **Expert**: WLAN limited to channel 1 … 11 instead of 1 … 13 to comply FCC regulations and limited usability of channel 12 and 13
- *Accumulator* in reset / intermediate value mode will update it's value on reset edge instead on next change of data input

Fixed:

- *Storage group*:
  - In special cases no initial values were transmitted when reading
  - Vastly reduced time for finding initial values when reading
- Status inheritance now working for *Accumulator*
- PTP was set to Master Only mode when applying the factory default configuration
- **Message**: System report couldn't be stored at all (caused by “fix” in R258 “couldn't be opened on Windows when NTP was disabled”)
- **Expert**
  - WLAN in access point mode didn't always restart after changing the WLAN channel
  - *SDI-12*: Sensor identification data weren't displayed always, only at configuration change
  - Netmask on USB Device interface was too small for default DHCP server range
  - Partial configurations with Trigger Groups and/or Spectra couldn't be pasted / loaded
- Channels with multiple links (e.g. generated USB COM channels)

couldn't be deleted

R258 (Build 18006) – 22. February 2017

New:

- *Storage group*: Reading of data is automatically throttled for low bandwidth networks / clients to prevent connection loss

Changed:

- *LED channels* will switch off the LED when inactivating the channel instead of keeping the system set function of the LED

Fixed:

- System report couldn't be opened on Windows when NTP was disabled
- **Expert** *Digital Outputs*:
  - The second edge of a µs-short spike wasn't set on the hardware, thus the switch output didn't reflect the input state until next state transition / update of the input
  - PWM had a hard coded duty cycle limiter of 0.1 % / 99.9 %
- *Modbus TCP Server* / *Modbus RTU Slave*: FC01 / FC02 was not handled as Coil/Input but as Register causing cross talk to other channels
- When loading a configuration where an interface is disabled over said interface doesn't cut off communication any more
- Serial-To-USB converters (including GPS receivers) were only detected when plugging at running MetiOS device
- Network interfaces: DHCP server range is always matching the IP address / netmask of an interface
- Resetting configuration to factory default didn't put new *Mail Server Channe*l as Default Mail Server into *Mail Setting Channel*
- *Event channel* did show an OK status despite getting an error response from mail server

R257 (Build 17905) – 31. January 2017

Fixed:

- **Expert**: WLAN in access point mode didn't have an IP adress after system boot / reconfiguration

R256 (Build 17876) – 19. January 2017

Changed:

- Temporarily disabled OPC UA Client

Fixed:

- Still rare faulty generation of *Mail Server Channels* while upgrading to R255
- **Expert Vibro**: Configuration of *Rolling Bearing Amplitude* couldn't be pasted

R255 (Build 17852) – 17. January 2017

Expert: Downgrading from **R255** to **any earlier version** is not possible.

New:

- **Expert**
  - *Digital Input*: Additional mode for debouncing by pulse-stretching
  - Faster, less CPU hogging data storage format. To utilize that, the *Memory Channel* needs to be reformatted once – at the cost of erasing all stored data logger data.
- *OPC UA* Server
  - Channel status codes are mapped to OPC UA status codes
- **Expert Logger**: Analogue inputs have more sample rate selections
- *Event channel*: Server response is displayed readable in channel status

Changed:

- **Expert Logger**: Improved accuracy for Thermocouples when using the internal reference junction
- **Expert Vibro** / **Expert Transient** *Trigger Group*
  - *Pulses per period / rotation* maximum increased from 1000 to 4096
  - *Periods / rotations per trigger* maximum increased from 8 to 32
- **Expert**:
  - Locked LAN1 dialogue because the hardware is without function
  - *PowerSaving*: The next wakeup time is moved to next minute when the wakeup time is about to expire at system start. This prevents that the power saving mode fails to start.
- *Storage group*:
  - Stored data of unknown kind are skipped when read instead of

canceling the readout process
    - Tolerance “0” no longer stores of redundant values
- *Operating hours counter* is persistent per default
- Changed default NTP stratum for local reference clock from 10 to 12 and for DataService reference clock from 5 to 10
- Status inheritance disabled for *Digital*, *Analogue*, and *COM* Outputs, *LED* channel (only affecting new default channel configuration, old configurations still show the check box in dialogue)
- *OpenVPN* channels can no longer be created below the network interfaces but below *TCP/IP Services*

Fixed:

- **Expert**
    - Freeze when updating Firmware while having not yet sent characters on COM3
    - WLAN Client didn't request an IP address when access point was restarted / when the WLAN connection was re-established
    - High CPU utilisation on not terminated CAN bus
    - DHCP Client didn't request an IP address for LAN1 after system start
- Crash when deleting a *Statistic channel* in moving mode
- *UART* did ignore setting of zero idle characters for frame termination
- *UART* reception separated single frame transactions into two frames (affecting SCPI Short)
- *COM Channels*
    - One of the four possible 32 bit endianess converters was missing
    - Swapped “Scale Value” and “Output Value” linearisation values for output channels
    - Rounding errors when outputting large integer numbers
    - The linearisation and compensation was applied again when changing channel status (e.g. Wire break)
    - Changing datatype from “String” to e.g. “Float” did keep internally the length of the string so that superfluous data was stored in data memory
- *OPC UA*
    - Client
        - Crash at Output channels when using a string NodeID
        - Negative Numeric NodeIDs were generated while browsing
        - Crash when deleting a Client with several Channels
    - Server
        - Fixed timestamps of nodes
- Status inheritance now working for *PID Controller*, Trigger of *Average*,

Display channel and *Statistic* channel …
- *Status Generator* generated “Unknown Extended State”
- Rare faulty generation of *Mail Server Channels* while upgrading to R254
- Storage Group: Connection watchdog remains active while transmitting bulk data
- Loading a configuration while compiling a very huge number of *Calculation channels* threw a timeout

R254 (Build 17560) – 20. October 2016

New:
- OPC UA Server and Client
- **Expert Vibro** / **Expert Transient**
  - *Track*
    - Anti-Hum filter with 100 and 120 Hz (for suppressing hum of one-phase variable-frequency drives)
    - Filter *Chebychev*, *Critical damping*
  - New characteristics channel *Crest Factor*
- **Expert Vibro**
  - FFT with 512 and 256 points / 200 and 100 lines
  - Time characteristics channels can be synchronized to FFT
  - Window function *Blackman* and *Tukey*
  - *Digital Output* can mirror the analogue comparator of the trigger group or the trigger event of the trigger group
  - New spectral characteristics channels for vibration analysis of
    - Rolling Bearings
    - Gear Sets
    - Planetary Gear Sets
- **Expert Logger**
  - Reworked *SDI-12* protocol
    - Address scan with automatic sensor detection and creation of channels
    - Sensor information is queried and displayed
    - Support for up to 99 values per Sensor
    - Sensor address change
    - “Wire break” for missing sensors
    - Customizable poll cycle
    - *SDI-12* interface is created when updating from < R253
- **Expert**

  - Ethernet-over-USB driver no longer needs a special driver, uses now stock driver provided by Microsoft Windows
  - Support for Serial-to-USB-Converter
- *Event-Channels*
  - Sending of SMS (with WWAN option)
  - Sending emails supporting TLS / SSL encryption and authentification
- COM Channels
  - Output: Besides the ASCII macros like %STX%, %EOT%, ... also hex characters like %00%, %9A%, ... are parsed and sent
  - Input: ASCII hex characters can be read (“Encoding: ASCIIHex”)
- Mailserver configuration
- Support for **LogMessage 10000**
- WWAN interface
  - Added various status channels
  - Added dialogue for changing and disabling PIN
- Number of concurrent connections can be limited for the servers *OPC UA* and *Modbus TCP* and for the Delphin services *PiMP*, *XiMP*, and *WiMP*
- Loading a configuration file with an empty Gateway (caused by broken dialogue) doesn't throw an error any longer

Fixed:

