Configuration and Parameter Assignment Frame for the DP/PA link and Y link

1

Overview of contents

This describes the structure of the configuration and parameter assignment frame for running the DP/PA link as well as the Y link on a standard DP master.

You do not need this information if you are running the DP/PA link or Y link on an S7 DP master.

Chapter overview

Scope

This description is valid for the following IM 153-2:

- as of 6ES7153-2BAx1-0XB0, Product release 01

1.1 Configuration Frame

Structure

The configuration frame of the DP/PA link or Y link depends on the number of slaves configured. It consists of a series of individual configurations of the configured slaves. The configuration data of the slaves is sorted by PROFIBUS address in ascending order.

Example for DP/PA link

A bus system has been configured with three slaves:

- Slave 3 with one slot: general ID format
- Slave 5 with two slots: specific ID format
- Slave 8 with two slots: specific ID format

Result: The configuration frame consists of 17 bytes and is as follows:

Byte	Value	Slave	Slot*)	Purpose
0	01_H	3	–	DPV1 substitute slot
1	FA_H			
2	94_H			Input over 5 bytes with consistency over the whole length
3	01_H	5	–	DPV1 substitute slot
4	FA_H			
5	42_H		1	Followed by: • 1 length byte for input • 2 bytes of vendor-specific data
6	84_H			Length byte: input over 5 bytes with consistency over the whole length
7	08_H			Vendor-specific data (specified by the vendor)
8	05_H			
9	20_H		2	Output over 1 byte with consistency over the byte

Byte	Value	Slave	Slot*)	Purpose
10	01_H	8	–	DPV1 substitute slot for interrupt-capable slave
11	FB_H			
12	$C1_H$		1	Followed by: • 1 length byte for output • 1 length byte for input • 1 byte of vendor-specific data
13	80_H			Length byte: output over 1 byte with consistency over the whole length
14	84_H			Length byte: input over 5 bytes with consistency over the whole length
15	85_H			Vendor-specific data (specified by the vendor)
16	20_H		2	Output over 1 byte with consistency over the byte

*) Slot number in the modular slave

Note

Interrupt-capable slaves can then be used behind a Y link or a redundant DP/PA link, if they support Flying Redundancy.

You can see this in the following entry in the slave DDB file:

- Slave_Redundancy_supp=1

1.2 Parameter Assignment Frame

The parameter assignment frame is stored in the GSD file.

Structure

All the parameterizable values of the DP/PA link or Y link are stored in the parameter assignment frame. The length of the parameter assignment frame depends on the number of PA field devices and can be a maximum of 215 or 223 bytes.

Standard Part (byte 0 to 6)
DPV1 Parameter for IM 153-2 (byte 7 to 9)
H Parameter Assignment Command (Byte x to x+7)
Parameter Block for GSD (byte z to z+8)
Parameters for PA field devices or DP slaves (byte y to y+195)

Figure 1-1 Structure of the parameter assignment frame

Standard Part

The first 7 bytes of the parameter assignment frame are standardized to IEC 61784-1:2002 Ed1 CPF 3 PROFIBUS and PROFINET and, in the case of the DP/PA link or Y link, have the following structure:

Byte 0	88_H	Station status
Byte 1		Watchdog factor 1 *
Byte 2		Watchdog factor 2 *
Byte 3	$0B_H$	Response delay T_{RDY}
Byte 4	80_H	Device ID, high byte
Byte 5	52_H	Device ID, low byte
Byte 6	00_H	Group ID

* Both Watchdog-factors are dependant on the structure of the higher-level PROFIBUS DP. A detailed description can be found in the standard mentioned above.

Figure 1-2 Standard part of the parameter assignment frame

DPV1 Parameter for IM 153-2

The length of the parameter for IM 153-2 is 3 byte.

