



## PCD4.Mxx0 Summary of Firmware versions

The under summary presents a short description of all firmware versions which are set on PCD4.Mxx0 at the production (official versions and exceptionally some intermediate versions \$).

Concerning corrected / known bugs :

Only important bug are listed here. For other bugs, please refer to the file COMSWERR.XLS which contains more information about known bugs...

| Version     | PROM   | Date    | Description  |
|-------------|--------|---------|--|
| <u>V001</u> | 512 KB | 01/1991 | <p><b>Major features:</b></p> <ul style="list-style-type: none"> <li>- Exception handling : XOBs priority mechanism (level1,2,3)</li> <li>- The history list in the debugger</li> <li>- BLOC TEC instructions : XOB11, NCOB, CCOB, SCOB</li> <li>- WORD Instructions : Index register instructions (SEI, INI, DEI, RSI, STI, PUT and GET for DBs and Texts)</li> <li>- INTEGER Instructions : SQR, DIV</li> <li>- GRAF TEC extended to 2000 STEPs and TRANSITIONS</li> <li>- Floating point instructions : FLN, FATAN</li> <li>- Communication instructions : new communication modes (MC4 and MM4), mode MD/SD works with flag ranges &gt; 511, mode MD/SD has different timeout, the instruction SCON, SICL, SOCL</li> <li>- Miscellaneous : Semaphore mechanism (instruction LOCK and UNLOCK), the instruction TEST, memory extension (possibility to put a program &gt; 32K)</li> </ul> <p><b>Known bugs :</b></p> <ul style="list-style-type: none"> <li>- The RSB (Restart Sequential Block) command causes a crash if more than 25 SBs (Sequential Blocks) are used in one program</li> </ul> |
| <u>V002</u> | 512 KB | 3/1992  | <p><b>Major modifications</b></p> <ul style="list-style-type: none"> <li>- The SAIA S-BUS, level I</li> <li>- Expanded LAN2 functions</li> </ul> <p><b>Corrections of known bugs :</b><br/>In principle, all known bugs in the previous official version, except the following known bugs.</p> <p><b>Known bugs / bugs found in this version:</b></p> <ul style="list-style-type: none"> <li>- Transfer the RTC doesn't work with the instruction STXM (level I).</li> <li>- The instruction RCOB doesn't work correctly</li> <li>- Serious problem with indexing (SEI)</li> <li>- Problem with the RTC for years which don't have 53 weeks.</li> <li>- The instruction MOV (Digit) doesn't work correctly when the error flag is set.</li> <li>- Programming more than 7 PB and FB levels when XOB 10 was not present causes a crash.</li> </ul>  |

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| V003 | 512 KB | 6/1993  | <p><b>Major modifications</b></p> <ul style="list-style-type: none"> <li>- S-BUS level II (Full S-BUS protocol) up to 19200 Baud, with or without modems</li> <li>- Reduced and full S-BUS protocol for PCD data transfer (level I) up to 38400 Baud</li> <li>- Memory extension with PCD7.R3 up to 428 KB</li> <li>- Special user texts for date and time, registers</li> <li>- New instructions : TFR (transfer Data), CPBI (Call Program Bloc Indirect)</li> <li>- The instruction JPI (jump Indirect) has been extended to 8191 program lines</li> </ul> <p><b>Corrections of known bugs :</b></p> <p>In principle, all known bugs in the previous official version, except the following known bugs.</p> <p><b>Known bugs / bugs found in this version :</b></p> <ul style="list-style-type: none"> <li>- Serious problem with indexing (SEI)</li> <li>- The communication mode MD/SD is blocked on port 1 when connecting and disconnecting the debugger on PGU port 0.</li> <li>- Mode C : text output with include texts can cause a crash, only 3 levels of nested texts may be used, the first character in a text should not be "\$Lnnnn..."</li> <li>- It is not possible to download a data block longer than 2048 elements</li> <li>- The instruction RCOB doesn't work correctly</li> <li>- S-BUS mode break (SM0/SS0) doesn't work on RS 485 interface</li> <li>- The TEST instruction doesn't work correctly</li> <li>- If S-BUS PGU is configured to a port which doesn't exist, for example port 3 on and M120, then all communications are lost and it is no longer possible to come online with the PG3</li> <li>- The nesting of texts up to 4 levels caused a crash of the System under certain circumstances. If a nested text is called directly from within a sub-text then this also caused a crash.</li> <li>- The STXT instruction transmitted invalid characters if the TEXT specified in the instruction didn't exist. Also, if two ports executed STXT instructions in parallel then the length of the text to be transmitted was occasionally corrupted which caused invalid characters to be transmitted on either of the ports.</li> <li>- The indirect text indicators \$Rxxxx or @Rxxxx should always be followed by four digits. If only three digits were specified in the latest official versions then a crash would occur.</li> </ul> |
| V004 | 512 KB | 01/1994 | <p><b>Major modifications</b></p>   |

