



Control & Communication System Profile Specification (for Machine) Part 2: Element/Item Definitions and File Format



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1. FOREWORD

This document is "Part 2 - Element/Item Definitions and File Format" of "Control & Communication System Profile Specification (for Machine)".

The Control & Communication System Profile for machine (hereinafter referred to as "CSP+ for machine") is a data set that visualizes machine information to simplify development by application vendors of application software that manages, monitors, and controls the machine, and settings by the machine users. The CSP+ for machine contains the following information related to the machine described.

- Information related to the machine specifications
- Machine information to be released for application software (machine information)
- Information related to data to be acquired from the machine and its acquisition method (machine data)
- Linked information between machine information and machine data

The CSP+ for machine is generally handled as CSP+ file for machine described in the XML format.

"Part 2 - Element/Item Definitions and File Format" specifies the types and notations of the elements and items that can be described in each part in the CSP+ file for machine and also the format of the CSP+ file for machine.

The version of Control & Communication System Profile for machine specification described in this document (hereinafter referred to as CSP+ for machine specification version) is version 1.0.

2. SCOPE OF APPLICATION

This document is "Part 2 - Element/Item Definitions and File Format" of "Control & Communication System Profile Specification for Machine", and specifies the types and notations of the elements and items that can be described on each part in the CSP+ file for machine and also the format of the CSP+ file for machine.

3. NORMATIVE REFERENCES

Extensible Markup Language (XML) 1.0 (Third Edition), W3C Recommendation 04 February 2004, available at <http://www.w3.org/TR/2004/REC-xml-20040204/>

4. TERMINOLOGY, DEFINITIONS, ABBREVIATIONS

4.1. Terminology

4.1.1. CSP+ for machine

Data set to describe the following information related to the machine

- Information related to the machine specifications
- Machine information to be released for application software
- Data to be acquired from the machine and its acquisition method
- Linked information between machine information and machine data

4.1.2. CSP+ file for machine

CSP+ for machine in the XML format

4.1.3. Machine

Machine controlled by machine tools or at least one controller (such as PLC and CNC)

4.1.4. Machine data

Generic term of information related to data to be acquired from the machine and its acquisition method

4.1.5. Machine information

Information created by aggregation of machine data aggregated for easy handling in application software.

4.1.6. Section

Component of the CSP+ for machine

4.1.7. Part

Component of the section

4.1.8. Element

Component of the part

4.1.9. Item

Detailed information related to the element. Example: Data type, engineering unit

4.1.10. Machine vendor

Vendors that develop the machine

4.1.11. Application vendor

Vendors that develop application software

4.1.12. Machine user

End users who use the machine and companies that provide machine installation and maintenance

4.2. Abbreviations and Symbols

CNC	Computer Numerical Control
CSP+	Control & Communication System Profile
PLC	Programmable Logic Controller
SLMP	Seamless Message Protocol
XML	Extensible Markup Language

5. STRUCTURE AND DESCRIPTION SPECIFICATIONS OF CSP+ FILE FOR MACHINE

5.1. Management Specifications of CSP+ File for Machine

5.1.1. Overview

Using a compressed file allows unified management of multiple CSP+ files for machine and their associated files (icon files and graphics files).

On application software which supports compressed files, import of CSP+ files for machine can be performed by specifying a compressed file. "Import of CSP+ files for machine" used in this document can be replaced with and read as "import of a compressed file".

5.1.2. Name of CSP+ file for machine

The CSP+ file for machine is assigned a name as follows.

"VendorName_DeviceModel_MachineVersion_LanguageInformation.cspp"

"VendorName" indicates the name of the vendor that developed the machine. Use the character string to be written for the "VendorName" element of the DEVICE_INFO part described later.

"DeviceModel" indicates the model name of the machine. Use the character string to be written for the "DeviceModel" element of the DEVICE_INFO part described later.

"MachineVersion" indicates the version of the machine. Use the character string to be written for the "Version" element of the DEVICE_INFO part described later.

"LanguageInformation" indicates which language is supported in the description of the CSP+ file for machine. Use the character string to be written for the "Language" element of the FILE_INFO part described later.

Vendors are responsible for ensuring that vendor names, model names, and machine versions are unique.

Because each information is used as a file name, do not use any characters inappropriate for titles such as "/".

All of a vendor name, model name, machine version, and language information are also written in the CSP+ file for machine as information on the machine and file. For details, refer to chapter 6.

5.1.3. Data configuration under compressed-data management

This section describes the specifications of a compressed file.

Using a compressed file allows unified management of multiple CSP+ files for machine and their associated icon files and graphics files. Files are managed by being compressed in the Zip format. Creating a compressed file requires complying with the following specifications.

Files and folders in a compressed file must be configured as shown in Figure 5-1. Rather than preparing a top-level folder containing all compressed files, specify one or more CSP+ files for machine in the top-level of the compressed file and a folder which contains graphics ("folder" in Figure 5-1) to compress them, as shown in Figure 5-1.

The name of the CSP+ file for machine must conform to the specifications in Section 5.1.2.

For the name of a folder which contains graphics, use the vendor name (value of the "VendorName" element of DEVICE_INFO). And note the following when doing so.

If graphics files are not required, a folder for graphics is not required.

Graphics file names must be the same as those written in the CSP+ file for machine as icon file names or graphics file names. An icon file name is to be described in the "IconFileName" element of the DEVICE_INFO part described later. A graphics file name is to be described in the "GraphicsFileName" element of the DEVICE_INFO part described later. (For details on icon file names and graphics file names, refer to Chapter 6.)

Icon files and graphics files must be stored in the same folder ("folder" in Figure 5-1).

CSP+ files for machine by multiple vendors cannot be managed together.

The names of all files and folders to be compressed must be written with one-byte alphanumeric characters and symbols.*1

The name of a compressed file can be freely determined by a vendor.

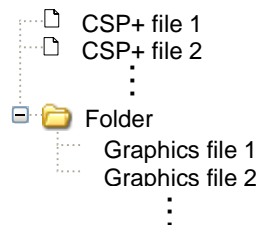


Figure 5-1 Configuration in Compressed File

*1The library of Zip file compression does not manage compression path information in Unicode. Therefore, for example, compressing with a path (also with a file name) that includes 2-byte characters on a Japanese-language environment and then decompressing on an English-language environment would result in garbled characters.

5.2. Structure of CSP+ File for Machine

5.2.1. Description format for CSP+ file for machine

The CSP+ file for machine is described using XML.

5.2.2. Section definition in CSP+ file for machine

The CSP+ file for machine consists of four types of sections: FILE section, DEVICE section, COMM_IF section, and BLOCK section.

For details, refer to "7.1 Section" in BAP-C2008ENG-002 "Part 1 - General Information" of "Control & Communication System Profile Specification (for Machine)".

5.2.3. Part definition in CSP+ file for machine

Each section consists of one or more parts.

For details, refer to "7.2 Part" in BAP-C2008ENG-002 "Part 1 - General Information" of "Control & Communication System Profile Specification (for Machine)".

5.2.4. Element and item definitions in CSP+ file for machine

Each part consists of one or more elements. Each element consists of one or more items.

For details, refer to "7.3 Element and Item" in BAP-C2008ENG-002 "Part 1 - General Information" of "Control & Communication System Profile Specification (for Machine)".

5.2.5. Structure of section, part, and element in CSP+ file for machine

Figure 5-2 to Figure 5-5 show the image of the individual sections in the XML format to be described in the CSP+ file for machine.

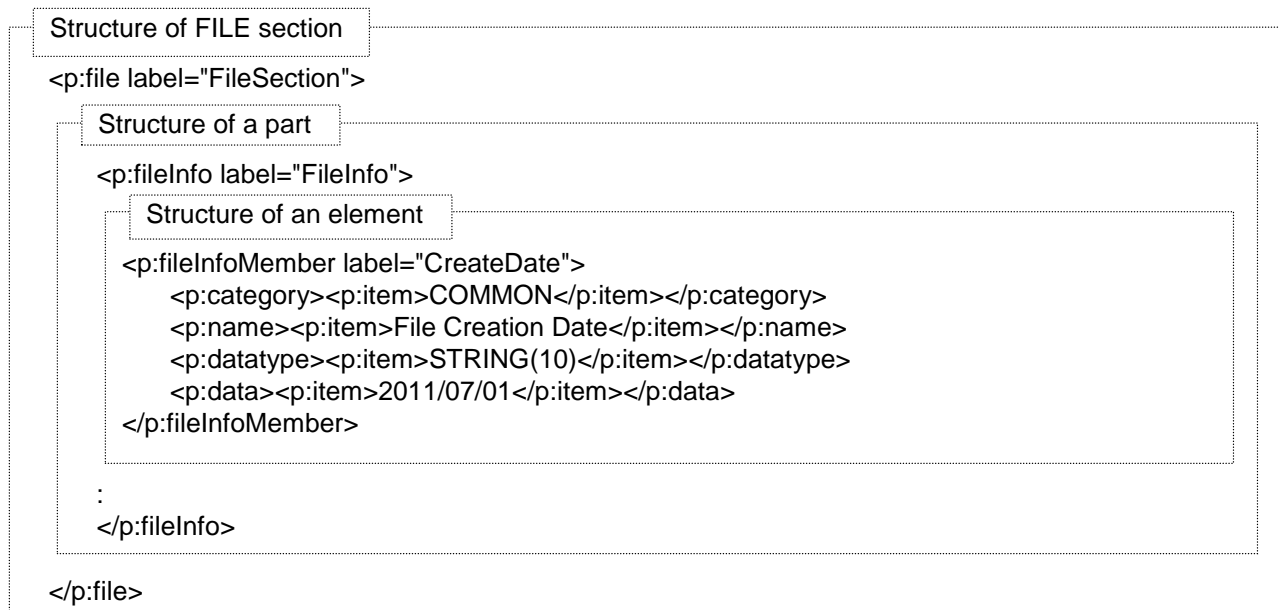


Figure 5-2 Structure of FILE Section



Figure 5-3 Structure of DEVICE Section

Structure of COMM_IF section

```
<p:commIf label="commIfConfiguration">
```

Structure of a part

```
<p:commIfVariable label="commIfConfigurationMember">
```

Structure of an element

```
<p:commIfVariableMember label="P_E">
  <p:name><p:item>Comprehensive Energy Consumption (Per Standard
  Quantity)</p:item></p:name>
  <p:datatype><p:item>UINT32</p:item></p:datatype>
  <p:minInc><p:item>1</p:item></p:minInc>
  <p:engUnit><p:item>J</p:item></p:engUnit>
  <p:access><p:item>R</p:item></p:access>
  <p:refMemory><p:item>P_ISO22400_BLOCK.P_E_MEMORY</p:item></p:refMemory>
  <p:refParam><p:item>P_ISO22400_BLOCK.P_E_PARAM</p:item></p:refParam>
</p:commIfVariableMember>
```

```
:
</p:commIfVariable>
```

```
:
</p:commIf>
```

Figure 5-4 Structure of COMM_IF Section

Structure of BLOCK section

```
<p:block label="blockParam">
```

Structure of a part

```
<p:blockParam label="blockParamMember">
```

Structure of an element

```
<p:blockParamMember label="P_Cycle">
  <p:category><p:item>Electric Energy</p:item></p:category>
  <p:name><p:item>Refreshing Cycle</p:item></p:name>
  <p:datatype><p:item>UINT32</p:item></p:datatype>
  <p:engUnit><p:item>s</p:item></p:engUnit>
  <p:data><p:item>1800</p:item></p:data>
</p:blockParamMember>
```

```
:
</p:blockParam>
```

```
:
</p:block>
```

Figure 5-5 Structure of BLOCK Section

5.3. Description Specifications Common to Sections

5.3.1. Notation of items

5.3.1.1. Overview

- (1) Except for the LABEL item, write an item as an "element of XML". Write the LABEL item as an "attribute of an XML element".
- (2) Write the LABEL item as information which identifies a section and part besides an element.
- (3) Write the COMMENT item as comment information of a section and part besides an element.
- (4) If a value is not required to be set for an item whose description is optional, writing the tag of the item and the whole subsequent part is not required.
- (5) When describing reference to the ENUM part, describe as an element of "enumRefItem". The example below represents a case where reference to the ENUM part is described in the RANGE item.
(Example: <p:range><p:enumRefItem>enumFaultDefinition</p:enumRefItem></p:range>)
- (6) In the case above and for the items other than LABEL, describe them as an element of "item". The example below represents a case where the NAME item is written.
(Example: <name><item>product name</item></name>)
- (7) The following six items need to be revised for support in other languages: the LABEL2 item, NAME item, CATEGORY item, DATA item, ENG_UNIT item, and COMMENT item.

