

Siemens S5 Driver

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Siemens S5 Driver

Help version 1.018

[Overview](#)

What is the Siemens S5 Driver?

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Overview

The Siemens S5 Driver provides a reliable way to connect Siemens S5 (AS511) devices to OPC Client applications, including HMI, SCADA, Historian, MES, ERP, and countless custom applications. It is intended for use with Siemens S5 PLCs communicating via the front programming port using AS511 protocol (which is specific for each Siemens device). This driver has been designed to operate with a set range of Siemens equipment: it is not recommended for use on devices that are not supported.

The Siemens S5 PLC family has a unique memory structure. Data within the PLC is not at fixed locations within the PLC's memory space. As the PLC logic is created and modified, this memory space is continuously updated and revised. When these revisions occur, the location of the key data elements (such as flags, timers, counters, I/O, and data blocks) can move around in the PLC's memory. The Siemens S5 Driver has been designed to read the location of these memory elements when the driver begins operation or detects a communications error. If the PLC configuration changes, users must restart the Siemens S5 Driver or pull and replace the cable connection. Both of these actions will cause the driver to reacquire the location of all PLC memory elements.

Device Setup

Supported Devices

Siemens S5-90U
 Siemens S5-95U
 Siemens S5-100U-100
 Siemens S5-100U-101
 Siemens S5-100U-103
 Siemens S5-101U
 Siemens S5-115U-941
 Siemens S5-115U-942
 Siemens S5-115U-943
 Siemens S5-115U-944
 Siemens S5-115U-945
 Siemens S5-135U-921
 Siemens S5-135U-922
 Siemens S5-135U-928
 Siemens S5-155U-946
 Siemens S5-155U-947

Communication Protocol

AS511 Current Loop

Supported Communication Parameters

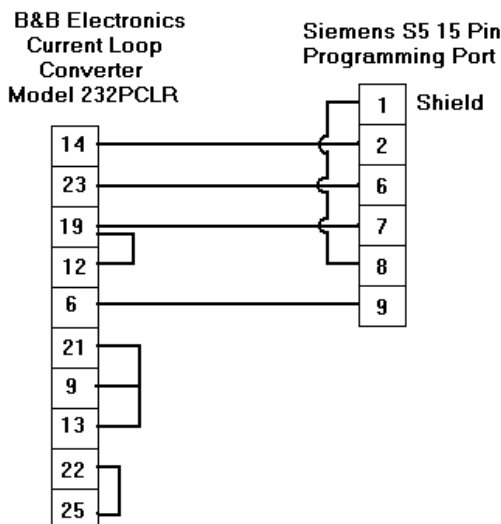
Baud: 9600 (Fixed)
 Parity: Even (Fixed)
 Data Bits: 8 (Fixed)
 Stop Bit: 1 (Fixed)

Ethernet Encapsulation

This driver supports Ethernet Encapsulation, which allows communications with serial devices attached to an Ethernet network using a terminal server or device server. It may be invoked through the COM ID dialog in Channel Properties. When used directly with a serial port, this driver only supports a single connection to a single controller per serial port. When operating in Ethernet Encapsulation Mode, the driver will support up to 30 controllers per channel. In this mode, a single controller can be paired with a terminal server/device server to form a single node. For more information, refer to the server's help documentation.

Note: The Siemens S5 AS511 protocol is sensitive to timing and gaps in the communications stream. If the network experiences heavy packet loss or delay while using Ethernet Encapsulation, the Siemens S5 Driver may report a large number of timeout errors or be unable to communicate. In some cases, using a switched network can help reduce these delays; however, it is not a guaranteed solution.

Cable Connections



Modem Setup

This driver supports modem functionality. For more information, please refer to the topic "Modem Support" in the OPC Server Help documentation.

Data Types Description

| Data Type | Description |
|-----------|---|
| Boolean | Single bit of an 8-bit value* |
| Byte | Unsigned 8-bit value |
| Word | Unsigned 16-bit value |
| Short | Signed 16-bit value |
| DWord | Unsigned 32-bit value |
| Long | Signed 32-bit value |
| Float | 32-bit floating point value The driver interprets two consecutive registers as a floating-point value by making the second register the high word and the first register the low word. |
| String | Null-terminated ASCII string Includes Hi-Lo or Lo-Hi byte order selection. |

*For more information, refer to [Address Descriptions](#).

