



PM8 Firmware Revision History

Summary of Production Releases for PM8

**all versions before 10.000 are not recorded. These versions were developmental.*

Release Version	Date	Reset System	Download System	Operating System	DLF3000 File Name
2.000	09/27/2002	2.000	2.000	2.000	PM8_DL_2_000.FW PM8_OS_2_000.FW
5.000	01/30/2003	5.000	5.000	5.000	PM8_DL_5_000.FW PM8_OS_5_000.FW
10.000	04/22/2003	10.000	10.000	10.000	PM8_DL_10_000.FW PM8_OS_10_000.FW
10.010	05/06/2003	10.000	10.000	10.010	PM8_DL_10_000.FW PM8_OS_10_010.FW
10.020	05/20/2003	10.000	10.000	10.020	PM8_DL_10_000.FW PM8_OS_10_020.FW
10.030	05/28/2003	10.000	10.000	10.030	PM8_DL_10_000.FW PM8_OS_10_030.FW
10.040	06/05/2003	10.000	10.000	10.040	PM8_DL_10_000.FW PM8_OS_10_040.FW
10.050	06/16/2003	10.000	10.000	10.050	PM8_DL_10_000.FW PM8_OS_10_050.FW
10.060	07/16/2003	10.000	10.000	10.060	PM8_DL_10_000.FW PM8_OS_10_060.FW
10.070	08/08/2003	10.000	10.000	10.070	PM8_DL_10_000.FW PM8_OS_10_070.FW
10.080	09/12/03	10.000	10.000	10.080	PM8_DL_10_000.FW PM8_OS_10_080.FW
10.200	11/17/03	10.000	10.000	10.200	PM8_DL_10_000.FW PM8_OS_10_200.FW
10.210	11/21/03	10.000	10.000	10.210	PM8_DL_10_000.FW PM8_OS_10_210.FW
10.220	12/16/03	10.000	10.000	10.220	PM8_DL_10_000.FW PM8_OS_10_220.FW
10.300	06/ 07/04	10.000	10.300	10.300	PM8_DL_10_300.FW PM8_OS_10_300FW
10.310	07/ 07/04	10.000	10.300	10.310	PM8_OS_10_310.FW



10.400	11/23/04	10.000 ----- -----	----- 10.400 ----- -----	----- ----- 10.400	PM8_DL_10_400.FW PM8_OS_10_400FW
10.410	1/15/05	10.000 ----- -----	----- 10.410 ----- -----	----- ----- 10.410	PM8_DL_10_400.FW PM8_OS_10_410FW
10.430	6/17/05	10.000 ----- -----	----- 10.410 ----- -----	----- ----- 10.430	PM8_DL_10_410.FW PM8_OS_10_430FW
10.520	3/31/06	10.000 ----- -----	----- 10.510 ----- -----	----- ----- 10.520	PM8_DL_10_510.FW PM8_OS_10_520FW
10.530	4/24/06	10.000 ----- -----	----- 10.510 ----- -----	----- ----- 10.530	PM8_DL_10_510.FW PM8_OS_10_530FW
10.600	4/25/07	10.600 ----- -----	----- 10.600 ----- -----	----- ----- 10.600	PM8_DL_10_600.FW PM8_OS_10_600FW
10.820/10.830	12/26/07	10.600 ----- -----	----- 10.700 ----- -----	----- ----- 10.820	PM8_DL_10_700.FW PM8_OS_10_820FW
11.4xx	03/31/08	10.600 ----- -----	----- 10.700 ----- -----	----- ----- 11.400	PM8_DL_10_700.FW PM8_OS_11_400FW
11.5xx	07/15/08	10.600 ----- -----	----- 10.700 ----- -----	----- ----- 11.500	PM8_DL_10_700.FW PM8_OS_11_500FW
11.6xx	08/25/08	10.700 ----- -----	----- 10.700 ----- -----	----- ----- 11.600	PM8_RS_10_700.FW PM8_DL_10_700.FW PM8_OS_11_600FW
11.7xx	10/14/09	10.700 ----- -----	----- 10.700 ----- -----	----- ----- 11.700	PM8_RS_10_700.FW PM8_DL_10_700.FW PM8_OS_11_700FW
11.8xx	04/27/10	10.700 ----- -----	----- 10.700 ----- -----	----- ----- 11.800	PM8_RS_10_700.FW PM8_DL_10_700.FW PM8_OS_11_800FW
11.9xx	03/24/11	10.700 ----- -----	----- 10.700 ----- -----	----- ----- 11.900	PM8_RS_10_700.FW PM8_DL_10_700.FW PM8_OS_11_900FW
12.0xx	06/06/11	10.700 ----- -----	----- 10.700 ----- -----	----- ----- 12.000	PM8_RS_10_700.FW PM8_DL_10_700.FW PM8_OS_12_000FW
12.2xx	07/22/11	10.700 ----- -----	----- 10.700 ----- -----	----- ----- 12.200	PM8_RS_10_700.FW PM8_DL_10_700.FW PM8_OS_12_200FW
12.5xx	4/22/14	10.700 ----- -----	----- 10.700 ----- -----	----- ----- 12.500	PM8_RS_10_700.FW PM8_DL_10_700.FW PM8_OS_12_500FW
12.7xx	2/3/17	10.700 ----- -----	----- 10.700 ----- -----	----- ----- 12.700	PM8_RS_10_700.FW PM8_DL_10_700.FW PM8_OS_12_700.FW