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|      |        |         | <ul style="list-style-type: none"> <li>- The memory extension did not keep the DB structure in the RAM on battery loss. This has been corrected in the mini project 'memory extension security'.</li> <li>- The S-BUS slave drivers have been modified to make them more tolerant to errors generated by NON-SAIA masters and errors caused by noise on the lines. These modifications have been made in the light of QS problems with S-BUS in several countries whereby a system crash occurs approximately once a week.</li> </ul> <p><b>Corrections of known bugs :</b></p> <p>In principle, all known bugs in the previous official version, except the following known bugs.</p> <p><b>Known bugs / bugs found in this version :</b></p> <ul style="list-style-type: none"> <li>- The TEST instruction doesn't work correctly</li> <li>- Executing an RSB instruction at a STEP which doesn't exist causes an error</li> <li>- Accessing a text &gt; 3999 (for example with STXTX), if the memory extension is not allocated or not present, will cause a crash.</li> </ul>   |
| V005 | 512 KB | 04/1995 | <p><b>Major modifications</b></p> <ul style="list-style-type: none"> <li>- Password</li> <li><del>- Gateway</del></li> <li>- Modems +</li> <li>- New indirect instructions : STXMI / SRXMI, TFR1</li> <li>- New S-BUS function : SRXM to read the system info of a slave, new XOB 17, 18, 19.</li> <li>- Modifications and corrections to the TEST instruction</li> <li>- File load modifications: This has been implemented under S-BUS only. It is now possible to choose whether to clear the outputs during the download or to make a RUN command directly after the download.</li> <li><del>- Modifications to support the PCD7.F700 - PROFIBUS FMS</del></li> </ul> <p><b>Corrections of known bugs :</b></p> <p>In principle, all known bugs in the previous official version, excepts the following known bugs.</p> <p><b>Known bugs / bugs found in this version :</b></p> <ul style="list-style-type: none"> <li>- Problems with the PID instruction.</li> <li>- SCOB instruction doesn't work correctly.</li> <li>- When in trace in GRAFTEC, if a condition is TRUE in the Transition then the transition is active, but the next step has already been executed.</li> <li>- The error flag problem with the SASI instruction, this includes the whole concept of the error flag.</li> <li>- Problem with MD/SD mode when transmitting the RTC.</li> <li>- The break length definition doesn't work correctly with SMO</li> </ul> |

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| V\$51 | 512 KB | 04/95 | <p>This version has been specially prepared for L&amp;G Holland and is identical to the official version V005 except for the following minor modification :</p> <ul style="list-style-type: none"> <li>- The DTR signal is no longer reset after performing a SASI "MODE:OFF" or upon execution of a new SASI.</li> </ul>  |
| V\$52 | 512 KB | 02/97 | <p>This FW version is based on V005 for the PCD4.Mxx0 with some minor modifications which are listed below.</p> <p>The policy of SAIA is not to put any new features in the Mxx0 CPU's as there is very little place left in the EPROMS and all new developments have been made in the PCD4.Mxx5.</p> <p>However, there is enough reserve to carry out essential maintenance which is the objective of this version.</p> <p><b>DIFFERENCES BETWEEN V\$52 and V005</b></p> <p>The following errors have been corrected :</p> <ul style="list-style-type: none"> <li>- Swerr 226<br/>This SWER concerns new features for downloading and configuring S-BUS.</li> <li>- SWER 232<br/>The DTR signal is no longer reset after performing a SASI "MODE:OFF" or upon execution of a new SASI.</li> <li>- Swerr 245/264/278/295<br/>If a PCD had been powered up without any SBUS configuration and then a user program EPROM was equipped containing a valid SBUS configuration, then it would not be detected. This error has now been corrected and works in the following way. <ul style="list-style-type: none"> <li>• If a station number has been initialised in the PCD system RAM before the user program EPROM is equipped then this number is kept.</li> <li>• If there was no station number initialised in the PCD system RAM before the user program EPROM is equipped then the station number read from the user program EPROM.</li> </ul> </li> </ul> <p>If the battery fails during power-down then the S-BUS header is reinitialised to the contents of the user program EPROM.</p> |