

**Pluto Safety PLC
List of software versions**

Pluto system software versions		
Ver	Release date	
1.0	2003-03-26	First official release
1.1	2003-04-04	Bug fix: Monitoring of remote timers and sequence steps incorrectly showed local Bug fix: Execute instructions after accepted jump in step
1.2	2003-04-23	Improved calibration of analog functions Bug fixed: Static IQ interfere with self test of dynamic IQ signals
1.3	2003-04-30	Bug fixed: Q3 output selftest sometimes indicated error when correct Bug fixed: Monitoring of remote registers incorrectly showed local
1.4	2003-05-22	
1.5	2003-06-17	SM16..SM23 for interprocessor communication
1.6	2003-07-21	IR communication on/off to reduce risk of crosstalk between Plutos
1.7	2003-08-06	More filtering of IR communication
1.8	2003-09-26	Bug fixed: Sometimes IQ errors was erroneously respoted
2.0	2003-12-03	Program download over CAN bus Self programming of empty Plutos Exchange of checksum over the CAN bus to ensure same project version Bus status monitoring Programmable IDFix
2.1	2003-12-29	Monitoring of local variables in remote Plutos
2.1.1	2003-12-13	Quicker short circuit detection for Q2/Q3
2.1.2	2004-01-28	Support for Pluto S20
2.1.3	2004-03-22	Expansion relay BT50 compatible (don't test Q2/Q3 150us after positive edge)
2.1.4	2004-03-23	Twin I/O via internal serial port instead of CAN bus
2.1.5	2004-05-24	Bug fix, (Error code E12 sometimes gave E50 instead)
2.2	2004-06-04	New version number with latest changes
2.2.1	2004-08-26	Double display support
2.2.2	2004-09-28	Bug fix (E18 was impossible to reset sometimes) Sequence print in monitor was repeated Function block for Pluto version No clock signal to top board if double display
2.2.3	2005-02-22	Support for write seal over CAN bus Bug fix. When CAN bus messages wasn't transmitted the Pluto was sometimes blocked.
2.2.4	2005-04-04	Bug fix. Sometimes it was not possible to erase program even though correct password was given. Sync signals between processors changed to increase EMC immunity. Uload binary application program in object form.
2.2.5	2005-06-08	Modbus ASCII communication. Bug fix: E18 (CAN bus fault) was sometimes not possible to reset. Bug fix: Upload of application program sometimes failed. Bug fix: Q10..Q17 and flags were not reset at Error E50 and higher Bug fix: Analog values sometimes differed between processors
2.3		Version number reserved for internal development.

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2.4	2005-08-24	Gateway functions *) Possible for gateway to read variables noncyclic *) Possible for Pluto to enquire status info about gateway *) Possible for gateway to write data to Pluto Reception of data via modbus/from gateway can be filtered and timeout specified Parameters directly readable via serial interface (for Pluto Manager). Verification that twin processor has correct OS version and date.
2.4.1	2005-10-25	Bugfix for IR Pluto Boot command to monitor
2.4.2	2005-12-13	E51 bug fixed (processors own data is delayed 10ms to compensate for delay in internal serial communication).
2.4.3	2006-01-16	Variable response filtering bug corrected for boolean variables.
2.4.4	2006-06-27	New routines for encoder status and parameter setting. Support for multiturn encoders. Er15, Er16 and Er18 are automatically reset after 3 min. sr12, sr13 and sr14 contains last error codes. Bug fixes: Encoder status sent Sync msgs even if there were other sync master on the bus. Encoder sync telegram timing corrected. Encoder evaluation timing corrected.
2.6	2006-09-28	Support for B46
2.6.1	2006-11-15	Dynamic length of test pulses Q2/Q3 Correct get_model_code for "S46-S"
2.6.2	2007-05-31	Delay tx/rx for PC port removed for non-IR models Double Esc sequence removed for non-IR models
2.8	2007-09-18	AS-I support IDFIX-DATA support Send additional I/O to gateway Status pos for encoder if only one encoder connected Check of PLC crc between processors osload command modified, no reports for Plutos sr12,sr13, sr14 for error history (missing in 2.6.x)
2.8.0.1	2007-09-20	Updated gateway code (AS-I gateway)
2.8.1	2007-10-03	Correct clear inputs/outputs/flags in AS-i process image Command acknowledge timeout -> Er72 Corrected safety code sync between A/B processors Additional I/O to gateway modified, (always broadcast)
2.8.1.1	2007-10-23	AS-I gateway processor: Er72 by no connection to AS-I bus in master mode.
2.8.2	2007-11-22	At AS-i version mismatch, printout of required version at Asi s command
2.8.3	2007-12-12	Capacitive load on Q2/Q3 (e.g. BT50/BT51) improved S model CAN reception bug fixed False ER72 errors prevention
2.8.4	2008-01-17	AS-i single B slaves now work (no A slave on same address)
2.8.6	2008-08-07	Er42 detection algorithm changed
2.8.7	2008-10-17	Bug fix: Er18 could sometimes occur when monitoring a system with additional gateway communication. Bug fix: Single missed B I/O telegram do not lead to Er18 anymore
2.8.8	2008-10-28	Bug fix: Baudrate detection sometimes failed in ver. 2.8.7

