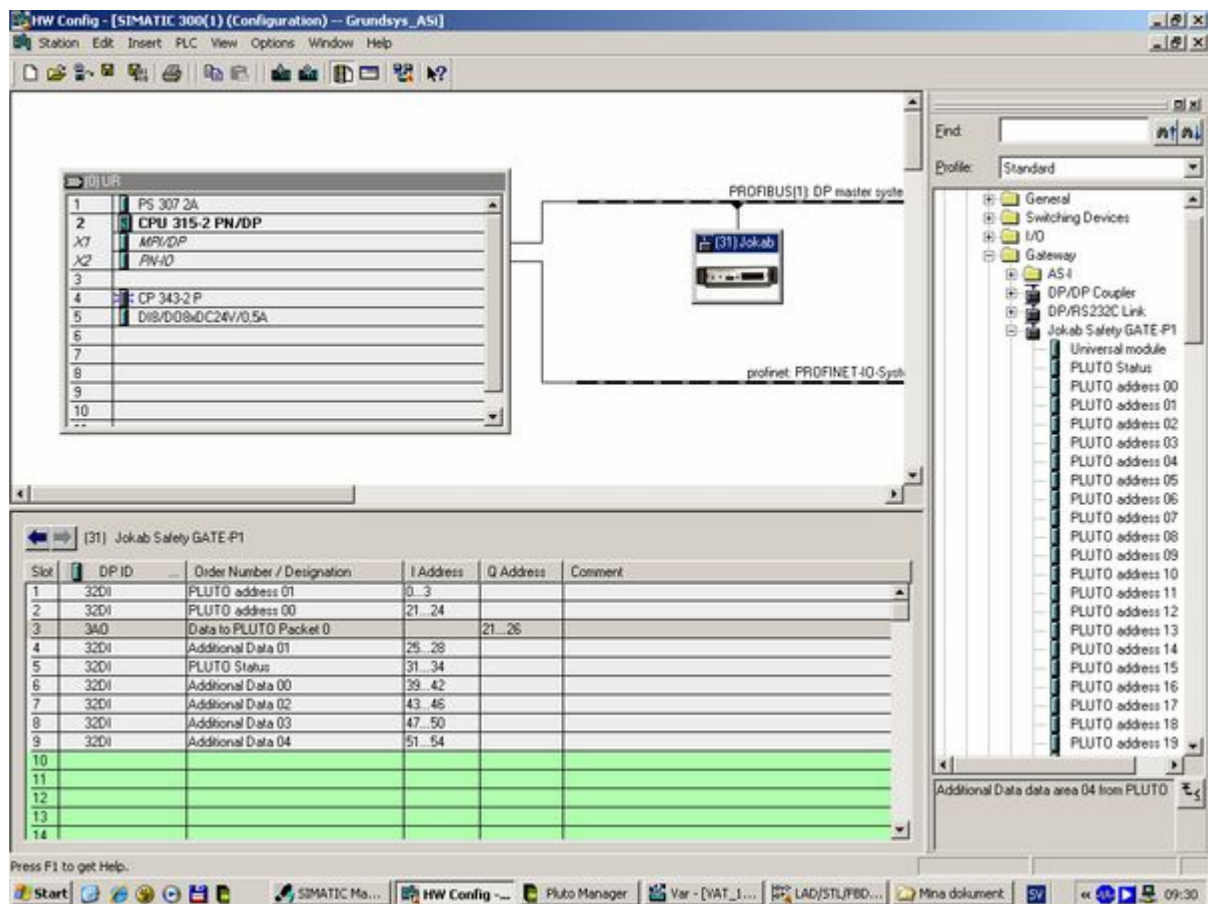


Pluto Gateway GATE-P1 integration with Siemens S7



Integration Description

Revision history:

Version	Date	Change
1A	2006-10-26	First release by Hans Lundqvist.
2A	2008-10-08	Add additional data block information.

Reference:

REF	Document
A	Pluto Gateway User Manual (PlutoGatewayManual-Eng-xx)

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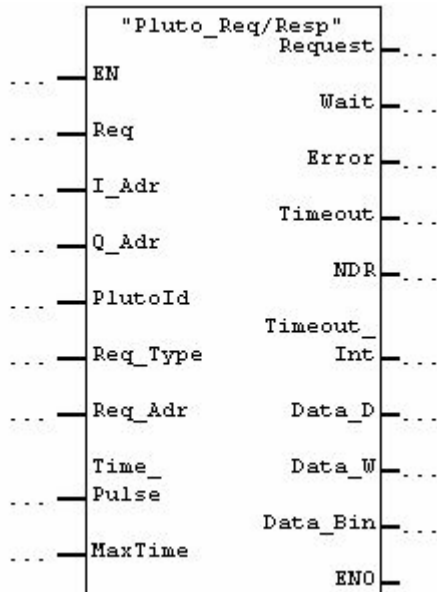
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1 General

This document describes three Sample function blocks for the Siemens S7 PLC family for communication with Jokab Safety Pluto PLC's via Profibus DP. All functions are samples and are to be used "as is".

