

## COSinus 1.22.61 Release Note

This document describes important notes for the COSinus FW version.

The COSinus FW is available for the following systems:

- PCD1.Mxxx0
- PCD2.M5xx0
- PCD3.Mxxx0
- PCD3.Mxx60
- PCD7.D4xxxT5F

### **1 Important for FW update:**

Usually by FW update the application program, the Texts/DBs and the media (Flags, Registers, Timers/Counters) remains unchanged.

However:



Updating to FW 1.22.xx from a version 1.16.xx deletes the data on SRAM.

⇒ PCD2.M5xx0 & PCD3.Mxxx0 (without PCD3.Mxx60):

The program, the media and all Texts/DBs are deleted. The program and the Texts/DBs will be restored from the “program backup” if present.

⇒ PCD1.M0xx0, PCD1.M2xx0 & PCD3.Mxx60:

The application program is not deleted whereas the media are cleared and the RAM Texts/DBs are restored from the “program file” or the “program backup”.

On PCD3.Mxx60 the INTFLASH size has been increased to 128MB. Therefore the File System on the INTFLASH will be reformatted and all files stored on this device will be lost.

Update to this FW from a version  $\leq 1.14.xx$  deletes the user program, the media and the onboard file system is formatted, all data on the flash (file system, backup program & DB's) are deleted.

If a program backup on an external device exists it will be restored!

## 2 Compatibility of COSinus with the PCD types

This COSinus firmware 1.22.xx requires a PCD equipped with 4 MB onboard.  
 To use the S-Monitoring function and LonFT10 a PCD with 32MB DRAM is required.  
 Therefore the minimal hardware versions for installing this firmware are:

The table hereafter presents the corresponding COSinus FW for the different PCD types as the required minimal HW revision

### COSinus compatibility with PCD types and HW revision

PCD System	Hardware revision	COSinus FW
PCD1.M0xx0, PCD1.M2xx0	*	PCD1.M2xx0_1.22.xx.blk
PCD1.M2110R1	Version \$A	
PCD2.M5xx0	Version A	PCD2.M5xx0_1.22.xx.blk
PCD3.M2x30 (WAC and Compact)	Version A	PCD3.Mxxx0_1.22.xx.blk
PCD3.M3020, PCD3.M3120	** Version E modification 48	
PCD3.M3230, PCD3.M5440,	** Version D modification 28	
PCD3.M3330, PCD3.M5340, PCD3.M5540, PCD3.M6xx0	** Version D	
PCD3.Mxx60	Version A	PCD3.Mxx60_1.22.xx.blk
PCD7.D4xxxxT5F	Version A	PCD7.D4xxxT5F_Prog_1.22.xx .blk

Note: \* On PCD1 (except PCD1.M2110R1) hardware revision F is required to use the S-Monitoring function and LON FT-10.

\*\* For the PCD3 systems older than listed the firmware 1.10.xx is the last firmware which can be installed.

### **3 New Features for COSinus 1.22.44**

PCD7.R610 module are supported

### **4 New Features for COSinus 1.22.25**

PCD2.G200 Module enhanced Configuration

### **5 New Features for COSinus 1.22.14**

- Support new Analog Input Module W380

### **6 New Features for COSinus 1.22.11**

- PCD2.G200 for PCD1.Mxxx0 & PCD2.M5xx0

### **7 New Features for COSinus 1.22.08**

This new firmware version of PCD Classic, identified as COSinus, contains a mix of new features as well as enhancements of existing functionality. It was also extended to support several new CPUs as well as communication and memory modules.

#### **7.1 Main new Features / Extensions**

- IP filtering
- Dynamic password for FTP (service key)
- FTP Passive mode
- SF to convert time std<->unix time
- SFs for AES128 encryption/decryption
- Mapping of the PCD3.Mxx60 Interrupt Inputs

#### **7.2 Improvements**

- FW download history entry
- MODBUS serial on F2xx module and intercharacter timeout as parameter
- S-Bus Driver on F2xx module