Address Descriptions

Address specifications vary depending on the model in use. Select a link from the following list to obtain specific address information for the model of interest.

- [Siemens S5 \(AS511\) 90U](#)
- [Siemens S5 \(AS511\) 95U](#)
- [Siemens S5 \(AS511\) 100U-100](#)
- [Siemens S5 \(AS511\) 100U-101](#)
- [Siemens S5 \(AS511\) 100U-103](#)
- [Siemens S5 \(AS511\) 101U](#)
- [Siemens S5 \(AS511\) 115U-941](#)
- [Siemens S5 \(AS511\) 115U-942](#)
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- [Siemens S5 \(AS511\) 115U-945](#)
- [Siemens S5 \(AS511\) 135U-921](#)
- [Siemens S5 \(AS511\) 135U-922](#)
- [Siemens S5 \(AS511\) 135U-928](#)
- [Siemens S5 \(AS511\) 155U-946](#)
- [Siemens S5 \(AS511\) 155U-947](#)

Siemens S5 (AS511) 90U Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|------------------|--|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word, Short | Read/Write |
| | Note: I and E access the same memory area. ED0-ED124 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word, Short | Read/Write |
| | QD0-QD124 | DWord, Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word, Short | Read/Write |
| | Note: Q and A access the same memory area AD0-AD124 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |

| Address Type | Range | Type | Access |
|---|--|--------------------|------------|
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| Note: F and M access the same memory area. | MD0-MD252 | DWord, Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word, Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short, Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long, DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word, Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word, Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word, Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. I specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 95U Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|----------------------|--|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E127.b * | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word, Short | Read/Write |
| | Note: I and E access the same memory area. ED0-ED124 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word, Short | Read/Write |
| | QD0-QD124 | DWord, Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word, Short | Read/Write |
| | Note: Q and A access the same memory area. AD0-AD124 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| | Note: F and M access the same memory area. MD0-MD252 | DWord, Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block | DB1-N:KR0-KR255** | Byte | Read/Write |

| Address Type | Range | Type | Access |
|-----------------------------|--|---------------------|------------|
| Right Byte | | | |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word , Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. I specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWord, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 100U-100 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|---|--|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs Note: I and E access the same memory area. | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word, Short | Read/Write |
| | ED0-ED124 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word, Short | Read/Write |
| | QD0-QD124 | DWord, Long | Read/Write |
| Discrete Outputs Note: Q and A access the same memory area. | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word, Short | Read/Write |
| | AD0-AD124 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory Note: F and M access the same memory area. | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| | MD0-MD252 | DWord, Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word, Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short, Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long, DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |

| Address Type | Range | Type | Access |
|------------------------|--|--------------------|------------|
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.L-KS255.LL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word, Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word, Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word, Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. I specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 100U-101 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|-----------------|--------------|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |

| Address Type | Range | Type | Access |
|-----------------------------|--|---------------------|---------------------|
| | ID0-ID124 | DWord , Long | Read/Write |
| Discrete Inputs | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word , Short | Read/Write |
| | Note: I and E access the same memory area. | ED0-ED124 | DWord , Long |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word , Short | Read/Write |
| | QD0-QD124 | DWord , Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word , Short | Read/Write |
| | Note: Q and A access the same memory area. | AD0-AD124 | DWord , Long |
| Internal Memory | F0.b-F255.b * | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word , Short | Read/Write |
| | FD0-FD252 | DWord , Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word , Short | Read/Write |
| | Note: F and M access the same memory area. | MD0-MD252 | DWord , Long |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word , Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. / specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8, ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 100U-103 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|------------------|---|--------------------|--------------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word, Short | Read/Write |
| | Note: I and E access the same memory area. | ED0-ED124 | DWord, Long |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |

| Address Type | Range | Type | Access |
|---|--|---------------------|------------|
| | QW0-QW126 | Word , Short | Read/Write |
| | QD0-QD124 | DWord , Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word , Short | Read/Write |
| Note: Q and A access the same memory area. | AD0-AD124 | DWord , Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word , Short | Read/Write |
| | FD0-FD252 | DWord , Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word , Short | Read/Write |
| Note: F and M access the same memory area. | MD0-MD252 | DWord , Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word , Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.-KS255.IH*** DB1-N:KS0.-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. / specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30

- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWord, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 101U Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|------------------|--|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word, Short | Read/Write |
| | Note: I and E access the same memory area. ED0-ED124 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word, Short | Read/Write |
| | QD0-QD124 | DWord, Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word, Short | Read/Write |

| Address Type | Range | Type | Access |
|---|--|---------------------|---------------------|
| Note: Q and A access the same memory area. | AD0-AD124 | DWord , Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word , Short | Read/Write |
| | FD0-FD252 | DWord , Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word , Short | Read/Write |
| | Note: F and M access the same memory area. | MD0-MD252 | DWord , Long |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word , Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. / specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory

types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 115U-941 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|---|--------------|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs Note: I and E access the same memory area. | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word, Short | Read/Write |
| | ED0-ED124 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word, Short | Read/Write |
| | QD0-QD124 | DWord, Long | Read/Write |
| Discrete Outputs Note: Q and A access the same memory area. | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word, Short | Read/Write |
| | AD0-AD124 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |

| Address Type | Range | Type | Access |
|---|--|--------------------|------------|
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| Note: F and M access the same memory area. | MD0-MD252 | DWord, Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15. | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word, Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short, Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long, DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word, Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word, Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word, Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. / specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
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- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 115U-942 Address Descriptions

Default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|-----------------------|--|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word, Short | Read/Write |
| | Note: I and E access the same memory area. ED0-ED124 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word, Short | Read/Write |
| | QD0-QD124 | DWord, Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word, Short | Read/Write |
| | Note: Q and A access the same memory area. AD0-AD124 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| | Note: F and M access the same memory area. MD0-MD252 | DWord, Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |

| Address Type | Range | Type | Access |
|-----------------------------|--|---------------------|------------|
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word , Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. I specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
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- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 115U-943 Address Descriptions

Default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|---|--|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word, Short | Read/Write |
| | ED0-ED124 | DWord, Long | Read/Write |
| Note: I and E access the same memory area. | | | |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word, Short | Read/Write |
| | QD0-QD124 | DWord, Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word, Short | Read/Write |
| | AD0-AD124 | DWord, Long | Read/Write |
| Note: Q and A access the same memory area. | | | |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| | MD0-MD252 | DWord, Long | Read/Write |
| Note: F and M access the same memory area. | | | |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word, Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short, Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long, DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |

| Address Type | Range | Type | Access |
|------------------------|-------------------|--------------------|------------|
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word, Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word, Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word, Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. / specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 115U-944 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|-----------------|--------------|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |

| Address Type | Range | Type | Access |
|--------------------------|--|---------------------|------------|
| | ID0-ID124 | DWord , Long | Read/Write |
| Discrete Inputs | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |
| | EW0-EW126 | Word , Short | Read/Write |
| | Note: I and E access the same memory area. ED0-ED124 | DWord , Long | Read/Write |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word , Short | Read/Write |
| | QD0-QD124 | DWord , Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word , Short | Read/Write |
| | Note: Q and A access the same memory area. AD0-AD124 | DWord , Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word , Short | Read/Write |
| | FD0-FD252 | DWord , Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word , Short | Read/Write |
| | Note: F and M access the same memory area. MD0-MD252 | DWord , Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word , Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. / specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

1. To access bit 3 of Internal Memory F20, declare an address as follows:
F20.3

2. To access Data Block 5 as word memory at element 30, declare an address as follows:
DB5:KH30

3. To access Data Block 2 element 20 and bit 7, declare an address as follows:
DB2:KM20.7

4. To access Data Block 1 as left byte memory at element 10, declare an address as follows:
DB1:KL10

5. To access Internal Memory F20 as a DWORD, declare an address as follows:
FD20

6. To access Input Memory I10 as a Word, declare an address as follows:
IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 115U-945 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|-----------------|--------------|--------------------|------------|
| Discrete Inputs | I0.b-I127.b* | Boolean | Read/Write |
| | IB0-IB127 | Byte | Read/Write |
| | IW0-IW126 | Word, Short | Read/Write |
| | ID0-ID124 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E127.b* | Boolean | Read/Write |
| | EB0-EB127 | Byte | Read/Write |