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2.10	2008-10-28	First released OS for version 2 of Pluto B46 and Pluto AS-i. (See document STH0363) For A20 family and old version of B46 and AS-i, 2.10 has equal function as 2.8.8
2.10.1	2009-02-12	- Double registers monitoring over CAN bus (support for cooperation with future Extended arithmetic Plutos in same project) - Bug fix: Boot with single encoder, Ok signal was set - AS-I B slave 16-31 was not working correctly
2.10.2	2009-02-27	For Double v2: Reduced current drive for proc B SPI clock
2.10.3	2009-03-05	- Bug fix: Baudrate detection failed sometimes - Bug fix: Empty PLC program -> detect baudrate (not fixed) - Dummy system function 2001 for Lindauer Dornier compability
2.10.4	2009-05-12	- B46 v2: High/low current drive for proc B SPI clock depending on FRAM monitor bit - AS-i: sr15 for missing slave, sr16 for channel fault (Not Pluto AS-i v2?)
2.10.5	2009-06-02	Bug fix: Function block for rebooting S Plutos as B Plutos, local Pluto (Only a matter for production test and calibration)
2.10.6	2009-06-04	Bug fix: Outputs were sometimes cleared in process image when Er18. (Could lead to Er51 by CAN bus disturbances)
2.10.7	2009-08-05	Bug fix: Edge detection for S model Plutos didn't work (since 2.10) Bug fix: Edge detection when CAN bus is in off state didn't work
2.10.8	2009-10-08	A20 family: Reading of I7 had incorrect timing (2.10-2.10.7)
2.10.9	2009-12-09	URAX detection Support for Vital 2/3
2.10.10	2010-01-11	Support for Encoder preset and config blocks
2.10.11	2010-02-04	Support for manual AS-i safety code setting Code teach needs code 4 times instead of 2 times
2.10.12	2010-02-21	Bug fix: Er27 when Pluto with unspec/wrong family gets updated
2.10.13	2010-04-16	Bug fix: External communication failed
2.10.14	2010-05-11	Double I/O telegrams accepted also when A20 specified Bug fix: Er19 was not generated if the conflicting Plutos were of different families
2.50	2010-09-21	Version corresponding to 3.0, but for V1 processors. Without instruction set 3
3.0	2010-09-21	Instruction set 3, including 32 bit arithmetic, multiplication, division, register bits, on-delay timer etc Remanent variables (for Plutos with hardware supports for it) Support for IDFIX-PROG 2K5 AS-i debounce filtering Support for B42 AS-i Support for AS-i combined transaction slave extended 4 in/4 out (S7.A.7)
3.0.1	2010-10-11	Bug fix: External communication (data from gateway) didn't work
2.50.1		Bug fix: Noscan (An###) didn't work for analog slaves
3.0.2	2010-11-19	Bug fix: Global communication fault (AE05) at AS-I code teach/read slaves when only few slaves present Bug fix: AS-i help signals to output slaves gave wrong code when slaves were activated
3.0.3	2011-10-06	SR6 = PLC application CRC
2.50.3		Bug fix: Updated LED display for Double/B42 Bug fix: Improved levels for IDFIX (AS-i v2)