## **8 Features or restrictions specifications**

### **8.1 General for all Systems**

- Not usable with PG3 & PG4
- Register extension: Up to 16383 Registers with PG5 V \$1.3.010 or newer.
- FBox library: The Fbox of the analogue modules W1, W2 & W5 only working from PG5 V \$1.3.010 or newer.
- The FW can be updated with the Firmware Download Tool (FWdnld.exe) located in the PG5 directory.
- There is no CPLD programming.
- Default PGU mode is S-BUS parity
- New Configuration with PG5 2.0 for: **1.14.00**
  - FTP /File system
  - New web-server / HTTP direct
  - TCPIP/ enhancements:
    - DHCP/DNS
    - SNTP
    - PPP
    - SNMP
  - Bluetooth
- Program Backup as backup File **1.16.22**
  - "old" backup file "\*. sbackup " (PCD2.M5,PCD3) **1.10.00**
  - backup file ".SBAK" **1.16.22**
  - Configuration Backup to backup File (only for ".SBAK" file) **1.16.22**
  - Media Backup to backup File (only for ".SBAK" file) **1.16.22**
  - Introduce "first time init data" in the restore process **1.20.25**
  - SPRG (PG5)file can be restored to the PCD (include First time init data) **1.20.25**
- Clear Mapped Media **1.16.42**

#### **8.1.1 PCD1.Mxxx0 & PCD3.Mxx60:**

- The user program is stored in the internal SD-Card memory.
- The Configuration is stored in the internal SD-Card memory.
- To use the PCD1.Mxxx0 & PCD3.Mxx60 a PG5 2.0 SP2 or newer is required.
- Mapping of the PCD3.Mxx60 Interrupt Inputs **1.22.08**

## **8.2 Not implemented features**

- Mode MM4
- LAN2:
- Mode D
  - S-Bus-RIO as master.
- PROFIBUS FMS
- LON
- Program backup to PCD7.R500 (PCD1 & PCD3+)


### 8.3 Memory

- User memory PCD1.M2xx0

System	HW Revision	User memory		Onboard File System
		Code/Text (ROM)	DB (RAM)	
M2110R1	-	256 kbytes	128 kbytes	8 Mbytes
M2020 M2120	-	512 kbytes	128 kbytes	8 Mbytes
M0160 M2160	-	1024 kbytes	512 kbytes	128 Mbytes

- User memory PCD2.M5xx0


System	HW Revision	User memory Code/Text/DB (RAM)	Default Memory configuration	Onboard File System
M5440 M5540	HW >=D	1024 Kbytes	96k prg lines, 128k txt, 384k ext.	-



Note: At first memory configuration the FW makes an allocation with the maximum space available depending on the RAM/EPROM/FLASH chip.

- User memory PCD3.Mxxx0

System	HW Revision	User memory Code/Text/DB (RAM)	Default Memory configuration	Onboard File System
M2030 M2130 M2230 M2330	-	512 Kbytes	48k prg lines, 64k txt, 256k ext.	1MBytes
M3020 M3120	HW >=E Mod 48	256 Kbytes	12k prg lines, 16k txt, 64k ext.	-
M3230 M3330	HW >=D	512 Kbytes	48k prg lines, 64k txt, 256k ext.	-
M5240 M5340 M5440 M5540 M6340 M6540	HW >=D	1024 Kbytes	96k prg lines, 128k txt, 384k ext.	-



Note: At first memory configuration the FW makes an allocation with the maximum space available depending on the RAM/EPROM/FLASH chip.

- User memory PCD3.Mxx60

System	HW Revision	User memory		Onboard File System
		Code/Text (ROM)	Ext. (RAM)	
M5560 M6360 M6560 M6860	-	2 Mbytes	1 Mbytes	16 Mbytes

- EEPROM:
  - The S-Bus configuration is automatically saved in the EEPROM, this means that even if the battery or super cap becomes discharged the S-Bus configuration will be safe.
  - There are 50 non-volatile user registers.
- Media:
  - Up to 16383 Registers 1.06.16
  - Up to 16383 Flags 1.20.25
- DB backup (SYSWR 3xxx):
  - Fix size for onboard flash 256kB 1.16.24

## 8.4 Instructions

Please refer to the following list which indicates the first firmware version used in production supporting the relevant feature.