Version Number	Description of Changes
10.030	Corrected the error where the Manufacturing data register count was set to the CRC value by mistake.
10.040	Corrected a communications error in which the meter would reset when host communications to another meter on the wire had extremely fast turnaround time and the host was sending the next request extremely fast. This error was identified during ModBus Certification testing after version 10.030 was released
10.050	Corrected Modbus Driver to correct for communications system becoming non-responsive when a 'break' is received
10.060	Corrected neutral to ground scaling error encountered when meter is installed in a floating system.
10.070	Corrected error which inhibited the JBUS communications
10.080	This release corrects the following firmware error: When using system type 30 or 31 with PTs in code with firmware versions 10.070 and below, incorrect voltage readings were reported (direct connect works correctly). Vca was reported correctly but the voltage reported for the other two phases would be high. This was due to an error in the voltage calculations for three-wire systems with PTs. Firmware version 10.080 corrects this problem.
10.200	- Added Auxiliary I/O Support - Enabled Local Discrete Input Pulse Metering - Added Active Load Timer (Operation Timer) - Added Power-Fail elapsed time recording - Added MODBUS ASCII protocol - Added Analog Input Alarms - Added six voltage THD Alarms - Added Display Kiosk - Added Display Bar-graph support - New setup menu structure - Added Real Energy In/Out Screen - Added Reactive Energy In/Out Screen - Added H1 Harmonics Screen - Added functionality to key press routine. If the display is idle (backlight off) the first button press will turn on the backlight but will not advance the display. - Changed functionality of "OK" menu selection so that if pressed on the last editable line of a screen it will perform a "Menu UP" - Removed RTC Error Enunciation of PM810 - Added the ability to inhibit the automatic saving of Present Min\Max values to Previous Min/Max values. (Default setting for PM810). - Added Demonstration Meter Test Mode Support
10.210	Corrected false continuous reset error in PM810
10.220	- Modified firmware to enable the discrete input (S1) to ride through a soft reset without changing state. - Corrected firmware to report the correct status of outputs at start-up. - Added firmware to initialize the reference register number for analog outputs to 1100 during analog default initialization. - Range select for analog inputs and outputs is now set during a default I/O card initialization. - Changed Output code such that, when an output is in timed mode and has been energized by a command, and if a new command to energize the relay is issued before the timer expires, the timer is reset.
10.300	New Features: - EN50160 - Trending and Forecasting - Alarm Summary - Clock screen - PM810 support for logging module - Support German language Bug fixes: - Losing previous month in Min/Max system - Frequency showing incorrect decimal point in 400Hz system thru display - Summary screen showing incorrect energy suffix - Allow JBUS address above 247 to be setup thru display - Fix resets due to invalid bar graph range
10.310	Bug fixes: Possible meter resets due to high rate of logging, increased meter watchdog and improved file throughput
10.400	New Features: - Remote communications port (Comm2) - Single Phase system types - Energy per Shift (Energy screens menu order changed. Menu now list "Wh, VAh, VARh, INC"; Previously it was, "Wh, VARh, VAh"