- **Expert Vibro**
  - Predefined high pass filters of Tracks defaulted to order 2
  - 16.7 Hz anti hum notch filter was on 16 ⅔ Hz
  - Tracks with inverter in the filter bank caused spikes in the signal when recalculating filters (changed rotation speed, startup, entering valid rotation speed range)
  - Rounding errors at fixed / variable frequency band at Spectral Characteristics channels
  - Anti alias filter didn't track dynamic sampling frequency
- **Expert Logger**
  - Wire break detection threshold on analogue inputs at 4…20 mA was too low
- **Expert**
  - Persistent counters didn't retain the count value when reconfiguring the channel
  - “Search Devices” didn't find devices connected via USB or WLAN
  - COM3: RTS, CTS, DTR, and DCD had inverted polarity
- **Message**
  - After Firmware update FTP was active despite being inactive in

configuration until next reboot

- *Storage Group*
  - When reading the memory all data was sent twice
  - Trying to read a time range *after* the memory contents won't search the entire memory for starting values
  - Block data (Track, Spectra) weren't stored by cyclic store
  - Triggered Storage:
    - The whole storage group was filled when amount of data in the pre-trigger period was more that 4% of the storage group size
    - Constant channels were not stored in the pre-trigger period
    - Level trigger didn't trigger the storage when the level of the trigger channel at device start was already 1
- COM Channels:
  - When converting from ASCII to Integer or Float sometimes an overflow error was indicated despite no overflow occurring
  - PROFIBUS Redundancy “PNO 2.212 V1.2”: Any event on one of the busses (redundancy switch over, backup leaving / entering DATA_EX) caused glitches to zero and stuck values on the PROFIBUS channels (Also backported to R238-4)
- Rare crash when using ASCII communication protocols on all four serial ports at the same time
- Pause between channels didn't work
- Changing the source channel's name didn't update the %NAME% variable
- *Event channel*:
  - Sending emails with sender address `channelname@hostname` didn't work
  - Changing email addresses or phone numbers in the directory wasn't recognized in the Event Channel until restart
- Changing IP via “Search Devices” triggered error message despite successful change of IP
- *Differentiator*: Prevented NaN (Not a Number) value at startup / config change
- *Trigger channel*: “Inherit parent name” was without function
- *Analogue Input*: “Set default value in case of fault” did also set the channel's error flags to OK instead of retaining the fault flags (Wire break…)
- *Average channel*: Fixed the initial value of blockwise arithmetic mean calculation with activated high level trigger

Known issues:

- **Expert**

- Changes on *Digital Inputs* like *debounce* time will only be effective after disabling and re-enabling the group “I/O-Channels”

R253 (Build 16596) – 29. April 2016

New:

- Support for **Expert Logger 400**
- Web: *Live Channel view* with zoomable trend chart
- *CAN* and *Modbus Channels* can output datatype “String”
- *Storage Group / Drive*
  - Support for USB Drives without partition tables (“*Superfloppy*”)
- **Expert**: OpenVPN® Client
- **Expert Logger**:
  - SDI-12 protocol
  - Strain gage sensor type
- **Expert Vibro 8**: Two additional trigger groups

Changed:

- *Search for Message Protocol* (*SFMP*) now answers requests also on WLAN and USB
- **Expert Vibro**: When viewing data of dynamic sample rate tracks in ProfiSignal the last and first samples of are now connected
- Updated *PuTTY* from 0.66 to 0.67

Fixed:

- Storage Group:
  - When reading memory the first data segment were not transmitted, causing gaps in DataService Database / Trend
  - The start values of each scheduler event were not transmitted
  - Gaps in pre-trigger period (was fixed in R253 but this topic was missing in original R253 changelog)
- **Expert**
  - Some terminal numbers in configuration dialogues were wrong
  - Hardware counter couldn't be reset by other channel
  - XON / XOFF handshake protocol on COM ports now working
  - COM3 had no power when connecting GPS antenna for NTP time synchronisation
- **Expert Vibro**
  - Trigger failure status messages caused repetition of old data in ProfiSignal
  - Speed adapted filters limited to lower boundaries (5 Hz) (Oscillating

filters caused by too long trigger intervals / too low sampling frequency)
    - Switching off high pass filter didn't switch off predefined high pass
    - *Local Min/Max*: When having asymmetric or negative scaling the wrong calculation of hysteresis caused wrong minima
    - Vastly reduced overshoot of signals with DC offset
        - when recalculating filters due to changed rotation speed
        - at startup
        - when entering the valid rotation speed range
- **Expert Logger**
    - Status flag *Wire break* (4…20 mA) was not reported
    - Quadrature decoder didn't work for Digital Input / Ouput channels 5 … 8
    - 3 wire RTD / Resistance measuring without function on Analog inputs 5, 7, 9, 11, 21, 23, 25, and 27
- *Generic COM Channels* couldn't send NUL characters
- Change of the data types of a source channel of a Calculating channel caused unpredictable calculation results
- Crash while loading a very old `.tar.gz` configuration

Known issues:

- **Expert**
    - Changes on debounce time of *Digital Inputs* will only be effective after changing something on any of the Trigger group / Analog Input / Track channels

R252 (Build 15930) – 18. December 2015

New:

- **Expert Vibro**
    - Averaging of *Spectra*
        - have optional Reset / Start
        - have new mode “PeakHold”
    - First and second trigger of *Trigger Group* can be *Digital Input* simultaneously (*Konfigurator* > V4.2.0.9 required)
- *XiMP*
    - Reading out data storage sets attribute **`State="Finished"`** on final `<Not.Values>` block
- *LEDs* can show the write access to external storage media (Source: “**`Active@drive`**”)

- Added various information to USB storage media (Volume label, partition type and size)
- Ethernet interfaces: Speed and duplex mode can be changed
- Various new NTP characteristics of the *Clock Channel*
- *PROFIBUS* and *Generic ASCII COM Channels* can output datatype “String”
- *Sequencer*: Behaviour when receiving “Stop” can be changed (Hold, First/Last value, Zero)
- Ethernet-over-USB driver:
  - New driver for Windows 7 and later
  - Drivers rebranded

Changed:

- *Linearisation channel* updates output when global linearisation table is changed
- Updated *PuTTY* from 0.64 to 0.66
- In the table of a *Setpoint Channel* the same variable can be used more than once
- *Network* and *Clock settings*, *Save* and *Load Configuration* finally removed from the device's homepage (since moving that function to *Konfigurator*)

Fixed:

- Crash when loading configuration with Linearisation tables
- Serial Interfaces:
  - Modbus RTU Master / TCP Client: *Output channels* always sending a zero value
  - **Expert**
    - Character loss and echo suppression while sending on RS485 interfaces (Broken as of R251)
    - Termination of received frame bei line idle (Broken as of R251)
    - Some endianess conversion didn't work
  - Limits of small integer datatypes didn't work correctly, e.g. when trying to assign a -120 to a signed 8bit integer yielded in a zero value
- Network Interfaces:
  - IP addresses of the interfaces couldn't be changed after updating from older firmware or loading a configuration file from older firmware.
  - WLAN interface sometime didn't get an IP address
- *Operating hours counter* didn't always count when scaling was not seconds

- Rare race condition where timers in software channels did influence each other
- *Calculation Channel*: Constants for **e** (**EX**) and **π** (**PI**) were stored in 64bit double instead of 32bit double format – operations with this constants like **LN(EX)** gave configuration errors
- Inherit state now working for *Logic*, *Timer*, *Average*, *Statistic*, *Spectral Component* and *Collective Fault*
- *Collective Fault*: Persistence was not working
- **Expert Logger**: Mapping of reference junctions to *Analog inputs*
- *Sequencer* didn't update Start / Stop status when inactive
- Trigger “Software” in **Expert Vibro** disappeared after re-opening the dialogue (despite working flawlessly)
- Resetting the configuration to factory defaults didn't create default Users
- Deleting an *Average Channel* could throw an exception
- *PowerSaving*: Sleep times below one hour were not working
- **Expert**: Gateway couldn't be changed via Touchdisplay

R251 (Build 15255) – 15. October 2015

New:

- Support for **Expert Logger 300**
- Applying factory settings shows new default IP address on web page.
- Reference junctions of thermocouples can be in different temperature scales as the thermocouples (e.g. Thermocouple in “°**F**” and reference junction in “**R**”)
- **Expert**
  - USB drive will update it's status on it's own and not only when triggered by a backup action of the storage group
  - (New) partitions on USB media set the volume name as prefix
  - Storage Group Backup: Option to construct the file name either from the current time or from the start time of the data
- **Expert Vibro**
  - Averaging of spectra (Feature was added in fact with R251 but this topic was missing in original R251 changelog)
- **Expert Vibro** / **Expert Transient**: Optional cyclical offset adjustment
- More software channels inherit the name from their primary data source (active by default) or parent (inactive by default)
  (only for new created channels, existing channels won't be retrofitted)
- Added several new types for *System Monitor* and *Clock* channels
- *Event-Channel*

