

Preface

Purpose of the Manual

The information in this manual is intended to enable you to operate the ET 200S Distributed I/O System on DeviceNet as a slave.

Required level of knowledge

Knowledge of the field of automation engineering is required to understand the manual.

Scope of the manual

This manual is valid for the 5136-DNS-200S DeviceNet Slave Adapter module and the components of the ET 200S distributed I/O system specified in Appendix A.

This manual contains a description of the components that were valid at the time the manual was published. We reserve the right to enclose a Product Information bulletin containing up-to-date information about new components and new versions of components.

Certification

The 5136-DNS-200S DeviceNet Adapter complies with DeviceNet Specification Volume I, Release 2.0 and Volume II, Release 2.0.

See Section 7.1 Standards, certificates and approvals

CE Mark of Conformity

See Section 7.1 Standards, certificates and approvals

Identification for Australia (C-tick mark)

See Section 7.1 Standards, certificates and approvals

Standards

The 5136-DNS-200S DeviceNet Adapter complies with DeviceNet Specification Volume I, Release 2.0 and Volume II, Release 2.0.

See Section 7.1 Standards, certificates and approvals

Technical Support for the SST 5136-DNS-200S DeviceNet Slave Adapter

Technical support is available during regular business hours by telephone, fax, or e-mail from any Woodhead Software and Electronics office, or their website at www.woodhead.com.

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Additional Support

Please contact your local Siemens representative if you have any queries about the products described in this manual.

<http://www.siemens.com/automation/partner>

If you require assistance in contacting your distributor or sales office in the United States, phone 1-800-964-4114.

For additional technical assistance, call the Siemens Technical Services Group in Johnson City, Tennessee at 1-800-333-7421 or 423-262-2522, or contact them by e-mail at simatic.hotline@siemens.com. For technical assistance outside the United States, call 49-911-895-7200.

Should you have any questions regarding motor starters, please get in touch with the point of contact in your region responsible for low-voltage switchgear/ controlgear with communication capability. You can obtain a list of the points of contact by dialing the following fax polling number: +49 8765/9302/781001.

Should you have any questions or remarks concerning the manual itself, please complete the reply form at the end of the manual and return it to the address indicated.

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2.1 Product Overview

DeviceNet Interface Module Package

The DeviceNet interface module package (DNH200S) includes as 1 unit the following listed components:

- interface module and terminating module (5136-DNS-200S)
- terminal module (TM-P15S23-A0 (screw-type terminal), 1 unit)
- power module (6ES7 138-4CB10-0AB0)

DeviceNet Module Features

The 5136-DNS-200S DeviceNet Slave Adapter is a communications adapter for interfacing to the Siemens SIMATIC ET 200S distributed I/O system. It provides connectivity between a DeviceNet network and ET 200S expansion modules.

Figure 2-1 shows the hardware features of the DeviceNet module.

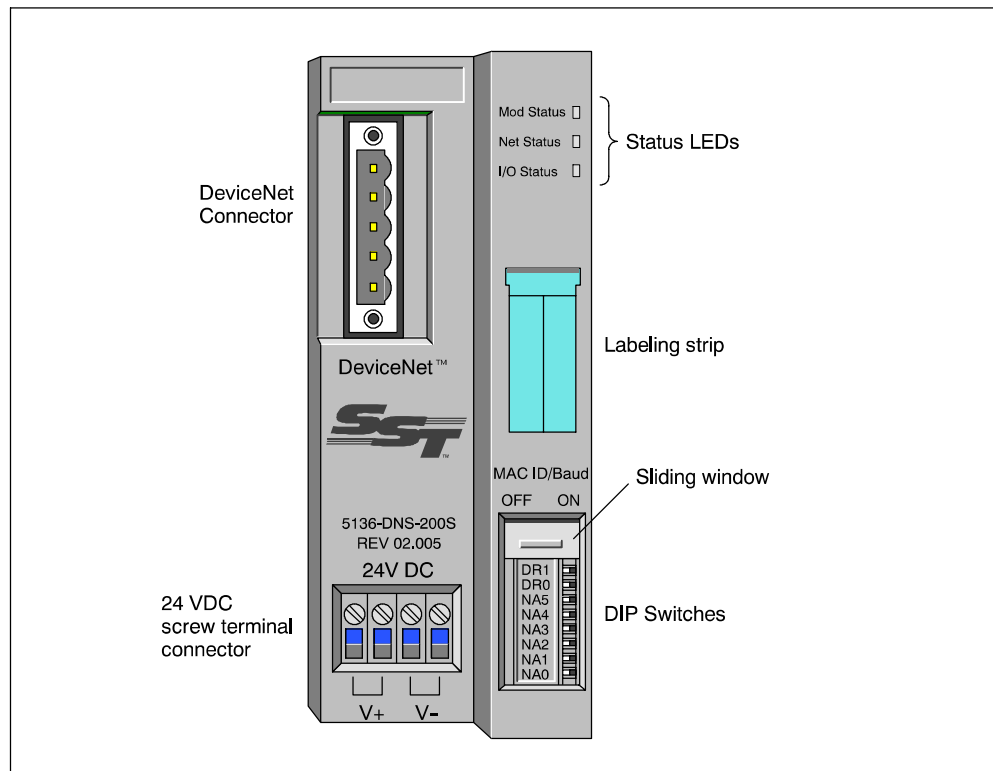


Figure 2-1 5136-DNS-200S DeviceNet Slave Adapter

I/O Status Byte

Attribute 9 of the Adapter object allows you to enable or disable the generation of an additional I/O Status byte to detect faults in the 5136-DNS-200S Adapter. If the `IoStatusEnable` attribute is `TRUE` (1), an additional status byte is placed at the beginning of the input data packet, prior to any expansion module data. In the event of a fault, the appropriate bit is set in the status byte, and the I/O data of the related modules may be interrupted depending on the source of the fault. If the fault originates from a power module, then the Master should ignore input data from the modules in that potential group and no output data is transferred to them. If the fault originates from an I/O module, then I/O data transfer is not affected.