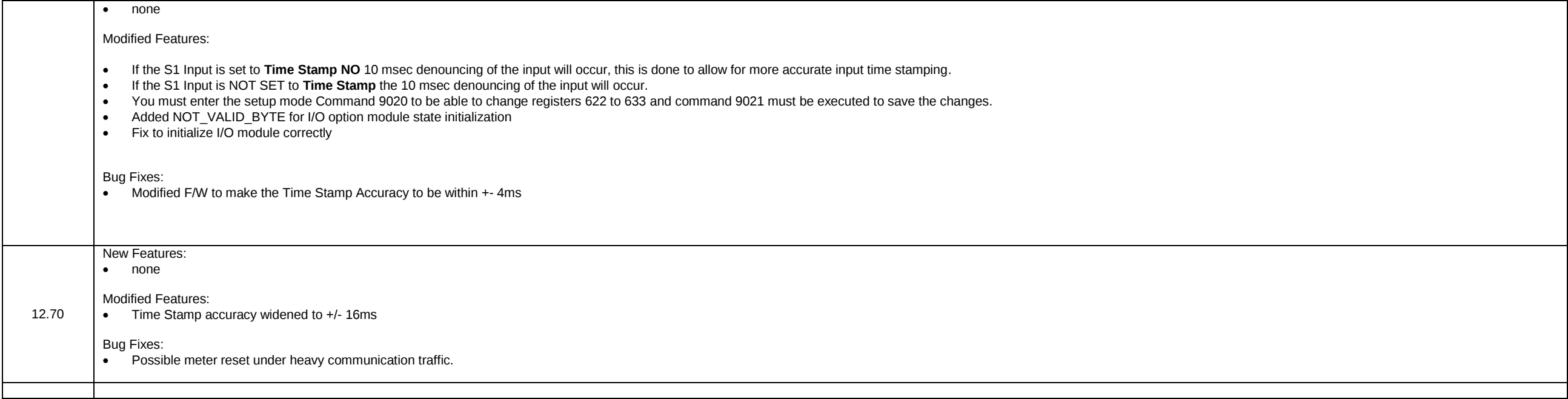
	Bug fixes: • Fix alarm icon illuminating during “No priority” alarm • Fix display showing 400 Hz (previously showed 40.0 Hz). • Fix setup D/T via display.
10.410	Bug fixes: • Energy registers are erased after a reset of a PM810 • Possible erroneous values in the energy registers for the PM810.
10.430	New Features: • Support of Varitronix display necessary due to display vendor change.
10.520	New Features: • Russian language support • File Based Datalog 4 (PM850 & PM870, Not supported by SMS SU2) • Additional Min/Max Quantities (Vn-g, In) • Configurable Billing Log • Input Metering • Energy Per Shift Support for PM810 w/ Logging Module • Additional Standard Alarms (Over kW Total, Over kVA Total) • Floating Point Metering Registers • Disturbance Alarms (PM870) • WFC Capability up to 185 Cycles (PM870) • Single Phase PT configuration Modified Features: • Changed the duration of the timeout of a setup session from 2 minutes to 4 minutes • Change Self Test register 3050 to not latch bit when Meter Overrun occurs • Added code to allow user to configure sensitivity tolerance of frequency fluctuations (Frequency Sync Error Limit (reg 3237)) • Meter Init command redefined (command 10030); (Removed alarm disabling) • Set Factory Default command redefined (command 1130); (Removed setup of End of Incremental Energy Alarm, Changed Pwr Up Reset Alarm default priority from 0 to 3 • Change priority 0 alarms to not be logged into the alarm log. Bug Fixes: • Meter reset issue attributed to A2D lock up (China Windmill, Rhode Island Hospital, University of New Mexico) • Correct bug in Demand calculation • Correct bug in command 7110 & 7511 • Correct Single Phase System CT/PT display screens • Corrected a bug where a digital alarm that picks up on an On-to-Off transition does not work when it is associated with a digital I/O point that is on slot B. • Correct display “freeze” issue (SE Asia – Bruce Ford) that occurs when a user selects a different Energy Display Precision value (reg 3215) than the default and the accumulated energy value is large enough to overflow which causes the first two lines of the display to freeze. • EN50160 corrections
10.530	New Features: • None Modified Features: • None Bug Fixes: • Correct bug where a meter with an RDA attached will lock and hold metering values if a user switches between 232/485 mode via the button on the RDA • Corrected EN50160 Active Evaluation register (3910) where bit 5 was not set. The only impact is on SMS.
10.600	New Features: • Support for ECC Ethernet module with email on alarm • Support for system types 32 and 44 Modified Features: • Modify frequency measurement to follow standard 61557-12 Bug Fixes: • Adjust voltage dead band to prevent false voltage readings when no voltage is present
10.820	New Features: • Support for GPS Time Sync. Digital Input • Support for disturbances less than 1sec in EN50160 Evaluation Summary • Added Register Based Voltage Disturbance Event Log • Support for ITI(CBEMA)/SEMI F47 Evaluation Summary and Quick Alarm configuration ◦ Consolidated with EN50160 quick alarms to create PQADV alarms for both EN50160 and ITIC/SEMI • Support for Ig (ground current) in place of In for system type 31 – addition of ground fault current alarm