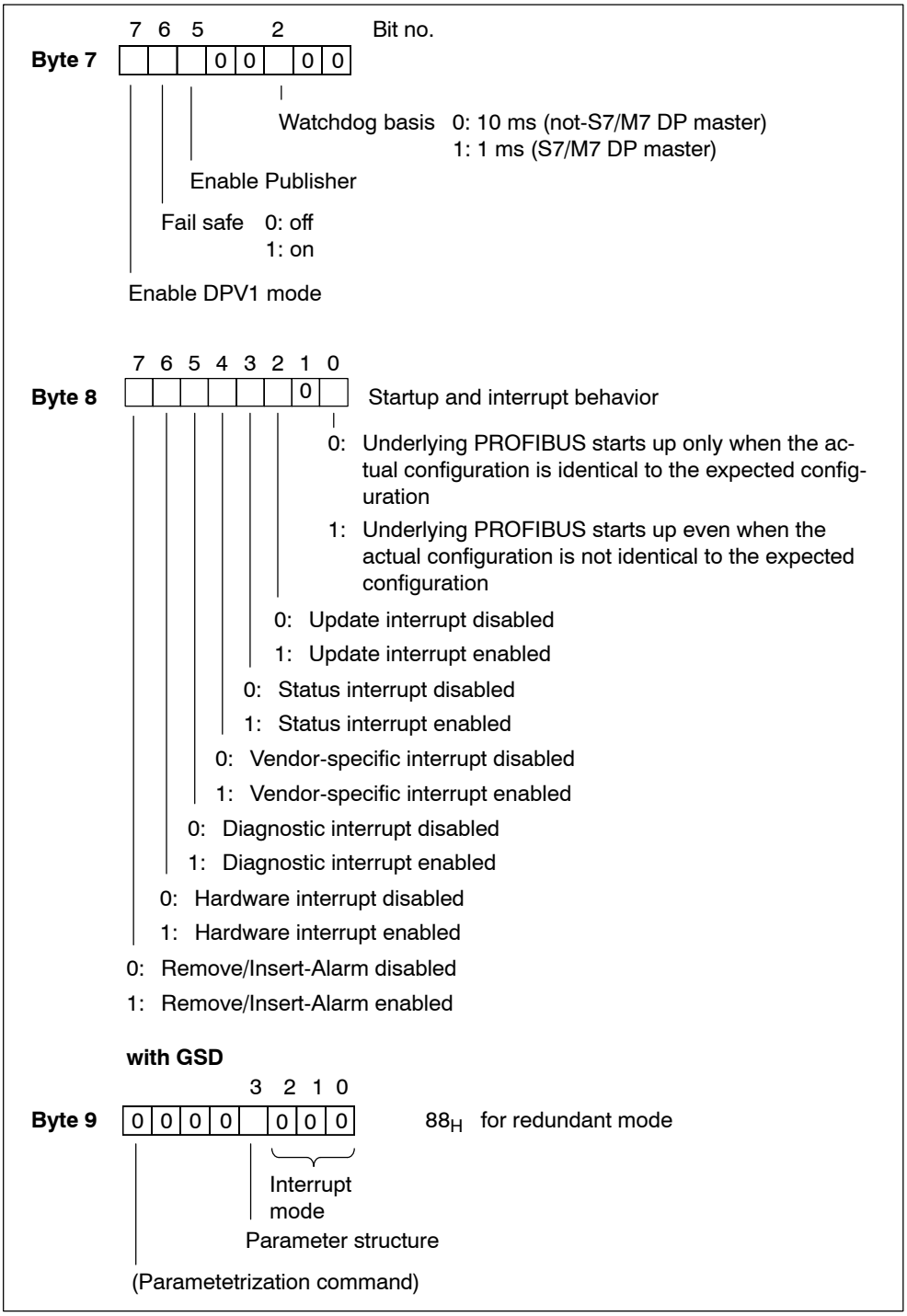

Figure 1-3 DPV1 Parameter for IM 153-2

H Parameter Assignment Command

The H parameter assignment command is only a part of the parameter assignment frame if you operate the DP/PA link or Y link on a redundant Standard master and have imported the GSD file of the IM 153-2 (GSD rev. 5) into the configuration tool.