  - Can set priority and character set of the email
  - Adds small footer with device type, hostname and software version
- *Clock & Time settings*: Multiple NTP servers
- Optional non-adaptive mode for *COM channels*:
  - CAN input / output
  - PROFIBUS Input
  - Generic UART input / output
  - Modbus input

Changed:

- **Expert**
  - + / – Buttons on display for changing IP addresses bigger
- Old configurations without container "**`System`**": Channel "**`System Monitor`**" will be renamed to "**`System`**"

Fixed:

- *Sequencer* did not start when the time differences between two points, loops or events was smaller than 1s
- The device name was changeable in the *Device Channel*, but was overwritten by the host name at *Network Settings* changeable. Now the device name in *Device Channel* is flagged Read-Only.
- PTP / NTP services weren't correctly started / stopped
- PTP status on homepage was not always correct
- **Message** devices were called **Expert** when setting factory settings
- Race condition when loading a configuration and changing the IP address or aborting the loading process caused no other configuration files being loadable until restart
- Issues with with invalid DNS server settings
  - Loading a configuration no longer pauses for 20 seconds
  - Storing a System Report no longer timeouts
- Inherit state now working for *Counter*, *Clock*, and *Stopwatch*
- Factory default settings didn't set the default IP address **`192.168.251.252`**
- **Expert**
  - Switching WLAN from Access Point to client didn't work
  - Default configuration could set the WLAN channel to not allowed values
  - System alerts on display were shown with the wrong character set (non ASCII characters being displayed weirdly)
  - CPU temperature warning was triggered at wrong threshold
  - Preset for hardware counter channels was without function
- **Expert Vibro** / **Expert Transient**

  - Analog inputs adjusted prior August 2015 were over-adjusted, resulting in offset errors (since R247, reoccurred in R255 and was re-fixed in R259-2)
- **Expert Vibro**
  - Fixed device reboots related to FFTs
- Fixed various issues and race conditions of *Storage group*:
  - Erase trigger caused data storage despite trigger not active
  - Re-trigger in the post trigger time didn't work
  - Triggered storage groups with small pre- and/or post trigger times was storing permanently when trigger interval was in the range of the pre-trigger time
  - Fixed long delays and duplicate values when reading partial memory
  - Fixed data being transferred twice
  - More robust with corrupt storage files
  - **iMP* **<Req.MemData …>** without optional attribute **ToTime** didn't send any data
  - Crash while removing an existing *Storage Group* when setting default channel configuration
- Fixed loading a partial configuration without PROFIBUS Sniffer permanently disabling the Sniffer
- Fixed various small issues when updating a configuration of R246 and older
- DHCP client on network interfaces doesn't query an IP address when
  - the device has started without network connection established
  - or the DHCP server is offline at boot time (since R23x)
- *Operating hours counter:*
  - No longer adds random values at configuration change
  - Reset didn't set the sum to zero
- High CPU load when having active CAN bus but no other CAN nodes connected
- Inactive PROFIBUS protocol did sent data to PROFIBUS channels
- *Event-Channel*: access to variables by **variable_name.value(float)** etc. didn't work

R250 (Build 14904) – 25. August 2015

Fixed:

- **Expert**: CPU temperature warning printed insane temperatures on the display
- **Expert Vibro**

- Scaling factor of tracks with single and double integrators (and the characteristic values) were too low by factor 4 resp. 16 (since R249)
- Switching scaling factor of Spectra from “Peak value” to “RMS” was not applied in the characteristic values

- Inherit state now working for *StatusGenerator*, *StatusFilter,* and *Trigger*
- *Calculation Channels* no longer crash at Integer divisions by zero
- Race conditions at *Storage group*
  - Triggered storage groups with pre- and/or post trigger was storing permanently (since R245)
  - Re-fixed: Erase trigger started storing despite no trigger running

R249 (Build 14867) – 19. August 2015

New:

- Better audit trail: Configuration files now store the user name and IP address of last changer
- *PID Controller* supports automatic parametrisation
- **Expert Vibro** / **Expert Transient**
  - High-pass filter of 0.25 / 1 / 2 Hz with Order 1 / 2
  - Improved low-pass filter at low frequencies (way less DC offset)

Changed:

- Creating users with same user name now gives “configuration error” instead of deleting the configuration
- Restart of the device is no longer required after loading a pre-R247 configuration file

Fixed:

- Factory settings didn't reset Hostname, Domain, and Time settings
- **Expert Logger**
  - Analog inputs:
    - Measuring of mA signals or with RTDs other than PT100 gave wrong results
    - Terminal numbers in the connection diagram in *Konfigurator* were wrong
- **Expert Vibro**
  - DC offset of spectrum was not properly suppressed when more that 64k samples between two triggers
- **Expert**
  - Switching off an active DHCP server didn't work

- LAN-over-USB working again (was deactivated since R247)
- **Message**: Static DNS server addresses were ignored (DNS servers assign by DHCP did work)

R248-1 (Build 14811) – 12. August 2015

Fixed:

- **Expert Vibro** / **Expert Transient**:
  - *Analog outputs* only working in mA mode

R248 (Build 14785) – 06. August 2015

Fixed:

- **Message** created a second “LAN” channel
- Upgrading from R246 linked the new system container below “System Monitor” instead of “System”

R247 (Build 14773) – 04. August 2015

New:

- Support for **Expert Logger 100** and **Expert Logger 200**
- **Expert**
  - Support for WLAN, Modes Client, Access Point and Ad-Hoc
  - Support for WWAN/LTE/UMTS (OpenVPN support still WIP)
    - Firewall on WWAN **blocks all incoming** traffic and **permits all outgoing** traffic
- *Storage Group*: Support for external storage media SFTP
- Channels have a new flag “Suppress Online Data” - if set, no data will be transferred over network connections. Useful for low bandwidth connections.
- Web:
  - Button Factory default configuration to reset all settings
  - **Expert:** Link to “Hardware test certificate”
  - **iMP* `<Req.GetChannelList>` with optional attribute `ConfigLastModified` for reducing the traffic on low bandwidth connections

Changed:

- **Expert**
  - Refactored touch display UI
    - Added basic WLAN settings with auto configuration via QR-code for Android devices
- Moved all global device settings to channels:
  There are no longer different UI concepts for adding / deleting / changing the configuration objects, everything is done by the well-known “Channel-UI”
  - Moved global users to channel group “System / Directory” – each user is one configuration
  - Moved global linearisation and setpoint tables to channel group “Software Channels / Library” - each table is one configuration
  - Moved Time & Clock settings to group “System / Clock”, also linked in “System / Network Settings”
  - Moved IP settings to the appropriate interfaces
  - Moved misc global settings to “System / System Settings”
- **Expert Vibro** / **Expert Transient**
  - Displayed value of *Analog outputs* is the actual discrete value set to the output amplifier
- Removed network and clock settings from web pages.
  Please use *Konfigurator* > V4.2.0 or touch display to change the settings
- *Status Monitor* displays “Configuration Error” when no status is monitored
- *PID controller*: Reduced anti-wind-up constant from 200% to 100%

Fixed:

- *Limit Channel*: Hysteresis in band monitoring mode was not working
- Output channels (Analog, digital and PWM outputs, PROFIBUS, UART, Modbus, CAN):
  - Did set the output / send value of incoming values despite being forced to a fixed state
  - Sensor compensation did only change the displayed value but not the output / sent value. Now only the output / sent value is compensated.
- Channels *Channel group*, *Network Settings* and *Device* had status “invalid” in *Live Channel view* despite having no value.
- *Storage Group*:
  - Triggered storage group: Erase trigger started storing despite no trigger running
  - Edge triggered storage group was storing permanently

- R246-3 (Build 14364) – Not released

Fixed:

- **Expert Transient**
  - Crash in PROFIBUS Sniffer

- R246-2 (Build 14321) – 29. May 2015

Fixed:

- **Expert Vibro** / **Expert Transient**
  - Digital Outputs without function (since R246-1)