	• Additional calibration points added to improve meter accuracy • Support for a fixed pulse KY output configurable for a fixed pulse of 10, 25, 50, 100, 150, 300, 500, or 1000 ms ◦ Selection between transition mode or the new pulse mode in universal for all KY outputs on the device • Support for Turkish language in place of Russian – secondary FW build even FW version (10.820) is standard, odd FW version (10.830) is Turkish build • Added current demand configuration screen in addition to the power demand configuration Modified Features: • Support for a fixed pulse KY output configurable for a fixed pulse of 10, 25, 50, 100, 150, 300, 500, or 1000 ms ◦ Selection between transition mode or the new pulse mode in universal for all KY outputs on the device • Allowed support of output energy pulses for electromechanical relays that was previously limited to only solid-state relays • Bug Fixes: • Incorrect power factor for system type 44 at 400Hz (QCID 228) • Registers 8027/8028 periodically written with 255/256 values (QCID 251) • Demand forgiveness not functional for system types 10 and 40 (QCID 20) • Energy Per Shift bounds checking (QCID 14) • Active alarm log not correct after soft reset (QCID 81) • Duplicate IP for ECC not checked when using back-up arrow from IP Address setup screen allowing invalid IP to be entered (QCID 234) • Operating Timer not reset when a “Meter Init” is executed (QCID 227) • Configuration of power bargraph max being limited and not able to setup correctly (QCID 82) • Masking of floating point register per system types (QCID 223) • French, Spanish, German, and Russian translation errors • Trending and Forecasting values invalid with custom setup (QCID 252) • 1st octet of IP Address in setup would not accept values less than 16 in display setup (QCID 298) • Register list updates and corrections
11.400	New Features: • Siemens Branding Support • Support for Portuguese language in place of Russian – tertiary FW build, version number will follow following format: ◦ 11.400 – Standard build with Russian ◦ 11.410 – Turkish build in place of Russian ◦ 11.420 – Portuguese build in place of Russian Modified Features: • none Bug Fixes: • Not able to do Alarm Association correctly in IO setup (QCID 320) • Summary 3-Phase screen shows Kh instead of KWh (QCID 325)
11.500	New Features: • None Modified Features: • none Bug Fixes: • Power Scale Factor auto adjusted incorrectly in direct connect (no PT) configuration (QCID 327)
11.600	New Features: • Created register 3216 to turn on/off power factor deadband • Added in IEC Power Factor registers (1190-1197) to include a load direction bit (capacitive or inductive) for power factor (bit 14) • Added register 634 for ECC Frame Type. Modified Features: • none Bug Fixes: • Fix for ADC12048 initialization on RoHS boards • Fixed limit bounding of trending register 5320/5321 • Fix for Incorrect range on bargraph for autoscaling current
11.700	New Features: • Created command 32600 to initiate a test on NVRAM memory • Added in NVRAM test status registers (3091-3092)