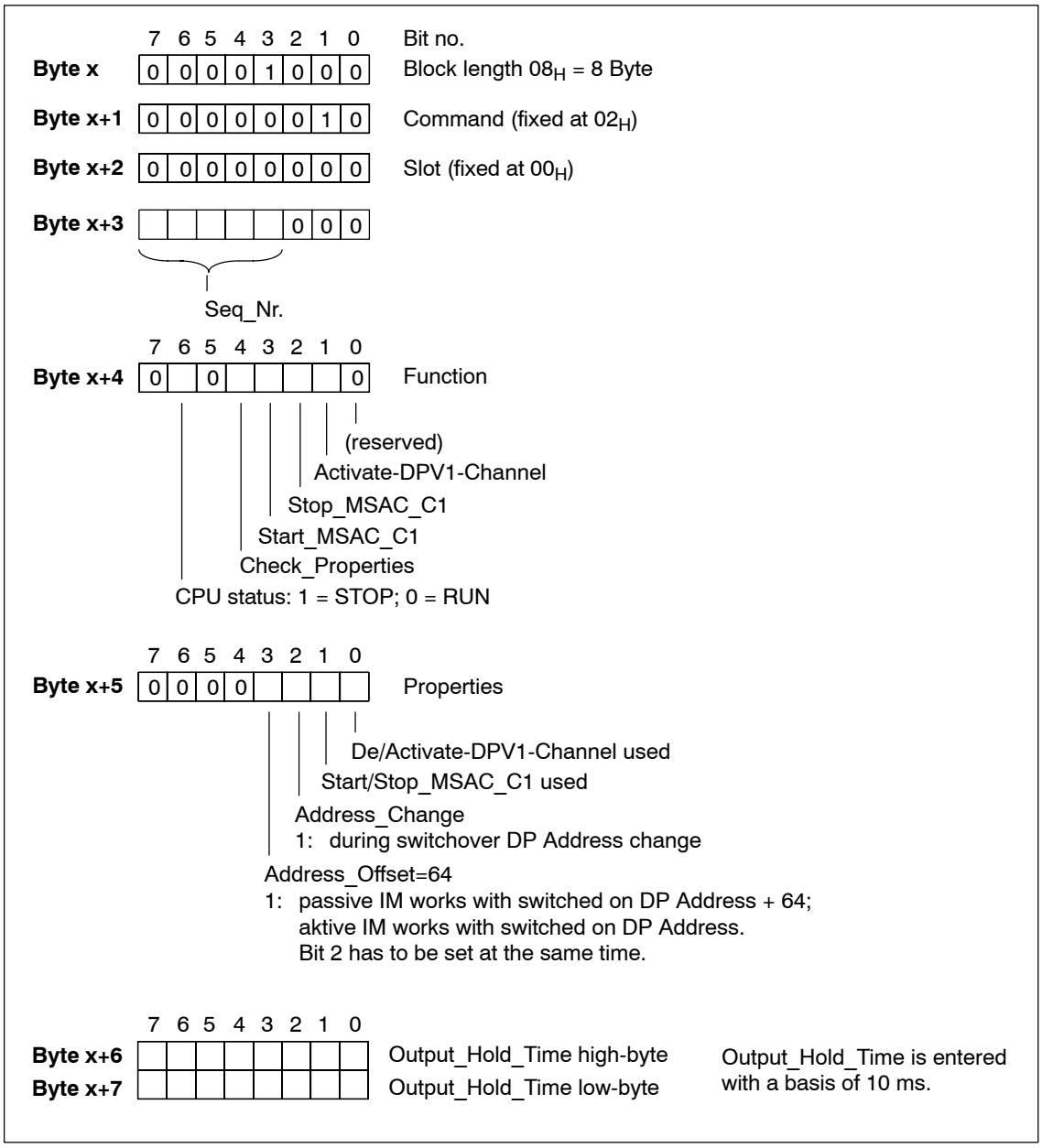

Figure 1-4 H Parameter Assignment Command

Parameter Block for GSD

The length of the parameter block for GSD is 9 Byte.

