

Subject:	PCS1.Cxxx	FW VERSION V0F0
Doc #:	PCS1Cxx0_0F0_Overview.doc	

PCS1.CXXX SUMMARY OF FIRMWARE VERSIONS

This document summarizes the new features of firmware versions for the PCS1.Cxxx production.

FEATURES OR RESTRICTIONS SPECIFIC TO PCD2.M150/250

General

- **FW update:**
 The FW can be updated with the FW downloader. To start this program click "PCD FW downloader" in the "tools" menu from the PG5 Saia Project Manager.
 The FW update can only be done through the PGU port (port 0).
 On PCS1 HW version D (PCS1 delivered with FW V090 booter V\$87) or older, it is not possible to use the standard FW update procedure. To proceed to a FW update, please download the special FW update pack from our internet site.
- **PGU**
 Default PGU mode is S-BUS parity therefore PG5, PG4 from version V1.3 upward or PG3 from version β2.0 upwards have to be used.

Memory

- **User memory:**

User prg mem.	HW	System Memory	FW	Default Memory configuration
---	< E	240kB FLASH + 128kB RAM	---	45klines prg, 60kB txt, 128kB ext.
---	≥ E	1008kB FLASH + 896kB RAM	0A0	189klines prg, 252kB txt, 896kB ext.

- **EEPROM:**
 - The S-Bus configuration is automatically saved in the EEPROM, this means that even if the battery becomes discharged the S-Bus configuration will be safe.
 - There are 50 non-volatile user registers (< V0A0: 5 non-volatile user reg.).

Instructions

- NOP
 - Instruction set to ~5µs for FB's compatibility V090
- LD=/LDX=
 - FB's parameters can be use on the LD and LDX instructions. V0B2
- SASI
 - Text accepts \$R parameters. V090
 E.g: "UART:\$Ra,\$Rb,\$Rc,\$Rd;MODE:\$Re,\$Rf;DIAG:F\$Rg,R\$Rh;"
 - a Baudrate 110...38400 (numerical value)
 - b Bits 7,8 (numerical value)
 - c Parity E,O,N (ASCII coded)
 - d Stop 1 or 2 (numerical value)
 - e Mode 'MC0', 'SM2', etc. (ASCII coded)
 - f Station Reg. with S-Bus station (numerical value)
 - g Diagnostic flags Reg. with the base diag. flag nbr (0..8191 num. value)
 - h Diagnostic register Reg. with the diag. register nbr (0..4095 num. value)
- SYSRD/SYSWR
 - SYSRD/SYSWR/SYSCMP/DEFTR instructions. V090
 - SYSWR 1000: System watchdog V090
 - SYSRD 660x for serial port mode read back added V0B0
 - SYSRD/SYSWR 7050 to 7081 V090
 to read and write the different elements of the clock.
 - SYSRD 7090 V090
 Function that returns the number of seconds elapsed since 00:00:00;
 January 1; 1970 (coordinated universal time), according to the system clock.
- SF
 - Application library V0B0
 including SFs "CopyText", "InitDB", "CopyDB2Registers", "CopyRegisters"
 New "CopyBytes" SF V0F0

Communication

- Serial communication
 - MC0/1/2/4 V090
 - MC5 mode that deactivate RS-485 drivers directly after completion of transmission. V090
 - Freeze function for the MC mode to ensure that no inter-character delay take place during the transmission of a frame. V0F0
 - MD/SD, MM4, LAN2 not implemented
- S-Bus:
 - Data and parity modes as master and slave. V090
 - Secure Data Mode V0C0
 Option to disable the S-Bus secure data mode V0F0

- Modem+ V090
- Gateway (GM/GS). V090
- Possibility to do a SASI off on a S-Bus PGU port (like on PLM) V0B0
- S-RIO as master and slave. not implemented
 The S-RIO master task assumes the communication and the refresh of the process image. The RIO task is activated by a SASI instruction. The SAIA configurator automatically generates the SASI text, the configuration and messages DB. For more information please read the document "Remote I/O with SAIA S-Bus" 26/751 F2.
- PROFIBUS FMS with PCD7.F700: not implemented
- PROFIBUS DP: not implemented
- LON with PCD7.F80x:
 - Base functionality V090
 - LON enhancement with new functionality poll and alias (LON 1.5). V090
- Communication on TCP_IP with PCD7.F650/F652: not implemented
- Web-Server (max. RAM disk 8KB) V0A0
 - S-Web Alarming V0C0
- PGU switches automatically to 38.4 kBds (requires PG5 V1.2). V090
- Up to 2 ports could be configured/assigned at 38.4 kBds at the same time. V090
- It is possible to configure/assign port 0 (or 1) at 38.4 kBds and port 1 (or 0) at 19.2 kBds. V090
- Port 0 (PGU port) can be used as a "standard" communication port (possibility to configure port 0 as S-Bus PGU) by using the SYSWR k 9002. V0A0

Miscellaneous

- New features for PG5 V1.0. V090
 - 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 17, 18, 19: User XOB's V090
 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 V090
 - XOB 14/15: Cyclic XOB's
 can be executed from 5 ms to 1000s with 1ms steps V090
 - New XOB handling. V090
 During the execution of a XOB other XOBs are queued and executed at the end of the first one.
 - XOB 2: Super-Cap supervision. V090

- Calculation of week and day number V090
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. V090