Pluto Manager versions		
Ver	Release date	
1.15	2003-10-07	Copy online IDFix to clipboard New menu
1.16	2003-10-30	Bus status monitoring (for Pluto 2.0+) IDFix programming (for Pluto 2.0+)
1.17	2003-12-19	Search function IR communication works better with Windows XP
1.18	2004-06-09	Check that IDFix are used for all Plutos in multi-Pluto projects Pluto system software update available also for unauthorized users Bug fixed: Sometimes sequence step was incorrectly monitored Online info for non-local Pluto Get next free memory / Global memory
1.19	2004-11-03	Manuals in pdf format included in installation file and can be reached from 'Help' menu. PC100 version 1.35 (empty sequences bug fix) Bug fix: Big projects did get "reserved memory overflow" without compiling.
1.20	2005-02-02	Function block file protected by stronger encryption. Export of variable names to text file. Register arguments in blocks Backup only done once per file and session Support for multiple languages in block parameter names Timer value can be specified as a register Possible to keep global variable names when deleting Pluto Write seal now lists result in all Plutos in project Bug fixes: Selection of networks above 32000 pixels in window When changing include files and one file is missing all were removed Arrow button on speed bar was not selected after cancel edit Possible to copy block networks with bad references Some dialog boxes were not wide enough Seal date corrected Its now possible to have a function name identical to a variable name

1.21	2005-10-14	<p>Merge projects. Renumber Pluto Duplicate Pluto Add variable prefix Remove variable prefix Export of variables to external file (Excel csv). Import of variable names from text file (Excel cvs). New Undo/Redo function. Undo of program changes can be made in several steps backwards. By "New project": Question if standard function block library Func05 shall be included. In ladder diagram: By pointing with the mouse pointer on a component the full explanation is given according to the variable page. Standard library Func05 contains blocks for light curtains. Function block library Ext01 for external non safety communication is included in the program installation. (Non safety blocks are coloured white) Specifying external communication from Gateway, HMI etc. to Pluto Double compilers (pass 2). The program is compiled by two compilers. Support for compilation of PLC programs placed in libraries with path names containing spaces, dots etc. Compiler warnings for not configured I/Os. Compiler warning when a variable is controlled two times in the PLC code or in the same sequence step. Possibility for opening the program in text editor from Pluto Manager. Default editor is "Notepad" but other can be specification of other is also possible.</p>
1.22	2006-05-04	<p>Online display of register values in ladder diagram Online display of timer values in ladder diagram Online display of gateways in bus status picture New dialog boxes to select registers (browsing among regs possible) New dialog box for New Pluto Possible to select Analog input for I5 (supported in coming OS) Orange blocks (user crypted block) Hint text when cursor is hovered over component in ladder diagram Variable list below each network at printout (optionally) Onlineinfo all Plutos generate a list of versions etc New block ext_var Installation contains support files for gateways</p> <p>Bug fixes: In ladder diagram timer, relation and function block now autoconnect Sometimes online timer value (line) was showing incorrect value Other minor bugs</p>
1.23	2006-09-29	<p>Official support of B46 Reconnect automatically at communication timeout via serial port. Scrolling via mouse wheel (some mice might be unsupported)</p> <p>Bugs fixes: In arithmetic properties incorrect options were selected if unnamed registers were used. Sometimes the New Variable box were displayed outside screen area. For some printer drivers printing of networks didn't fit, but were divided among many lines Demo and service (mute) mode corrected. Block description language change undid changes in networks. -32768 was not possible to enter Timer value was sometimes incorrectly displayed Some of the I/O options were grayed after online/offline Pluto 0 was displayed in the Find dialog also for Plutos</p>

