

WSTRING



Description

An operand of data type WSTRING (Wide Character String) stores several Unicode characters of data type WCHAR in one character string. If you do not specify a length, the character string has a preset length of 254 characters. In a character string, all characters that are supported by the operating system are permitted. This means you can also use Chinese characters in a character string. Windows supports only some (but sufficient number) of the characters defined in Unicode.

Note

Coding

STEP 7 prohibits all coding of \$D000 to \$FFFF.

When declaring an operand of data type WSTRING you can define its length using square brackets (for example WSTRING[10]). If you do not specify a length, the length of the WSTRING is set to 254 characters by default. You can declare a length of up to 16382 characters (WSTRING[16382]).

The specification of the characters occurs in single quotes and always with the qualifier WSTRING#.

The following table shows the properties of a WSTRING tag:

Length (WORD)	Format	Value range	Example of value input
n + 2 ¹⁾	Unicode character string; n specifies the length of the character string.	Preset value: 0 to 254 characters Max. possible value: 0 to 16382	<ul style="list-style-type: none"> WSTRING#'Hello World' WSTRING#'Hello Wo...' (The actual length of the string is longer than the space available on the screen.) WSTRING#" (The string is empty.)
1) An operand of the WSTRING data type occupies two WORDs more in the memory than the specified maximum length.			

A character string can also contain special characters. The escape character \$ is used to identify control characters, dollar signs and single quotation marks.

The table below shows examples for the notation of special characters:

Character	Hex	Meaning	Example
\$L or \$I	000A	Line feed	'\$LText', '\$000AText'
\$N	000A and 000D	Line break The line break occupies 2 characters in the character string and is converted to \$R\$L in the display in the editor.	'\$NText', '\$000A\$000DText'

\$P or \$p	000C	Page feed	'\$PText', '\$000CText'
\$R or \$r	000D	Carriage return (CR)	'\$RText', '\$000DText'
\$T or \$t	0009	Tab	'\$TText', '\$0009Text'
\$\$	0024	Dollar sign	'100\$\$', '100\$0024'
\$'	0027	Single quotation mark	'\$'Text\$', '\$0027Text\$0027'

If the escape character \$ is followed by a letter from the table, the character indicated in the table is entered in the string. If the escape character \$ is followed by a letter that is not in the table, this letter is entered in the string. If the escape character \$ is followed by four hexadecimal digits, this code is entered in the string.

Note

Conversion of WSTRING tags

Implicit conversion of the WSTRING data type is not possible. Explicit conversion of the WSTRING data type to STRING is generally possible. However, as standard, it is only possible to convert characters in the code range from 0 - 127 in all Windows code pages. For all characters outside this range, the code page character and the lower byte of the Unicode character must be in exactly the same position for the conversion to work without errors.

Use in the watch table

If a tag of the WSTRING data type is being monitored, only the first 254 characters are displayed. If the actual length is greater than 254 characters, an ellipsis (...) is displayed instead of the closing apostrophe ('). WSTRING values with more than 254 characters cannot be used for modifying.

Use in SCL

In rare cases, the WSTRING results are truncated when you create very large WSTRINGS using WSTRING-generating functions (e.g. CONCAT, INSERT, JOIN, SPLIT, LEFT, MID, RIGHT) in SCL.

Therefore, check the ENO of these functions for FALSE to see if the WSTRING has been truncated.

Maximum length of a character string

The maximum length of the character string can be specified during the declaration of an operand using square brackets after the keyword WSTRING (for example, WSTRING[4]). You can also use local or global constants to declare the maximum length (for example, WSTRING[#loc_const] or WSTRING["glob_const"]). If the specification of the maximum length is omitted, the standard length of 254 characters is set for the respective operand.

You can find additional information about using local or global constants to declare the maximum length here:

- Declaring the block interface: [Declare variables of the STRING and WSTRING data types](#)
- Programming data blocks: [Declaring tags of the STRING data type](#)
- [Examples of using constants](#)

If the actual length of a specified character string is shorter than the declared maximum length, the characters are written to the character string left-justified and the remaining

character spaces remain undefined. Only occupied character spaces are considered in the value processing.

Transferring a WSTRING for parameter supply

Operands of the data type WSTRING can be transferred as parameters up to the maximum length for blocks with "optimized" access.

For function blocks (FB) with "standard" access, operands of the data type WSTRING can be declared as parameters in all sections of the block interface except in the section "In-Out". For a function (FC) with "standard" access, only operands of the WSTRING data type can be transferred as parameters.

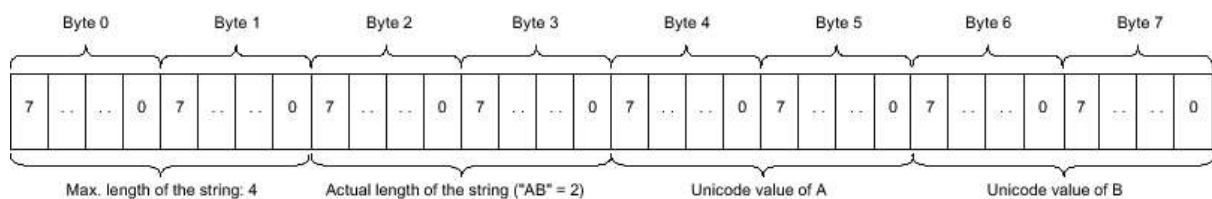
The function value of an FC in the "Return" section and expressions in the SCL programming language are another exception to this rule. In these cases, the WSTRING tag must not be longer than 1022 characters.

The declared lengths of formal and actual parameters may be different. You can find additional information on parameter supply with WSTRING here:

- [Transferring a tag of the STRING or WSTRING data type](#)
- [Valid data types in the block interface](#)

Example

The example below shows the byte sequence if the WSTRING[4] data type is specified with output value 'QB':



See also

[Overview of the valid data types Constants](#)