If the `IoStatusEnable` attribute is `FALSE` (0), the input data packet contains only expansion module data as configured. In the event of a fault, the Adapter module transmits zero length I/O messages (no data), and the output data received from the Master for the associated modules is handled as above.

Strobe I/O Operation

The strobe I/O protocol is intended for simple input only devices. The maximum produced size across a strobe I/O connection, as defined by the DeviceNet protocol, is 8 bytes. The strobe I/O protocol has only a single bit of output data per device. The 5136-DNS-200S does not make use of its output bit and can return up to a maximum of 8 bytes of input data depending on the configuration present.

Note

Any configurations in which output data is required or in which the input data size exceeds 8 bytes will result in the disabling of the strobe I/O connection.

Configuration

- User configuration data is only accessible when the `AutoConfig` attribute in the 5136-DNS-200S adapter object is false (0).
- Attempts to modify any parameters of the Slot Objects will result in an object state conflict if the `AutoConfig` attribute is not set to zero (0 = `FALSE`).
- Changes to user configuration data do not take effect until the device is reset (done via reset service with data value of zero (0) to the identity object or a power cycle), or an I/O module is hot-swapped.
- Changes to user configuration data are stored in non-volatile memory immediately (before the explicit message response is sent).
 - Changes to configuration data that have not taken effect yet are indicated by the `ConfigChanged` attribute in the 5136-DNS-200S adapter object — the next device reset will apply the changes and clear `ConfigChanged`.

Module Hot Swap

The 5136-DNS-200S Adapter supports expansion module hot-swap, which allows you to replace expansion modules while the device is active on the network, without removing power.

A configuration mismatch due to an improper module substitution is considered a fault (see “Configuration Faults”). A subsequent hot-swap that results in a match between the original configuration and the new module configuration clears the fault and the 5136-DNS-200S resumes normal operation.

2.8 Technical Specifications

Technical Specifications

Dimensions and Weight	
Dimensions W × H × D (mm)	45 x 119.5 x 75
Weight	Approximately 153 g
Data for Specific Modules	
Transmission rate	125; 250; 500 kbaud
Bus protocol	DeviceNet
Interface	5-pin DeviceNet
Voltage, Currents, Potentials	
Rated supply voltage of the electronics (1L+)	24 VDC, Class 2 power supply ^{Note1}
<ul style="list-style-type: none"> Reverse polarity protection 	Yes
Maximum Ambient	
<ul style="list-style-type: none"> Mounting rail horizontal 	60 °C
<ul style="list-style-type: none"> Mounting rail vertical 	40 °C
Isolation	
<ul style="list-style-type: none"> Between the backplane bus and electronic components 	No
<ul style="list-style-type: none"> Between DeviceNet and electronic components 	Yes
<ul style="list-style-type: none"> Between the supply voltage and electronic components 	No
Insulation tested with	500 VDC

Current consumption	
<ul style="list-style-type: none"> From input voltage – total (DN module + 63 bus modules) 	250 mA max @ 24 VDC
<ul style="list-style-type: none"> Total from input voltage – (DN module + no bus modules) 	125 mA max @ 24 VDC
DeviceNet Interface	
<ul style="list-style-type: none"> Supply voltage from DeviceNet cable 	11 to 25 VDC
<ul style="list-style-type: none"> Current 	75 mA max.
Power dissipation of the interface module	Typically 3.8 W
Status, Diagnostics	
Interrupts	None
Diagnostic function	Yes
<ul style="list-style-type: none"> Module status 	Red/Green LED
<ul style="list-style-type: none"> Network status 	Red/Green LED
<ul style="list-style-type: none"> I/O status 	Red/Green LED

^{Note1} 24 VDC power for module power and network interface power is provided by user-supplied Class 2 power supplies. The 5136-DNS-200S should have separate power supplies for input current and output load power to ensure isolation between the interface module and output circuits.

8.2 DeviceNet Interface Module

Order Number

5136-DNS-200S

Features

The DeviceNet Slave Adapter interface module has the following features:

- It connects the ET 200S with the DeviceNet network.
- It prepares the data for the electronic modules and motor starters that are fitted.
- It supplies the backplane bus.
- The node address of the ET 200S can be set by means of switches.
- If the 24 VDC power supply is disconnected, the interface module is also disconnected.
- The maximum address space is 244 bytes for inputs and 244 bytes for outputs.
- The reference potential M of the rated supply voltage of the interface module to the rail (protective conductor) is connected by means of an RC combination, thus permitting an ungrounded configuration.
- A maximum of 63 modules can be operated with the interface module.
- The maximum width of the station is 1 m.

RESERVE Modules

Order Number

6ES7138-4AA00-0AA0 (installation width 15 mm)

6ES7138-4AA10-0AA0 (installation width 30 mm)

Features

The RESERVE module has the following characteristic features:

- Suitable for all TM-E terminal modules (installation widths 15 mm and 30 mm)
- Reserves a slot for any electronic module slot. Insert the RESERVE module in the reserved slot of the ET 200S configuration.

Note

- The following applies to the 5136-DNS-200S DeviceNet Slave Adapter:
If you remove an electronic module from the ET 200S during operation and insert a RESERVE module in its place, you must then switch the supply voltage to the interface module OFF and ON.
-

Parameter Assignment

- Using the DNS-200 Configuration Tool software, parameterize the electronic module you want to use for future applications, such as 4DI DC High Feature on the slot of the RESERVE module.