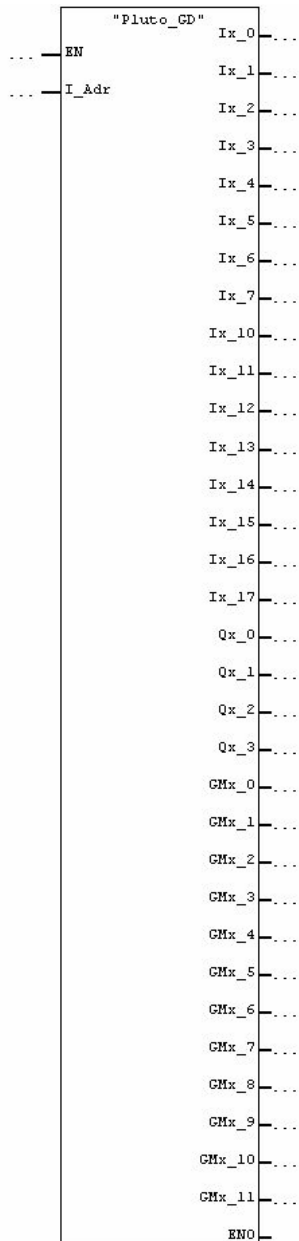
Every instance of the FB's needs to be connected to an instance data block. See Step 7 manual.

2 Function block - request/respond of local data (write/read)



Input	
EN	Enables or disables the complete block. Default true.
Req	Pulse to send a request to gateway. Connect to square wave. Boolean.
I_Adr	Start address for inputs from the hardware configuration in Step 7. Integer.
Q_Adr	Start address for outputs from the hardware configuration in Step 7. Integer.
PlutoId	The address of the Pluto the data is requested from (0 to 31). Integer.
Req_Type	Requested type of local data. 0 to 3. 0=Global memory (Boolean), 1=Local memory (Boolean), 2=Local register (Integer), 3=Local parameter (Long Integer). See documentation for Pluto Gateway.
Req_Adr	Requested address of local data. Depending on type. See documentation Pluto Gateway.
Time_Pulse	Pulse for internal timeout. Connect to square wave. Boolean.
MaxTime	The maximal number of pulses on the Time_Pulse input before setting the internal timeout. Integer.
Output	
Request:	Request is made (Boolean)
Wait:	Request processed by gateway. (Boolean)
Error:	Error in Request / Response (Boolean)
Timeout:	Timeout from gateway. Boolean.
NDR:	Request/response successful. New data available (Boolean)
Timeout_Int:	Internal Timeout. Set when no acknowledge has been made from gateway within the Max_Time. Boolean.
Data_D:	Data from function (Long Integer)
Data_W:	Data from function (Integer)
Data_Bin:	Data from function (Boolean)
ENO:	Enable output from FB (Boolean)

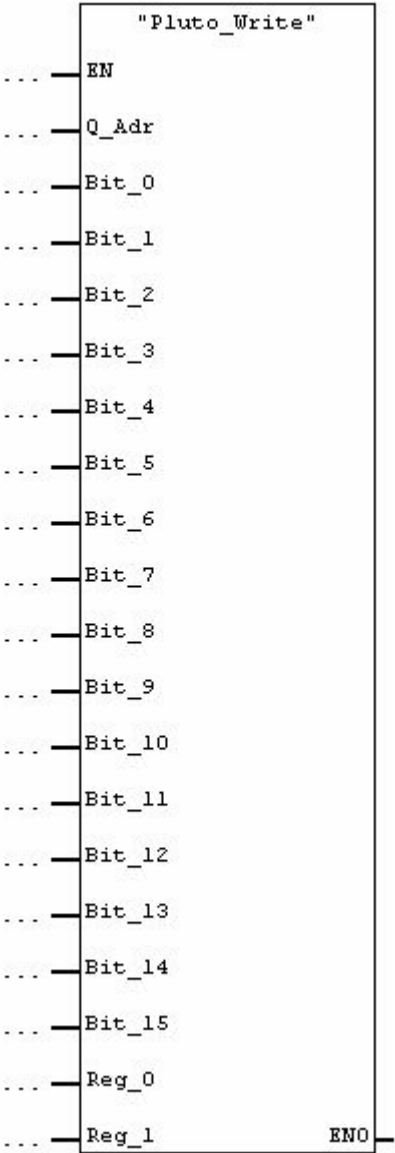
3 Function block - Global data from Pluto (read)



Input	
EN:	Enables or disables the complete block. Default true.
I_Adr:	Start address for inputs from the hardware configuration in Step 7. Integer.
Output	
Ix_0 To Ix_17:	Inputs from Pluto, x= Pluto node nr (Boolean).
Qx_0 To Qx_3:	Safety outputs from Pluto, x= Pluto node nr (Boolean).
GMx_0 To GMx_11:	Global memories from Pluto, x= Pluto node nr (Boolean).
ENO:	Enable output from FB (Boolean).