Description examples of the items are shown below:

Description example of an element which uses only an item

Write as follows for reference to common information such as ENUM or when comma-separated strings are not included.

(The example below represents a case where the value of the REF_MEMORY item is "xxxMachine.BlockMemory.CmdForward".)

```
<refMemory>
  <item> xxxMachine.BlockMemory.CmdForward</item>
</refMemory>
```

Description example of a case where multiple items are present

Regarding the CSP+ file for machine, when the values of the DATA item are "100,200", the description has multiple strings separated with a comma, and thus separation into multiple items is required for description of the CSP+ file for machine. A description example is as follows:

```
<data>
  <item>100</item>
  <item>200</item>
</data>
```

Exception of (3)

Regarding the CSP+ file for machine, when the values of the RANGE item are "10,[20,30),40", the description has multiple strings separated with commas, and thus writing as values of multiple items is required for description of the CSP+ file for machine. However, the value range ([20,30)) is to be written in a single item even if a comma is included. Therefore, write as follows in the CSP+ file for machine:

```
<range>
  <item>10</item>
  <item>[20,30)</item>
  <item>40</item>
</range>
```

5.3.1.2. Notation of ACCESS

For the ACCESS item, write access attributes shown in Table 5-1 regardless of part types.

The meaning of the individual values and specified treatment depending on part types is described below.

- Write R, W, and RW indicating read/write attributes.
- NA is to be written for an inaccessible element, and the description of an item value can be omitted for an element which does not need to be set.

When the setting is omitted, follow the access attribute of the element of the reference target.

Table 5-1 Access Attribute List

No.	Value	Meaning
1.	R	Readable only
2.	W	Writable only
3.	RW	Readable and writable
4.	NA	Inaccessible to an element
5.	(Blank)	No setting

5.3.1.3. Notation of ASSIGN

For the ASSIGN item, write an address and code to be assigned to an element. The item can be omitted if not required. The notation of an address and code depends on the protocol type specified with the ProtocolType element of the DEVICE_IF part.

5.3.1.4. Notation of CATEGORY

For the CATEGORY item, write a group name to which an element belongs. For elements to be put in the same group, write the same value in the category. For the category, any character string can be used. If grouping is not required, writing an item value can be omitted. Figure 5-6 shows an example of grouping elements by categorization.

COMM_IF

LABEL	Unit1
COMMENT	Machine 1

COMM_IF_VARIABLE

LABEL	CommIfVar
COMMENT	

Group	{	LABEL	LABEL2	CATEGORY	NAME	---
		Stage1_ElectricEnergy		Electric energy	Process1_ElectricEnergy	
		Stage2_ElectricEnergy		Electric energy	Process2_ElectricEnergy	
Group	{	Stage3_ElectricEnergy		Electric energy	Process3_ElectricEnergy	
		Stage1_NumOfProduction		Number of production	Process1_NumOfProduction	
		Stage2_NumOfProduction		Number of production	Process2_NumOfProduction	
		Stage3_NumOfProduction		Number of production	Process3_NumOfProduction	

Figure 5-6 Description Example of Grouping Elements by Categorization

5.3.1.5. Notation of CODE

For the CODE item, write a value for identifying a corresponding element in a part based on a value acquired from an actual machine. The application software compares a value acquired from an actual machine with a code value to identify the element to be used. For example, a code value is a number for identifying what to be shown (serial number assigned) in the list box of the application software.

- Write an integral value (decimal/hexadecimal).
- The item value cannot be omitted.

If a value outside the range of DATATYPE of an element which uses ENUM is written for CODE, switching to the CODE value is not possible. However, for example, elements of INT4 and INT8 may share ENUM. (ENUM in the range of -8 to 7 is available for INT4, and ENUM in the range of -128 to 127 is available for INT8.)

Description specifications allow values outside the range in consideration of such possibility.

5.3.1.6. Notation of COMMENT

For the COMMENT item, write any character string for the meaning of each explanation and value of the element and usage precautions. The item value can be omitted if not required.

When describing for COMMENT, follow the points described below.

- (1) When writing a value of an element:
When writing a value of an element, writing a value depending on the DATATYPE of the element is recommended. For example, write a decimal value for a comment which indicates a value of an element (such as UINT16) handled with decimal numbers; and write a hexadecimal value for a comment which indicates a value of an element (such as WORD) handled with hexadecimal numbers (place "0x" at the beginning of the value).
- (2) When writing a value of an element with MIN_INC written:
When writing a comment on a value of an element having MIN_INC written, describing with any of the methods below is recommended.
 - 1) Writing a value before calculation with MIN_INC
 - 2) Writing a value with the unit specified by ENG_UNIT

For example, when writing a comment for an element configured with [0,5000] for RANGE, 0.01 for MIN_INC and % for ENG_UNIT: write "when using function A, set 2500 or more" using the method 1) above, or write "when using function A, set 25% or more" using the method 2) above. However, 1) must always be chosen for an element which does not allow the application software to show MIN_INC and ENG_UNIT (where "NA" is written for ENG_UNIT and MIN_INC of an element of the COMM_IF section of the reference source).

5.3.1.7. Notation of DATA

For the DATA item, set static values of individual elements with for the **INFO part (FILE_INFO, DEVICE_INFO, BLOCK_INFO, COMM_IF_INFO), DEVICE_IF part, and BLOCK_PARAM part. The specifications of the element values are as follows:

- Values are required for the **INFO part, DEVICE_IF part, and BLOCK_PARAM part (omission is not allowed).
If DATA is not required, do not write the element itself.
- For writable values, follow DATATYPE. For values settable to each DATATYPE, refer to the range of the values in Section 5.3.1.8.
- When using an aggregation type, the notation in Table 5-6-(3) can be used to write multiple information items.

5.3.1.8. Notation of DATATYPE

For the DATATYPE item, write the data type of a value corresponding to an element. With data types, specify not only an element type but also memory size to be occupied when an element is allocated to a unit. Table 5-2 lists data types which can be specified.

Table 5-2 Data Type List

Data type	Notation	Description	Range of values
Boolean type	BOOL	Bit indicating alternative state such as ON/OFF.	0, 1 0 indicates FALSE. 1 indicates TRUE. (*3)
Binary type *5 *6	BIN8	8-bit binary value	00000000 to 11111111
	BIN16	16-bit binary value	0000000000000000 to 1111111111111111
	BIN32	32-bit binary value	00000000000000000000000000000000 to 11111111111111111111111111111111
	BINx (x=1 to 15) * BIN1 is made available for a case where not TRUE and FALSE but 0 and 1 are to be used for indication.	x-bit binary value For x, put an integral number 1 to 15.	x times of "0" to x times of "1"
Bit string type (Hexadecimal) *1	BYTE	8-bit bit array	0x00 to 0xFF
	WORD	16-bit bit array	0x0000 to 0xFFFF
	DWORD	32-bit bit array	0x00000000 to 0xFFFFFFFF
	BIT_STRINGx (x=2 to 15)	x-bit bit array For x, put an integral number 2 to 15.	0x0 to 0x7FFF *(The maximum value varies depending on the bit number of x.)
Signed integral data type (INT) (Decimal) *1	INT8	8-bit signed integer	-128 to 127
	INT16	16-bit signed integer	-32768 to 32767
	INT32	32-bit signed integer	-2147483648 to 2147483647
	INTx (x=2 to 15)	x-bit signed integer For x, put an integral number 2 to 15.	-2^{x-1} to $(2^{x-1}-1)$
Unsigned integral data type (UINT) (Decimal) *1	UINT8	8-bit unsigned integer	0 to 255
	UINT16	16-bit unsigned integer	0 to 65535
	UINT32	32-bit unsigned integer	0 to 4294967295
	UINTx (x=2 to 15)	x-bit unsigned integer For x, put an integral number 2 to 15.	0 to (2^x-1)
BCD integral data type (BCD) (Decimal) *1	BCD8	8-bit BCD integer	0 to 99
	BCD16	16-bit BCD integer	0 to 9999
	BCD32	32-bit BCD integer	0 to 99999999
	BCDx (x=4, 12)	x-bit BCD integer For x, put 4 or 12.	x/4-digit positive integer

Data type	Notation	Description	Range of values
Real data type (Decimal) *1	REAL	32-bit real number	-3.402823E+38 to -1.175494E-38, 0, 1.175494E-38 to 3.402823E+38 (Number of significant digits: 7)
	LREAL	64-bit real number	-1.797693134862315E+308 to -2.225073858507202E-308, 0, 2.225073858507202E-308, to 1.797693134862315E+308 (Number of significant digits: 15)
String type	STRING(x)*2 (x: integer 1 or larger)	Indicates a character string (alphanumeric characters and symbols) that can be expressed with ASCII codes.	The maximum number of characters varies depending on the x value. x is to be 2048 or smaller.
	STRING_U(x)*4 (x: integer 1 or larger)	Indicates a character string expressed with Unicode (utf-8).	The maximum number of characters varies depending on the x value. x is to be 2048 or smaller.
Time type *6	TIME	Indicates the time (TIME) of a label.	T#-24d20h31m23s648ms to T#24d20h31m23s647ms
Date type	DATE	BIN16[8]-size data which indicates date (year/month/day/hour/minute/second/day of the week/millisecond)	The storage locations and ranges of values are as follows: BIN16[0]: Year (Western calendar) 1980 to 2079 BIN16[1]: Month 1 to 12 BIN16[2]: Day 1 to 31 BIN16[3]: Hour 0 to 23 BIN16[4]: Minute 0 to 59 BIN16[5]: Second 0 to 59 BIN16[6]: Day of the week 0 to 6 [Day of the week] 0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thu, 5: Fri, 6: Sat BIN16[7]: Millisecond 0 to 999
Accuracy type *8	ACCURACY	WORD size data indicating accuracy	<ul style="list-style-type: none"> The upper 4 bits indicate a mode. <ul style="list-style-type: none"> 0x1: Accuracy for the entire measurement range 0x2: Accuracy for acquired values The lower 12 bits indicate an accuracy value. <ul style="list-style-type: none"> Unit: 0.01% Range: 0 to 40.95%
IP address type *6	IP_V4	IPv4-format IP address (Expression with 32 bits)	0.0.0.0 to 255.255.255.255 * For the IP address type, the setting range cannot be specified with RANGE. (A complex range specification is required, what with being unable to set 0 and 255 only for the lowest order value. Therefore, a complex notation is required, making it hard to be handled by engineering. For the meantime, alert customers by a comment.)
	IP_V4_64	IPv4-format IP address (Expression with 64 bits)	Same as above

Data type	Notation	Description	Range of values
Aggregation type *4	Data type + "()" (Example: INT8(), STRING(10)())	Indicates an aggregation type. Using an aggregation type allows to describe multiple information items with the notation in Table 5-6-(3), for the DATA item (refer to Table 6-7).	The ranges of values of individual aggregation elements depend on the data type.
Array type *6	Data type + "[" + number of elements + "]"	Indicates an array type. * Values such as setting ranges cannot be set for each element of an array. Therefore, the description specifications of the individual items of an array type are the same as that of the other types.	Example: UINT16[6] *7

*1: When writing values of items (RANGE, COMMENT, and others) of an element whose DATATYPE is an integral data type (INT/UINT/BCD) or a real data type, always use the decimal notation. For values of items of a bit string type element such as "WORD", always use the hexadecimal notation (place "0x" at the beginning of the value, such as "0x2F"). As for writing a hexadecimal value, not omitting high-order 0 in accordance with data size is recommended. (For a WORD type, writing not 0x3F but 0x003F is recommended.)

