Product Information Bulletin

PIB: **CS2013-079 rev B**

Date: **10/31/2013**

Products affected:

MC012-xxx, MC024-xxx, MC050-xxx, IOX012-010, OX012-010, IOX012-020, OX024-010 Controllers and Expansion Modules

Subject:

PLUS+1™ MC Controllers and Expansion Modules Mid-Life Upgrade

Component	**Final Assembly**
Modified	There is a need for a midlife upgrade of the existing PLUS+1™ standard controller and expansion module family. It will provide new features and benefits. The controllers and expansion modules will be fully backward compatible both on hardware as well as software for ease of transition existing customer applications to the new controller platform. This does still require that customers re-compile their application and do a full validation/testing of their application. It will also address components at risk of obsolescence. The existing MC controllers will remain in production for some years so customers can convert at their convenience. As volumes drop off of the existing MC controllers, they will go into a "Legacy" status. The high temperature controller (MCO12-026/029), 38, 88, and 90 pin controllers and IX modules are not included in this project. New features and benefits: - ARM 32 bit Cortex-M3 running at 120 MHz - Standard 12 and 24 pin Controllers will have four times as much (512K) internal Flash Memory - 50 pin Controllers will have twice as much (512K) internal flash memory as the current PLUS+1™ models - MC0xx-xx8 Extended Memory Controllers will all have 1024K of internal Flash Memory - FRAM for non-volatile memory to increase the number of read/write cycles - Increase the amount of non-volatile memory 87.5% - Each output's PWM frequency is individually controlled Minimum requirement GUIDE v6.0.8 Note: There will be two HWD files for each controller. One will be used to simply recompile your existing application and be able to download to the new controllers. The other will be used for new projects, or to take advantage of the new features. Detailed instructions for re-compiling your projects will be made available on our Website when the HWD files get released.
Date of Introduction	The controllers will be released in five waves. The first wave was released on August 8th MC050-110, MC050-112, MC050-120, MC050-122 The second wave was released on September 24th MC024-120, MC024-122, OX024-110 The third wave was released on October 4th: MC012-110, MC012-112, OX012-110

	The fourth wave will be released on January 15th 2014: MC024-110, MC024-112, MC024-118, MC050-118, MC050-128, IOX24-120, IOX12-110 The fifth (last wave) wave will be released on February 17th 2014: MC050-155, MC050-15B,

Customer Action	• **For customers who write their own software that is loaded by Danfoss**
	  ▪ **After the release of the new hardware purchase a generic unit for qualification testing and then send the tested/validated LHX for a new part number to be released. We will also need new labeling information from the customer.**
	  ▪ **Contact your account manager to start this process**
	
	• **For customers who write their own software and load it themselves**
	  ▪ **After the release of the new hardware purchase a generic unit for qualification testing**
	  ▪ **Recompile software, test and validate the application before switching to the new part number**
	
	• **For customers using software written by Danfoss**
	  ▪ **After the release of the new hardware inform us of readiness to start your qualification testing/validation process and our Application team will update the application. A new part number will be released so they can be ordered for qualification testing. We will also need new labeling information from the customer.**
	  ▪ **Contact your account manager to start this process**
	
	▪ **Note: All of the expansion modules will only be released with legacy firmware. With that note you only need to set up the addressing mode just like your current model.**
	
	• **Note: There will be no charge for the release or for our work to convert their application to run on the new hardware using the legacy HWD file only.**
	
	• **Note: Orders cannot be taken for devices that are not currently released (wave four and five). Please wait until the release dates to place your orders for those models.**
	
	• **Note: New proprietary numbers will be assigned with submission of the application software compiled on new HWD utilizing the inquiry tracker at no additional fee.**
	
	This also applies for keyed proprietary part numbers for distributors.

Note on the New HWD files:
lg = One that supports old symbols to enable older applications to be recompiled without changes.

nl = One that is used to unleash the full potential of the new hardware that supports new symbols, naming conventions etc. and will be the base for future development.