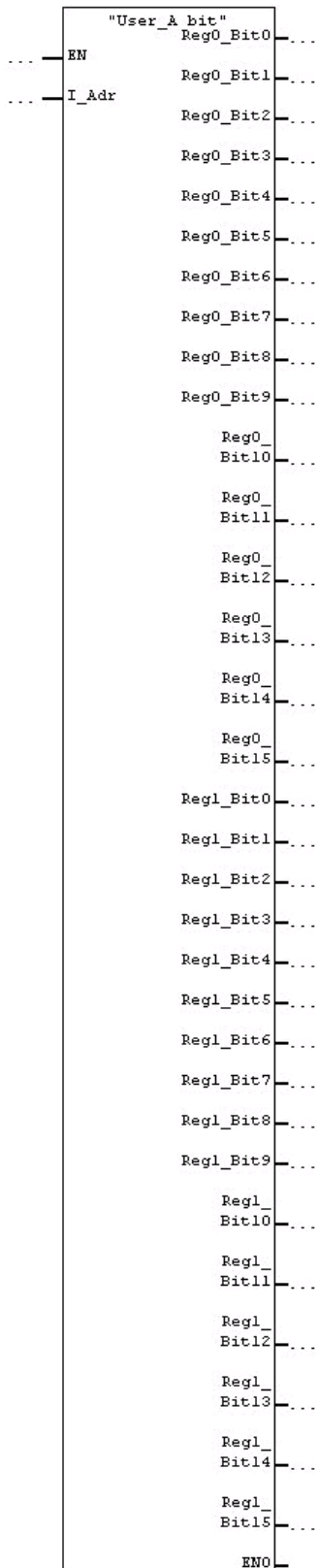
4 Function block - Data to Pluto (write)

Corresponding programming is needed in Pluto. See Manual Pluto Gateway [REF A].



Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Bit_0 to Bit_15:.	Connect to a S7 Boolean variable and send to Pluto. If not connected to a variable 0 (False) is default value (Boolean)
Reg_0 and Reg_1:.	Connect to a S7 integer variable and send to Pluto. If not connected to a variable 0 is default value (Integer).
Output	
ENO:	Enable output from FB (Boolean).

5 Function block – Additional data – USER A (read)

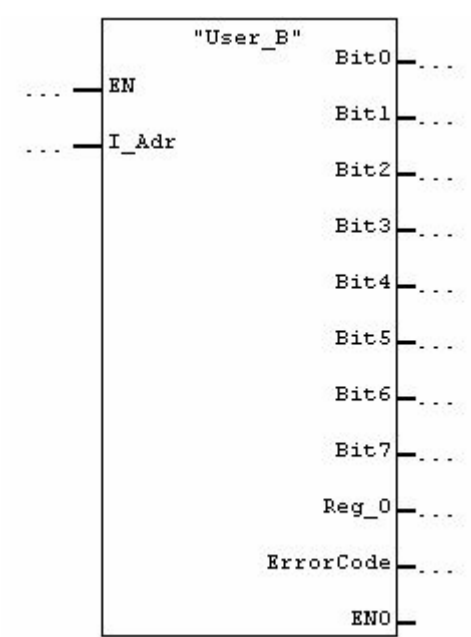


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive user defined 32 bit value from Pluto.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
Reg0_bit0-Reg0_bit15	16 bits user defines data from Pluto (Boolean).
Reg1_bit0-Reg1_bit15	16 bits user defines data from Pluto (Boolean).
ENO:	Enable output from FB (Boolean).