- SYSWR 900x or SYSWR 300x
- Peripheral instructions 1.08.23
- PB, FB Temporary Data 1.10.16
- 2000 FB's, 1000 PB's, 32 COB's 1.10.16
- FB call depth of 31. 1.08.23
- IEEE floating point instruction for single and double 1.10.16
- Signed extension instruction EXTB, EXTW 1.10.16
- System Functions SF
  - SF for text 1.10.16
  - SF read DB/Text length 1.20.25
  - SF for CRC Calculation 1.20.25
  - SF to convert time std<->unix time 1.22.08
  - SFs for AES128 encryption/decryption 1.22.08
- SYSRD 71xx (UTC Time) 1.20.25
- Interpret Text
  - New \$Innnn and @Innnn encoding for interpreted Texts Containing Data 1.20.25
  - DB for interpreted Texts Containing Data(\$bxxxx.yyyyy) 1.20.25



## 8.5 Communication

- Serial port on PCD1.Mxxx0
  - The port 0 is for RS485
  - The port 1 has a full RS 232 if it is equipped with F121
- Serial port on PCD2.M5xx0
  - The port 0 has RS 232/RS485 switch
  - The port 0 has a full RS 232 (a modem can be equipped)
  - The port 1 has a full RS 232 if it is equipped with F121
  - The port 2 has a full RS 232 if it is equipped with F121
  - The port 3 is for RS485 or Profi-S-Net as port 10
- Serial port on PCD3.Mxxx0 & PCD3.Mxx60
  - The port 0 has a full RS 232 (a modem can be equipped)
  - The port 1 has a full RS 232 if it is equipped with F121
  - The port 2 is for RS485 & Profi-S-Net (M3xx0 & M6xx0)
  - The port 3 is for RS485 or Profi-S-Net as port 10 (M5xx0)
- New Serial port with PCD3.F2xx
  - Port 100 & 101 on Slot 0
  - Port 110 & 111 on Slot 1
  - Port 120 & 121 on Slot 2 (not on PCD1.Mxxx0)
  - Port 130 & 131 on Slot 3 (not on PCD1.Mxxx0)
  - SBus Driver on F2xx module **1.22.00**
- Serial communication:
  - Baudrates up to 115k Baud
  - No Baudrates < 1200 on all port
- S-Bus:
  - Baudrates up to 115k Baud
  - CSF for Send/Recv.
  - No break modes as master and slave.
  - No parity modes as master (SM1) on port 0 & 1. (PCD1.Mxxx0)
  - No parity modes as master (SM1) on port 2 & 3. (PCD2.Mxxx0)
  - No parity modes as master (SM1) on port 0 & 3. (PCD3.Mxxx0)
- Modem:
  - Auto answer modem on port 0 and 1 (analog & ISDN)
- PROFIBUS DP:
  - Transfer of signed values possible, with PG5 SP1.4.120 or newer **030**
  - Master mode on Port 10 with PCD3.M64x0 / PCD3.M65x0 **020**
  - Slave mode with MPI/S-Net port 10. **010**
  - Slave mode with MPI/S-Net port 2 (with maximal baudrate = 187.5Kb). **010**
- Profi-S-IO:
  - Transfer of signed values possible, with PG5 SP1.4.120 or newer **030**
  - Master / Slave mode with MPI/S-Net port 10. **010**
  - Master / Slave mode with MPI/S-Net port 2 (with maximal baudrate = 187.5Kb) **010**



- MPI for Terminal R/W OP  
(please contact SAIA-Burgess Controls for more information)
- Communication on TCP\_IP :
  - Classless inter domain router 039
  - S-Bus over IP 010
  - "Open data mode" over IP with max. 32 ports / 32 connections 010
  - S-Bus GWY Master over IP 010
  - 255 ARP table entries 1.10.16
  - PGU address for Ether-S-Bus 1.20.25
  - ACL Mac/IP Lists 1.22.00
  - WebFtp encoded Passwords 1.22.00
- WEB server 010
- WEB server with HTTP direct connection 020
- WebServer2 1.10.16
- IP filtering 1.22.08
- PPP (Point to Point Protocol) 1.10.16
  - Configuration through file, WEB-CGI and CSF
  - No FBox support
  - All serial ports available
- SNTP (Simple Network Time Protocol) 1.10.16
  - Configuration through file and WEB-CGI
- DHCP 1.10.16
- DNS 1.10.16
- SNMP 1.14.00
- PING 1.14.03
- FTP
  - Passive mode 1.22.08
  - Dynamic password for FTP (service key) 1.22.08
- Dynamic password for FTP (service key)
- Config Tags for eDisplay 1.10.16
- PGU switches automatically to 115 kBds. 010
- No limitation with the baudrate configured/assigned. 010
- Profi-S-Bus:
  - Master & Slave mode with MPI/S-Net port 10. 010
  - Profi-S-Bus GWY Master. 010
- Multi PGU (incl. modem) 010
- S-Bus over USB 010