*2: When it is defined as an available type in the machine information specifications, it is available for parameters and others. If not especially specified, it can be described only in the FILE_INFO, DEVICE_INFO, DEVICE_IF, BLOCK_INFO, and COMM_IF_INFO elements.

*3: It is not possible to specify values by writing "FALSE", "TRUE", "OFF", and "ON".

*4: It can be described only in the FILE_INFO, DEVICE_INFO, BLOCK_INFO, and COMM_IF_INFO elements.

*5: For values of items (RANGE, COMMENT, and others) of a binary-type element, always write the values which have the number of digits specified by the data type. The high-order 0 cannot be omitted.

*6: When the specifications are specified in the machine information specifications, the type is available only for the information of restricted functions.

*7: The restrictions on the array are described below:

- Only for an aggregation type and constant type, array are prohibited.
- The maximum value regarding the number of array elements depends on (data length of) DATATYPE as follows:
 - 1 to 16-bit DATATYPE: 2147483648
 - 32-bit DATATYPE: 1073741824
 - 64-bit DATATYPE: 536870912
 - STRING: 2147483648 divided by character string length
 - STRING_U: 1073741824 divided by character string length

*8: When writing a value for the DATA item, write as a WORD type. For example, when the mode is set to the accuracy for the entire measurement range (0x1), and the accuracy is 0.32%, write 0x1020.

5.3.1.9. Notation of ENG_UNIT

For the ENG_UNIT item, write a character string indicating a unit. For example, to indicate seconds (time), write "s". The description specifications are as follows:

- If an engineering unit is not required, an item value can be omitted.
- Any character string can be used for the description.

5.3.1.10. Notation of LABEL/LABEL2

For the LABEL item, labels for identifying a section, part, and element can be described. Regarding elements and parts, the second label also can be described to support multiple languages.

A character string to be used for a label name cannot exceed Unicode one-byte 64 alphanumeric characters for LABEL and 128 alphanumeric characters for LABEL2. Only for the second label (LABEL2), characters (such as Japanese characters) other than one-byte alphanumeric characters can be used. Unavailable characters are shown in Table 5-3.

Duplication of the label name and second label name is restricted as follows:

- In the same part, duplication of label names of elements is not allowed. A duplicated label name of an element in another part is allowed.
- In the same section, duplication of label names of parts is not allowed.
- The label names of a section cannot be duplicated.
- Upper-case characters and lower-case characters are not distinguished ("VAR1" and "var1" are considered as duplicated).
- For a LABEL to be described in the CSP+ file for machine by the creator of the file, defining a label which starts with "P_" is prohibited (defining so is possible for LABEL2).
- * When newly defining a LABEL name, use a LABEL name starting with "P_".

Table 5-3 Characters Unavailable for the LABEL and LABEL2 Items

Category	Prohibited character
Character unavailable for labels	!, ", #, \$, %, &, ', (,), *, +, ,, -, ., /, :, ;, <, =, >, ?, @, [, \,], ^, `, {, , }, ~ * Commas (,) are used as separators.
Character unavailable at the beginning of a label	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, _ * Commas (,) are used as separators.
Reserved word	Reserved words of LABEL2 are not defined. • Unusable regardless of whether the characters are upper-case or lower-case ("LABEL", "laBel", and "label" are reserved words). • Unusable only when complete match occurs ("A_LABEL" and "LABELA" can be used for example).
Space	Both of one-byte and two-byte ones cannot be used.

Table 5-4 List of Reserved Words

No.	Meaning	Reserved word	Remarks
1	Keyword indicating a section	FILE, DEVICE, COMM IF, BLOCK	
2	Keyword identifying each part	FILE_INFO, DEVICE_INFO, DEVICE_IF, COMM_IF_INFO, COMM_IF_VARIABLE, COMM_IF_CONFIGURATION, BLOCK_INFO, BLOCK_MEMORY, BLOCK_PARAM	
3	Keyword indicating common information	ENUM	
4	Keyword indicating an item	ACCESS, ASSIGN, CATEGORY, CODE, COMMENT, DATA, DATATYPE, ENG_UNIT, LABEL, LABEL2, MIN_INC, NAME, RANGE, REF_MEMORY, REF_PARAM	
5	Other keywords	NA: Indicates that it cannot be used. (Not Available) COMMON: To be used for CATEGORY of **INFO part.	

5.3.1.11. Notation of MIN_INC

For the MIN_INC item, write the minimum value of resolution and the engineering unit (refer to Section 5.3.1.9) separately.

- The description specifications are as follows:
- If an engineering unit is not required, an item value can be omitted.
- For an element without the engineering unit (ENG_UNIT) described in Section 5.3.1.9, describing is not possible.
- Describing is possible only for an element whose DATATYPE is an integral data type (INT/UINT/BCD).
- Only 10n (n: integer) is writable, and its calculation results are to be described with decimal numbers (... ,100,10,1,0.1,0.01,...). For an element having the minimum unit omitted, the minimum unit is recognized as 1.

Values of elements, such as setting ranges, are those held by an actual machine. Values with an engineering unit (refer to Section 5.3.1.9) can be obtained through multiplication by the minimum unit.

(Example: For the element shown in Figure 5-7 Example of an Element Having the Minimum Unit Written, a value within the range of 1000 to 2000 is held by an actual machine. However, because 0.01 is written as the minimum unit, the actual setting range will be 10.00Hz (0.01Hz x 1000) to 20.00Hz (0.01Hz x 2000).

LABEL	LABEL2	CATEGORY	NAME	DATATYPE	RANGE	MIN_INC	ENG_UNIT	ACCESS	COMMENT
SettingFreq	-	-	Output frequency	UINT16	[1000,2000]	0.01	Hz	RW	

Figure 5-7 Example of an Element Having the Minimum Unit Written

5.3.1.12. Notation of NAME

For the NAME item, write any character string as the name of an element. A written character string is used by the application software to show the name or content of an element.

Elements of the INFO part can be omitted because basically recommended NAMEs are specified on the specifications. Elements which refer to another part or element with REF_MEMORY or REF_PARAM can be omitted because they can be determined from the NAME of an element of the reference target.

For NAME, writing item values cannot be omitted except for elements of the INFO part, DEVICE_IF part, and ENUM part of each section.

5.3.1.13. Notation of RANGE

For the RANGE item, write the range of values to be set to an element. The description methods of a setting range are shown below:

When values and value ranges are directly described

Write value and the ranges of values in a sequence. For the description methods about the ranges of values, refer to (4) in Table 5-6. When multiple setting ranges are to be written, use aggregative notation (refer to 3) in Table 5-6).

Example: [1,600],[7000,7010],[8000,8049],[9001,9003],9900,9901

As a setting range, write the range of values held by an actual machine (refer to Section 5.3.1.11).

When an option list (ENUM) is used

A setting range can be indicated by describing options in the part of the option list (ENUM) and referring to the part of the option list. Use ENUM when setting with a list box is to be made on the application software or when the meaning is to be shown for each value at the time of monitoring.

ENUM can be used for a setting range only when the DATATYPE of an element is a boolean type, integral data type (INT/UINT/BCD), or bit string type (BYTE, WORD, and others).

When a setting range cannot be shown (or does not need to be shown) on the application software

If a setting range cannot be shown (or does not need to be shown) when the setting range is handled by the application software, write NA.

When a setting range is the same as the range of values of the DATATYPE item

When a setting range is the same as the range of values determined by DATATYPE, writing item values of RANGE can be omitted.

When writable values are different from readable values

Attributes of reading and writing cannot be set for each value written for RANGE. Therefore, for example, description with RANGE is not possible for an element whose readable values are 0 to 10 and writable values are 0 to 5. In such a case, it is recommended to write [0,10] for RANGE and mention in a COMMENT that 6 or more cannot be written.

5.3.1.14. Notation of REF_MEMORY

For the REF_MEMORY item, describe reference from an element of COMM_IF to the BLOCK_MEMORY part using the label name (the second label name is not available). When reference is not required, an item value can be omitted. For the notation of the reference target, refer to Section 5.3.4.

(1) Relationships between item values of the reference source and reference target

When the label name of an "element in a part of the reference target" is P_Value, basically write an item value to the element of the reference target (BLOCK side) like NAME shown in Figure 5-8, and omit an item value for the element of the reference source (COMM_IF side). However, when an item value (such as a setting range) differs depending on the COMM_IF section of the reference source, the item value of the reference source can be used by writing the item value to the element of the reference source (COMM_IF side).

The points to note for use of the item value of the reference source are shown below:

- If writing an item value of RANGE is omitted, the entire range of DATATYPE is treated as RANGE based on the specifications (refer to Section 5.3.1.13): be careful when overwriting on the reference source. For example, in Figure 5-8, the setting range indicates not the range of UINT16, 0 to 65535, but the range described in the BLOCK side, 0 to 100000, when the value of RANGE of the COMM_IF side is omitted. Also, if the values of both the COMM_IF side and BLOCK side are omitted, the range of UINT16, 0 to 65535 is indicated.

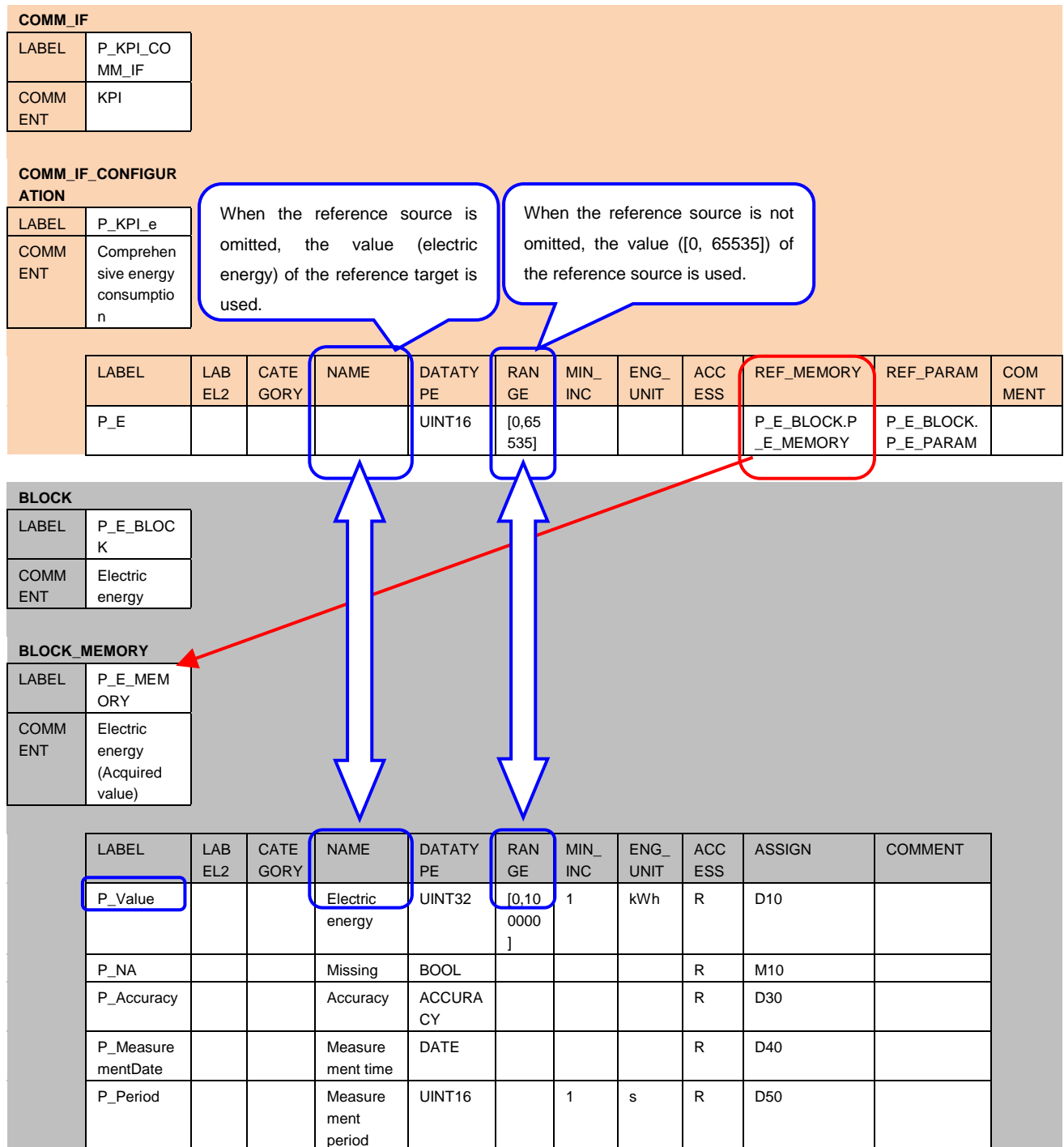


Figure 5-8 Description Example of COMM_IF and BLOCK When Reference Is Used

(2) Many-to-one reference

Description of reference from multiple elements to a single part (many-to-one reference) is possible. Even if the number of BLOCK sections is one, many-to-one reference is performed when multiple COMM_IF sections which access it exist.