| Address Type | Range | Type | Access |
|---|--|---------------------|------------|
| | EW0-EW126 | Word , Short | Read/Write |
| Note: I and E access the same memory area. | ED0-ED124 | DWord , Long | Read/Write |
| Discrete Outputs | Q0.b-Q127.b* | Boolean | Read/Write |
| | QB0-QB127 | Byte | Read/Write |
| | QW0-QW126 | Word , Short | Read/Write |
| | QD0-QD124 | DWord , Long | Read/Write |
| Discrete Outputs | A0.b-A127.b* | Boolean | Read/Write |
| | AB0-AB127 | Byte | Read/Write |
| | AW0-AW126 | Word , Short | Read/Write |
| Note: Q and A access the same memory area. | AD0-AD124 | DWord , Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word , Short | Read/Write |
| | FD0-FD252 | DWord , Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word , Short | Read/Write |
| Note: F and M access the same memory area. | MD0-MD252 | DWord , Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Right Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word , Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. I specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 135U-921 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|---|--------------|--------------------|------------|
| Discrete Inputs | IO.b-I511.b* | Boolean | Read/Write |
| | IB0-IB511 | Byte | Read/Write |
| | IW0-IW510 | Word, Short | Read/Write |
| | ID0-ID508 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E511.b* | Boolean | Read/Write |
| | EB0-EB511 | Byte | Read/Write |
| | EW0-EW510 | Word, Short | Read/Write |
| Note: I and E access the same memory area. | ED0-ED508 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q511.b* | Boolean | Read/Write |
| | QB0-QB511 | Byte | Read/Write |
| | QW0-QW510 | Word, Short | Read/Write |
| | QD0-QD508 | DWord, Long | Read/Write |

| Address Type | Range | Type | Access |
|-----------------------------|--|--------------------|--------------------|
| Discrete Outputs | A0.b-A511.b* | Boolean | Read/Write |
| | AB0-AB511 | Byte | Read/Write |
| | AW0-AW510 | Word, Short | Read/Write |
| | Note: Q and A access the same memory area. | AD0-AD508 | DWord, Long |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| | Note: F and M access the same memory area. | MD0-MD252 | DWord, Long |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word, Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short, Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long, DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word, Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word, Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word, Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. I specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10

- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 135U-922 Address Descriptions

Default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|------------------|--|--------------------|------------|
| Discrete Inputs | I0.b-I511.b* | Boolean | Read/Write |
| | IB0-IB511 | Byte | Read/Write |
| | IW0-IW510 | Word, Short | Read/Write |
| | ID0-ID508 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E511.b* | Boolean | Read/Write |
| | EB0-EB511 | Byte | Read/Write |
| | EW0-EW510 | Word, Short | Read/Write |
| | Note: I and E access the same memory area. ED0-ED508 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q511.b* | Boolean | Read/Write |
| | QB0-QB511 | Byte | Read/Write |
| | QW0-QW510 | Word, Short | Read/Write |
| | QD0-QD508 | DWord, Long | Read/Write |
| Discrete Outputs | A0.b-A511.b* | Boolean | Read/Write |
| | AB0-AB511 | Byte | Read/Write |
| | AW0-AW510 | Word, Short | Read/Write |
| | Note: Q and A access the same memory area. AD0-AD508 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |

| Address Type | Range | Type | Access |
|---|--|--------------------|------------|
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| Note: F and M access the same memory area. | MD0-MD252 | DWord, Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word, Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short, Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long, DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word, Short | Read/Write |
| Timer Current Values | T0-T127 | Long | Read/Write |
| Counter Current Values | C0-C127 | Word, Short | Read/Write |
| Counter Current Values | Z0-Z127 | Word, Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. / specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 135U-928 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|------------------|--|--------------------|------------|
| Discrete Inputs | I0.b-I511.b* | Boolean | Read/Write |
| | IB0-IB511 | Byte | Read/Write |
| | IW0-IW510 | Word, Short | Read/Write |
| | ID0-ID508 | DWord, Long | Read/Write |
| Discrete Inputs | E0.b-E511.b* | Boolean | Read/Write |
| | EB0-EB511 | Byte | Read/Write |
| | EW0-EW510 | Word, Short | Read/Write |
| | Note: I and E access the same memory area. ED0-ED508 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q511.b* | Boolean | Read/Write |
| | QB0-QB511 | Byte | Read/Write |
| | QW0-QW510 | Word, Short | Read/Write |
| | QD0-QD508 | DWord, Long | Read/Write |
| Discrete Outputs | A0.b-A511.b* | Boolean | Read/Write |
| | AB0-AB511 | Byte | Read/Write |
| | AW0-AW510 | Word, Short | Read/Write |
| | Note: Q and A access the same memory area. AD0-AD508 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |

| Address Type | Range | Type | Access |
|---|--|---------------------|------------|
| Note: F and M access the same memory area. | MD0-MD252 | DWord , Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word , Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T255 | Long | Read/Write |
| Counter Current Values | C0-C255 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z255 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. / specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 155U-946 Address Descriptions