- R246-1 (Build 14299) – 22. May 2015

Fixed:

- *Storage group*: Reverted a “bug fix” of R246 which caused a jittering of stored channel's time stamps in single step mode
- **Expert Vibro** / **Expert Transient**
  - Crash of signal processing at certain trigger / sample rate combinations
  - FFT stopped working at certain combinations of fast & slow trigger
- **Message**
  - Idle timeout / stop characters at RS485 / RS232 interfaces did not work (since R246)
- *PROFIBUS Sniffer*:
  - Hang when configuring DataLink while having an active connection Better handling of Wire Break flags

- R246 (Build 14164) – 23. April 2015

New:

- **Expert Vibro**
  - Amplitude of Spectra can be changed from peak value to RMS value
- *Sequencer*: Provides multiple predefined analog and digital tracks controlled by events
- *Storage Group*: Support for external storage media FTP

- *XiMP*
  - `<Req.Echo>` echoes value and all attributes - for testing purposes
  - `<Req.SetValues>` for setting value in channels
- Erasing a source of a channel sets *Config Error*

Changed:
- Updated *PuTTY* from 0.63 to 0.64
- Removed loading of configuration files via web pages.
  Please use *Konfigurator* > V3.2.3 to load the configuration files.
- **Expert Vibro** / **Expert Transient**
  - Implicit high-pass filter in *Integrator* has cut off frequency of 0.25 Hz (instead of 10 Hz)
  - Unit of new *Raw Tracks* is fixed “mV”

Fixed:
- *DCP*: Changing CAN bitrate didn't always change the bitrate of all I/O modules, causing the CAN bus / modules unusable
- **Expert Vibro** / **Expert Transient**
  - Wire break detection before signal processing: Even when having a high-pass the wire break detection will trigger at correct DC levels
  - *Modbus RTU* (Master / Slave) calculated frame check sum wrong
  - Usage of *Digital Inputs* in other software channels with falling edge or low level resulted in inverted logic
  - *Integrator* in *Tracks* won't show a DC drift anymore
- **Expert Vibro**
  - Calculation of Spectra getting out of sync at certain trigger timing / sample rate combinations
  - Rectification caused some (small) negative values
- Crash when deleting multiple storage groups at once
- Web: Broken link from Clock Settings page to Time Sync status page
- *Calculation channels*: The calculation functions were compiled at every system start (since R245)
- *Expert Series*: Connecting the device to a **10MBit half-duplex** Ethernet crashed the network driver

R245 (Build 13728) – 12. February 2015

New:
- **Expert Vibro**
  - *Local Minima / Maxima* with hysteresis, increased number of maxima to 2700

- Characteristics channels: Lower limits for rotation speed adaptive can be 0 Hz / 0 Hz @ 0 rpm
- Spectra: New window function “Flat top”

- **Expert Vibro** / **Expert Transient**
  - Tracks have sensor compensation
  - Warning at trigger timeout can be disabled
  - Characteristic Channel *Sampling Frequency*
- *Storage Group*
  - Support for external storage media:
    - USB (Drives without partition tables (“*Superfloppy*”) are not supported yet)
    - NFS
    - CIFS (SMB / Samba)
- Channel *Shift Register*
- *XiMP*: `<Req.MemData>` exports triggermarks

Changed:

- Firmware reports itself as “`MetiOS`” (formerly known as “`PoND`”)
- *FlipFlop*
  - Status Flags of the J, K, D, S, and R sources are synchronously (active CLK) inherited, any change of the source status flags at inactive CLK is ignored
- **Expert Vibro**
  - Spectra have improved DC suppression
  - New Spectra have “Suppress DC Line” active (to be compatible with AMDT)
  - Spectral characteristics allow subharmonics (Harmonic index < 1)
  - Changed default name of *Counter* channel to “Counter (Hardware)” to distinguish from software counter channel

Fixed:

- *Modbus*
  - *TCP Server* / *RTU Slave*: Crash while deleting channels / modules
- *Differentiator*:
  - Timeout was not applied correctly
  - Default value for Timebase is now 1000 ms instead of 1 ms
  - First data value is suppressed to prevent spikes at reconfiguration / startup time
- **Expert Vibro** / **Expert Transient**:
  - Initial channel status is no longer “Overflow / Underflow”. Now all channels initialize to “Invalid”
  - Event overflow by output values caused digital signal procession to

stop
  - Wire break detection *Analog Inputs*: Inheritance of the thresholds to the underlying tracks wasn't implemented
  - *Vector sum*: If the *Analog Input* of the second track was inactive, then all characteristic values stopped
  - *Local Minima / Maxima* did not check the valid limits
  - *Analog Outputs* in current mode was not working correctly
- *FlipFlop*:
  - Persistence in latch prevented the updating of the FlipFlop after restart
- *Storage Group*
  - No data was stored after erasing the contents
  - In triggered mode after a restart of the device the last chunk of data was erased
  - In triggered mode after a restart of the device the “to” timestamp was too old
- *Average Channel*: The average was rarely slightly too high
- Web: LAN speed was displayed as *100M* when having a Gigabit connection

Known issues:
- **Expert Vibro** / **Expert Transient**:
  - When configuring a *Track*, *Counters*, and *Frequency* inputs fall back to default value
  - Low frequency low-pass filters cause an offset on the DC value of the signal due to quantization effects (±1 mV @ f_c=500 Hz, ±4 mV @ f_c=100 Hz, …) (fixed in R246)
- **Expert**:
  - Connecting the device to a **10MBit half-duplex** Ethernet will cause a crash in the network driver, rendering the device to be inaccessible (fixed in R246)

R244 (Build 13298) – 08. December 2014

New:
- **Expert**:
  - Display calibration can be triggered by button on website
  - Display backlight can be controlled
  - Power LED can be controlled
- **Expert Vibro**:
  - Scaling of *Phase Characteristics Channel* can be 0°…360° instead

of -180°…+180°
  - *Trigger groups* have two level redundant trigger, status of selected trigger is shown in the channel status
  - Trigger supports rotation speed up to 48,000 rpm
  - *Analog Inputs* have wire break detection, inheritance of the channel status to the underlying tracks
  - *Raw Tracks* have scaling
  - *Local Minima / Maxima*
- **Expert Transient**:
  - PROFIBUS Sniffer (Passive capturing of PROFIBUS DP-V1 data)
- Most of the software channels inherit Unit / Name / etc from their primary data source (only new created channels)
- *Delay timer* allows a delay of 0 – in level mode the output follows the input, in edge mode the output is always off
- *Modbus*
  - Reworked channel status: “Wire break” instead of “Invalid” and “Parameter Error”

Fixed:
- **Expert**:
  - COM Interfaces didn't switch on Power
  - Forced values of **Expert Vibro** characteristics channels didn't work
  - GPS clock at COM3 was not working
  - *Counter* and *Frequency* were limited to 500 kHz, now counting up to 1 MHz
- **Expert Transient**: *Counter* and *Frequency* channels didn't work
- **Message**: Crash at ADFT / AMDT Analog inputs
- Certain combinations of channels could result in a deadlock while changing a channel configuration
- Status flags *Wire break* (4…20 mA) and *OverRange* / *UnderRange* were not reported
- Adding of new users was not possible (Since R242)
- *Limit Channel* latching mode with edge triggered reset: The alarm was set again after a reset on an update of the monitored channel.
  Now the monitoring condition has to be cleared and set again before the alarm is set again.
- *Storage Group*: Cyclic store was without function (since R235) (Also backported to R238-3)
- *Statusmonitor* / *Statusgenerator* / *Statusfilter*: Flags *Range overrun* and *Range underrun* were swapped
- *Accumulator*: Inactive Reset zeroed the persistent value at system startup

- *Delay timer*: Parameter error when issuing a delay 0 zero was persistent
- *FlipFlop*:
  - Persistence in latch mode was not working
  - RS FlipFlop with edge preset / clear was not working
  - Inheritance of source status flags is handled correctly
- Deadlock while compressing the database of persistent values
- Browser timeout while updating firmware
- *Modbus*
  - *TCP Server* / *RTU Slave*: Crash while deleting channels / modules
  - “Pause” between channels didn't work
- *LED channel* interface monitoring
- *Event channel*: The time zone of sent mails was several hours in the future

R243-1 (Build 12662) – 19. September 2014

New:

- Compatibility with *ECPU V1.4*

R243 (Build 12435) – 19. August 2014

New:

- **Expert Vibro** Characteristcs channels: Limits for rotation speed adaptive bands removed

Changed:

- **Expert Vibro**: Integral of window functions is now 1.0

Fixed:

- Tolerance on **Expert Vibro** Characteristic channels was always zero

R242 (Build 12335) – 30. July 2014

New:

- All persistent channels retain their values when reconfiguring the channel
- **Expert Vibro**:

  - Major overhaul, sampling rate of tracks is rotational speed adaptive, tracking filters, etc. …
  - New time domain characteristics: *RMS without DC*
- Web: New page “Browser information” for checking the JavaScript and Websocket status of the browser
- **iMP*:
  - `<Req.GetPersistentData/>` / `<Req.SetPersistentData/>`: Persistent values of the channels, can be stored and restored e.g. after loading a configuration
  - `<Req.MemEraseData/>`: Content of storage groups can be deleted

Changed:

- **Expert Vibro**:
  - Spectra show the technical useful “double” Amplitude by default (compared to the mathematical correct half amplitude)
- *Stopwatch*: Start / stop time is calculated from the time stamps of the triggering sources. Frequency measurements are more precise that way.
- Web: Firmware update and load configuration works without JavaScript
- *Collective Fault*: Reset level mode now prevents setting of the alarm state
- *Impulse generator*: Limited cycle time to min. 50 ms and pulse width to min. 25 ms
- *Timer channel*: Limited response / release delay time to min. 10 ms

Fixed:

- **Expert Vibro**:
  - *Raw Tracks* didn't output any data
  - *Track*: At certain decimation ratios every 1 million samples some samples were missing
  - Coefficients for integrator changed (no ramp up)
  - *Characteristics* in mode “Harmonics” didn't output any value
  - *Trigger groups:* Inactive trigger sources caused parameter error in other trigger groups
  - Negative characteristic values at negative scaling of a track
  - Analog / Digital Outputs didn't work
- *AMDT* / *ADFT*:
  - Fixed glitches on digital Inputs with certain hardware revisions
  - Inverting of digital outputs of *AMDT* / *ADFT* still not working properly at certain conditions
  - Sensor compensation didn't work properly
- *Setpoint channel* did never start in free-running mode (was over-fixed

in R241)
- *Timer channel*: Output was stuck high if the response delay time run out simultaneously with the falling edge of the source
- In rare cases *Analog outputs* of *AAST* and *ADIT* could have a full scale output value after system start
- *Modbus RTU master* and *Modbus TCP client* doesn't start if the channels are newly created. Works fine after restart or reboot of the device (observed since R239)

R241-1 (Build 11542) – 24. March 2014

Fixed:
- Checksum error in Firmware *AMDOS* 4.69 for *AMDT* 2.13 or newer

R241 (Build 11428) – 28. February 2014

New:
- *CAN*: Bitrates 40 kbit/s, 20 kbit/s, and 10 kbit/s supported
- Upgraded NTP to 4.2.7p411 (Security Notice)
- Orphaned channels (without “Parent” link) will be re-linked to a channel group “Lost+Found” so that this channels are editable and deletable again
- **Expert Vibro**:
  - Analog and Digital outputs working
  - Progress of firmware update is shown on display
- *Integrator*, *Counter*, *Accumulator*, *Operating hours counter,* and *outputs* have a new source `Preset` (by default inactive) so that the persistent values may be set by application or other channel.

Changed:
- Default channel configuration does no longer create PROFIBUS drivers, PROFIBUS Interfaces are inactive
- A forced / simulated default value of channels will set only the “Forced” flag, all other status flags are cleared
- Web: Message in live channel list if browser doesn't support JavaScript or WebSocket
- When loading large configuration files less likely a “Timeout” will occur.

Fixed:

- Exporting storage data to USB won't terminate anymore when encountering a faulty storage group
- Wrong formatted timestamps if the device was set to time zones with non-full hours, e.g. *IST* (UTC +05:30) (Also backported to R238-2 and R118.1)
- *PWM Channel* flags “Configuration Error” if lower limiter is higher than upper limiter
- *Timer* in mode release delay / retriggerable did ignore rising level of trigger in the delay time
- *Storage groups*: Calculation of available memory more conservative
- *Stopwatch*: Start/Stop source in edge trigger mode didn't work
- Network configuration was corrupted if setting NTP server with “Allow large time differences”
- *Operating hours counter* didn't count anymore after edge of reset if trigger was still active
- *Counter channel* did count up/ count down / reset on configuration changes of sources
- A forced / simulated default value wasn't always applied
- Changed online tolerance didn't affect subscribed channels
- *Setpoint channel*:
  - Won't start immediately without trigger signal
  - Edge trigger mode yielded in one repetition too less
  - Active level trigger will repeat the sequence
- Inverting of digital outputs of *AMDT* / *ADFT* didn't work properly:
  - All channels were inverted, one or more channels were set to invert
  - The channel value did reflect the electrical, but not the logical state

R240 (Build 11127) – 17. January 2014

New:

- The firmware is no longer called “`Firmware`” - it's now called “**MetiOS**”
- First release for **Expert Vibro**
- *PTP* – Precision Time Protocol according IEEE 1588, will synchronize the time within a few µs
- *Calculation channels* can handle string variables
- *WiMP* (Websocket) server:
  - responds with HTTP error codes in case of handshaking failure
  - Supports Websocket Version 0…13 (HyBi/RFC 6455 and Hixie 75 or 76)

- *PROFIBUS Protocol* prevents having output channels on the same byte / bit offset (Output channel will flag “Configuration error”)
- Web: Channel list with live values
- *LED channel* for control of the front panel LED(s)
- Services *HTTP*, *Telnet*, *SSH*, *(S)FTP*, *NTP,* and the Delphin services *SFMP*, *XiMP,* and *WiMP* can be disabled
- *Telnet* and *FTP* disabled by default
- System user account “`root`” gets password “`root`” if no password is set yet

Changed:
- Poll string of *COM Protocol* can be max. 12 characters due to Base64 encoding
- The network interfaces will be brought up at boot time even if some other host has the same IP address (up to now, the own network interface was shut down)

Fixed:
- *COM Protocol* added the string terminator to the poll string in polled mode in every loop cycle
- *Block by block Average* did calculate a NaN value if no source values were received in the trigger time. Now the current source value is added to the average sum in the trigger moment
- Hang when changing the configuration of COM4 while set to RTS/CTS handshake and no cable was connected
- *Limit channels* will work with all-constant inputs
- *Analog Outputs*: Zero value at output when switching off
- `<Req.GetChannelStatus>` returned malformed XML in case of erroneous request
- **iMP*: Restarting a data group with `<Req.StartStopData Command=”Start”/>` after issuing `<Req.StartStopData Command=”Stop”/>` didn't work
- *Storage group* in mode level trigger didn't store while trigger active without pre- or post trigger

R239 (Build 10182) – 13. August 2013

New:
- *FlipFlop*: has new property “Preset Priority”
- *PROFIBUS*: User-Watchdog can be disabled

- *CAN raw*: Output channels with the same ID share the same message
- NTP option “Allow large time differences”
- Processing of data type “String”
  - *Variable*
  - *PROFIBUS Channel* (input and output)
  - *FlipFlop* (mode Latch)
  - *Clock* (Time zone)
  - *System monitor* (Firmware version)
- *COM Channels* without polling can generate timeout if no data is received
- *COM Channel Output*
- While deactivating channels an “invalid” / “config_error” value is distributed to the consumers so that dependent channels will also get that status.
- New channel status flag “Inactive”, will be set if a channel is not active
- Exporting network settings to USB stick exports also dynamic IP addresses
- Importing network settings from USB stick imports DHCP setting
- *Calculation Channel* can use the characteristic value of ADFT / AMDT analog inputs and AMDT spectra
- *WiMP – **W**eb **i**nterchange **M**essage **P**rotocol* on port 1036, a *WebSocket* wrapper for *XiMP*
- Status led blinks green/orange while exporting storage data to USB stick