Varying item values for each reference source is also possible. For example, the setting range of a parameter can be changed for each COMM_IF section.

5.3.1.15. Notation of REF_PARAM

For the REF_PARAM item, describe the reference from an element of COMM_IF to the BLOCK_PARAM part using the label name (the second label name is not available). When reference is not required, an item value can be omitted. For the notation of the reference target, refer to Section 5.3.4.

(1) Relationships between the default reference target of a part and discrete reference targets of elements in a part

When the default reference target has been set for a part, the reference target of all elements in the part is the default reference target. However, if reference targets are set to the REF_PARAM items of discrete elements, the reference targets of the discrete elements are applied.

If the default reference target has not been set for the part, the reference targets of the REF_PARAM items of discrete elements are applied.

(2) Many-to-one reference

Same as for the REF_MEMORY. Refer to (2) in Section 5.3.1.14.

5.3.2. Prohibited characters of XML

When using prohibited characters of XML between tags as text (<tag>text</tag>), describe them in XML using entity reference as shown in Table 5-5.

Table 5-5 Entity Reference Corresponding to Prohibited Characters

Prohibited character	Entity reference
<	<
>	>
&	&

* Although entity references are defined also for the double quotation (") and apostrophe ('), just write without using these entity references for text portions of XML.

(Although the entity references need to be used when these characters are used for attribute values of XML, the characters are not written for attribute values in the CSP+ file for machine; therefore, the entity references of the double quotation and apostrophe do not need to be used in the CSP+ file for machine.)

5.3.3. Common notation of item values

The description rules of item values are shown in Table 5-6. For allowance of combined use of the common information and other notations, refer to the specifications of the individual common information items.

Table 5-7 shows the items for which description rules can be used. The numbers in the header row indicate numbers of the description rules shown in Table 5-6.

Table 5-6 Description Rules

No.	Rule	Meaning	Remarks
1)	Omission method	<u>[For the DATA item]</u> Omit the element itself. <u>[For items other than the DATA item]</u> If the item is not a required one, only its item value can be omitted. <u>[When only part of an item value is to be omitted]</u> Write a hyphen (-).	As for whether omission is possible, refer to the specifications of the individual items.
2)	"< >" (One-byte angle brackets)	When multiple values are written as an item value and their order is significant, put each value in one-byte angle brackets (< >) and write the values in the appropriate order. When one-byte angle brackets are used, all values of the item value must be put in one-byte angle brackets. For values put in one-byte angle brackets, the notation in 3) (aggregative notation) and additional one-byte angle brackets cannot be used. [Example] "<0x04><70>" and "<0x16><70>, <0x18><80>" are acceptable. "<0x04>70", "<0x16><70>, 0x18", "<0,2>", and "<<0><1><2>>" are not acceptable.	<u>[Description example]</u> ASSIGN <0x04><70><3> <0x04><7><3>
3)	Aggregative notation	When multiple values are written as an item value and their order is not significant, separate each value with a comma (,) and write the values in a row.	<u>[Description example]</u> REF_MEMORY CH1.BlockParameter. OffsetGain, CH2.BlockParameter. OffsetGain, CH3.BlockParameter. OffsetGain, CH4.BlockParameter. OffsetGain
4)	Specifying the range of values "[", "(", ")", "]"	<u>[When an item value is a character string]</u> A range cannot be specified. <u>[When an item value is a numerical value]</u> Indicate the range of values by putting two values (separated with a comma) in brackets. The left value indicates the lower-limit value and the right value indicates the upper-limit value. Indicate a closed interval with one-byte square brackets "[", "]" and indicate an open interval with parentheses "(" ")". If the upper-limit value or lower-limit value is not specified, a numerical value is not to be written. (Example: For a value which is 6 or less, describe [,6].) Both the upper-limit and lower-limit values can be also omitted. In this case, the range of values is equal to the range indicated by DATATYPE.	• Closed interval [a, b] = {x a ≤ x ≤ b} • Open interval (a, b) = {x a < x < b} • Left closed/right open interval, left closed/half-open interval [a, b) = {x a ≤ x < b} • Left open/right closed interval, right closed/half-open interval (a, b] = {x a < x ≤ b}

No.	Rule	Meaning	Remarks
5)	Maximum number of input characters for an item value	Basically, not defined. However, for items (labels and others) which specify the maximum number of characters, follow the specification. (Refer to the description specifications of individual items.)	
6)	Treating special characters	<p><u>[For items which do not allow any character string to be written]</u></p> <p>When using the symbols below in a character string as characters, write them after "\".</p> <p>"," (comma)</p> <p>"\$" (dollar)</p> <p>"<", ">", "[", "]", "(", ")" (brackets)</p> <p>"\" (backslash)</p> <p>When writing multiple special characters continuously, use "\" for each special character.</p> <p><u>[For items which allow any character string to be written]</u></p> <p>Special characters can be written without "\".</p> <p>* Corresponding items: CATEGORY, NAME, COMMENT, DATA</p>	<p>[Description example]</p> <ul style="list-style-type: none"> • \, • \\$ • \<, \>, \[, \], \(\, \) • \\ • \<\\$\>
7)	Treating space	<p><u>[For items which allow any character string to be written]</u></p> <p>Space can be used freely.</p> <p><u>[For items which treat input values as character string types]</u></p> <p>Space can be used freely.</p> <p><u>[For items which do not treat input values as character string types]</u></p> <p>Space cannot be used.</p>	
8)	Treating line break	<p><u>[For the NAME, COMMENT, and DATA items]</u></p> <p>Line brakes can be described for visibility of character strings on the application software. However, whether return codes are applied at the time of display depends on the specifications of the application software (and not mandatory).</p> <p><u>[For other items]</u></p> <p>Line brakes cannot be described.</p>	
9)	Use of common information • Option list (ENUM)	Common information defined in a part can be referred to.	Basically, common information of only the same section can be referred to. If reference allowance and non-allowance are described in the specifications of common information, follow the specifications.
10)	Treating control characters	Control characters other than line brakes cannot be used for descriptions.	Example: TAB (horizontal tab) cannot be written.

Table 5-7 List of Notations Available for Individual Items

No.	Item name	Multiple-value description with <> (2))	Description with aggregative notation (3))	Range specification with [] and () (4))	Reference to ENUM
1.	LABEL/LABEL2	x	x	x	x
2.	CATEGORY	x	x	x	x
3.	NAME	x	x	x	x
4.	DATATYPE	x	x	x	x
5.	DATA	x	○	x	x
6.	RANGE	x	○	○	○
7.	MIN_INC	x	x	x	x
8.	ENG_UNIT	x	x	x	x
9.	ACCESS	x	x	x	x
10.	ASSIGN	○	x	x	x
11.	CODE	x	x	x	x
12.	REF_MEMORY	x	x	x	x
13.	REF_PARAM	x	x	x	x
14.	COMMENT	x	x	x	x

○: Available x: Not available

The table shows allowance/non-allowance of combined use of the individual notations for each item. The compatibility regarding reference of common information (ENUM part) is described below. The combined-use rules for the other notations are shown in Table 5-8.

1) ENUM part

For the item for which reference to the ENUM part is indicated, other notations cannot be used in combination.

Table 5-8 Combined-use Rules of Notations

	- (1))	<> (2))	Aggregative notation (3))	"[", "(", ")", "]" (4))
- (1))	Placement of multiple values is not allowed. However, multiple uses of <-> are allowed.			
<> (2))	A hyphen (-) can be put in <>.	Writing multiple values like "<a>" is allowed. Putting <> in <> is not allowed.		
Aggregative notation (3))	Description is allowed only when a hyphen (-) is in <>.	Description like "<3><4>,<5><6>" is allowed. Description of <,> is not allowed.	Writing multiple values like "a,b,c" is allowed.	
"[", "(", ")", "]" (4))	Combined use is not allowed.	Combined use is not allowed.	Combined use is allowed when multiple ranges are described like "[1,2],[10,15]". In each pair of brackets, use of only a single comma (,) is allowed.	Multiple ranges can be described using a comma (,) like "[1,2],[10,15]". Putting brackets in brackets is not allowed.

5.3.4. Notation of reference target with label

(1) Common notation

For reference to a part, element, and item value held by an element, a reference target can be described with a label name (the second label name is not available). The description specifications of reference with a label name are described below:

For reference to a part in the same section, write the label name of the part.

For reference to a part in another section, describe "SectionLabelName.PartLabelName" by adding the label name of the section to the beginning of the path.

Although common information of another section can also be referred to, using it excessively makes relationships of information complex. Therefore, it is recommended to prepare a global section for managing information common to individual sections and to use it only when referring to common information of the prepared section.

Table 5-9 List of Items Where Reference Can Be Described

Reference target	Item which allows to describe reference
Reference to a part	DATA item of the DeviceInterface element of the RANGE, REF_MEMORY, REF_PARAM, and COMM_IF_INFO parts; DATA item of the DeviceInterface element of the BLOCK_INFO part

6. DETAILS OF CSP+ FILE FOR MACHINE

6.1. Overall Description

Regarding the CSP+ file for machine, describe as a single XML element enclosed with an XML tag name "profile" (the namespace is omitted because on CSP+ for Machine Specification version 1.0, it has been identical on "http://cc-link.org/cspplusformachine/ver1/" and later). A description example of XML tags for description of the CSP+ file for machine is shown below.

```
<p:profile xsi:schemaLocation="http://cc-link.org/cspplusformachine/ver1/CSPPSchema.xsd"
  xmlns:p="http://cc-link.org/cspplusformachine/ver1/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  :
  :
  :
</p:profile>
```

[Namespace]

For XML, namespaces are used to show by which specifications XML element names and attribute names are defined. In the example above, the following strings described on the second and third lines are namespaces: the first one is a namespace with the CSP+ for machine specifications and the second one is a namespace with the XML specifications.

```
http://cc-link.org/cspplusformachine/ver1/
http://www.w3.org/2001/XMLSchema-instance
```

Describing namespaces for each of all XML element names and attribute names makes the description lengthy, and thus declaring the abbreviated format as shown on the second and third lines in the example above is to be made. Regarding the abbreviated format of namespaces, declaration is to be made in the format, xmlns: prefix = "namespace".

In this example, on the second line, prefix "p:" indicates a namespace with the CSP+ for machine specifications; and on the third line, prefix "xsi:" indicates a namespace with the XML specifications. In the example above, "p:profile" is an XML element name defined with the CSP+ for machine specifications and "xsi:schemaLocation" is an attribute name defined with the XML specifications. A character string to be used in an abbreviated format can be a string other than the ones in the example above. For example, if declaration is made as follows on the second line above, describe "cspp:profile" instead of "p:profile".

```
"xmlns:cspp=" http://cc-link.org/cspplusformachine/ver1/"
```

For description of CSP+ for machine, the attributes defined in the CSP+ for machine specifications is described with "no namespace".

The list of the XML elements of CSP+ for machine is presented in Table 6-1, and the list of the attributes of element "profile" is shown in Table 6-2.

