

Siemens S7 Plus Devices Connector

S7 300/400/1200/1500

- Name: **SiemensPlus**
- Version: 2.2.2.2
- Protocol: Proprietary
- Interface: TCP/IP
- Runtime: .NET 2.0 (Multiplatform)
- Configuration:
 - Devices / Protocols

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Overview

Communication Driver Information	
Driver name	SiemensPlus
Assembly Name	T.ProtocolDriver.SiemensPlus
Assembly Version	2.2.2.2
Available for Linux	True
Devices supported	S7 300/400/1200/1500
Third-party libraries	S7.Net.dll.
Manufacturer	Siemens
Protocol	Proprietary over TCP/IP
PC Requirements	Ethernet port

Channel Configuration

Protocol Options

The SiemensPlus connector exposes a Respect User Config Data Type option that controls how the driver resolves the data type for bit-addressable bytes.

RespectUserConfigDataType

A checkbox in the channel's Protocol Options. Controls whether the driver honors the user-configured Data Type on the Communication Point instead of overwriting it from the parsed address suffix.

- **Default:** `false` — driver overrides Data Type based on the parsed address suffix (back-compatible behavior).
- **When set to `true`:** driver keeps the Point's configured Data Type. Required for accurate bit extraction when reading a single bit from a byte whose other bits are also active.

Example — reading a single bit with Data Type = Byte

A read-only tag pointing to bit 0 of a byte (e.g. `DB1.DBB10.0`) can misreport its value when another bit of the same byte is set. To read it correctly:

1. Enable **Respect User Config Data Type** in the channel's Protocol Options.
2. On the Communication Point, set **Data Type** to `Byte`.

Field	Value
Address	DB1.DBB10.0
Data Type	Byte
Respect User Config Data Type (channel)	checked

With this configuration, when the PLC byte holds 0x80 (bit 7 ON, bit 0 OFF), the bit-0 tag correctly reads **FALSE**. Without it, the same tag would incorrectly read TRUE.

BlockSize

Defines the maximum amount of items per group, the default value is **512**. Some devices support larger blocks, increase it to improve performance, or lower it if the PLC rejects the request.

Node Configuration

Station Configuration

Station syntax: **<IP Address> ; <Rack>; <Slot>; <S7 Family>**

- **<IP Address>**: IP address of the slave device in the Siemens network
 - **<Rack>**: Rack of the device
 - **<Slot>**: Slot of the device
 - **<S7 Family>**: Model of the device. The options are:
 - 300/400**: Support for PLC Siemens S7-300 and S7-400 Series
 - 1200**: Support for PLC Siemens S7-1200 and S7-1500 Series
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Points Configuration

Address

The syntax for the Siemens communication points is: **<Type>; <Format><Address>; <Bit or String Length >**

For DataBlock type: **DB<DB Group>; <Format><Address>; <Bit or String Length>**

Where:

- **<Type>** is the register type. Valid values are:
 - **M**=Flags
 - **T**=Timers
 - **C**=Counters
 - **I**=Inputs
 - **Q**=Outputs
 - **DB**=Data Blocks.
- **<DB Group>** is the group number of the configured Data Block type.
- **<Address>** is the device address.
- **<Format>** is the format to treat the value from or to the device. Valid values are:
 - **B**=Byte
 - **W**=Word
 - **DW**=Dword
 - **F**=Float
 - **ST**=String
- **<Bit or String Length>** is the bit number. This parameter is optional. If you use the String type, it represents the String length.

The address is a **single concatenated string** with this structure: **<Block><DBNumber><DataType><Address> . <BitOrStringLength>**.

Examples:

- **MW0** — Flag (Merker) word at address 0
- **IB0** — Input byte at address 0
- **QB4** — Output byte at address 4
- **DB1DW0** — Data Block 1, DWord at address 0
- **DB5DBB10** — Data Block 5, Byte at address 10
- **DB1DBST0.50** — Data Block 1, String at address 0, length 50
- **DB1DBW0.3** — Data Block 1, Word at address 0, bit 3
- Block prefixes: **M** (Flag/Merker), **T** (Timer), **C** (Counter), **I** (Input), **Q** (Output), **DB** (Data Block)
- Data types: **B** (ByteChar), **w** (WordShort), **DW** (DWordInteger), **F** (FloatSingle), **ST** (StringASCII), **.DBB** (DB Byte), **.DBW** (DB Word), **.DBDW** (DB DWord), **.DBF** (DB Float), **.DBSTR/ .DBST** (DB String)

String Layout (DBSTR / DB String)

When an address uses the `.DBSTR` or `.DBST` suffix, the value on the PLC occupies **N+2 bytes**: a 2-byte header followed by N data bytes. The first header byte holds the declared maximum length, the second holds the current length, and the remaining N bytes hold the ASCII characters. This matches the Siemens S7 native `STRING` type. The driver handles the N+2 byte layout automatically — you address the string by its starting offset and declared length (for example `DB1DBST0.50`) and the runtime read/write path strips or builds the 2-byte header transparently. Reserve `length + 2` bytes in the Data Block when sizing memory.