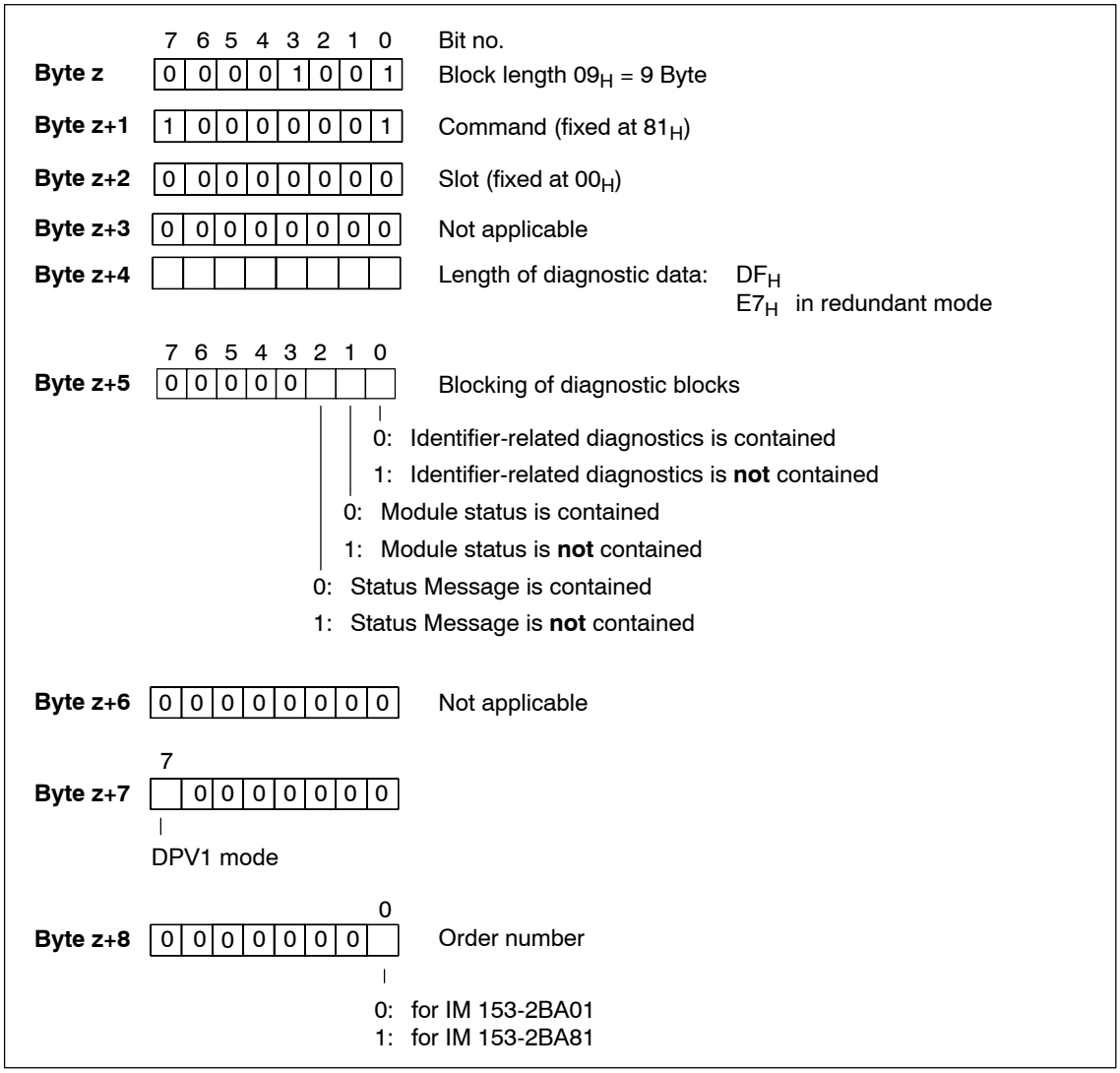

Figure 1-5 Parameter Block for GSD

Parameter for PA Field Devices or DP Slaves

Each configured device occupies three bytes. The devices must be entered in ascending order by PROFIBUS address without gaps. The parameter assignment frame ends with the last device entered.

Byte y	FF_H	
Byte y+1	20_H	
Byte y+2	00_H	
Byte y+3	00_H	
1st PA field device or DP slave (device with the lowest PROFIBUS Address)		
Byte y+4		Device ID, high byte
Byte y+5		Device ID, low byte
Byte y+6		PROFIBUS address
.	.	. .
.	.	. .
.	.	. .
64th PA field device or DP slave		
Byte y+193		Device ID, high byte
Byte y+194		Device ID, low byte
Byte y+195		PROFIBUS address

Figure 1-6 Parameter for PA Field Devices or DP Slaves