6 **Function block – Additional data – USER B (read)**

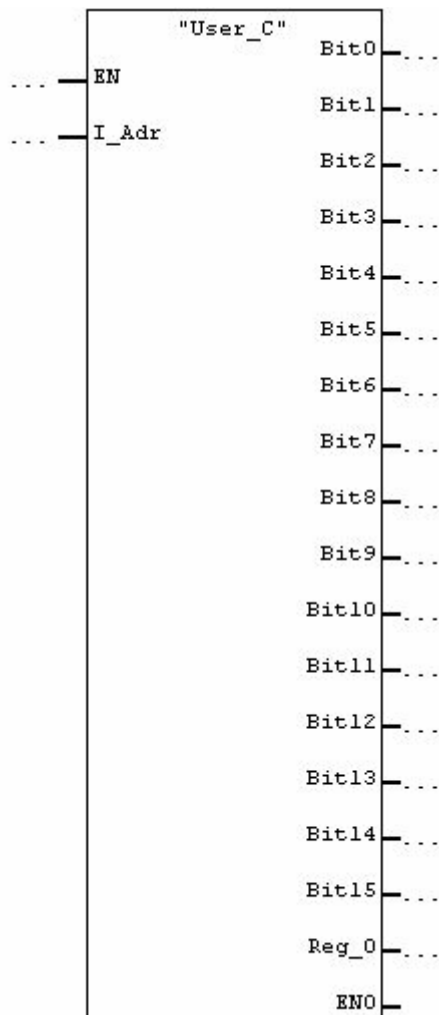


Corresponding programming is needed in Pluto.
 See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive user defined 8 bit value, 16 bits register and error code from Pluto.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
Bit0 – Bit7	8 bits user defines data from Pluto (Boolean).
Reg_0	16 bits user defines register data from Pluto (Integer).
ErrorCode	Pluto error code value (Byte).
ENO:	Enable output from FB (Boolean).

7 Function block – Additional data – USER C (read)

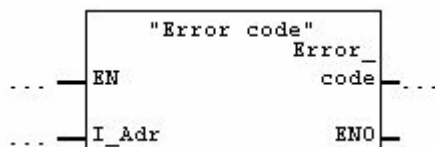


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive user defined 16 bits value and16 bits register from Pluto.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
Bit0 – Bit15	16 bits user defines data from Pluto (Boolean).
Reg_0	16 bits user defines register data from Pluto (Integer).
ENO:	Enable output from FB (Boolean).

8 Function block – Additional data – Error code (read)

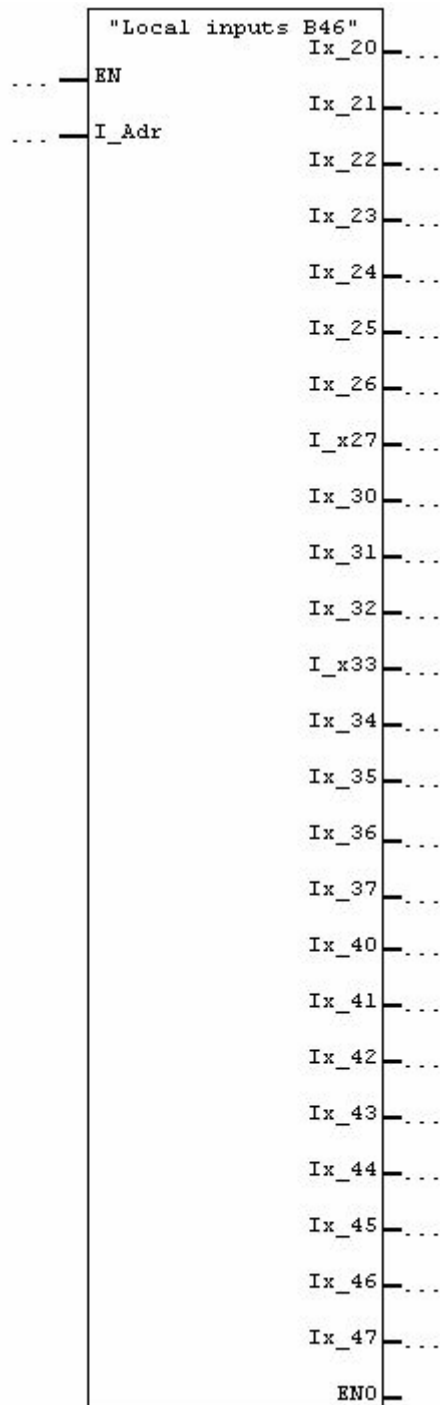


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive error code from Pluto.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
Error_code	Pluto error code value (Byte).
ENO:	Enable output from FB (Boolean).