Changed

- *FlipFlop*:
  - Clear has priority over Preset, as long as “Preset Priority” (see above) is cleared
  - Clear and Preset were handled as edge trigger in spite of being configured as level trigger
- *Integrator* sends intermediate values if no reset source is configured, regardless of the setting of “Generate intermediate values”
- Updated time zones:
  - Time zone database as of 05/2013
  - World map image as of 10/2012
- Updated *PuTTY* from 0.62 to 0.63

Fixed:

- *Differentiator*: Trigger was ignored
- *Storage group*:
  - Level trigger with post trigger

    - Erasing while active level trigger didn't store for current trigger
  - Inactive *COM channels* still sending poll strings
  - Exporting storage groups to USB stick was not working since R237
  - Persistence didn't work anymore after changing the data type of a channel

R238-4 (Build 16893) – 21. June 2016

- PROFIBUS Redundancy “PNO 2.212 V1.2”: Any event on one of the busses (redundancy switch over, backup leaving / entering DATA_EX) caused glitches to zero and stuck values on the PROFIBUS channels
  (Backport from R254)

R238-3 (Build 11860) – 03. March 2015

Fixed:

- Storage Group: Cyclic store was without function (since R235)
  (Backport from R244)

R238-2 (Build 11719) – 22. April 2014

Fixed:

- Wrong formatted timestamps if the device was set to time zones with non-full hours, e.g. *IST* (UTC +05:30)
  (Backport from R241)

R238-1 (Build 11312) – 12. February 2014

R238 (Build 9950) – 01. July 2013

Fixed:

- Changed boot procedure to avoid rare hangs after firmware update
- Reading *Storage group* hangs when starting several hundred reads in a very short time (few minutes)
- Updating Firmware uses less memory

- ## R237 (Build 9872) – 14. June 2013

  New:
  - *Storage group* sets error flags in case of problem with the storage medium or file system
  - Channel configuration backup files can be erased by button on homepage

  Fixed:
  - *Modbus TCP:*
    - Client reconnects to server in case of error
    - Better handling of error status
  - *Integrator*:
    - Correct handling of constant and/or non-changing signals
    - Correct handling of Reset in edge and level modes
  - *XIMP*:
    - High CPU load when terminating the connection
    - Time stamp of values was always UTC and had an illegal time zone, now local time
  - *PROFIBUS*:
    - Output channels are resend when the connection to the master is re-established (Constant output values remained on zero in the frame)
    - Constant output channels were always zero in the frame until a reconfiguration
    - Redundancy “PNO 2.212 V1.2” with newer PROFIBUS controller
  - *UART*: Handling of buffers bigger than 256 bytes
  - *CAN*: Raw channel was always sending extended messages

- ## R236 (Build 9347) – 15. March 2013

  New:
  - *XiMP – **X**ML **i**nterchange **M**essage **P**rotocol* on port 1035
  - RS-232 port COM4 is now usable for channels
  - Support for PCPU V1.3
  - *COM Channels* supporting SCPI Short

  Fixed:
  - *COM Channels* did not send out poll string

- New created *Limit channels* showed “invalid” until the threshold was reached

R235 (Build 9177) – 05. February 2013

New:

- USB sticks with NTFS partitions are also supported (but only writable if partition is free of any error)
- Networks settings are always copied to USB stick
- Channels reporting status to *DataService*:
  - Firmware versions I/O-Modules
  - Free / allocated / available storage memory
  - NTP synchronisation status
  - Error message of *Calculation Channel*
- *Modbus RTU* Master and Slave
- User defined UART Com Protocol on RS232 and RS485
- DHCP client, static IP address will be used as alternate configuration
- Support for loading and storing the configuration by DataService
- Support for access restrictions on per channel basis
- When shutting down the device, channels send a last “invalid” value.
- User accounts
  - Password protection
- Time synchronisation by *DataService* - suitable for standalone applications without real NTP server
- Changing IP / subnet mask by *DataService* from different network
- Channel *StatusGenerator* and *StatusFilter*: Set or remove status flags of values, either permanent or dependent on a trigger source
- New firmware for *AMDT*: Dynamic adaptive sample rate dependent on rotation speed for order tracking and phase measurement (Only for hardware version AMDT 2.13 and newer)

Changed:

- Default source for newly created *Variables*, *Digital Outputs,* and *Analog Outputs* is “Application” instead of “Manual value”
- Avoided dead locks by recursions of channels by limiting the maximum recursions to 20
- Finding IP address of **Message** devices works too when **Message** device's network address differs from PC's network address
- New data transmission protocol for I/O modules *AMDT*/*ADFT* with less timing constraints to ensure data without gap even at high / peaked CPU loads

- Web pages are working now without having JavaScript enabled in the browser (admittedly not so fancy…)
- IP addresses with leading zeros are no longer accepted because were interpreted as not-so-common octal notation

Fixed:

- *Limit Channel*:
  - Latching was not working
  - Hysteresis at mode band monitoring was used incorrectly
- *Memory* group showing sometimes zero or -1 when there were no *Storage groups*
- *PID Controller*: the I-Member was 4 times too high
- *Setpoint*:
  - Fixed triggers *Start*, *Pause,* and *Reset*
  - Fixed variables in the table
- *Integrator*: The timebase was interpreted as reciprocal value, existing configurations are fixed automatically
- *Analog Input AMDT*:
  - Filter type High-pass + Rectification + Low-pass could not be selected
  - Mean of Product, Maximum of Vector sum was calculated wrong
  - Compressed time signals and spectra signaled wrong compression method
- *Analog and digital outputs AMDT/ADFT*: At watchdog timeout the default value is set instead of holding the last value
- *Linearisation*:
  - Flags for range check were not working as expected
  - New created channels do not have a lower limit of 100 and upper limit of 500, the borders of the tables are used
- *Logic Channel*: Fixed initial value when used with non-changing binary inputs
- *FlipFlop*: Fixed analog latch updating output on change on input data status

R234-01 (Build 8294) – 07. August 2012

Fixed:

- “Rescuing” the **Message** device by network configuration file on USB stick was not working in R234
- *Analog Outputs*: When setting the output manually, the entered value was interpreted as digits (= 2,44 mV) and not as mV

R234 (Build 8208) – 23. July 2012

New:

- *PID Controller*

Changed:

- *Digital* and *Analog Outputs*: The default value is applied as long as there is no other valid value available (e.g. *ProfiSignal* application not yet running)
- Memory management improved
- Units of bytes now expressed correctly as *KiB* or *MiB* according to IEC 60027-2 Amendment 2

Fixed:

- Crash when deleting a dependent *Calculation channel* too early
- References (=Registers) of *Modbus channels* were too low by one, existing configurations are fixed automatically
- The byte stream of the *Storage group* was corrupted by wrongly decoded trigger marks when using triggered *Storage Groups*
- *Analog Outputs*: The default output value was 20 mA instead of 0 mA
- Trigger “Low Level” for non-changing sources
- *Collective Fault*
- When changing the host name by *Konfigurator* the device name will also update
- Firmware update shows decompression progress to prevent timeouts at high CPU loads
- *Analog Inputs* didn't work with RTDs other than PT100

R133/R233 (Build 7928) – 14. May 2012

This is the last firmware of the **R1xx** series, for an update to **R2xx** the storage medium has to be changed – please contact *Delphin Technology AG*

New:

- Time synchronisation by GPS clocks connected to COM3
- The formula of *Calculation channels* accepts additionally the functions “`MIN`” and “`MAX`” (besides the existing functions “`Min`” and “`Max`”) so

that all functions are consistently written with capital letters
- Detection of newer PROFIBUS controller

Changed:
- New firmware for *AMDT/ADFT*
- Configuration files created by "special build" *Konfigurator* with version numbers e. g. "`3.1.0.4.5 SB`" are accepted
- *AMDT Calculation channels*: Lower limit of bandwidth changed from 10 Hz to 0.1 Hz
- In *Storage Groups* the time stamp of all stored channels equals the time of the trigger events
- CAN driver redesigned for *AMDT/ADFT* (speed optimisation)

Fixed:
- *CAN Channel Raw* did not update the time of its value
- *AMDT/ADFT* in mode 0…20 / 4…20 mA miscalculated the shunt resistor values
- PROFIBUS
  - In R132 PROFIBUS always reported "Wire break" to the application
  - *PROFIBUS Interface* and *Protocol* did show always "Wire break" regardless of the bus state if there were no PROFIBUS input channels
  - *PROFIBUS output channels* did never show "Wire break" regardless of the bus state
  - Switchover redundancy to non-redundancy mode
- *Calculation channels*:
  - Sometimes the calculation functions were not compiled ("Invalid" status)

