

Siemens S5 Driver

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Siemens S5 Driver

Help version 1.033

Overview

What is the Siemens S5 Driver?

Device Setup

How do I configure a device for use with this driver?

Data Types Description

What data types does this driver support?

Address Descriptions

How do I address a data location on a Siemens S5 Driver?

Event Log Messages

What messages does the Siemens S5 Driver produce?

Overview

The Siemens S5 Driver provides a reliable way to connect Siemens S5 (AS511) devices to 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 cause the driver to reacquire the location of all PLC memory elements.

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 Properties

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 COM ID 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 supports 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.

See Also:

[Channel Properties](#)

[Device Properties](#)

Driver Device Properties

The maximum number of channels supported by this driver is 100. The maximum number of devices supported is 32.

Device properties are organized into the following groups. Click on a link below for details about the settings in that group.

[General](#)

[Scan Mode](#)

[Communication Timeouts](#)

[Auto-Demotion](#)

[Redundancy](#)

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](#)

[Siemens S5 \(AS511\) 115U-943](#)

[Siemens S5 \(AS511\) 115U-944](#)

[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 |

| Address Type | Range | Type | Access |
|-----------------------------|--|------------------------|------------|
| | 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 | DB1-N:KC0-KC255** | Word , Short | Read/Write |

| Address Type | Range | Type | Access |
|------------------------|---------|-------------|------------|
| Counter | | | |
| 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. *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
- 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 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 |
| | MB0-MB255 | Byte | Read/Write |

| Address Type | Range | Type | Access |
|---|--|---------------------|------------|
| Note: F and M access the same memory area. | 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 |
| 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 | 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 |

| 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.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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |

| Address Type | Range | Type | Access |
|---|-----------------------|--------------------|------------|
| | 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** | Boolean | Read/Write |

| Address Type | Range | Type | Access |
|--------------------------|--|-------------|------------|
| | .b is Bit Number 0-15 | | |
| 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 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 |

| Address Type | Range | Type | Access |
|--|--|--------------------|------------|
| 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.-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. 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |

| Address Type | Range | Type | Access |
|---|--|------------------------|------------|
| 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 |

| 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. 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
- 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |
|---|--|--------------------|------------|
| Note: F and M access the same memory area. | 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 |
| 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |

| Address Type | Range | Type | Access |
|--------------------------|--|------------------------|------------|
| | 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. *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
- 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |

| Address Type | Range | Type | Access |
|---|--|---------------------|------------|
| | 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 |

| Address Type | Range | Type | Access |
|--------------------------|--|-------------|------------|
| 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.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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |
| | 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 |

| 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |
| | EW0-EW126 | Word, Short | Read/Write |

| Address Type | Range | Type | Access |
|---|--|------------------------|------------|
| 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 |

| 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. 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
- 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 | 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 | M0.b-M255.b* | Boolean | Read/Write |

| Address Type | Range | Type | Access |
|---|--|---------------------|------------|
| Note: F and M access the same memory area. | 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 |
| 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |

| Address Type | Range | Type | Access |
|--------------------------|--|------------------------|------------|
| | 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 |
| | 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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |

| Address Type | Range | Type | Access |
|---|--|---------------------|------------|
| | 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 |
| 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 |

| Address Type | Range | Type | Access |
|--------------------------|--|-------------|------------|
| 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.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-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 modifies 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 is 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 is 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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 |

| 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-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 modifies 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 is 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 is 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.

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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) are used to store the string data. When writing strings shorter than the maximum specified length (5 in this example), a null terminator (0x00) is 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 | E0.b-E511.b* | Boolean | Read/Write |
| | EB0-EB511 | Byte | Read/Write |
| | EW0-EW510 | Word, Short | Read/Write |

| Address Type | Range | Type | Access |
|---|--|------------------------|------------|
| 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 |
| | 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 |

| 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-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.

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