Table 6-1 List of XML Elements of CSP+ for Machine

No.	XML element name	Description details	Required/Optional
1.	profile	Write Control & Communication System Profile (CSP+).	Required

Table 6-2 List of Attributes of the Profile Element

No.	Attribute name	Description details	Required/ Optional
1.	schemaLocation	Indicates the identification of the XML schema of CSP+ for machine. This attribute has been defined in the XML specifications, and thus is to be used with the namespace "http://www.w3.org/2001/XMLSchema-instance" defined in the XML specifications. Specify "http://cc-link.org/cspplusformachine/ver1/CSPPSchema.xsd".	Optional

As the XML subelement of the profile element indicating one CSP+ file for machine, describe an element which indicates each section. One section is described as one XML element. A list of subelements of profile elements is shown in Table 6-3.

Table 6-3 List of XML Subelements of the Profile Element

No.	XML element name	Description details	Required/ Optional
1.	file	Write the content of the FILE section.	Required
2.	device	Write the content of the DEVICE section.	Required
3.	block	Write the content of the BLOCK section.	Required
4.	commlf	Write the content of the COMM_IF section.	Required

6.2. FILE Section

6.2.1. Structure of FILE section

The FILE section is composed of only one FILE_INFO part. One part is described as one XML element. A comment can be described as an option.

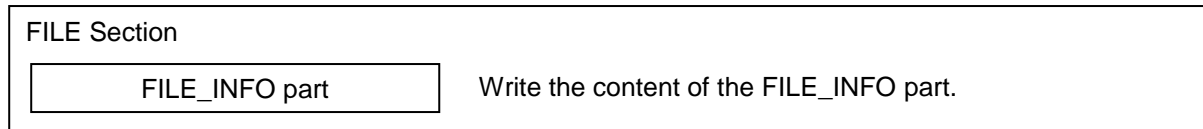


Figure 6-1 Structure of FILE Section

In the XML format, the FILE section is described as an XML element with the XML element name "file". A list of attributes of the file element is shown in Table 6-4, and a list of XML subelements is shown in Table 6-5.

Table 6-4 List of Attributes of the File Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the FILE section. (Refer to Section 5.3.1.10.) (Example: "FileSection")	Required

Table 6-5 List of XML Subelements of File Elements

No.	XML element name	Description details	Required/Optional
1.	comment	Write a comment on the FILE section. (Refer to Section 5.3.1.6.)	Optional
2.	fileInfo	Write the content of the FILE_INFO part.	Required

6.2.2. FILE_INFO part

6.2.2.1. Overview

The FILE_INFO part describes the information related to the CSP+ file for machine such as file updated date.

Elements which compose the FILE_INFO part are shown in Figure 6-2.

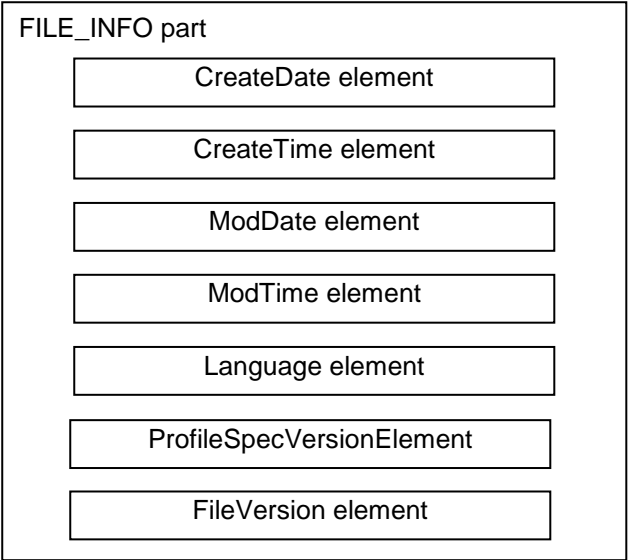


Figure 6-2 Structure of FILE_INFO Part

The structure of each element of the FILE_INFO part, in other words, the items to be described in the element, is the same. The structure of an element of the FILE_INFO part is shown in Figure 6-3.

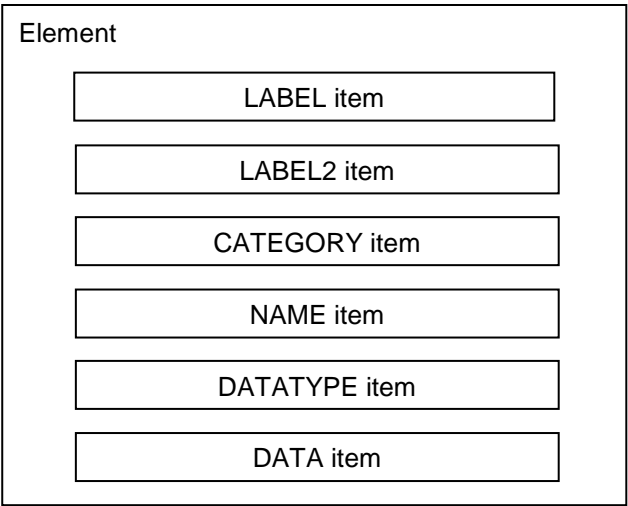


Figure 6-3 Structure of an Element in FILE_INFO Part

An element list is shown in Table 6-6. One element is described as one XML element. For details on the description specifications of each element, refer to Section 6.2.2.3.

Table 6-6 List of Elements of a FILE_INFO Part

No.	Element name	Description details	Required/Optional
1.	CreateDate	Write the creation date of the CSP+ file for machine.	Required
2.	CreateTime	Write the creation time of the CSP+ file for machine.	Required
3.	ModDate	Write the last modified date.	Required
4.	ModTime	Write the last modified time.	Required
5.	Language	Write which language has been used for description of the CSP+ file for machine.	Required
6.	ProfileSpecVersion	Write the version of the CSP+ for machine specification.	Required
7.	FileVersion	Write the version of profile information for the target unit.	Required

The items to be described for elements of a FILE_INFO part are shown in Table 6-7.

Table 6-7 List of Items in FILE_INFO Part

No.	Item name	Description details	Description specifications	Required/Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (This item is used when the application software supports other languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element.	Refer to Section 5.3.1.12.	Optional
5.	DATATYPE	Write the data type of the contents described in the DATA item.	Refer to Section 5.3.1.8.	Required
6.	DATA	Write the content of an element.	Refer to Section 5.3.1.7.	Required

6.2.2.2. XML format of FILE_INFO part

In the XML format, the FILE_INFO part is described as an XML element with the XML element name "fileInfo". A list of attributes of the fileInfo element is shown in Table 6-8, and a list of XML subelements is shown in Table 6-9.

Table 6-8 List of Attributes of the fileInfo Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the FILE_INFO part. (Refer to Section 5.3.1.10.) (Example: "FileInformation")	Required

Table 6-9 List of XML Subelements of the fileInfo Element

No.	XML element name	Description details	Required/Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Write a comment on the FILE_INFO part. (Refer to Section 5.3.1.6.)	Optional
3.	fileInfoMember	Write the content of an element of the FILE_INFO part.	Required

In the XML format, elements of the FILE_INFO part are described as XML elements with the XML element name "fileInfoMember". A list of attributes of the fileInfoMember element is shown in Table 6-10, and a list of XML subelements is shown in Table 6-11.

Table 6-10 List of Attributes of the fileInfoMember Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10.) What to be described for this label is specified in the CSP+ for machine specifications. For details, refer to Section 6.2.2.3.	Required

Table 6-11 List of XML Subelements of the fileInfoMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	data	Write the DATA item.

Describe the FILE_INFO part using the following format:

```
<p:fileInfo label="Description based on the description details for label (attribute name) in Table 6-8">
  <p:label2> Description based on the description details for label2 (XML element name) in Table 6-9
</p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
Table 6-9 </p:comment>
  <p:fileInfoMember label="Description based on the description details for label (attribute name) in
Table 6-10">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
6-11 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
Table 6-11 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
6-11 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
Table 6-11 </p:datatype>
    <p:data> Description based on the description details for data (XML element name) in Table
6-11 </p:data>
  </p:fileInfoMember>
  <p:fileInfoMember label="Description based on the description details for label (attribute name) in
Table 6-10">
    :
    :
  </p:fileInfoMember>
  :
  :
</p:fileInfo>
```

6.2.2.3. Description details of individual elements

(1) Item description of CreateDate element

Table 6-12 Item Description Specifications of CreateDate Element

No.	Item name	Description details
1.	LABEL	Write "CreateDate".
2.	LABEL2	Write "CreateDate" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "File Creation Date" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(10)".
6.	DATA	Write the date the file was created. Follow the yyyy/mm/dd format. Use the Western calendar system. Do not perform zero suppression for month/day.

(a) Item description example of CreateDate element

```
<p:fileInfoMember label="CreateDate">
  <p:label2><p:item>CreateDate</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>File Creation Date</p:item></p:name>
  <p:datatype><p:item>STRING(10)</p:item></p:datatype>
  <p:data><p:item>2012/04/01</p:item></p:data>
</p:fileInfoMember>
```

(2) Item description of CreateTime element

Table 6-13 Item Description Specifications of CreateTime Element

No.	Item name	Description details
1.	LABEL	Write "CreateTime".
2.	LABEL2	Write "CreateTime" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "File Creation Time" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(8)".
6.	DATA	Write the time the file was created. Follow the hh:mm:ss format for description. Do not perform zero suppression for hour:minute:second.

(a) Item description example of CreateTime element

```
<p:fileInfoMember label="CreateTime">
  <p:label2><p:item>CreateTime</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>File Creation Time</p:item></p:name>
  <p:datatype><p:item>STRING(8)</p:item></p:datatype>
  <p:data><p:item>09:08:07</p:item></p:data>
</p:fileInfoMember>
```

(3) Item description of ModDate element

Table 6-14 Item Description Example of ModDate Element

No.	Item name	Description details
1.	LABEL	Write "ModDate".
2.	LABEL2	Write "ModDate" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Last Modified Date" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(10)".
6.	DATA	Write the last modified date. Follow the yyyy/mm/dd format. Use the Western calendar system. Do not perform zero suppression for month/day.

(a) Item description example of ModDate element

```

<p:fileInfoMember label="ModDate">
  <p:label2><p:item>ModDate</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Last Modified Date</p:item></p:name>
  <p:datatype><p:item>STRING(10)</p:item></p:datatype>
  <p:data><p:item>2012/05/06</p:item></p:data>
</p:fileInfoMember>

```

(4) Item description of ModTime element

Table 6-15 Item Description Specifications of ModTime Element

No.	Item name	Description details
1.	LABEL	Write "ModTime".
2.	LABEL2	Write "ModTime" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Last Modified Time" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(8)".
6.	DATA	Write the time last modified. Follow the hh:mm:ss format. Do not perform zero suppression for hour:minute:second.

(a) Item description example of ModTime element

```

<p:fileInfoMember label="ModTime">
  <p:label2><p:item>ModTime</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Last Modified Time</p:item></p:name>
  <p:datatype><p:item>STRING(8)</p:item></p:datatype>
  <p:data><p:item>11:22:33</p:item></p:data>
</p:fileInfoMember>

```


(5) Item description of Language element

Table 6-16 Item Description Specifications of Language Element

No.	Item name	Description details
1.	LABEL	Write "Language".
2.	LABEL2	Write "Language" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Supported Language" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(12)".
6.	DATA	<p>Write which language has been used for description of the CSP+ file for machine. A list of the defined language information is given below:</p> <ul style="list-style-type: none"> • Japanese: "ja" • English: "en" • Chinese (Simplified): "zh-Hans" • Korean: "ko" • Chinese (Traditional): "zh-Hant" • German: "de" • French: "fr" • Russian: "ru" • Italian: "it" • Spanish: "es" • Portuguese: "pt" <p>When a language code not listed above is to be used, applying to the CC-Link Partner Association is required. For the latest list of language information, contact the CC-Link Partner Association.</p>

(a) Item description example of Language element

```

<p:fileInfoMember label="Language">
  <p:label2><p:item>Language</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Supported Language</p:item></p:name>
  <p:datatype><p:item>STRING(12)</p:item></p:datatype>
  <p:data><p:item>ja</p:item></p:data>
</p:fileInfoMember>

```

(6) Item description of ProfileSpecVersion element

ProfileSpecVersion describes the version of this document corresponding to the CSP+ for machine by separating three numeric characters (0 to 231-1) with dots (.) like "x.y.z". When increasing the high-order version, return the low-order version to 0. (Example: When increasing the major version from 1.2.1, the latest version must be 2.0.0.)