9 Function block – Additional data – B46 I20-I47 (read)

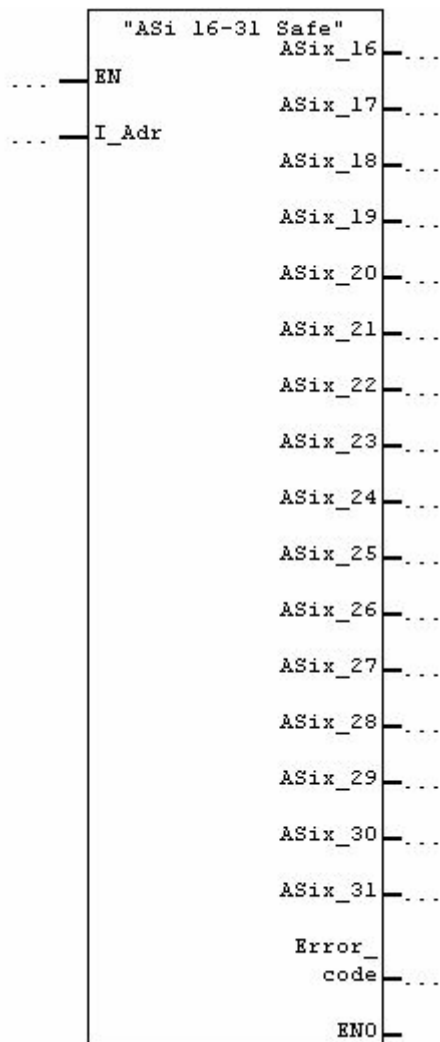


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive Pluto B46 local data I20 – I47.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
Ix_20 – Ix47	Pluto B46 local inputs I20 – I47(Boolean), x= Pluto node nr.
ENO:	Enable output from FB (Boolean).

10 Function block – Additional data – ASi 16-31 safe (read)

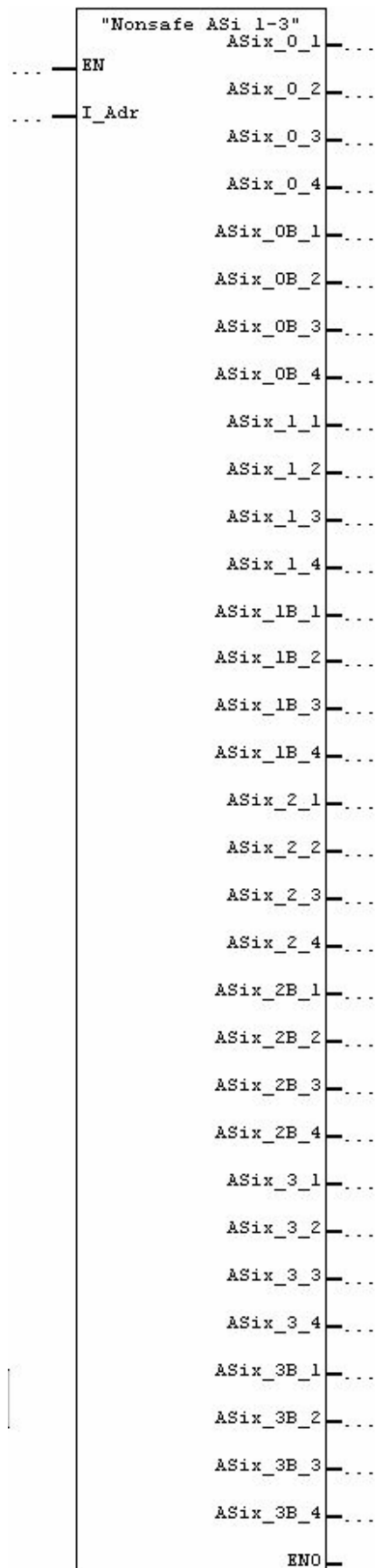


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive Pluto AS-i local AS-i safety slave 16 – 21 and Pluto error code.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_16 – ASix_31	Pluto AS-i local safety AS-i slave, x= Pluto node nr (Boolean).
Error_code	Pluto error code value (Byte).
ENO:	Enable output from FB (Boolean).