Migration

Solutions built on prior driver versions that emitted raw N-byte string addresses are migrated automatically on first load with the 2.2.2.x driver. The driver re-resolves the layout at runtime; no user action is required and existing addresses continue to work without edits.

Error Code Reference

Hex	Decimal (signed)	Description
0x00000000	0	No error
0x00000001	1	No error, job still in process
0xFFFF0000	-1048576	Function not implemented
0xFFFF0001	-1048575	Parameter error when calling function
0xFFFF0002	-1048574	Invalid device number
0xFFFF0003	-1048573	Invalid PLC number
0xFFFF0004	-1048572	Invalid parameter type
0xFFFF0005	-1048571	Insufficient memory
0xFFFF0006	-1048570	Device already opened
0xFFFF0007	-1048569	Device not opened
0xFFFF0008	-1048568	Job already removed
0xFFFF0009	-1048567	Invalid job number
0xFFFF000A	-1048566	Function not supported
0xFFFF000B	-1048565	Adapter not initialized
0xFFFF000C	-1048564	No free connections available
0xFFFF000D	-1048563	Device not configured or not supported
0xFFFF000E	-1048562	Hardware not found
0xFFFF000F	-1048561	Error when reading parameters
0xFFFF0010	-1048560	Error when writing parameters
0xFFFF0011	-1048559	Demo period expired
0xFFFF0012	-1048558	Wrong character in text. Conversion not possible
0xFFFF0013	-1048557	Buffer is not long enough
0xFFFF0014	-1048556	File not found
0xFFFF0015	-1048555	Error when calling configuration program
0xFFFF0016	-1048554	Error when loading DLL dynamically
0xFFFF0017	-1048553	Could not create file
0xFFFF5000	-720896	No free job buffer available
0xFFFF5001	-720895	Invalid packet
0xFFFF5002	-720894	No connection to PLC
0xFFFF5003	-720893	Connection closed
0xFFFF5004	-720892	Timeout

0xFFF50005	-720891	Invalid context
0xFFF50006	-720890	PLC memory error
0xFFF50007	-720889	Invalid operating state
0xFFF50008	-720888	Invalid address on PLC
0xFFF50009	-720887	Invalid mode
0xFFF5000A	-720886	No data available e.g. DB is missing
0xFFF5000B	-720885	Priority class associated to OB does not exist
0xFFF5000C	-720884	Empty blocklist
0xFFF5000D	-720883	Block size error
0xFFF5000E	-720882	Invalid block number
0xFFF5000F	-720881	Protection level of function not sufficient
0xFFF50010	-720880	Unknown SSL-ID (e.g. access to CP instead of PLC)
0xFFF50011	-720879	Unknown SSL-index (e.g. access to CP instead of PLC)
0xFFF50012	-720878	Information currently not ascertainable
0xFFF50013	-720877	Unknown error message from PLC (please report!)
0xFFF50014	-720876	Hardware error e.g. not available periphery
0xFFF50015	-720875	Object access not allowed
0xFFF50016	-720874	Context not supported
0xFFF50017	-720873	Type (data type) not supported
0xFFF50018	-720872	Internal error, please report
0xFFF50019	-720871	Error rebooting PLC
0xFFF5001A	-720870	Error restarting PLC
0xFFF5001B	-720869	Connection end received
0xFFF5001C	-720868	PLC not found
0xFFF5001D	-720867	Too many data for this version of ACCON-AGLink
0xFFF5001E	-720866	PLC does not support this function
0xFFF5001F	-720865	Wrong Password
0xFFF50020	-720864	Connection already legitimated
0xFFF50021	-720863	Legitimation already released
0xFFF50022	-720862	Password not necessary
0xFFF50023	-720861	At least one variable address invalid
0xFFF50024	-720860	Job does not exist
0xFFF50025	-720859	Invalid job state
0xFFF50026	-720858	Invalid cycle time
0xFFF50027	-720857	No more cyclic job possible
0xFFF50028	-720856	Function not possible for this job (invalid state)
0xFFF50029	-720855	Function abort (overload)
0xFFF5002A	-720854	No data for this variable
0xFFF5002B	-720853	Wrong time format
0xFFF5002C	-720852	Unknown PI name
0xFFF5002D	-720851	File transfer canceled by NCK