Old – Was	New – will be
MC012-010 (10103773) → (HWD 10103714v190) →	**MC012-110 (11130915) (lg-HWD 70096620v100) (nl-HWD 70097324v100)**
MC012-012 (11013721) → (HWD 10103714v190) →	**MC012-112 (11130916) (lg-HWD 70096620v100) (nl-HWD 70097324v100)**
MC024-010 (10100899) → (HWD 10101528v240) →	**MC024-110 (11130919) (lg-HWD 70097968v100) (nl-HWD 70089383v100)**
MC024-011 (11043192) → (HWD 10108137v130) →	**MC024-110 (11130919) (lg-HWD 70097968v100) (nl-HWD 70089383v100)**
MC024-012 (11013732) → (HWD 10101528v240) →	**MC024-112 (11130920) (lg-HWD 70097968v100) (nl-HWD 70089383v100)**
MC024-014 (11054442) → (HWD 10108137v130) →	**MC024-112 (11130920) (lg-HWD 70097968v100) (nl-HWD 70089383v100)**
MC024-018 (11106664) → (HWD 70069041v110) →	**MC024-118 (11130921) (lg-HWD 70097972v100) (nl-HWD 70097977v100)**
MC024-020 (10100993) → (HWD 10102117v200) →	**MC024-120 (11131280) (lg-HWD 70093602v100) (nl-HWD 70089374v100)**
MC024-021 (11014048) → (HWD 10106608v210) →	**MC024-120 (11131280) (lg-HWD 70093602v100) (nl-HWD 70089374v100)**
MC024-022 (11013733) → (HWD 10102117v200) →	**MC024-122 (11131281) (lg-HWD 70093602v100) (nl-HWD 70089374v100)**
MC024-024 (11026049) → (HWD 10106608v210) →	**MC024-122 (11131281) (lg-HWD 70093602v100) (nl-HWD 70089374v100)**
MC050-010 (10100900) → (HWD 10101674v260) →	**MC050-110 (11130954) (lg-HWD 70091045v100) (nl-HWD 70089372v100)**

MC050-012 (11013734) → (HWD 10101674v260) →	MC050-112 (11130955) (lg-HWD 70091045v100) (nl-HWD 70089372v100)
MC050-018 (11106656) → (HWD 70069039v110) →	MC050-118 (11130960) (lg-HWD 70097970v100) (nl-HWD 70097975v100.)
MC050-020 (10100994) → (HWD 10102569v230) →	MC050-120 (11130956) (lg-HWD 70091050v100) (nl-HWD 70089383v100)
MC050-022 (11013735) → (HWD 10102569v230) →	MC050-122 (11130957) (lg-HWD 70091050v100) (nl-HWD 70089383v100))
MC050-028 (11106666) → (HWD 70069040v110) →	MC050-128 (11130961) (lg-HWD 70097971v100) (nl-HWD 70097976)
MC050-055 (11051617) → (HWD 70022427v150) →	MC050-155 (11130958) (lg-HWD 70097969v100) (nl-HWD 70097974v100)
MC050-05B (11071900) → (HWD 70022427v150) →	MC050-15B (11130959) (lg-HWD 70097969v100) (nl-HWD 70097974v100)
IOX012-010 (10100997) → (HWD 10104940v210) →	IOX012-110 (11130917) (lg-HWD 70100883v100)
OX012-010 (10100996) → (HWD 10104547v210) →	OX012-110 (11130918) (lg-HWD 70100884v100)
IOX024-020 (11062251) → (HWD 70026968v110) →	IOX024-120 (11130952) (lg-HWD 70100885v100)
OX024-010 (10100999) → (HWD 10104651v210) →	OX024-110 (11130953) (lg-HWD 70100886v100)

For questions or concerns, please contact your local Danfoss representative.

All Failure Mode Effects Analysis (FMEA's) and Control Plans affected by this change have been updated. Dimensional (ISIR), Capability (as required), and Measurement studies have been completed with prototypes and will have been verified with production tooling & processes before executing the change.

Copies of the quality documentation supporting this change are available for review at Danfoss.