11 Function block – Additional data – ASi 1-3 non safe (read)

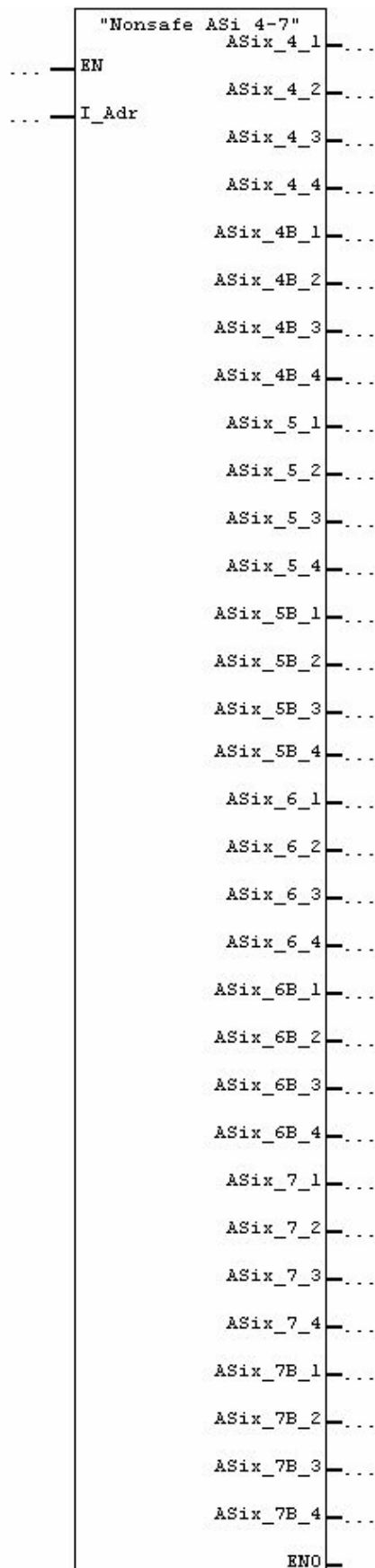


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive data from Pluto AS-i local non safe AS-i slave address 1 – 3.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_y_1 – ASix_y_3	Pluto AS-i local non safe AS-i standard and extended A slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ASix_yB_1 – ASix_yB_3	Pluto AS-i local non safe AS-i extended B slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ENO:	Enable output from FB (Boolean).

12 Function block – Additional data – ASi 4-7 non safe (read)

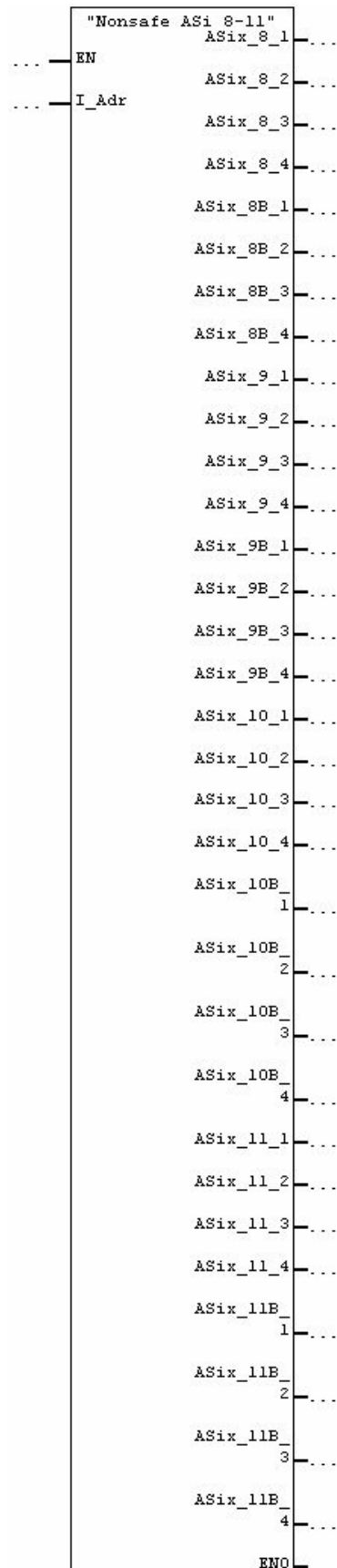


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive data from Pluto AS-i local non safe AS-i slave address 4 – 7.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_y_1 – ASix_y_3	Pluto AS-i local non safe AS-i standard and extended A slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ASix_yB_1 – ASix_yB_3	Pluto AS-i local non safe AS-i extended B slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ENO:	Enable output from FB (Boolean).