Table 6-17 Item Description Specifications of ProfileSpecVersion Element

No.	Item name	Description details
1.	LABEL	Write "ProfileSpecVersion".
2.	LABEL2	Write "ProfileSpecVersion" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "CSP+ Specification version" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(32)".
6.	DATA	Write the version of the CSP+ for machine specification.

(a) Item description example of ProfileSpecVersion element

```
<p:fileInfoMember label="ProfileSpecVersion">
  <p:label2><p:item>ProfileSpecVersion</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>CSP+ Specification version</p:item></p:name>
  <p:datatype><p:item>STRING(32)</p:item></p:datatype>
  <p:data><p:item>2.0</p:item></p:data>
</p:fileInfoMember>
```

(b) CSP+ for machine specification version

Write the CSP+ for machine specification version by separating three alphanumeric characters with dots (.) like "x.y.z".

x: Indicates a major version.

Increase this version when such specification changes are made that hinder compatibility of the application software.

y: Indicates a minor version.

Increase this version when such specification changes are made that do not hinder compatibility of the application software.

When the minor version is 0, both the minor version and release version can be omitted. (Example: 1.0.0 -> 1)

z: Indicates a release version.

Increase this version in such occasions as correction of incorrect descriptions and addition of descriptions on the specifications.

When increasing the release version, do not change the analysis logic of the application software.

This version concerns not the CSP+ file for machine but the CSP+ file (for machine) specifications, and thus the version is not described basically; however, describing it is also acceptable.

(7) Item description of FileVersion element

Table 6-18 Item Description Specifications of FileVersion Element

No.	Item name	Description details
1.	LABEL	Write "FileVersion".
2.	LABEL2	Write "FileVersion" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "File Version" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(32)".
6.	DATA	<p>Write the file version. For description, separate two alphanumeric characters with a dot (.) like "x.y". x: Write the major version. When the unit is identical, a file having a larger major version is the latest file. If the unit is the same and also described information is the same between CSP+ files for machine whose supported languages differ, the version of the major version is used to judge whether the CSP+ files for machine are equivalent. y: Write the minor version. When the unit, supported languages, and major version are identical, a file having a larger minor version is the latest file. When the minor version is "0", the description can be omitted. When increasing the major version, return the minor version to 0. The rules of file version update are shown in Table 6-19.</p>

Table 6-19 File Version Update Rules

No.	Rule	Remarks
1.	When changing the content in a CSP+ file for machine with the same machine version and the same supported language, write a different file version.	
2.	For CSP+ files for machine whose machine version is identical, assign a larger value to the new file as the file version.	
3.	When updating the machine version, assign 1 to the major version of the file version.	
4.	Write the same major version for the file version of CSP+ files for machine whose contents are identical and whose supported languages differ.	This is necessary to identify the CSP+ file for machine having the same information written among files which support different languages.
5.	<p>To revise only the information below, updating only the minor version is acceptable. For other revisions (including addition of elements and others), always update the major version. (Except for the situation when the machine version is updated.)</p> <ul style="list-style-type: none"> • Revisions of CATEGORY, NAME, and COMMENT items • Revision of a DATA item of a FILE_INFO part 	

(a) Item description example of FileVersion element

```

<p:fileInfoMember label="FileVersion">
  <p:label2><p:item>FileVersion</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>File Version</p:item></p:name>
  <p:datatype><p:item>STRING(32)</p:item></p:datatype>
  <p:data><p:item>1.0</p:item></p:data>
</p:fileInfoMember>

```

6.3. DEVICE Section

6.3.1. Structure of DEVICE section

The DEVICE section is composed of only one DEVICE_INFO part. One part is described as one XML element. A comment can be described as an option.

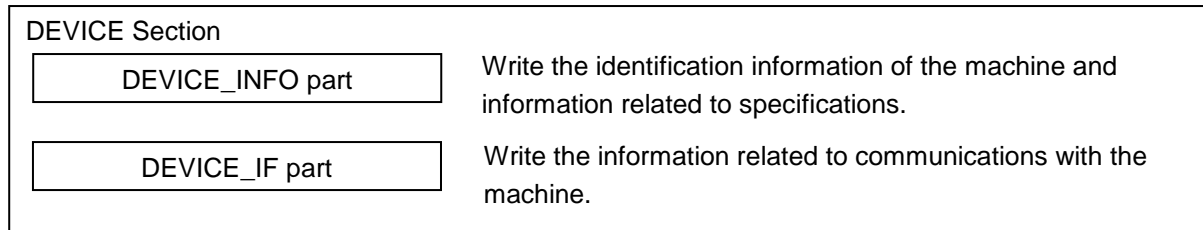


Figure 6-4 Structure of DEVICE Section

In the XML format, the DEVICE section is described as an XML element with the XML element name "device". A list of attributes of the device element is shown in Table 6-20, and a list of XML subelements is shown in Table 6-21.

Table 6-20 List of Attributes of the device Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the DEVICE section. (Refer to Section 5.3.1.10.)	Required

Table 6-21 List of XML Subelements of the device Element

No.	XML element name	Description details	Required/Optional
1.	comment	Write a comment related to the DEVICE section. (Refer to Section 5.3.1.6.)	Optional
2.	deviceInfo	Write the content of the DEVICE_INFO part.	Required
3.	deviceIf	Write the content of the DEVICE_IF part.	Required

6.3.2. DEVICE_INFO part

6.3.2.1. Overview

The DEVICE_INFO part describes the product identification information and the information related to the product specifications.

Elements which compose the DEVICE_INFO part are shown in Figure 6-5.

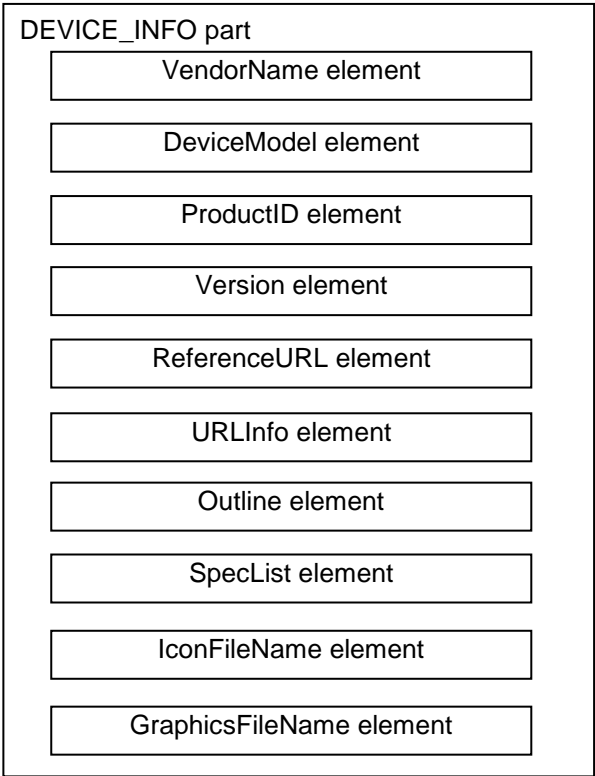


Figure 6-5 Structure of DEVICE_INFO Part

The structure of each element of the DEVICE_INFO part, in other words, the items to be described in the element, is the same. The structure of an element of the DEVICE_INFO part is shown in Figure 6-6.

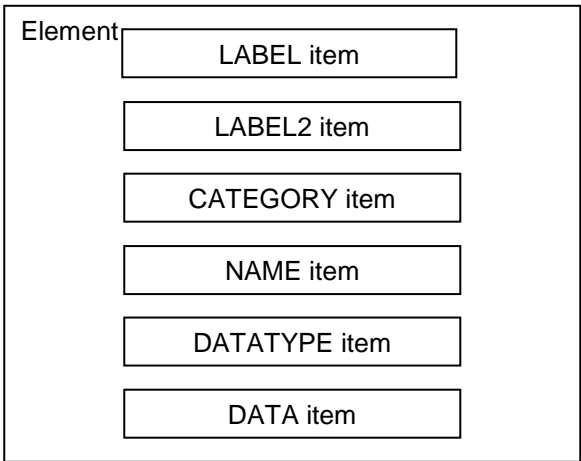


Figure 6-6 Structure of an Element in DEVICE_INFO Part

An element list is shown in Table 6-22. One element is described as one XML element. For details on the descriptions of each element, refer to Section 6.3.2.3.

Table 6-22 List of Elements of a DEVICE_INFO Part

No.	Element	Description details	Required/ Optional
1.	VendorName	Write the name of the machine manufacturer.	Required
2.	DeviceModel	Write the model name of the machine.	Required
3.	ProductID	Write the product ID of the machine. Write the ID which is managed by the machine manufacturer.	Optional
4.	Version	Write the machine version of the machine.	Required
5.	ReferenceURL	Write an URL if the machine information is disclosed on the Web. When the machine information is not disclosed, writing the URL of the website of the manufacturer is also possible.	Optional
6.	URLInfo	Write a description of the information indicated by ReferenceURL.	Optional
7.	Outline	Write the general specifications of the machine. For this element, describing points to note for use of the machine is recommended. It is also recommended to make the application software show the content of this element on the window.	Optional
8.	SpecList	Write the machine specifications using a set of character strings.	Optional
9.	IconFileName	Write the icon file name to be used when displaying the machine as an icon on the application software and others, including the extension (.ico).	Optional
10.	GraphicsFileName	Write the graphics file name to be used when displaying the machine on the application software and others, including the extension.	Optional

The items to be described in the elements in the DEVICE_INFO part are shown in Table 6-23.

Table 6-23 List of Items in DEVICE_INFO Part

No.	Item name	Description details	Description specifications	Required/ Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (This item is used when the application software supports other languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. This item is used when displaying the element name or contents on the application software.	Refer to Section 5.3.1.12.	Optional
5.	DATATYPE	Write the data type of the contents described in the DATA item.	Refer to Section 5.3.1.8.	Required
6.	DATA	Write the content of the element.	Refer to Section 5.3.1.7.	Required

(1) Machine version (Version element)

The machine version indicates the version of the functions in the machine. The machine version is used to associate the machine with the CSP+ file for machine.

[Background]

When the software version of the machine is updated, for example, specification changes such as addition of parameters may be made. When the machine specifications are changed, the CSP+ file for machine also needs to be updated in accordance with the specification changes.

[Purpose of the machine version]

The machine version provides information to distinguish the machines before and after the specification changes, and is used as reference information that shows which CSP+ file for machine corresponds to the specifications of which unit.

- **Purpose of use by users**

The CSP+ file for machine can be selected for a unit to be actually used by comparing the machine version written in the CSP+ file for machine with the version of the machine to be used.

[Description format]

The description format of the machine version can be freely determined for each machine.

6.3.2.2. XML format of DEVICE_INFO part

In the XML format, the DEVICE_INFO part is described as an XML element with the XML element name "deviceInfo".

A list of attributes of the deviceInfo element is shown in Table 6-24, and a list of XML subelements is shown in Table 6-25.

Table 6-24 List of Attributes of the deviceInfo Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the DEVICE_INFO part. (Refer to Section 5.3.1.10) (Example: "DeviceInformation")	Required

Table 6-25 List of XML Subelements of the deviceInfo Element

No.	XML element name	Description details	Required/Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Write a comment on the DEVICE_INFO part. (Refer to Section 5.3.1.6.)	Optional
3.	deviceInfoMember	Write the content of the element of the DEVICE_INFO part.	Required

In the XML format, elements of the DEVICE_INFO part are described as XML elements with the XML element name "deviceInfoMember". A list of attributes of the deviceInfoMember element is shown in Table 6-26, and a list of XML subelements is shown in Table 6-27.

