PLUTO Safety PLC

Message and fault code list

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Pluto Safety PLC

Note: Reboot can either be made from PC computer or by power off-on.

Status messages

No:	Description
- -	Power up
N n	Run mode (*nn* = station number)
Lo	Program load mode state. Flashing ”Lo”, ready for self programming (program found in other unit)
HA (SR11=7)	Program execution stopped from PC computer or not started after program download. Can be started either from PC or by power off-on.
UE	Application specific user error, controlled by SR_PlutoDisplay in the PLC program.

User faults

No:	Fault and possible reason.	Reset action
Er10*	Dynamic output short circuited to foreign voltage.	Automatically reset
Er11*	IQ_ for illuminated push button function. Missing diode	Automatically reset
Er12*	Short circuit between two dynamic inputs	Automatically reset
Er13*	Static output Q10..17 (Q20..27) short circuited to 0V or safety Q2,Q3 overloaded	Automatically reset, “K” button
Er14*	Static output Q10..17 (Q20..27) short circuited to 24V.	Automatically reset
Er15	Power supply below 18V	Autom. 3 min or ”K” button
Er16	Power supply above 30V	Autom. 3 min or ”K” button
Er18	CAN-bus fault. (Short circuit, termination resistor, etc.)	Autom. 3 min or ”K” button
Er19	Other unit with same station number on Can-bus	
Er20	PLC-program not loaded	Load of PLC program
Er21	PLC-program CRC-error	Reload with valid PLC-program
Er22	IDFIX problem. External IDFIX can not be read.	Reboot
Er23	Unmatched ID. IDFIX doesn’t match declaration in program.	Exchange of identifiers or re-declaration of identifier in program.
Er24	Erroneous PLC-code. Invalid PLC-instructions.	Reload with valid code
Er25	For versions as B16 or B22. Non existing output used in program.	
Er26	Baud rate conflict. Unit programmed for other baud rate than current bus baud rate. Note that Pluto must be rebooted after change of baudrate in the PLC program.	Reprogramming or reboot
Er27	Wrong checksum for unit member in common program.	Reprogramming or reboot
Er28	PLC program does not match the Pluto family. Families: [A/B/S/D 20, 16, 22], [B/S/D 45, 46], [Pluto AS-i, B42 AS-i]	Change to other type of Pluto or change the program.
Er29	Unsupported program version. The program contains instructions only supported by later customer specific operating systems. **(See below)	Update of operating system
Er30	Unsupported function block used. **(See below)	Update of operating system
Er31	IDFIX-PROG program mismatch.	Load program to flash memory with ”K” button.

*Combined with LED flashing for the affected I/O.
**Additional information can be retrieved via Pluto Manager.

I/O faults

No:	Fault and possible reason.	Reset action
Er40*	Error safety output Q2 or Q3. Q2,Q3 connected together or to other negative voltage. / Q2,Q3 has to high capacitive load.	“K” button
Er41*	Error output Q2 or Q3. Overload or connected to foreign positive voltage.	“K” button
Er42*	Error relay output. No answer from internal relay monitoring when output is off.	“K” button
Er43*	Error relay output. (Self test of transistors)	Reboot
Er44*	Error relay output. Internal relay does not switch on.	“K” button
Er45	Analogue functions not calibrated.	System must be calibrated
Er46	Analogue input error. **(See below)	Automatically reset
Er47	Positive voltage on Q2 and/or Q3.	“K” button

*Combined with LED flashing for the affected I/O.
**Additional information can be retrieved via Pluto Manager.

CPU faults

No:	Fault and possible reason.	Reset action
Er50	Input data difference between processor A and B Processor A and B reads an input differently. The fault is often caused by a bad sensor. Corresponding input LED flashes.	Reboot
Er51	Output data difference between processor A and B. Processor A and B sets a global variable different (Q0..Q3, GM0..11). **(See below)	Reboot
Er52	No answer from any internal relay when output is off. (Both relays stuck)	Reboot
Er58	AS-i safety code table CRC error	Reboot, Teach AS-i safety codes
Er59	Calibration analogue functions CRC fault	Reboot
Er60	Twin self test monitoring	Reboot
Er61	Timer IRQ monitoring	Reboot
Er62	Internal serial communication	Reboot
Er63	Boot-flash CRC	Reboot
Er64	OS-flash CRC	Reboot, Reload operating system (OS)
Er65	Plc-flash CRC	Reboot, Reload PLC program
Er66	5 volt under/over voltage monitoring **(See below)	Reboot
Er67	CPU-test error	Reboot
Er68	Ram-test error	Reboot
Er69	Scan cycle time over run, PLC program to big	Reboot
Er70	System, sum of system and stack monitoring	Reboot
Er71	Pluto used for IDFIX writing. Normal operation ceased	Reboot
Er72	System error. No communication AS-i processor	Reboot
Er73	System error. Wrong program version/CRC error	Reload operating system (OS)
Er74	Remanent memory error	Reboot

**Additional information can be retrieved via Pluto Manager.

AS-i

No:	Fault and possible reason.	Reset action
AE 01	ASi power missing	Automatically reset
AE 02	No connection with ASi master (By monitor mode)	
AE 03	Safety code missing by code teaching	Teach AS-i safety codes
AE 04	Wrong code table	Teach AS-i safety codes
AE 05	Internal AS-i fault	Reboot
AC [node no]	Channel fault in safety node	Switch off both channels
Ab [node no]	AS-i slave with bad or wrong safety code	Routine “Single slave exchange” or teach safety codes (PC) or exchange defect slave.
An [node no]	Slave profile does not match.	Read AS-i slaves
CC [node no]	Code Change. Pluto prepared for exchange of safety slave, one slave is missing. (Acknowledge by “K” button.)	
CC	Code Change. Pluto is prepared for connection of new safety slave.	
CF	Code Found. Code in new safety slave is available. (Acknowledge by “K” button.)	

AS-i LEDs

The status of the AS-i LEDs does not give any additional information than what is already given by the error code (except in one case as illustrated by the table below), but green LED off and/or red LED on indicates an error.

Indication		Display shows error code?	Fault and possible reason.	Reset action
Green LEDs	Red LEDs			
Off	On	Yes	ASi power missing	See Error code
On	On	Yes	AS-i fault	See Error code
On	On	No	Pluto in Slave mode not addressed by master	Configure master

In-/Output LEDs

The status of the Input and Output LED’s gives additional information for troubleshooting.

Indication	Fault and possible reason.	Reset action
Double flash	Two-channel fault at use of two-channel function block in the PLC program. Double flash on the channel which has opened.	Open and close both channels.