Default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|---|--|--------------------|------------|
| Discrete Inputs | I0.b-I511.b* | Boolean | Read/Write |
| | IB0-IB511 | Byte | Read/Write |
| | IW0-IW510 | Word, Short | Read/Write |
| | ID0-ID508 | DWord, Long | Read/Write |
| Discrete Inputs Note: I and E access the same memory area. | E0.b-E511.b* | Boolean | Read/Write |
| | EB0-EB511 | Byte | Read/Write |
| | EW0-EW510 | Word, Short | Read/Write |
| | ED0-ED508 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q511.b* | Boolean | Read/Write |
| | QB0-QB511 | Byte | Read/Write |
| | QW0-QW510 | Word, Short | Read/Write |
| | QD0-QD508 | DWord, Long | Read/Write |
| Discrete Outputs Note: Q and A access the same memory area. | A0.b-A511.b* | Boolean | Read/Write |
| | AB0-AB511 | Byte | Read/Write |
| | AW0-AW510 | Word, Short | Read/Write |
| | AD0-AD508 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory Note: F and M access the same memory area. | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| | MD0-MD252 | DWord, Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word, Short | Read/Write |

| Address Type | Range | Type | Access |
|------------------------|--|---------------------|------------|
| Data Block Signed Word | DB1-N:KF0-KF255** | Short , Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long , DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word , Short | Read/Write |
| Timer Current Values | T0-T255 | Long | Read/Write |
| Counter Current Values | C0-C255 | Word , Short | Read/Write |
| Counter Current Values | Z0-Z255 | Word , Short | Read/Write |

*.b specifies the bit number, and may range from 0 to 7.

**1-N specifies the block number.

***1-N specifies the block number. I specifies the string length, and may range from 2 to 254. H specifies the high byte order; L specifies the low byte order. H is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
- To access Data Block 2 element 20 and bit 7, declare an address as follows: DB2:KM20.7
- To access Data Block 1 as left byte memory at element 10, declare an address as follows: DB1:KL10
- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
- To access Input Memory I10 as a Word, declare an address as follows: IW10

Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

Timers

The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

Strings

String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Siemens S5 (AS511) 155U-947 Address Descriptions

The default data types for dynamically defined tags are shown in **bold**.

| Address Type | Range | Type | Access |
|---|--|--------------------|------------|
| Discrete Inputs | I0.b-I511.b* | Boolean | Read/Write |
| | IB0-IB511 | Byte | Read/Write |
| | IW0-IW510 | Word, Short | Read/Write |
| | ID0-ID508 | DWord, Long | Read/Write |
| Discrete Inputs Note: I and E access the same memory area. | E0.b-E511.b* | Boolean | Read/Write |
| | EB0-EB511 | Byte | Read/Write |
| | EW0-EW510 | Word, Short | Read/Write |
| | ED0-ED508 | DWord, Long | Read/Write |
| Discrete Outputs | Q0.b-Q511.b* | Boolean | Read/Write |
| | QB0-QB511 | Byte | Read/Write |
| | QW0-QW510 | Word, Short | Read/Write |
| | QD0-QD508 | DWord, Long | Read/Write |
| Discrete Outputs Note: Q and A access the same memory area. | A0.b-A511.b* | Boolean | Read/Write |
| | AB0-AB511 | Byte | Read/Write |
| | AW0-AW510 | Word, Short | Read/Write |
| | AD0-AD508 | DWord, Long | Read/Write |
| Internal Memory | F0.b-F255.b* | Boolean | Read/Write |
| | FB0-FB255 | Byte | Read/Write |
| | FW0-FW254 | Word, Short | Read/Write |
| | FD0-FD252 | DWord, Long | Read/Write |
| Internal Memory Note: F and M access the same memory area. | M0.b-M255.b* | Boolean | Read/Write |
| | MB0-MB255 | Byte | Read/Write |
| | MW0-MW254 | Word, Short | Read/Write |
| | MD0-MD252 | DWord, Long | Read/Write |
| Data Block Boolean | DB1-N:KM0.b-KM255.b** .b is Bit Number 0-15 | Boolean | Read/Write |
| Data Block Left Byte | DB1-N:KL0-KL255** | Byte | Read/Write |
| Data Block Right Byte | DB1-N:KR0-KR255** | Byte | Read/Write |
| Data Block Unsigned Word | DB1-N:KH0-KH255** | Word, Short | Read/Write |
| Data Block Signed Word | DB1-N:KF0-KF255** | Short, Word | Read/Write |
| Data Block Signed Long | DB1-N:KD0-KD254** | Long, DWord | Read/Write |
| Data Block Float | DB1-N:KG0-KG254** | Float | Read/Write |
| Data Block String | DB1-N:KS0.I-KS255.IH*** DB1-N:KS0.I-KS255.IL*** | String | Read/Write |
| Data Block Timer | DB1-N:KT0-KT255** | Long | Read/Write |
| Data Block Counter | DB1-N:KC0-KC255** | Word, Short | Read/Write |