	- Implemented bit 14 of Diagnostic Error Bitmap register 3050 for NVRAM failure. Modified Features: - none Bug Fixes: - none
11.800	New Features: - none Modified Features: - none Bug Fixes: - Fix for RTC if RTC data is out of range (year greater than 2100) then default to 1/1/2000. - Fix for files missing or duplicating log entries.
11.900	New Features: - Created registers 3164 (voltage deadband), 3165 (current deadband) and 3166 (power factor deadband) to turn on/off deadbands if desired. (P8am.H, PA_REGS.C, PA.H, PM_INIT.C) - Added duplicate floating point registers (2600-2607) for use by SCADA customer in Hong Kong. (PM_POINT.C) - Added support for Macronix and Spansion GL series flash memory. (PA.H, PA_FLASH.C, PA_SETUP.C, PF_FLASH.C, PF_MAIN.C) Modified Features: - none Bug Fixes: - Fix for IEC Power Factor registers (1190-1200) to show sign bit (bit 15) as IEC sign in all cases whether sign convention is set to IEC or IEEE. (PM_POINT.C) - Change power factor deadband switch from register 3216 to 3166 to be consistent with CM3/4 implementation. (P8am.H, PA_REGS.C, PA.H, PM.H) - Fix to use appropriate scale factor when displaying THD active alarms. (PD_FORMAT.C) - Change setting of complete flag to resolve race condition. (PF_MAIN.C, PC_modbs.c, PI_MAIN.C) - Added 100ms time tick to check data log anniversary every 100ms instead of 1 second and added support for new file system complete flag methods. (PF.H, PF_MAIN.C) - Fixed error in clearing trending registers. (PT_MAIN.C) - Fix for WFC in 3-wire system types. (PW_PROC.C) - Fix for external control of digital output not functional with override on with internal control (PX_DO.C)
12.000	New Features: - none Modified Features: - none Bug Fixes: - Fix for unit displayed in Alarm History on display for In and Ig alarms. - Fix for In min/max value that was broken when Ig was added. - Fix for saving EN50160, alarm summary, and trending & forecasting to NV memory
12.200	New Features: - none Modified Features: - Synchronized logging of data in data/billing logs (timed interval based on system clock) with completion of 1 second metering updates (based on end of "metercycle" / system frequency). Implemented to avoid data inconsistencies in logs when logging interval based values such as incremental energy. - Added utilization of "pickup delay" and "dropout delay" parameter for the Phase Reversal alarm. - Record incremental energy value in present incremental energy data registers at the end of incremental energy interval before accumulator is reset for next interval so 0 values is not recorded at the end of interval. Bug Fixes: - Modification to display blank units for appropriate alarms on the front display "Alarm History" and "Active Alarm" screen. - Corrected implementation of evaluating start/stop times for data log evaluation - Correct French translation of "D IN" and "D OUT" from "ENT I" and "SOR I" to "ENT L" and "SOR L"
12.50	New Features:



Firmware version numbering system:

- ☐ first 3 digits are feature release number
- ☐ 4th digit is language number
- ☐ last digit is working version number for factory use only