Table 6-26 List of Attributes of the deviceInfoMember Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10.) What to be described for this label is specified in the CSP+ for machine specifications. For details, refer to Section 6.3.2.3.	Required

Table 6-27 List of XML Subelements of the deviceInfoMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	data	Write the DATA item.

Describe the DEVICE_INFO part using the following format:

```
<p:deviceInfo label="Description based on the description details for label (attribute name) in Table
6-24">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
  6-25 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
  Table 6-25 </p:comment>
  <p:deviceInfoMember label="Description based on the description details for label (attribute name)
  in Table 6-26">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
    6-27 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
    Table 6-27 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
    6-27 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
    Table 6-27 </p:datatype>
    <p:data> Description based on the description details for data (XML element name) in Table
    6-27 </p:data>
    </p:deviceInfoMember>
  <p:deviceInfoMember label="Description based on the description details for label (attribute name)
  in Table 6-26">
    :
    :
  </p:deviceInfoMember>
  :
  :
</p:deviceInfo>
```

6.3.2.3. Description details of individual elements

(1) Item description of VendorName element

Table 6-28 Item Description Specifications of VendorName Element

No.	Item name	Description details
1.	LABEL	Write "VendorName".
2.	LABEL2	Write "VendorName" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Vendor Name" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING_U(64)".
6.	DATA	Write the name of the machine manufacturer.

(a) Item description example of VendorName element

```

<p:deviceInfoMember label="VendorName">
  <p:label2><p:item>VendorName</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Vendor Name</p:item></p:name>
  <p:datatype><p:item>STRING_U(64)</p:item></p:datatype>
  <p:data><p:item>CLPA</p:item></p:data>
</p:deviceInfoMember>

```

(2) Item description of DeviceModel element

If the value of this element is changed when the CSP+ file for machine is updated, the CSP+ file for machine is treated as the one for another machine, because DeviceModel is information for identifying a machine.

Table 6-29 Item Description Specifications of DeviceModel Element

No.	Item name	Description details
1.	LABEL	Write "DeviceModel".
2.	LABEL2	Write "DeviceModel" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Device Model" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(48)".
6.	DATA	Write the model name of a unit managed by each vendor. Since a model name is used in the file name of the CSP+ file for machine (refer to Section 5.1.2), characters [\ / : ? " < >] prohibited for a file name cannot be used. When the application software recognizes model names, upper-case characters and lower-case characters are not distinguished.

(a) Item description example of DeviceModel element

```

<p:deviceInfoMember label="DeviceModel">
  <p:label2><p:item>DeviceModel</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Device Model</p:item></p:name>
  <p:datatype><p:item>STRING(48)</p:item></p:datatype>
  <p:data><p:item>CC-A1000</p:item></p:data>
</p:deviceInfoMember>

```

(3) Item description of ProductID element

When describing a ProductID, describe a unique ID having a one-to-one correspondence with the unit model name for each vendor. For CSP+ files for machine with an identical model name and different versions, use an identical ProductID and do not change.

Table 6-30 Item Description Specifications of ProductID Element

No.	Item name	Description details
1.	LABEL	Write "ProductID".
2.	LABEL2	Write "ProductID" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Product ID" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(256)".
6.	DATA	Write the product ID of a unit managed by each vendor. Write the product ID of the machine. Write the ID which is managed by each manufacturer.

* For this description, a unique ID having a one-to-one correspondence with a model name for each manufacturer must be described, and changes must not be made when the CSP+ file for machine is revised.

(a) Item description example of ProductID element

```
<p:deviceInfoMember label="ProductID">
  <p:label2><p:item>ProductID</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Product ID</p:item></p:name>
  <p:datatype><p:item>STRING(256)</p:item></p:datatype>
  <p:data><p:item>0x00000001</p:item></p:data>
</p:deviceInfoMember>
```

(4) Item description of Version element

Table 6-31 Item Description Specifications of Version Element

No.	Item name	Description details
1.	LABEL	Write "Version".
2.	LABEL2	Write "Version" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Machine Version" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	<p>Selection from the types below is possible; however, different types cannot coexist if multiple CSP+ files for machine are created for machines having an identical model name.</p> <ul style="list-style-type: none"> • Bit string type • Signed integral data type • Unsigned integral data type • STRING(x)
6.	DATA	Write the machine version of the machine. For details, refer to (1) in Section 5.2.1.1.

(a) Item description example of Version element

```

<p:deviceInfoMember label="Version">
  <p:label2><p:item>Version</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Machine Version</p:item></p:name>
  <p:datatype><p:item>STRING(16)</p:item></p:datatype>
  <p:data><p:item>1.00A</p:item></p:data>
</p:deviceInfoMember>

```

(5) Item description of ReferenceURL element

Table 6-32 Item Description Specifications of ReferenceURL Element

No.	Item name	Description details
1.	LABEL	Write "ReferenceURL".
2.	LABEL2	Write "ReferenceURL" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Reference URL" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Regarding the data type, the number of characters is not restricted. Write a value larger than the number of characters to be written in data. In the example below, write "STRING_U(1024)".
6.	DATA	Write an URL if the machine information is disclosed on the Web. If the machine information is not disclosed, write the URL of the website of the manufacturer.

(a) Item description example of ReferenceURL element

```

<p:deviceInfoMember label="ReferenceURL">
  <p:label2><p:item>ReferenceURL</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Reference URL</p:item></p:name>
  <p:datatype><p:item>STRING_U(1024)</p:item></p:datatype>
  <p:data>
    <p:item>http://wwwf2.mitsubishielectric.co.jp/xxxxxweb/index_j.htm</p:item>
  </p:data>
</p:deviceInfoMember>

```

(6) Item description of URLInfo element

Table 6-33 Item Description Specifications of URLInfo Element

No.	Item name	Description details
1.	LABEL	Write "URLInfo".
2.	LABEL2	Write "URLInfo" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "URL Info" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING_U(256)".
6.	DATA	Write a description of the information indicated by ReferenceURL.

(a) Item description example of URLInfo element

```

<p:deviceInfoMember label="URLInfo">
  <p:label2><p:item>URLInfo</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>URL Info</p:item></p:name>
  <p:datatype><p:item>STRING_U(256)</p:item></p:datatype>
  <p:data><p:item>Check Detail on xxxxxweb</p:item></p:data>
</p:deviceInfoMember>

```

(7) Item description of Outline element

Table 6-34 Item Description Specifications of Outline Element

No.	Item name	Description details
1.	LABEL	Write "Outline".
2.	LABEL2	Write "Outline" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Outline" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING_U(256)".
6.	DATA	Write the general specifications of the machine.

(a) Item description example of Outline element

```

<p:deviceInfoMember label="Outline">
  <p:label2><p:item>Outline</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Outline</p:item></p:name>
  <p:datatype><p:item>STRING_U(256)</p:item></p:datatype>
  <p:data><p:item>A/D Converter 4CH 12-bit</p:item></p:data>
</p:deviceInfoMember>

```

(8) Item description of SpecList element

Table 6-35 Item Description Specifications of SpecList Element

No.	Item name	Description details
1.	LABEL	Write "SpecList".
2.	LABEL2	Write "SpecList" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Spec List" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING_U(256)()".
6.	DATA	Write the specification information of the machine with set information.

(a) Item description example of SpecList element

```

<p:deviceInfoMember label="SpecList">
  <p:label2><p:item>SpecList</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Spec List</p:item></p:name>
  <p:datatype><p:item>STRING_U(256)()</p:item></p:datatype>
  <p:data>
    <p:item>Total Accuracy: ±1%</p:item>
    <p:item>Maximum Conversion Speed: 1 ms/channel</p:item>
  </p:data>
</p:deviceInfoMember>

```

(9) Item description of IconFileName element

Table 6-36 Item Description Specifications of IconFileName Element

No.	Item name	Description details
1.	LABEL	Write "IconFileName".
2.	LABEL2	Write "IconFileName" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Icon File Name" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(52)". * The number "52" includes four characters of an extension: maximum number of characters for a file name is 48. If an extension (such as ".jpeg") which uses four or more characters is required, the extension of the data type can be changed.
6.	DATA	Write an icon file name to be used for the icon-use unit display of the application software. For a file name, only one-byte alphanumerical characters and symbols are usable. Make an icon file contain a 16-by-16 pixel icon.

* Manage icon file names and graphics file names so that one file name uniquely corresponds to one file, in terms of an identical manufacturer. Assigning an identical file to different machines is allowed.
For a file name, only one-byte alphanumerical characters and symbols are usable.
Making an icon file contain a 16-by-16 pixel icon is recommended.

(a) Item description example of IconFileName element

```
<p:deviceInfoMember label="IconFileName">
  <p:label2><p:item>IconFileName</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Icon File Name</p:item></p:name>
  <p:datatype><p:item>STRING(52)</p:item></p:datatype>
  <p:data><p:item>AJ65BT-64AD.ico</p:item></p:data>
</p:deviceInfoMember>
```

(10) Item description of GraphicsFileName element

Table 6-37 Item Description Specifications of GraphicsFileName Element

No.	Item name	Description details
1.	LABEL	Write "GraphicsFileName".
2.	LABEL2	Write "GraphicsFileName" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Graphics File Name" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(52)". * The number "52" includes four characters of an extension: maximum number of characters for a file name is 48. If an extension (such as ".jpeg") which uses four or more characters is required, the extension of the data type can be changed.
6.	DATA	Write a graphics file name to be used for the icon-use unit display of the application software. For a file name, only one-byte alphanumeric characters and symbols are usable. The usable file types are as follows: PNG file: .png BMP file: .bmp JPEG file: .jpg GIF file: .gif The bit map size should fall into the range from 32-by-32 to 256-by-256.

* Manage icon file names and graphics file names so that one file name uniquely corresponds to one file, in terms of an identical manufacturer. Assigning an identical file to different machines is allowed. For a file name, only one-byte alphanumeric characters and symbols are usable. The usable file types are as follows:

Type	Extension
PNG file	.png
BMP file	.bmp
JPEG file	.jpg
GIF file	.gif

Regarding the bit map size, creation in the range from 32-by-32 to 256-by-256 is recommended (unit: pixel).

(a) Item description example of GraphicsFileName element

```

<p:deviceInfoMember label="GraphicsFileName">
  <p:label2><p:item>GraphicsFileName</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Graphics File Name</p:item></p:name>
  <p:datatype><p:item>STRING(52)</p:item></p:datatype>
  <p:data><p:item>AJ65BT-64AD.bmp</p:item></p:data>
</p:deviceInfoMember>

```


6.3.3. DEVICE_IF part

6.3.3.1. Overview

For the DEVICE_IF part describes the information related to communications with the machine.
Elements which compose the DEVICE_IF part are shown in Figure 6-7.

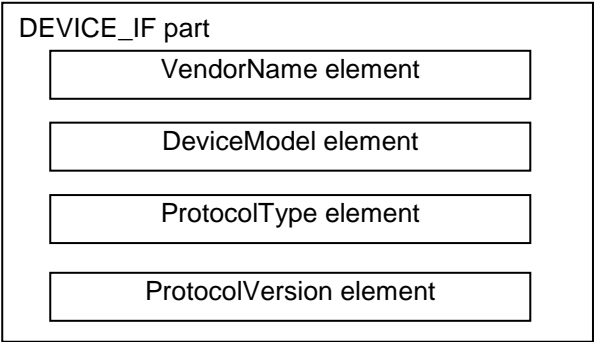


Figure 6-7 Structure of DEVICE_IF Part

The structure of each element of the DEVICE_IF part, in other words, the items to be described in the element, is the same. The structure of elements of the part is shown in Figure 6-8.