13 Function block – Additional data – ASi 8-11 non safe (read)

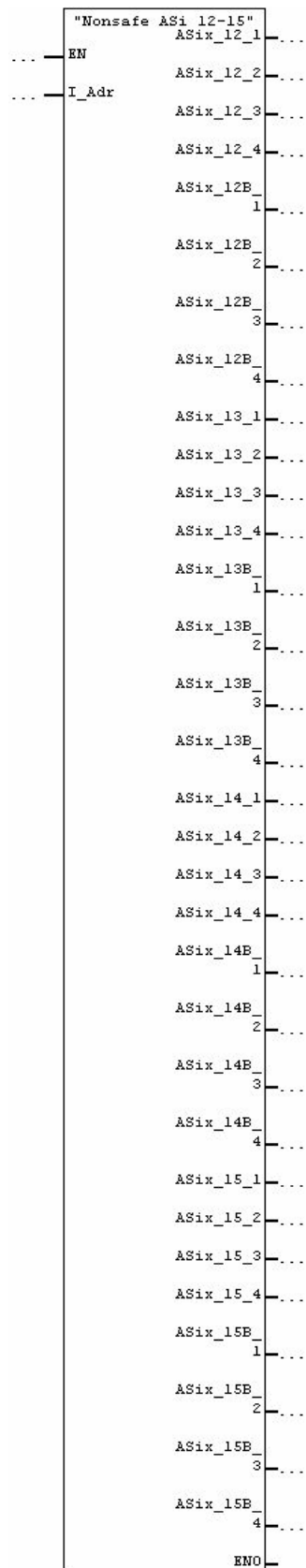


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive data from Pluto AS-i local non safe AS-i slave address 8 – 11.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_y_1 – ASix_y_3	Pluto AS-i local non safe AS-i standard and extended A slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ASix_yB_1 – ASix_yB_3	Pluto AS-i local non safe AS-i extended B slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ENO:	Enable output from FB (Boolean).

14 Function block – Additional data – ASi 12-15 non safe (read)

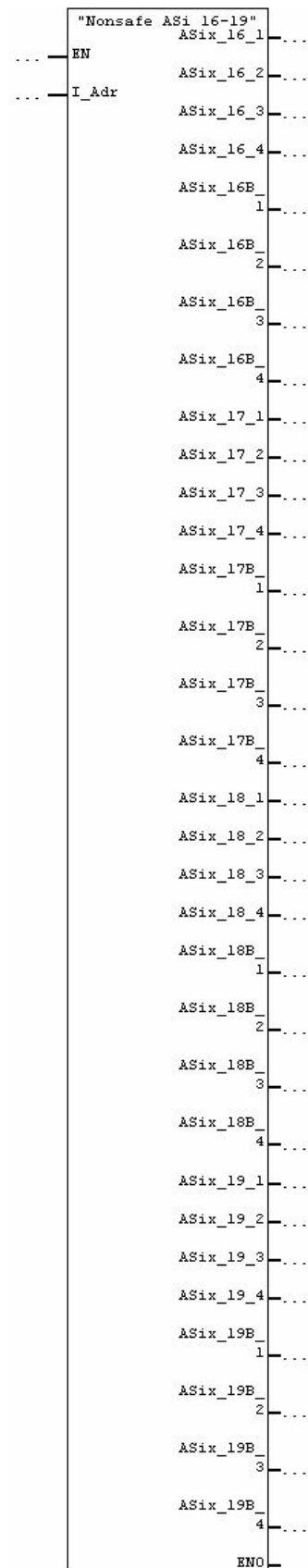


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive data from Pluto AS-i local non safe AS-i slave address 12 – 15.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_y_1 – ASix_y_3	Pluto AS-i local non safe AS-i standard and extended A slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ASix_yB_1 – ASix_yB_3	Pluto AS-i local non safe AS-i extended B slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ENO:	Enable output from FB (Boolean).

15 Function block – Additional data – ASi 16-19 non safe (read)

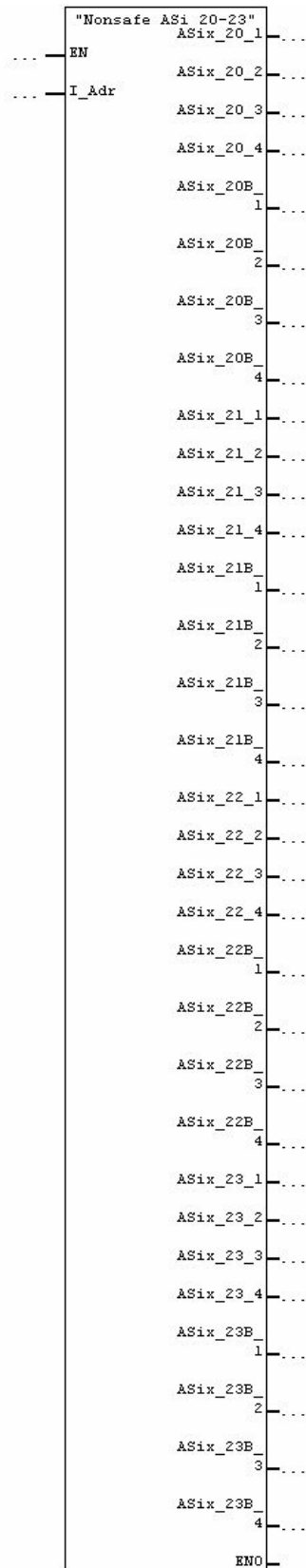


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive data from Pluto AS-i local non safe AS-i slave address 16 – 19.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_y_1 – ASix_y_3	Pluto AS-i local non safe AS-i standard and extended A slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ASix_yB_1 – ASix_yB_3	Pluto AS-i local non safe AS-i extended B slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ENO:	Enable output from FB (Boolean).