- CAN on Port 10, PCD3.M63x0 only **020**
- RS422/RS485 on port 3 of PCD3.M5240 and PCD3.M5340 **030**
- MODBUS Driver over TCPIP, UDP and serial **1.10.16**
  - Accessible over CSF calls only
  - Serial port 0, 1, 2 and 3.
  - No support for F2xx serial lines (port 100 .. 131)
  - MODBUS serial on F2xx module and intercharacter timeout as parameter **1.22.00**
- Lon IP
  - Support the LonIP Module PCD3/7.R580/581. **1.14.00**
  - PCD7.R582 ;128MB memory card with LON/IP **1.20.25**
- PCD2.F2400 ;LON FT-10 com. module **1.20.25**
- PCD2.F2150 ;BACnet MS/TP com. module **1.20.25**
- Ether-S-IO
  - Support Ether-S-IO RIO **1.16.00**
- M-BUS Communication modules supported (PCD2.F2700, PCD2.F2710, PCD2.F2720, PCD2.F2730)
  - Support for these modules with “Frame” protocol **1.16.48**
- DALI Communication modules supported (PCD2.F2610)
  - Support for these modules with “Frame” protocol **1.16.48**
  - DALI master commands receive channel implementation **1.20.25**
- S-Bus/Modem configuration over Tags **1.20.25**
- Integrate PCD1.F2300 (PCD1) **1.20.25**

## 8.6 Miscellaneous

- IL code of analogue modules W1, W2 & W5 must change (see manual). **010**
- New features for PG5. **010**
  - New OUTL and OUTLX instructions
  - New synchronization for a bloc downloads in mode “RUN”
  - Possibility to upload data (SEdit and SFUP) in a synchronized manner.
- XOB
  - XOB 20-21: interrupt inputs XOB's **010**
  - XOB 14, 15, 25-29 Time Cyclic Alarm **010**
  - can be executed from 1 ms to 1000s with 1ms steps **010**
  - can be executed only one time with SYSWR 41xx **010**
  - XOB 17, 18, 19: User XOB's **010**
  - This XOB's which can be provoked via S-BUS telegram (STXM chan, 0, k 4000, k 17..19) or SYSWR command (K4017..K4018). The XOB's are only executed if the CPU is in RUN or CONDITIONAL RUN.

- XOB 7: System overload XOB 010
- XOB 1 and 2 Status call (see manual) 010
- XOB 1 and 2 Status call (see manual) 010
- New XOB handling.
- The XOB's are split in 2 priorities. A higher prior XOB can interrupt the lower prior XOB. (see manual)
- XOB 32-63: configurable for CAN (PCD3.M6340, PG5 V\$1.3.127) 020
- XOB 3 for task and Task data overflow 1.10.16
  
- Calculation of week and day number 010  
 The PCD compute the day and the week number based on the date using the same algorithm as in the PG. The command 'Write Clock' corrects automatically the week number or day number if they are wrong.
  
- Password mechanism. 010
- Copy user program from flash to SRAM without PG 010
- File system. 020
  - CSF asynchronous 039
  - 6 File devices (2 internal, 4 external Flashcards) 020
  - Onboard File system for configuration files 1.10.16
  - PCD7.R550M128 ;128MB memory card 1.20.25
- FTP server 020
- Flash Modules PCD3.R5xx are supported on the IO Slots 0..3 020
- SD Flash Modules PCD3.R6xx are supported on the IO Slots 0..3 030
  - Allow to overwrite data on a SD card (PCD3.R600/PCD2.M6000) file system. 1.10.16
- Alarm DB 039
  - Number of parameters changed 039
- Data Initialisation DBX 1.10.16
- "Memory lost" history entry 1.10.16
- "I/O Module B160" supported 1.16.51
- EnergyManager (PCD1, PCD3+) 1.20.25
- Integration of L&S NI1000 Temperature Sensors on dif. W- Module 1.20.25
- New History 1.20.25
  - FW download history entry 1.22.00
- S-Monitoring (PCD1,PCD3+) 1.20.25
- Download in Run Changed blocks (PCD1, PCD3+) 1.20.25
  - Download in RUN Config DBX, Ether-SIO Config (PCD1,PCD3+) 1.20.25
- PCD2.G200 for PCD1.Mxxx0 & PCD2.M5xx0 1.22.11
  - PCD2.G200 Module enhanced Configuration 1.22.25