

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6ES7143-5BF00-0BA0

DIQ 4 PLUS DQ 4 DIGITAL I/O MODULE

Used with the applicable SIMATIC ET 200AL configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Official Siemens technical documentation for 6ES7143-5BF00-0BA0

Legal information

Warning notice system

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
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.

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 product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

 WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens Aktiengesellschaft. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

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.

General information



The function manuals contain detailed descriptions on general topics relating to the SIMATIC ET 200AL distributed I/O system.

Examples:

- Function Manual ET 200AL/ET 200SP Mixed Configuration
- Function Manual Diagnostics
- Function Manual Communication
- PROFINET Function Manual
- PROFIBUS Function Manual
- Function Manual Designing Interference-free Controllers
- Function Manual IO-Link system

Manual Collection ET 200AL

1.1.2 Tool support

The tools described below support you in all steps: from planning, over commissioning, all the way to analysis of your system.

TIA Selection Tool

The TIA Selection Tool tool supports you in the selection, configuration, and ordering of devices for Totally Integrated Automation (TIA).

As successor of the SIMATIC Selection Tools, the TIA Selection Tool assembles the already known configurators for automation technology into a single tool.

2.3 Cybersecurity-relevant information

Observe all relevant cybersecurity information.

Security features of the product	Reference

Additional information

8.2 DI operating mode

Display

The channel status LEDs are directly influenced by the signal level at the socket.
If the encoder supply is switched off, this causes the channel status LEDs to also switch off.

Response to error detection

All channels that are in pause mode on "PE_MODE_PROCEED" report their diagnostic status as in productive mode.

The following applies for all channels which switch to a different pause mode:

- Encoder supply switch-off upon the start of "pause" does not result in the "Short-circuit" alarms.
- During the "pause", error detection of "Short circuit" is not possible:
 - Alarms for errors already pending before the "pause" are retained.
 - After the "pause" is over, the error status is updated and incoming/outgoing errors are reported correspondingly.

B.2 Error transferring the data record

If you carry out the parameter settings in STEP 7 (TIA Portal) or in STEP 7, the parameters are verified before they are transferred to the I/O device. This avoids errors in the parameter assignment.

In other applications, for example with a GSD file, the I/O device verifies the transferred parameter data record. If the I/O device determines impermissible or inconsistent parameter values, an error code (see below) as well as the Diagnostic interrupt "Parameter assignment error" (Page 29) are issued. In this case the new parameter data set is rejected and the current parameter values continue to be used until a valid parameter data set is transferred.

WRREC

You can change the parameter data record in the RUN operating state of the CPU by using the instruction WRREC (Write Record). The WRREC instruction returns corresponding error codes when errors occur in the STATUS parameter.

Example:

Let us assume that the execution of WRREC results in an impermissible value for the operating mode, for example 9, being written to the module. As a result the module rejects the complete parameter data record. You recognize this by evaluating the STATUS output parameter of the WRREC instruction. The STATUS output parameter is output as an ARRAY[1..4] from BYTE data with the value 16#DF80E111:

Example WRREC STATUS data	Address	Meaning
DF _H	STATUS[1]	Error while writing a data record via PROFINET IO (IEC 61158-6)
80 _H	STATUS[2]	Error while reading or writing a data record via PROFINET IO (IEC 61158-6)
E1 _H	STATUS[3]	Module-specific error
11 _H	STATUS[4]	Error code from the following table: The parameter "Operating mode" has an invalid value.