| Address Type | Range | Type | Access |
|------------------------|---------|-------------|------------|
| Timer Current Values | T0-T255 | Long | Read/Write |
| Counter Current Values | C0-C255 | Word, Short | Read/Write |
| Counter Current Values | Z0-Z255 | Word, Short | Read/Write |

*.*b* specifies the bit number, and may range from 0 to 7.

***1-N* specifies the block number.

****1-N* specifies the block number. *l* specifies the string length, and may range from 2 to 254. *H* specifies the high byte order; *L* specifies the low byte order. *H* is assumed if no byte order is specified.

Note: All offsets for memory types I, Q, and F represent a byte starting location within the specified memory type.

Examples

- To access bit 3 of Internal Memory F20, declare an address as follows: F20.3
- To access Data Block 5 as word memory at element 30, declare an address as follows: DB5:KH30
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- To access Internal Memory F20 as a DWORD, declare an address as follows: FD20
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Note: Use caution when modifying Word, Short, DWord, and Long types. For I, Q, and F each address starts at a byte offset within the device. Therefore, Words FW0 and FW1 overlap at byte 1. Writing to FW0 will also modify the value held in FW1. Similarly, DWord, and Long types can also overlap. It is recommended that these memory types be used so that overlapping does not occur. For example, when using DWords, use FD0, FD4, FD8 ... and so on to prevent overlapping bytes.

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The Siemens S5 Driver automatically scales T and KT values based on the Siemens S5 time format. The value returned for either a T or KT memory type will already be scaled using the appropriate Siemens time base. As a result, the values are always returned as a count of milliseconds. When writing to T or KT memory types, the Siemens time base will also be applied. To write a value to a timer in the controller, simply write the desired value as a count of milliseconds to the appropriate timer.

Counters

Counters are stored as three BCD digits on the device. The largest value that can be read or written to a counter is 999.

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String data is stored in data block registers, thus the actual number of bytes used to store the data is an even number. For example, if a string of length 5 is specified, say by DB11:KS1.5, then 3 registers (6 bytes) will be used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) will be added to the end of the string. When strings are read, the full range of registers are read (3 in this example). Use of string tags with overlapping address ranges should be avoided due to the effects of the null terminators. Appending either an "H" or "L" to the address specifies the byte order.

Error Descriptions

The following error/warning messages may be generated. Click on the link for a description of the message.

Address Validation

[Address <address> is out of range for the specified device or register.](#)

[Array support is not available for the specified address: <address>.](#)

[Data type <type> is not valid for device address <address>.](#)

[Device address <address> contains a syntax error.](#)

[Device address <address> is not supported by model <model name>.](#)

[Missing address.](#)

Serial Communications

[Communications error on <channel name> \[<error mask>\].](#)

[COMn does not exist.](#)

[COMn is in use by another application.](#)

[Error opening COMn.](#)

[Unable to set comm parameters on COMn.](#)

Device Status Messages

[Device <device name> is not responding.](#)

[Unable to write to <address> on device <device name>.](#)

Driver Warning Messages

[Data block DB <block number> not defined in <device name> write operation has failed.](#)

[Failure reading device <device name> configuration.](#)

[Protocol error number of bytes received = <num bytes> Expected = <num bytes>.](#)

[Requested data block DB<block number> not defined in <device name> block has been disabled.](#)

Address <address> is out of range for the specified device or register.

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically references a location that is beyond the range of supported locations for the device.