R132/R232 (Build 7515) – 02. February 2012

New:
- *CAN bus channel* with binary and word output
- *Differentiator* with optional timeout
- *Analog outputs* now scaling in mA / mV or customer units
- Channel *Clock* - has date, time, hours etc. as value
- Full support for modules *AMDT/ADFT* (single module per bus) (R2xx only)
- Reimplemented changing of the network configuration by configuration file on USB stick (R2xx only)
- USB sticks in "Superfloppy" mode are also supported (R2xx only)

- *Konfigurator* V3.1.0.5 needed for new features

Changed:

- Firmware for *AMDT/ADFT*: V3.58 (R2xx only)
- *Impulse generator* works real time synchronized down to 50 ms
- “Basic settings” (Network, Clock, etc) now working with *Konfigurator*
- Version numbers are unified now: A *R232* is no longer shown as *V2.3.2* at some places
- Web:
  - Restart main application when synchronizing to NTP servers
  - Changed warning text when rebooting, restarting, setting the clock and synchronizing to NTP servers
  - Updated *PuTTY* from 0.60 to 0.62

Fixed:

- *Spectral Component* was calculating always with 3 lines

Known issues:

- When changing the host name by web form or by *Konfigurator* the device name won't reflect the changes until the next system start (Fixed with R234)
- R132: PROFIBUS is always reporting “Wire break” to the application

R231 (Build 7221) – 30. November 2011

- PROFIBUS:
  - A DPV1 PRM is accepted even in case if an invalid USER_PRM is sent by master
  - New: Binary and word output channels (data direction **Message** device --> PROFIBUS Master)
- CAN-Bus will be restarted in case of BUS OFF
- Hardware watchdog is allowed more time at boot up (no hard reset while file system check)
- New firmware for AMDT/ADFT V3.54
- Transmission errors from AMDT/ADFT consuming all available memory are ignored
- R229 may have spontaneously thrown kernel panics with a reboot
- The default hostname “`profimessage.example.com`” is changed to “`ProfiMessage-SN<serialnumber>`”. Empty Domain name is allowed now.
- Web:

- Fixed (again) manually setting the clock
- Restart main application when setting the clock

R129/R229 (Build 7133) – 17. November 2011

- Web:
  - Fixed manually setting of the clock
  - Updated world map and time zone data to reflect recent time zone and border changes
  - After successful firmware update reload of home page after 60 seconds
- Faster start up of system after power on
- Fixed deadlock when configuring circular referenced channels
- The full qualified domain name of the **Message** device will be automatically inserted in the “Device channel” name (root node in channel tree) to reduce the confusion between hostname and device name.
- Analog outputs of AMDT / ADFT now scaling correctly
- Automatic firmware download AMDT / ADFT (R2xx only)

R228 (Build 7057) – 21. October 2011

- System report zip file couldn't be opened on some windows machines
- Fixed corruption of block data in storage group
- Fixed crash when configuration of linearisation tables was corrupt
- New channel “Spectral Component”

R127/R227 (Build 7015) – 07. October 2011

- Improvements *Modbus TCP*
- Data type “String” now possible
- Firmware download AMDT / ADFT (R2xx only)

R126/R226 (Build 6966) – 29. September 2011

- Fixed a hang when one or more I/O modules were offline

- R125/R225 (Build 6944) – 26. September 2011
  - More support for I/O modules AMDT and ADFT including time signal and spectra – download of firmware still missing (R2xx only)
- R124/R224 (Build 6850) – 12. September 2011
  - Calculation of used memory of storage groups fixed: Now calculating with the real amount of space used on disk (brutto) instead of the accumulation of the raw memory data (netto)
  - Optimized storage groups with many (> 5000) triggered events
  - Changed some text on the web pages
- R123/R223 (Build 6811) – 02. September 2011
  - Various fixed for I/O module AMDT (still no time signal and spectra yet) (R2xx only)
  - Sensor compensation “Offset” was not working
  - Changed to new CAN driver
  - Exporting storage groups to USB stick (R2xx only)
- R122/R222 (Build 6723) – 18. August 2011
  - Link to parent of Hardware channels cannot be removed
  - NTP status more verbose per NTP server
  - Support for I/O module AMDT (no time signal and spectra yet) (R2xx only)
  - Faster booting
  - Bugs fixed in Limit channel, Alarmclock
  - For security reasons copying of the network configuration from USB stick to device is removed
  - Up to ten user defined comments per channel possible
- R121/R221 (Build 6526) – 27. June 2011
  - Web:

  - Fixed displaying hostname after changing host name / domain via web interface
  - Channel list: Fixed displaying of channel names, units, and descriptions with >, < or &
- NTP synchronisation after reboot, NTP server address change or manual synchronisation faster
- At boot time the reset reason (PowerOn, ResetButton/Watchdog, Restart or Panic) is logged and displayed on web front page

R120β/R220β (Build 6516) – 22. June 2011

R119β/R219β (Build 6461) – 14. June 2011

- Downgrade to versions below **R118** / **R218** possible, if a compatible boot loader is detected
- Web:
  - Warning if storage medium may prevent a software reboot
  - “Reboot”, “Restart”, and “Default config” now buttons instead of links
  - NTP status improved
- Bug-fixes Setpoint and Alarm-clock
- LEDs of I/O modules will blink when module dialogue is open (*Konfigurator* > V3.1)
- Newly connected I/O modules will appear immediately in *Konfigurator*, deleted but still connected I/O modules will re-appear
- Updating firmware improved: Slightly faster, needs less memory
- First implementation of *Modbus TCP* Client and Server
- Serial ports COM1 and COM2 in UART mode and COM3 now working (*Konfigurator* > V3.1)

R118.2 (Build 13126) – 19. November 2014

Changed:

- Support for PCPU 1.3:
  - PROFIBUS driver handles controller reset according to CPU version (Backport from R237)
  - Support for newer PROFIBUS controller (Backport from R237)
  - Bootloader Updated

- ## R118.1 (Build 11309) – 12. February 2014

  Fixed:
  - Wrong formatted timestamps if the device was set to time zones with non-full hours, e.g. *IST* (UTC +05:30)
    (Backport from R241)

- ## R118/R218 (Build 6349) – 23. May 2011

  - Web pages
    - Firmware update process more secure, device won't reboot when problem while writing kernel / boot loader.
    - added several tooltips, information and warnings
    - changed design similar to CI of http://www.delphin.de
  - Switching from firmware versions R1xx to R2xx and vice versa now possible by just changing the storage medium.
  - Fixed “System monitor”-channel (Mem avail / used)
  - Group “Memory” showed invalid value when there were no storage groups
  - After updating to **R118** / **R218** a firmware downgrade to versions below **R118** / **R218** is no longer possible!

- ## R117/R217 (Build 6291) – 12. May 2011

  - Web pages now HTML 4.01 Strict and validated against http://validator.w3.org/
  - R1xx sets “Config-Error” when selecting PROFIBUS redundancy “PNO 2.212 V1.2”, because PNO redundancy is only possible with R2xx

- ## R116/R216 (Build 6266) – 06. May 2011

– Web:
  – Channel-List: Printed tolerance data was garbage when linearisation table was something other than “double”
  – “Clock settings”: Clicking in the world map does not automatically (and possibly unintentionally) save the time zone, the new time zone will only be saved by clicking on the “Save” button
– “Rescuing” the **Message** device by network configuration file on USB

stick now also working for R216
- Several channels had a useless “Persistence” flag
- Solved a crash when closing network connections
- Known issues:
  - R116 has the wrong PROFIBUS GSD file

R115/R215 (Build 6140) – 12. April 2011

- Handling of Hardware-Watchdog improved
- Web:
  - Date/Time of last boot and uptime and type of mass media storage is shown on homepage, sorted status information to the top of the page
  - Main page accordingly showing the device picture with / without FireWire connectors
  - New device pictures
- Known issues:
  - R115 has the wrong PROFIBUS GSD file
  - Changelog R115 is not up to date