0xFFFF5002E	-720850	Response too large for PDU size
0xFFFF5002F	-720849	No H-PLC found
0xFFFF50030	-720848	Data not changed
0xFFF30000	-852968	Error when reading device information
0xFFF30001	-852967	Error when reading bus parameters
0xFFF30002	-852966	Error when writing bus parameters
0xFFF30003	-852965	No resources available on device
0xFFF30004	-852964	Invalid device
0xFFF30005	-852963	Adapter not found
0xFFF30006	-852962	Needed device driver not found
0xFFF20000	-917504	The desired adapter address already exists
0xFFF20001	-917503	Invalid HSA (smaller than biggest active participant)
0xFFF20002	-917502	Adapter is not in the logical ring
0xFFF20004	-917500	Received package has wrong content
0xFFF20006	-917498	Unknown error number from adapter
0xFFF20007	-917497	Unknown error number from device driver
0xFFF20008	-917496	Communications adapter has been removed
0xFFF20009	-917495	Modem has been removed
0xFFF2000A	-917494	No directly connected PLC found
0xFFF20313	-916717	Invalid speed on MPI bus
0xFFF20314	-916716	Address is bigger than HSA
0xFFF20315	-916715	The desired adapter address already exists
0xFFF2031A	-916710	No other active bus participants found
0xFFF2031C	-916708	Bus is jammed
0xFFF2031D	-916707	Bus is jammed
0xFFF2031E	-916706	Automatic detection of bus profile doesn't work, missing bus parameter telegram
0xFFF20337	-916681	Legitimation missing
0xFFF10000	-983040	COM-Port already used
0xFFF10001	-983039	Modem not found
0xFFF10002	-983038	Modem not onhook
0xFFF10003	-983037	Modem not offhook
0xFFF10004	-983036	Error in basic initialisation
0xFFF10005	-983035	Error in Initstring 1
0xFFF10006	-983034	Error in Initstring 2
0xFFF10007	-983033	Error in Initstring 3
0xFFF10008	-983032	Error in Initstring 4
0xFFF10009	-983031	Error in dialtype sequence
0xFFF1000A	-983030	Error in dialtone sequence
0xFFF1000B	-983029	Error in autoanswer sequence
0xFFF1000C	-983028	Modem has been removed
0xFFF1000D	-983027	Connection could not be established

0xFFFF1000E	-983026	Login denied. Unknown user.
0xFFFF1000F	-983025	Login denied. Wrong password.
0xFFFF10010	-983024	Login denied. Callback number defined in adapter.
0xFFFF10011	-983023	Error while dialing
0xFFFF80000	-524288	Function not allowed
0xFFFF80001	-524287	Invalid project handle
0xFFFF80002	-524286	Error opening project
0xFFFF80003	-524285	Error creating program instance of project
0xFFFF80004	-524284	Error closing project
0xFFFF80005	-524283	No resp. no more programs found
0xFFFF80006	-524282	Program not found
0xFFFF80007	-524281	At least one of the specified parameters is invalid
0xFFFF80008	-524280	Runtime has expired (demo version)
0xFFFF8000A	-524278	No resp. invalid data specified
0xFFFF8000B	-524277	The program selected has no symbol table
0xFFFF8000C	-524276	Symbol table already opened
0xFFFF8000D	-524275	No resp. no more symbol entry found
0xFFFF8000E	-524274	Error reading symbol entry
0xFFFF8000F	-524273	Symbol not found
0xFFFF80010	-524272	Operand not found
0xFFFF80011	-524271	Invalid symbol
0xFFFF80012	-524270	Invalid operand
0xFFFF80013	-524269	Invalid filter string
0xFFFF80014	-524268	Data block (DB) not present
0xFFFF80015	-524267	Error reading DB block data
0xFFFF80016	-524266	Error parsing DB block data
0xFFFF80017	-524265	An opened DB is already present
0xFFFF80018	-524264	No opened DB present
0xFFFF80019	-524263	No resp. no more DB component found
0xFFFF8001A	-524262	Specified DB component not found
0xFFFF8001B	-524261	Specified DB component is invalid
0xFFFF8001C	-524260	Specified DB component not matching
0xFFFF8001E	-524258	Invalid constant
0xFFFF8001F	-524257	Invalid constant size or format
0xFFFF80020	-524256	Object type initialization failed
0xFFFF80021	-524255	Invalid version of message configuration
0xFFFF80022	-524254	Error opening message configuration
0xFFFF80023	-524253	Error closing message configuration
0xFFFF80024	-524252	No resp. no more message entry found
0xFFFF80025	-524251	No resp. no more language found
0xFFFF80026	-524250	Database access error

0xFFFF80027	-524249	Invalid signal number
0xFFFF80028	-524248	Invalid add. value specification
0xFFFF80029	-524247	Add. value number invalid
0xFFFF8002A	-524246	Element type of add. value invalid
0xFFFF8002B	-524245	Add. value data length invalid
0xFFFF8002C	-524244	Format specification missing
0xFFFF8002D	-524243	Format specification invalid
0xFFFF8002E	-524242	No resp. no more text library found
0xFFFF8002F	-524241	No resp. no more text library entry found

Driver Revision History

Siemens Revision History	
Version	Notes
2.2.2.2	Initial release on new documentation standards.
2.2.2.3	Configurable BlockSize.

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