1.24	2006-11-10	<p>New Icons for bus status overview; Wide icons for B46 Duplicate code at detection gives error message. Error/status messages for IDFIX-DATA Status display for Gateway Profibus-D</p> <p>Bug fixes: Bus status window now closed after code detection. Service mode didn't disable all window controls Sps files saved at download if changed. Now Download btn greyed. Bus status when connected to Er26 Pluto shoed duplicate PC connected</p>
1.25	2007-01-18	<p>Backspace in terminal window now works Improved serial port selection under preferences Big icons (B46) were not always displayed at bus status, only at update Change step 0 now possible (could happen at copy) Encryption of source code New manual installation</p>
1.26	2007-04-16	<p>Correct click area in Tree for renumbered Pluto Project/Pluto comments scrolled to top at open Mousewheel scrolling/pgUp/pgDn works also when last network in sequence is st top. Printing improved, very high/wide networks Bug corrected: "Can't renumber network no" Bug fixes in Arithmetic boxes, Reg/Const select Delete Pluto, but keep variables now keeps Pluto type</p>
1.27	2007-05-31	<p>Vista installation. Project CRC displayed at compilation Project CRC at online hardware listing Project CRC at printout (if available)</p>
1.28	2007-10-04	<p>AS-I support IQ are now printed when "print all" options is checked Serial omm.. Via gateway (limited)</p>
1.29	2007-10-22	<p>PC communication bug fixed Option handling in PLC (opt_s/opt_r) Blocks in sequences Certain blocks in sequence steps Asi/Asq variables enabled according to profile corrected Edge detection of Asi/Asq variables</p>
1.30	2008-02-22	<ul style="list-style-type: none"> - Bug corrected: Detection status page (detected codes/teach codes/change slave addr) wrongly showed slave 0 as B slave - system.vps changed – Q16/Q17 current measure on B46/CAN2/Asi removed - Bug fix: AS-I conf window, Slave address change update when "This Pluto" text is out of window - Bug fix: Properties for Const/Reg: Now "New Reg" button works - Bug fix: Config option could be changed when PM was online - Bug fix: Detection of B slaves - Bug fix: Pluto number printout online was wrong - Bug fix: Block not allowed in sequence was wrongly issued sometimes - Bug fix: Configuration in monitor mode, chan option was not displayed - Bug fix: Play button was not working" - Other minor bug fixes - Additional I/O to gateway - Text "Pluto nonsafe slave" instead of "This Pluto"
1.31	2008-06-17	<ul style="list-style-type: none"> - Bug fix: AS-I slave change address - Numeric sorting when selecting variables from combo boxes - Bug fix in encrypted projects - Printout of CRC and object format at compilation - Printout of PC100 version at compilation - New manuals

1.32	2009-02-13	<ul style="list-style-type: none"> - 32-bit PC100 compiler running in parallel with compiler PC200 for evaluation. - Possible to compile project without any Plutos (generated range error) - Quicker "Find first unused variable" - Correct place for popup menu when ladder graphics > 65535 pixels - New dialog boxes for variable properties - Function blocks in sequences - Steps in PlcCode - Online reload due to file change delayed until offline - Cross reference printout - AS-I parameter button/dialog instead of combo boxes - Bug fix: Online Info when already online - Bug fix: Duplicate Pluto generated numeric names - Bug fix: New memory can be Mx.0 - Bug fix: Online Info, serial no printout corrected for leading zeroes - Bug fix: Online Info, All Plutos, serial no printout for leading zeroes - Bug fix: New variable considers network in edit - Bug fix: Bus status/ AS-I status works for different screen DPI AS-I slave address change – suggest master Pluto of Project - Bug fix: Don't allow change address so Std/B slaves get same address - Bug fix: Compiler (PP100) memory overflow - Bug fix: Project tree view scrollbars - Bug fix: Minus in constant box of arithmetic dialog - Bug fix: Printout of options - Bug fix: Gateway package failed - Bug fix: Online with timer PT=0s00 made a dived by zero error - Bug fix: Used SM/SR was not printed - Bug fix: Function as argument to function failed sometimes (ladder to text)
1.33	2009-05-12	<ul style="list-style-type: none"> - Dots in path possible (since no 16 bit compiler anymore) - Support for remanent variables (not visible unless used) - Support for AS-I slave debounce (not visible unless used) - Redesign of variable window tabs; Globals marked with [G] in list - File timestamps up to 2108 instead of 2044 - Bug fix: Manual version 9 (also in installation program) - Bug fix: 16 AS-I output slaves possible (was 15) - Bug fix: Load of faulty library + cancel removed all libraries - Bug fix: Read AS-I slaves / teach codes handled safety outputs/Pluto as safe input incorrect - Bug fix: Symbolic names for Asi#.#.# didn't work - Bug fix: Upload with illegal characters in filenames failed
1.34	2009-12-09	<ul style="list-style-type: none"> - URAX awareness - Icons on AS-I Options page - New 3 dimensional icons - New Pluto has a guide style dialog - Change Pluto type - New splash screen - 16 gateways - Pluto online info via gateway now correctly handles IDFIX, compile/load/seal timestamps - Compile/download licence # in object file - Bug fix: A/B slave profile when monitor -> Error not 0..7 - Bug fix: Asi Pluto: I0 was missing on variable page - Bug fix: Single timer as input to block didn't work - Bug fix: Incorrect Pluto # in sequence # display in Find dialog - Bug fix: Show code table - Bug fix: Register bits dialog (.' -> error) - Bug fix: Installation program: If only English manuals were present, a checkbox without text was displayed