16 Function block – Additional data – ASi 20-23 non safe (read)

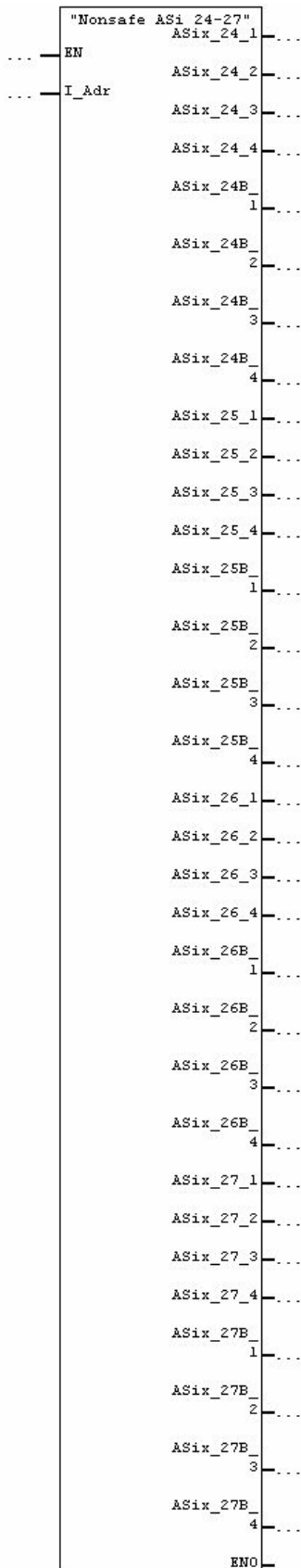


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive data from Pluto AS-i local non safe AS-i slave address 20 – 23.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_y_1 – ASix_y_3	Pluto AS-i local non safe AS-i standard and extended A slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ASix_yB_1 – ASix_yB_3	Pluto AS-i local non safe AS-i extended B slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ENO:	Enable output from FB (Boolean).

17 Function block – Additional data – ASi 24-27 non safe (read)

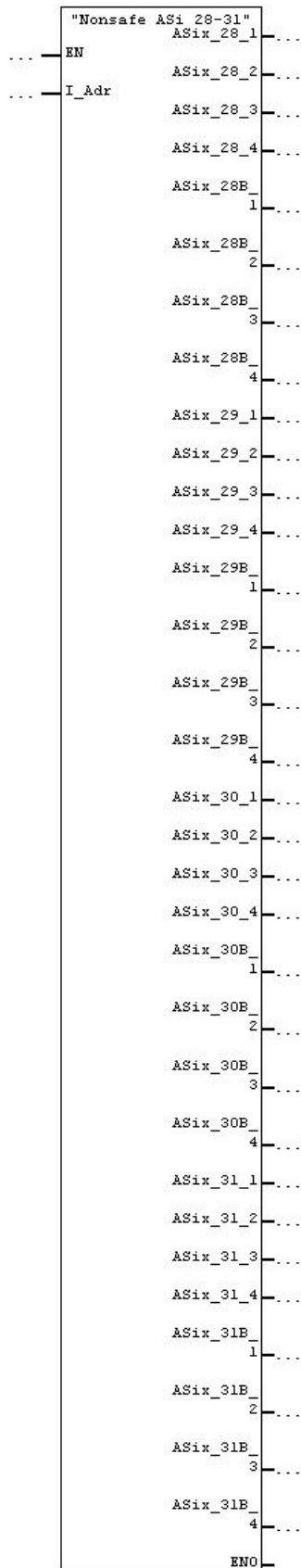


Corresponding programming is needed in Pluto.
See Manual Pluto Gateway [REF A] chapter “Additional data”.

This block will receive data from Pluto AS-i local non safe AS-i slave address 24 – 27.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_y_1 – ASix_y_3	Pluto AS-i local non safe AS-i standard and extended A slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ASix_yB_1 – ASix_yB_3	Pluto AS-i local non safe AS-i extended B slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ENO:	Enable output from FB (Boolean).

18 Function block – Additional data – ASi 28-31 non safe (read)



Corresponding programming is needed in Pluto.
See Manual Pluto Gateway **[REF A]** chapter “Additional data”.

This block will receive data from Pluto AS-i local non safe AS-i slave address 28 – 31.

Input	
EN:	Enables or disables the complete block. Default true.
Q_Adr:	Start address for outputs from the hardware configuration in Step 7. Integer.
Output	
ASix_y_1 – ASix_y_3	Pluto AS-i local non safe AS-i standard and extended A slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ASix_yB_1 – ASix_yB_3	Pluto AS-i local non safe AS-i extended B slave (Boolean), x= Pluto node nr, y=AS-i slave number.
ENO:	Enable output from FB (Boolean).