R114/214 (Build 6063) – 23. March 2011

- Build-Number is displayed behind the Release-Version
- Firmware update is several seconds faster
- System report is stored in ZIP format to ease reading under Non-Unix-like systems
- Calculation Channels can work with literal constants in the formula, e.g. `var00 * 3.1415` is possible now.
- Known issues:
  - R114 can not store ZIP system reports due to missing “zip”
  - R114/214 can not apply downgrade of the firmware, if a downgrade is necessary, prior an update to at least R115/215 has to be done.
  - Tolerance of storage groups does not work

R113 (Build 5993) – 15. March 2011
R213 (Build 6008) – 15. March 2011

- Web-Channel-List:
  - Data type of interface channels is shown
  - Printed linearisation data was garbage when something other than “double”
- Speed of creating / configuring channels drastically improved (1 s → 20 ms)
- Possible overflow of NTP logfiles solved (R2xx only)
- PROFIBUS Redundancy:
  - Data channels got zero values when status of other COM port changed since R105 / R205
  - Logging of redundancy switchover with reason
  - Timestamp of PROFIBUS Protocol channel now in sync with data channels
- Bugs fixed in Impulse generator and Timer
- Version numbers allowed up to 5 decimals (plus optional random garbage)
- Known issues:
  - Tolerance of storage groups does not work

• R111 (Build 5794) – 03. February 2011
• R211 (Build 5789) – 03. February 2011

- “Memory”-Group shows remaining storage space in megabytes (Not shown in *Konfigurator* < 3.1)
- New: Differentiator and PWM channels
- UDMA for mass storage medium switched off

• R109 (Build 5577) – 03. December 2010
• R209 (Build 5573) – 03. December 2010

- Hardware-Clock is synchronized with system clock after synchronizing with NTP server at boot time and when changing NTP setup. Otherwise the Hardware clock won't never be synchronized when not rebooting the device.
- Solved deadlock issue in storage group (internal watchdog was triggered)
- Known issues:
  - In R109 NTP does not start

R107/R207 (Build 5503) – 29. October 2010

- Updated communication library
- Booting is several seconds faster
- Cleanup of sparse data storage files (files without storage group channel)

R106 (Build 5450) – 04. October 2010
R206 (Build 5452) – 04. October 2010

- Replaced communication library due to random crashes and hangs
- Update time zone table (as of 27. September 2010)
- Storage size of system log files 5 times increased

R205 (Build 5403) – 22. September 2010

- Web: Front page improved (Time, NTP status)
- Storage groups can mark stored data with Trigger-End-Marks
- Web: NTP status has own web page
- PROFIBUS DPV0 was not working up to R204

R202 – 26. July 2010

- PROFIBUS redundancy according PNO 2.212 V1.2

R101/R201 – 14. June 2010

- Configuration files stored with R99 or R100 could not be loaded again
- PROFIBUS and CAN-Bus interface channels have improved channel status values

R100/R200 – 31. May 2010

- New libraries

R99 – 19. May 2010

- Automatic date / time correction of boot loader “over-corrected” the time
- MTU of Ethernet interface is adjustable via web interface
- New boot loader capable to boot new Kernel / File system

R98 – 29. April 2010

- R98 may report it's version as R121
- PROFIBUS was not working in R97
- “Update Firmware” web page shows current firmware

R97 – 28. April 2010

- Configuration files stored with R95 or R96 could not be loaded again
- Corrected wrong linearisation type in XML template of PROFIBUS, CAN and UART Channels
- Web channel table: Channels are shown in spite of parser errors, those are show in the rightmost column
- New version of XML parser

R96 – 18. March 2010

- Solved a firmware updating issue introduced with R90 (23. Nov. 2009): When updating a firmware R95 into a **Message** device with currently running R90 to R94 the updating process may terminate without notice and after rebooting the system the measuring data application won't run.

R95 – 12. March 2010

- Updated PROFIBUS GSD File and bitmaps for use in PROFIBUS configuration software
- Storage Group has now configuration item “Maximum number of files”
- New version of XML parser

- Statistics channel function MAX couldn't find the maximum of values below zero
- Reference Junction Channel (#17) of ADVT 1.0 / 1.1 showing correct values
- “Rescuing” the **Message** device by network configuration file on USB stick working again (not working since R79 – May 2009)

R94 – 07. January 2010

- Flipflop: Analog latch now working
- Prepared Storage Group for maximum number of files

R93 – 18. December 2009

- Web interface “Clock” page:
  - Setting system time
  - Clock set, NTP status and NTP synchronize doesn't show the time zone world map
- Web pages with loading indicator
- Exception when creating a Trigger-Channel solved

R92 – 04. December 2009

- Web channel table:
  - Tolerance is displayed in absolute units or % according configuration
  - Resolved bug of not showing 'Description' and 'Location' (since R91)
- Network settings: DNS2 vanished sometimes

R91 – 01. December 2009

- Exception when creating a Alarm-clock solved

R90 – 23. November 2009

- Update time zone table as of November 2009 (again)

- Support for new IEEE assigned OUI 5C-E2-23
- System Monitor channel can show uptime of system and application
- Default configuration creates a channel group “System Monitor” with CPU load, Memory usage and Uptime

R89 – 10. November 2009

- Main web page: New button “Default configuration” - Erases current channel configuration and creates default configuration
- Broken storage group configuration (missing IDs at trigger sources - created with *Konfigurator* 1.51aβ) will be repaired automatically

R88 – 04. November 2009

- Update time zone table as of November 2009
- Analog outputs, binary outputs and variable channels are settable by PC application (*Konfigurator* > V2.2.3.1)

R87 – 26. October 2009

- Extended changelog down to R68
- I/O modules can blink when showing channels on Konfigurator
- Improved handling of closing TCP sockets

R86 – 21. October 2009

- Main web page reorganized
  - New look
  - new: Changelog accessible from the main page
  - Confirmation prompts for Rebooting and Restarting Server
- Web pages mostly self-explanatory
- DCP: Changing of CAN Bitrate will also change CAN Bitrate of the connected **Message** I/O Modules
- Faster (~5sec) booting
- Initialisation of PROFIBUS controllers improved
- *Limit channel* works with constant source values

R84 – 10. September 2009

- More information in system report
- Calculation channels and variables are no longer dependent on channel order, values are updated also from static channels (=Variables)
- Buffer size for on-line and offline data increased, helps keeping connections established at slow networks

R83 – 03. September 2009

- Update time zone table as of August 2009
- Clock was running in UT1 (solar time) not in UTC (Coordinated Universal Time), thus running 24s behind (due to wrong compilation of time zone tables - leap seconds were missing)

R81 – 30. July 2009

- Web channel table: All columns sortable increasing / decreasing
- Network configuration: Allowed hostnames beginning with a “0”
- More output NTP status
- Faster NTP first synchronizing
- New simplified time zone configuration by interactive world map

R80 – 19. June 2009

- Web channel table: Display of floating point values with customer settings, not fixed 2 fractional digits

R79 – 15. May 2009

- Default time zone is “*Europe/Berlin*” if nothing else is set
- More information in system report

R78 – 27. March 2009

- Umlauts and other special characters are displayed correctly on the web channel list
- Display of the hostname on the web pages
- Saving of configuration and system report in the format "*<hostname>-report-<date>-<time>.tar.gz*"
- Configuration of time zones improved:
  - Update time zone table as of March 2009
  - Display of country and comment after the city
  - Time zones without automatic daylight saving time switchover at the top of the list (Entries GMT-13 ... GMT+13, where GMT+0, GMT-0 and GMT is the same)

R77 – 11. March 2009

- Compatibility to Konfigurator V2.2.x
- New version of XML parser
- Various improvements DCP

R76 – 17. February 2009

- Improvement when reading out triggered storage groups

R75 – 14. January 2009

- Main web page shows current firmware version
- Output of update firmware process improved
- Changed Delphin's address
- More information in system report

R74 – 31. October 2008

- New version of XML parser
- Resolved exception when configuration file for Analog Inputs was faulty
- Main web page shows installed firmware version

R72 – 09. October 2008

- New watchdog process which watches over the server process and vice versa, server process gets restarted if it crashes

R70 – 29. September 2008

- Analog Outputs working
- Flipflop channel working

R68 – 12. September 2008

- Counter channel working
- Impulse generator channel working
- PROFIBUS status “Wire Break” if no connection to Master
- PROFIBUS redundancy working