1.35	2010-02-03	<ul style="list-style-type: none"> - Source code in compile code - Bug fix: Licence keys with “-“ - Bug fix: Printout of lamp blocks - Bug fix: Sometimes AS-I options page was not updated correct
1.36	2010-05-12	<ul style="list-style-type: none"> - Support for AS-I combined transaction slave extended 4 in/4 out (S7.A.7) - Online error message on status bar referring to selected Pluto instead of connected one - Dynamic check of crc and project name during online monitoring - Control chars in comment paste is converted to ‘_’ - AllowAllASq command line option allowing of all Asq variable set, even in monitor mode - Bug fix: AS-I addressing tool was sometimes not working - Bug fix: Upload project with \$Name <FILENAME>xxxxxx - Bug fix: Local fps file, but with specified path: Now path is removed
1.37	2010-06-14	<ul style="list-style-type: none"> IDFIX-PROG EEEEEEEEEEEEx, only one/project allowed Bug fix: IDFIX printout onlineinfo – All Plutos Bug fix: Printout made status line growing uncontrollable Bug fix: Gray Pluto monitoring was not possible Bug fix: Opening a network in ladder editor when input was set, caused PM to crash Bug fix: Online verification of crc/project name
1.38	2010-06-29	<ul style="list-style-type: none"> Bug fix: Sometimes Play button was not displayed online Bug fix: Search missed parameters to blocks (not expressions) Bug fix: Bad formatting at Show S_i safety codes
2.0	2010-09-03	<ul style="list-style-type: none"> Support for OS 2.0 (instruction set 3 etc) Variable names with dots forbidden in instruction 3 projects Mouse wheel now works for function guide Bug fix: Import illegal variable names was not handled correctly Bug fix: New sequence for gray Pluto was possible
2.2	2010-09-27	<ul style="list-style-type: none"> Er42 etc error messages Q00/Q01 -> Q0/Q1 or Q0/Q1/Q4/Q5 Bug fix: AS-I slave 31 could not be specified as std, analog, safe outp or Pluto as safe input Bug fix: Register in blocks gave Range Error at compilation Bug fix: Keep/not keep remanent variables sometimes malfunctioned at download Bug fix: Progress bar at remote load was not working correctly Bug fix: Controls for gray Pluto was enabled at offline Associate file type .sps moved to installation program to support Vista and Windows 7 (but faulty, see 2.4)
2.4	2010-10-06	<ul style="list-style-type: none"> Updated support for multi monitor computers Open .sps file from explorer changed according to new installation Bug fix: Installation program .sps extension registration was faulty Bug fix: Download with PM license # > 255 hanged at the end Bug fix: Delphi and Windows bug. Locale (esp. short date format) got incorrect values on some Windows 7 systems Bug fix: PM displayed Er51 instead of Er50 (although message itself was correct)
2.6	2011-01-13	<ul style="list-style-type: none"> Number of bytes and percentage of available flash memory printed at compilation even when there is memory overflow Explicit Pluto model specification instead of Pluto family All forms changed to not scaled to better support non-standard font sizes in Windows Bug fix: 32-bit constant assigned to 16 bit register (compiler caught it) Bug fix: Real variable name in rightmost end of arithmetic dialog was not set when opening existent network Bug fix: Yellow in variable grid was not set correctly when new Pluto was selected Bug fix: The variable “%s” already exists in variable name edit gave wrong real variable name

2.8	2011-03-09	Register bits in cross reference list Double register .Lo and .Hi in cross reference list Bug fix: Cross reference for expressions with parenthese/edge as input to blocks failed Bug fix: Search for variables outside visible area now was not displayed correctly Bug fix: "Warning multiple assignments" was sometimes not correct Bug fix: Sometimes "project name mismatch" error message displayed several times when connecting online Bug fix: Compilation error for A20 family Plutos with external communication specified
2.10	2011-10-06	Ladder editor: copy and paste components Ladder editor: drag components from other networks Find active sequence step online Bus load calculation at compilation sm_ditto not allowed as input to block sm_ditto gives warning if used directly after block No question if func05.fps should be included in a new project. Now it is always included. Double register value digits grouped 3 by 3 when online monitoring Bug fix: It was possible to select Static, Non_Invert Bug fix: "Pluto_" in file name or \$Name gave message "project name mismatch" at online attempt Bug fix: Change Pluto type was incorrect when handling AS-i pages Bug fix: Change Pluto type erased light button declarations Bug fix: GPF at closedown of Pluto Manager Bug fix: GPF at Windows shutdown