SIEMENS

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SIMATIC

DP/PA Link and Y Link bus links
IM 153-2 Interface Module

Product Information

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Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠CAUTION

with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

CAUTION

without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

NOTICE

indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Prescribed Usage

Note the following:

⚠WARNING

This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

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1.1 Introduction

Scope

This Product Information supplements the *Bus Links DP/PA Coupler, DP/PA Link and Y Link* Operating Instructions (A5E00193840-16), Edition 10/2006, and describes the new features of the interface modules:

- IM 153-2; order number 6ES7153-2BA02-0XB0
- IM 153-2 (outdoor); order number 6ES7153-2BA82-0XB0

The following information applies equally to both interface modules. If differences exist, the relevant module will be identified explicitly.

Changes compared to the predecessor modules

In comparison to their predecessors (6ES7153-2BAx1-0XB0), the interface modules indicated above contain the following new features:

- Routing of frames of the slave initiative
- The link behavior for commissioning has been improved.

Additional documentation

You will find the following supplementary documentation online at:
http://support.automation.siemens.com/WW/view/en/ with the corresponding entry ID

Name of manual	Description
Operating Instructions Bus Links DP/PA Coupler, DP/PA Link and Y Link **Entry ID:** 1142696	Description; application planning; mounting; connecting; commissioning; operation of the DP/PA Link and Y Link; maintenance and service; functions; interrupt, error, and system messages, technical specifications, basics about PROFIBUS PA
System Manual Principles of Explosion Protection **Entry ID:** 12521844	Product overview, planning, commissioning, repair and maintenance

1.2 Compatibilities

Compatibility with predecessor versions

With regard to properties and features, the IM 153-2BAx2 interface module is fully compatible with its predecessor versions. In addition, the new features indicated above are available.

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2.1 Routing of frames of the slave initiative

The IM 153-2BAx2 support routing of frames of the slave initiative. In so doing, the frames of devices are passed behind the link to the higher-level controller.

This routing can be used, for example, to operate SINAMICS drives behind the Y Link if the trace function is being used with the STARTER commissioning tool.

2.2 Improved link behavior during commissioning

Starting situation

The IM 153-2BAx2 interface modules are installed in one link and should be operated redundantly in an H System (e.g., SIMATIC S7-400H).

Behavior of IM 153-2BAx2

If the IM 153-2BAx2 detects a redundancy partner that is not ready to be switched to or if there are no lower-level slaves, the interface module stops sending continuous diagnostic messages.

This behavior can also be implemented for the following interface modules by means of a firmware update:

- IM 157 (6ES7157-0AA82-0XA0)
- IM 153-2 (6ES7153-2BAx1-0XB0)

This "new" behavior of the IM 153-2BAx2 is not available for redundancy mode in accordance with the standard.

2.3 Which devices can be operated behind the Y Link?

Slaves at the lower-level DP master system cannot be operated in DPV1 mode unless they have been integrated and configured with GSD rev. ≥ 5.

The GSD must contain the following entries:

- Prm_Block_Structure_supp=1
- PrmCmd_supp=1
- Slave_Redundancy_supp=1

STEP 7 checks these entries during configuration.

If these entries are not found, the slave is then operated in DPV0 mode.

2.4 Operation of the link on an S5 H System

The following details are added to Chapter 11.1.2 of the *Bus Links; DP/PA Coupler, DP/PA Link, and Y Link* Operating Instructions, Edition 10/2006:

S5-115H / -155H as DP master

A redundantly configured link with IM 153-2 can **not** be operated on an S5 H System.

Technical specifications

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3.1 Technical specifications of the IM 153-2 (6ES7153-2BAx2-0XB0)

Dimensions and weight	
Dimension W x H x D (mm)	40 x 125 x 117
Weight	Approx. 360 g
Module-specific data	
Transmission speed for the higher level DP master system	9.6; 19.2; 45.45; 93.75; 187.5; 500 kBaud 1.5; 3; 6; 12 MBaud
Bus protocol	PROFIBUS DP
Frame length I / O data	Max. 244 bytes
Length of configuration frame	Max. 244 bytes
Length of diagnostic frame	Max. 231 bytes
Length of parameter assignment frame	Max. 223 bytes
suitable for system modifications during operation	Yes
Voltages, currents, potentials	
Rated supply voltage	24 VDC (20.4 V to 28.8 V)
• Polarity reversal protection	Yes
• Power failure bypass	20 ms
Electrical isolation	
• to a high-level DP master system	Yes
• to the DP/PA or Y coupler	No
Insulation tested with	500 VDC
when used in the DP/PA link	
• Power consumption (24 VDC)	Max. 200 mA (at 20.4 V)
• Power loss	Max. 2.6 W (at 28.8 V)
when used in the Y link	
• Power consumption (24 VDC)	Max. 400 mA (at 20.4 V)
• Power loss	Max. 3.6 W (at 28.8 V)

Status, interrupts, diagnostics	
Status display	No
Interrupts	Yes
Diagnostics function	Yes
• Group error	Red LED "SF"
• Bus error on higher level DP master system	Red LED "BF 1"
• Bus error on underlying bus system	Red LED "BF 2"
• IM has an active channel	Yellow LED "ACT"
• Monitoring 24 V power supply	Green "ON" LED
Data for connecting underlying bus components	
DP/PA coupler can be connected	Max. 5
Y coupler can be connected	1
Underlying slaves can be connected	Max. 64
Number of slots in underlying slaves	(244 minus number of PA field devices), but not more than 236