PEL 102-103 – Release Notes

v1.20/1.25 – 9/15/18

(Version 1.20/1.25) 9/15/18
Modified code to allow the use of a different Memory manufacturer. (Not a required update for older instruments as all new instruments that require this firmware come with it installed)

(Version 1.19/1.25) 5/29/18
Modified DSP code to show V2 measurements on the LCD screen for 3 phase-3 wire Delta systems. (Previous version would show "- - -")

(Version 1.19/1.24) 4/23/18
Added code to prevent the overwriting of the config.dat file (which can happen with earlier code).
Fixes a bug where record data types (1s trend and 1s harmonic trend) can exceed 4GB which results in the file size being reported incorrectly.
Improved the recording start and end time accuracy.
Disabled the SD-Card reset operation as it could cause conflicts in other parts of the code.
Fixed a bug were the logger did not properly handle 4GB file limitation.

(Version 1.18/1.24) 10/8/15
Fixed a bug that would not allow Ultra High Class (SD HC U1) SD cards to be recognized.

(Version 1.17/1.24) 1/28/15
Modified the recording power on delay timer to be 60 seconds.
Modified firmware to save configuration registers when any of them are written to via a Modbus write operation.
Fixed a bug that allowed the instrument to start recording before the DSP was ready. This would result in a gap in the initial recording.
Fixed a bug that prevented the instrument from resuming recording when a recording was started as a "scheduled" recording.

(Version 1.16/1.24) 12/08/14
Modified recordings to start five seconds before the scheduled start time and to end five seconds after the scheduled end time. This is done to allow the capture of all aggregation sample sets within the recording period.
Modified the buffering of "1s" values to have time stamps that are 1 second apart. This helps make sure that two saved data sets do not have the same time stamp. Thus causing one data set to be discarded by the CP.
Fixed a resume recording bug that caused the instrument to not record aggregate values after resuming from a previous power down.
Fixed a bug that resulted in not all of I3 harmonics being read (the last 7 harmonics of I3 were not read for the DSP).
Modified WT11 (Bluetooth module) configuration to allow connections with Bluetooth 4.0 dongles.
Fixed a bug that could prevent writing to ranges of registers when being done via a Bluetooth connection. For practical purposes this bug did not affect any real world operation by users..

(Version 1.14/1.24)
Added support for the new aggregation MAX mode of the DSP.
Added support for the aggregation MAX mode configuration register.
Modified code to delay probe checking for 10 seconds after a configuration register is modified. This provides time for the configuration to be written and not have the probe gains reset during the write process.

(Version 1.13/1.23)
Added new screens to allow for the configuration of the instrument using the instruments buttons. Setting of connection type, primary and secondary voltage ratios, primary CT ratio and aggregation period are now available.
Fixed an issue with the sign of power when in a 3-phase 3-wire delta system
Added monitoring of the saturation of the sample measurements
Fixed an issue with I3 showing a measurement when in 3Phase 4 wire.
Changed to a shorter duration of the enter button to display the phase angles and partial energy
Added a 3 minute delay when in the configuration or information screen before switching to the measurement screen.
Added a variable for the presence of the current sensor.
Changed the algorithm for the calculation of the phase order.
Fixed an issue with a peak value shown on the 1s trend data during a change of the range.
Fixed an issue with the neutral current not being displayed correctly when the gain was changed from low to high. Reference was not being reset when changing the gain.
Fixed an issue with the five second network reset implemented in version 99.90.
Fixed a bug that did not account for a UDP port configuration change and reset the network interface.
Modified firmware to reset the network connection five seconds after a network configuration setting is changed via Modbus. Previous code reset the connection immediately which did not give the configuration dialog enough time to finish.
Modified DSP flash upgrade process to send calibration values to the DSP after the flash upgrade is finished.
Added support for remote lockout of the DSP setup screen. The lockout is on a 10 second timer.

Added code to detect and handle the changing of AmpFlex primary current on the DSP and perform the following
    o   Save range selection in logger configuration.
    o   Update probe/sensor calibration values in the DSP.

