

Preface

Validity of the documentation

This equipment manual describes the following I/O modules:

System family	I/O module	Article No.
SIMATIC Distributed I/O System ET 200SP HA	DQ 16x24VDC/0.5A	6DL1132-6BH00-0PH1
SIMATIC Distributed I/O System ET 200SP HA	DQ 16x24VDC/0.5A	6DL1132-6BH00-0EH1

It complements the system manual for the ET 200SP HA Distributed I/O System.

Functions that generally relate to the system are described in this manual.

The information in this device manual and the system/function manuals enables you to put the ET 200SP HA into operation.

Conventions

Please also observe notes marked as follows:

Note

A note contains important information on the product described in the documentation, on the handling of the product or on the section of the documentation to which particular attention should be paid.

Product overview

4.1 I/O module

Definition

The DQ 16x24VDC/0.5A I/O module is a digital output module with 16 power outputs for process control.

In addition to the technical specifications, this module has the following properties:

- Suitable for solenoid valves, DC contactors, and indicator lights
- Parameter reassignment in RUN
- Output disable switch

5.3 Sample connection scheme for 2-wire connection

Example



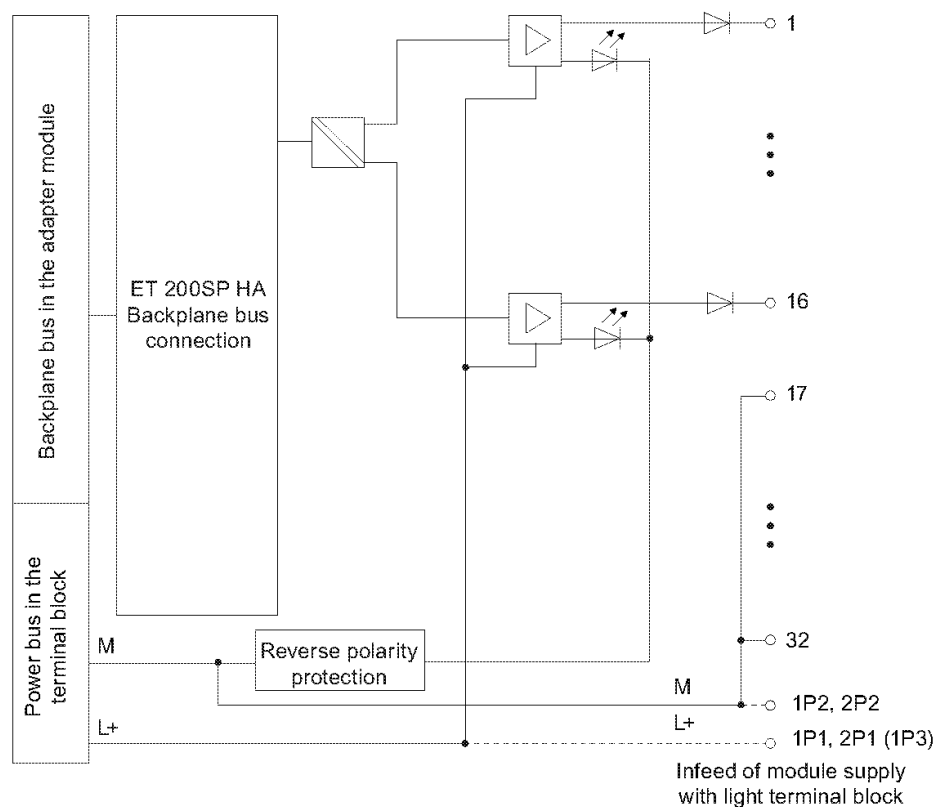
5.4 Schematic circuit diagram

Definition

A block diagram contains the schematic representation of individual function blocks.

Description

The circuit diagram for the I/O module is structured as follows:



The supply voltage L+ must be applied to the I/O module at the start of a firmware update and during the firmware update.

Article number	6DL1132-6BH00-0EH1
General information	
Firmware version	V1.0
• FW update possible	Yes
Usable terminal block	TB type H1 and M1
Color code for module-specific color identification plate	CC02
Engineering with	
• SPPA-T3000 can be configured/integrated from version	V8.0
Operating mode	
• DQ	Yes
• DQ with energy-saving function	No
Redundancy	
• Redundancy capability	Yes; With TB type M1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
Current consumption (rated value)	60 mA; without load
Current consumption, max.	70 mA; without load
Power loss	
Power loss, typ.	1.2 W; minimum - typ. specification not possible because load-dependent
Address area	
Address space per module	
• Address space per module, max.	8 byte; PII: 0 bytes, +2 bytes for QI information, +2 bytes of PROFINET status data; PIO: 2 bytes, +2 bytes of PROFINET status data
Digital outputs	
Short-circuit protection	Yes; Ensure sufficient low-resistance cable routing to the sensor/actuator in order to attain the response threshold. Depending on the cable cross-section used, there may be constraints regarding the usable length of cable.
• Response threshold, typ.	0.7 A to 1.3 A (for IO redundancy up to max 2.6 A)
Open-circuit detection	Yes; 0.7 mA test current for wire-break diagnostics; this value is doubled in the case of IO redundancy
Overload protection	Yes
Limitation of inductive shutdown voltage to	L+ -(37 to 41V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• with resistive load, max.	0.5 A

Article number	6DL1132-6BH00-0EH1
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	12 kΩ
Output current	
• for signal "0" residual current, max.	0.7 mA; Test current for wire-break diagnostics; this value is doubled in the case of IO redundancy
Output delay with resistive load	
• "0" to "1", typ.	50 μs
• "1" to "0", typ.	100 μs
Parallel switching of two outputs	
• for uprating	No
• for redundant control of a load	Yes
Switching frequency	
• with inductive load, max.	2 Hz
• on lamp load, max.	10 Hz
Total current of the outputs	
• Current per channel, max.	0.5 A
Total current of the outputs (per module)	
horizontal installation	
– up to 30 °C, max.	8 A
– up to 40 °C, max.	8 A
– up to 50 °C, max.	8 A
– up to 60 °C, max.	5.5 A
– up to 70 °C, max.	3 A
vertical installation	
– up to 30 °C, max.	8 A
– up to 40 °C, max.	6.33 A
– up to 50 °C, max.	4.67 A
– up to 60 °C, max.	3 A
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Interrupts/diagnostics/status information	
Diagnoses	
• Monitoring the supply voltage	Yes
• Wire-break	Yes; channel by channel
• Short-circuit to M	Yes; channel by channel
• Short-circuit to L+	Yes; channel by channel
• Group error	Yes
Diagnostics indication LED	
• MAINT LED	Yes; Yellow LED

Article number	6DL1132-6BH00-0EH1
- Monitoring of the supply voltage (PWR-LED) - Channel status display - for channel diagnostics - for module diagnostics	Yes; green PWR LED Yes; green LED Yes; red LED Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
- between the channels - between the channels and backplane bus	No Yes
Ambient conditions	
Ambient temperature during operation	
- horizontal installation, min. - horizontal installation, max. - vertical installation, min. - vertical installation, max.	-40 °C 70 °C -40 °C 60 °C
Dimensions	
Height	115 mm
Depth	138 mm

Derating curve

The following figure shows the load current derating with horizontal and vertical mounting positions.