Solution:

Verify the address is correct; if it is not, re-enter it in the client application.

Array support is not available for the specified address: <address>.

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically contains an array reference for an address type that doesn't support arrays.

Solution:

Re-enter the address in the client application to remove the array reference or correct the address type.

Data type <type> is not valid for device address <address>.

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically has been assigned an invalid data type.

Solution:

Modify the requested data type in the client application.

Device address <address> is not supported by model <model name>.**Error Type:**

Warning

Possible Cause:

A tag address that has been specified dynamically references a location that is valid for the communications protocol but not supported by the target device.

Solution:

Verify that the address is correct; if it is not, re-enter it in the client application. Also verify that the selected model name for the device is correct.

Device address <address> contains a syntax error.**Error Type:**

Warning

Possible Cause:

A tag address that has been specified dynamically via DDE contains one or more invalid characters.

Solution:

Re-enter the address in the client application.

Missing address.**Error Type:**

Warning

Possible Cause:

A tag address that has been specified dynamically has no length.

Solution:

Re-enter the address in the client application.

Communications error on <channel name> [<error mask>].**Error Type:**

Serious

Error Mask Definitions:

B = Hardware break detected

F = Framing error

E = I/O error

O = Character buffer overrun

R = RX buffer overrun

P = Received byte parity error

T = TX buffer full

Possible Cause:

1. The serial connection between the device and the Host PC is bad.
2. The communications parameters for the serial connection are incorrect.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the specified communications parameters match those of the device.

COMn does not exist.

Error Type:

Fatal

Possible Cause:

The specified COM port is not present on the target computer.

Solution:

Verify that the proper COM port has been selected.

COMn is in use by another application.

Error Type:

Fatal

Possible Cause:

The serial port assigned to a device is being used by another application.

Solution:

Verify that the correct port has been assigned to the channel.

Error opening COMn.

Error Type:

Fatal

Possible Cause:

The specified COM port could not be opened due an internal hardware or software problem on the target computer.

Solution:

Verify that the COM port is functional and may be accessed by other Windows applications.

Unable to set comm parameters on COMn.

Error Type:

Fatal

Possible Cause:

The serial parameters for the specified COM port are not valid.

Solution:

Verify the serial parameters and make any necessary changes.

Device <device name> is not responding.

Error Type:

Serious

Possible Cause:

1. The serial connection between the device and the Host PC is broken.
2. The communications parameters for the serial connection are incorrect.
3. The named device may have been assigned an incorrect Network ID.
4. The response from the device took longer to receive than the amount of time specified in the "Request Timeout" device setting.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify the specified communications parameters match those of the device.
3. Verify that the Network ID given to the named device matches that of the actual device.
4. Increase the Request Timeout setting so that the entire response can be handled.

Unable to write to <address> on device <device name>.

Error Type:

Serious

Possible Cause:

1. The serial connection between the device and the Host PC is broken.
2. The communications parameters for the serial connection are incorrect.
3. The named device may have been assigned an incorrect Network ID.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the specified communications parameters match those of the device.
3. Verify that the Network ID given to the named device matches that of the actual device.

Data block DB <block number> not defined in <device name> write operation has failed.

Error Type:

Warning

Possible Cause:

An attempt has been made to write to a nonexistent location in the specified device.

Solution:

Verify the tags assigned to addresses in the specified range on the device and eliminate ones that reference invalid locations.

Failure reading device <device name> configuration.

Error Type:

Warning

Possible Cause:

A device configuration transaction timed-out. Below are possible causes for this time-out:

1. The serial connection between the device and the Host PC is broken.
2. The communications parameters for the serial port connection are incorrect.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the correct baud rate and parity is specified for the named device.

Protocol Error - Number of bytes received = <num bytes> Expected = <num bytes>.

Error Type:

Warning

Possible Cause:

1. Misalignment of packets due to connection/disconnection between PC and device.
2. There is bad cabling connecting the devices causing noise.

Solution:

The driver will recover from this error without intervention. If this error occurs frequently, there may be an issue with the cabling or the device itself.

Requested data block DB <block number> not defined in <device name> block has been disabled.

Error Type:

Warning

Possible Cause:

An attempt has been made to reference a nonexistent location in the specified device.

Solution:

Verify that the tags assigned to addresses in the specified range on the device and eliminate ones that reference invalid locations.

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