Increased the 1s buffer to 40 seconds (up from 30).
Increased the average save limit for 64 samples to 54 seconds (up from 32).
Modified code so that aggregate sample sets will not be recorded before the actual recording start time.
Modified code such that Total Energies are only written at the end of a recording.
Modified code such that minimum measured current is forced to zero for DC distribution systems.
Added a "Recording stopped because SD-Card is full" log event.
Added support for DSP setup screen.
Increased the maximum save time to 28 seconds.
Modified recording of 1s harmonic and 1s trend recording termination to include the save timer count with the event. This provides the time information along with the event indication.
Modified code that sets and gets the save time counter to take into account the possibility that the timer interrupt could occur when setting and/or getting it. Thus it would be invalid.
Modified code to save just one sample at a time. Earlier code could lock up the foreground loop if it took a long time to save sample sets. If it took longer than 60 seconds the watch dog timer could trip and thus reset the system.
Modified the recording code to test for the average save time of 64 sample sets is greater than 32 second and it so terminate recording or 1s harmonics and then 1s trend. Earlier code tested the save time for one pass through the recording routing to be greater than 28 seconds.
Modified network code to be compatible with APIPA. (Default IP Address = 169.254.0.100, Gateway = 169.254.0.1, Subnet mask = 255.255.0.0)

Modified code to not flush 1s trend and 1s harmonic recording files every 60 seconds.
Modified code to update memory used status registers when deleting individual sessions.
Recoded the CodeDateTime() function to resolve errors in calculation of year, month, day, hour, minute and second from the number of seconds since midnight January 1st, 1970. This should resolve the error with monthly energies reset being done on the wrong day.
Changed the default minimum measured current to zero for the following current sensors. 　　o　PAC93 (SR193) 　　o　BNC Adapter (E3N / SL261) 　　o　BNC Adapter (Generic) 　　o　J93 　　o　J193 　　o　MR93

(Version 1.12/1.21)
Modified overload level calculations to correct for a math overflow when the E3N ration is above 2500:1. Also modified the calculations for all others (including voltage channels) to eliminate possible overflow conditions.
Modified firmware to allow the downloading of the 1s trend and 1s harmonics recording files if the recording of them has been suspended.
Fixed a bug in the current overload detection.
Modified code to save the 1s harm and 1s trend suspend state for when the instrument turns on after a ride through power down. This prevents the trend from resuming recorded once it has been suspended (due to SD-Card saturation).
Modified code to reset the maximum save time when recording of 1s harmonics is suspended due to SD-Card saturation. This is done to see what the save time is when recording just aggregate and 1s trend.
Fixed a bug that would not allow a recording to be stopped if the SD-Card is not present.
Modified code to allow an unformatted SD-Card to be formatted even if a recording is pending / scheduled.
Watchdog management.
Change the Low bat LED indication threshold from 7.4 V to 8 V.
Increased the 1s measurement buffer to 10 seconds (up from 5 seconds).
Change the Max Save Time threshold from 2500 ms to 8000 ms (now that we have a 10 s buffer).
To turn ON the instrument, ON/OFF button should be pressed 2 seconds min. When the instrument turns ON with button ON/OFF pressed, turn on all the LEDs until releasing the button. (Requires rev3 hardware)
When the power supply is connected, the instrument cannot be turned off. If the ON/OFF button is pressed for a period of 2 seconds, turn off all the LEDs except the Bat LED which is flashing.
When a recording is in progress, the instrument cannot be turned off. If the ON/OFF button is pressed for a period of 2 seconds, turn off all the LEDs except the REC LED which is flashing.
Decrease the response time for REC and BT LEDs. After a user selection the LED should immediately start indicating that the function has been accepted.
Set overload indication limits for DC current. Uses AC limit times 1.4 and accounts for negative values.
The small spikes in reading shown after start of a scheduled recording should be removed.

(Version 1.11/1.21)

Fixed a bug in the added support for the configuration option to reset/not reset the total and partial energy meters at the start of a recording.
Added support for the configuration option to reset/not reset the total and partial energy meters as the start of a recording.
Added code to first disable recording of harmonics if the time to store a sample set exceeds 2.5 second. The next time the interval to store samples exceed 2.5 seconds storage of 1s trend is displayed. These measurements help prevent buffer overflow and loss of measurement data.

(Version 1.10/1.21)
The small spikes in reading shown after start of a scheduled recording should be removed.
Modified the DSP flash upgrade code to perform a graceful restart of DSP communication. No longer requires a reset of the logger.
Fixed a bug introduced in the previous build that prevented the DHCP connection for being performed.
Added a system up time counter. This counter indicates how many seconds the system/logger has been running since the last power on and/or reset. This counter is set to zero just before the start of the main loop. Thus it indicates how long the main loop has been running.
Added code to inhibit recordings from starting for at least 15 seconds after the start of the main loop.
Optimized Modbus Read Registers response. Improves response time.
Enabled the reset of aggregation values (command 0x622) at the start of recording.
Modified low battery indication to occur at 7.5V
Modified low battery shut down to occur at 7.3V
Enabled writing of all DSP communications to the recording event log.
Added the last aggregation time stamp to the status registers for display in the CP.

(Version 1.0/1.21)
Creation of first release.