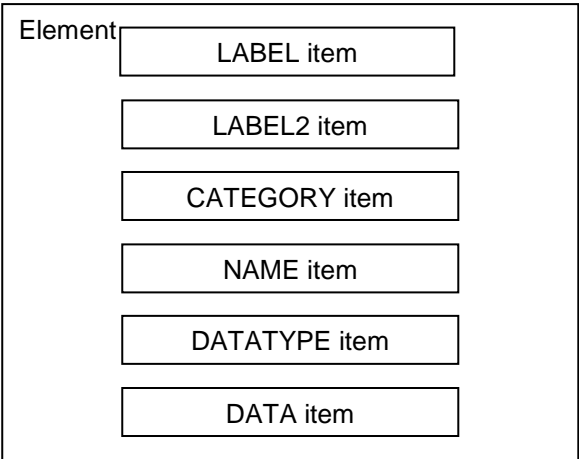


Figure 6-8 Structure of an Element in DEVICE_IF Part

An element list is shown in Table 6-38. One element is described as one XML element. For details on the descriptions of each element, refer to Section 6.3.2.3.

Table 6-38 List of Elements of a DEVICE_IF Part

No.	Element	Description details	Required/ Optional
1.	VendorName	Write the name of the machine manufacturer.	Optional
2.	DeviceModel	Write the model name of the machine.	Optional
3.	ProtocolType	Write the protocol type name used to communicate with the machine.	Required
4.	ProtocolVersion	Write the version of the protocol type specification. The specification version to be described here indicates not the specification version specified in the specifications of the target protocol type, but the version of specifications which specify the correspondence with the target protocol type as CSP+ for machine specifications.	Required

The items to be described for elements of a DEVICE_IF part are shown in Table 6-39.

Table 6-39 List of Items in DEVICE_IF Part

No.	Item name	Description details	Description specifications	Required/ Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (This item is used when the application software supports other languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. This item is used when displaying the element name or contents on the application software.	Refer to Section 5.3.1.12.	Optional
5.	DATATYPE	Write the data type of the contents described in the DATA item.	Refer to Section 5.3.1.8.	Required
6.	DATA	Write the content of the element.	Refer to Section 5.3.1.7.	Required

6.3.3.2. XML format of DEVICE_IF part

In the XML format, the DEVICE_IF part is described as an XML element with the XML element name "devicelf".

A list of attributes of the devicelf element is shown in Table 6-40, and a list of XML subelements is shown in Table 6-41.

Table 6-40 List of Attributes of the devicelf Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the DEVICE_IF part. (Refer to Section 5.3.1.10.) (Example: "DeviceInterface")	Required

Table 6-41 List of XML Subelements of the devicelf Element

No.	XML element name	Description details	Required/Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Describe a comment on the DEVICE_IF part. (Refer to Section 5.3.1.6.)	Optional
3.	devicelfMember	Write the content of the element of the DEVICE_IF part.	Required

In the XML format, elements of the DEVICE_IF part are described as XML elements with the XML element name "devicelfMember". A list of attributes of the devicelfMember element is shown in Table 6-42, and a list of XML subelements is shown in Table 6-43.

Table 6-42 List of Attributes of the devicelfMember Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10.) What to be described for this label is specified in the CSP+ for machine specifications. For details, refer to Section 6.3.3.3.	Required

Table 6-43 List of XML Subelements of the devicelfMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	data	Write the DATA item.

Describe the DEVICE_IF part using the following format:

```
<p:deviceIf label="Description based on the description details for label (attribute name) in Table
6-40">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
6-41 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
Table 6-41 </p:comment>
  <p:deviceIfMember label="Description based on the description details for label (attribute name) in
Table 6-42">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
6-43 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
Table 6-43 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
6-43 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
Table 6-43 </p:datatype>
    <p:data> Description based on the description details for data (XML element name) in Table
6-43 </p:data>
  </p:deviceIfMember>
  <p:deviceIfMember label="Description based on the description details for label (attribute name) in
Table 6-42">
    :
    :
  </p:deviceIfMember>
  :
  :
</p:deviceIf>
```

6.3.3.3. Description details of individual elements

(1) Item description of VendorName element

Table 6-44 Item Description Specifications of VendorName Element

No.	Item name	Description details
1.	LABEL	Write "VendorName".
2.	LABEL2	Write "VendorName" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Vendor Name" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING_U(64)".
6.	DATA	Write the name of the manufacturer which has produced the controller which provides the machine with communications functions.

(a) Item description example of VendorName element

```

<p:deviceInfoMember label="VendorName">
  <p:label2><p:item>VendorName</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Vendor Name</p:item></p:name>
  <p:datatype><p:item>STRING_U(64)</p:item></p:datatype>
  <p:data><p:item>CLPA</p:item></p:data>
</p:deviceInfoMember>

```

(2) Item description of DeviceModel element

Table 6-45 Item Description Specifications of DeviceModel Element

No.	Item name	Description details
1.	LABEL	Write "DeviceModel".
2.	LABEL2	Write "DeviceModel" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Device Model" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(48)".
6.	DATA	Write the model name of the controller which provides communications functions.

(a) Item description example of DeviceModel element

```

<p:deviceInfoMember label="DeviceModel">
  <p:label2><p:item>DeviceModel</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Device Model</p:item></p:name>
  <p:datatype><p:item>STRING(48)</p:item></p:datatype>
  <p:data><p:item>CC-A1000</p:item></p:data>
</p:deviceInfoMember>

```

(3) Item description of ProtocolType element

Table 6-46 Item Description Specifications of ProtocolType Element

No.	Item name	Description details
1.	LABEL	Write "ProtocolType".
2.	LABEL2	Write "ProtocolType" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Protocol Type" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(48)".
6.	DATA	Write the protocol type name used to communicate with the machine. "SLMP" is written here. The protocols prescribed in this specification document are described in "Part 4 - Mapping with Communications Protocol". A protocol not prescribed in this specification document can be also specified.

(a) Item description example of ProtocolType element

```

<p:deviceInfoMember label="ProtocolType">
  <p:label2><p:item>ProtocolType</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Protocol Type</p:item></p:name>
  <p:datatype><p:item>STRING(48)</p:item></p:datatype>
  <p:data><p:item>SLMP</p:item></p:data>
</p:deviceInfoMember>

```

(4) Item description of ProtocolVersion element

Table 6-47 Item Description Specifications of ProtocolVersion Element

No.	Item name	Description details
1.	LABEL	Write "ProtocolVersion".
2.	LABEL2	Write "protcolVersion" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Protcol Version" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "UINT16".
6.	DATA	<p>Write the version of the protocol type specification. The specification versions of the protocols specified in this specification document are described in "Part 4 - Mapping with Communications Protocol". Assign version number 1 to the first version for each protocol type, and increment by 1 each time specification changes are made regarding interpretation of descriptions.</p> <p>In the cases below, either of the following measures is recommended for the application software which handles the machine profile: skipping the concerned DEVICE_IF part and the information (such as a BLOCK section) which refers to the part; or not supporting (handling) the entire machine profile.</p> <ul style="list-style-type: none"> • Case where a protocol not supported has been specified for the ProtocolType element • Case where the value of a ProtocolVersion element is larger (newer) than the ProtocolVersion supported by the application software

(a) Item description example of ProtocolVersion element

```

<p:deviceInfoMember label="ProtocolVersion">
  <p:label2><p:item>ProtocolVersion</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Protcol Version</p:item></p:name>
  <p:datatype><p:item>UINT16</p:item></p:datatype>
  <p:data><p:item>1</p:item></p:data>
</p:deviceInfoMember>

```

6.4. COMM_IF Section

6.4.1. Structure of COMM_IF section

The COMM_IF section is composed of multiple parts below. One part is described as one XML element. A comment can be described as an option.

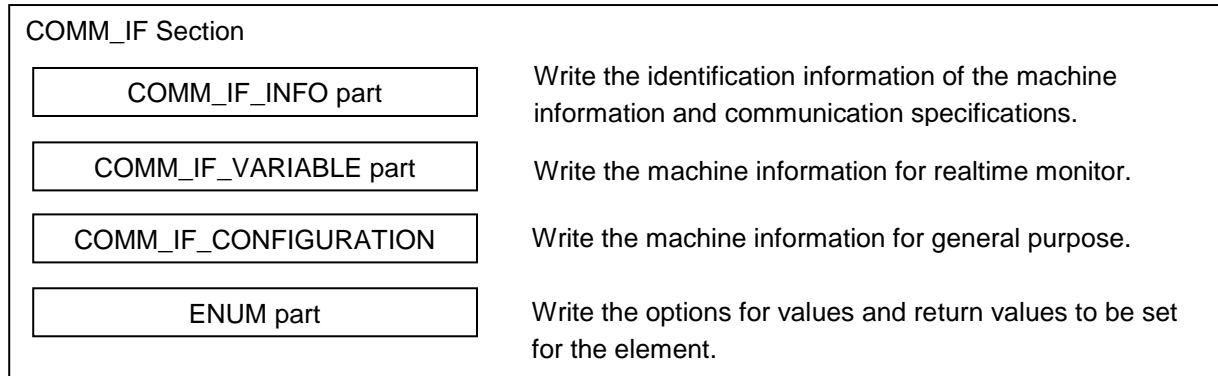


Figure 6-9 Structure of COMM_IF Section

In the XML format, the COMM_IF section is described as an XML element with the XML element name "commIf". A list of attributes of the commIf element is shown in Table 6-48, and a list of XML subelements is shown in Table 6-49.

Table 6-48 List of Attributes of the commIf Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the COMM_IF section. (Refer to Section 5.3.1.10.) (Example: "CommIfSection")	Required

Table 6-49 List of XML Subelements of the commIf Element

No.	XML element name	Description details	Required/Optional
1.	comment	Write a comment on the COMM_IF section. (Refer to Section 5.3.1.6.)	Optional
2.	commIfInfo	Write the content of the COMM_IF_INFO part.	Required
3.	commIfVariable	Write the content of the COMM_IF_VARIABLE part.	Required
4.	commIfConfiguration	Write the content of the COMM_IF_CONFIGURATION part.	Required
5.	enum	Write the content of the ENUM part.	Optional

6.4.2. COMM_IF_INFO part

6.4.2.1. Overview

The COMM_IF_INFO part describes general machine information.

Elements which compose the COMM_IF_INFO part are shown in Figure 6-10.

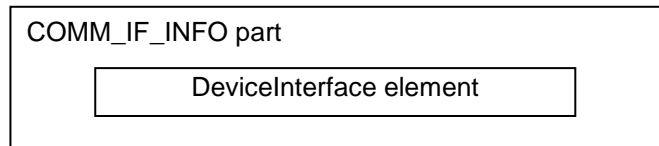


Figure 6-10 Structure of COMM_IF_INFO Part

The structure of each element of the COMM_IF_INFO part, in other words, the items to be described in the element, is the same. The structure of an element of the COMM_IF_INFO part is shown in Figure 6-11.

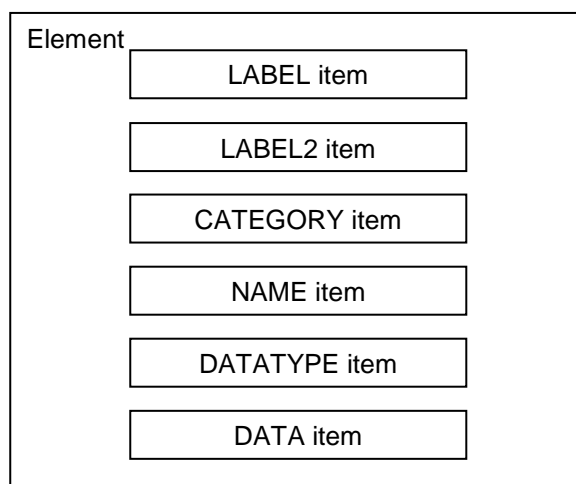


Figure 6-11 Structure Definition of an Element in the COMM_IF_INFO Part

Among elements to be described for COMM_IF_INFO, describe the information shown in Table 6-50 as an element common to machine information items.

However, LABEL2 and NAME are recommended specifications, and can be omitted.

For CATEGORY of these elements, writing "COMMON" is recommended.

Table 6-50 Element of the COMM_IF_INFO Part

No.	Element name	Description details	Required/ Optional
1.	DeviceInterface	Write the method of communications with the machine. This description is applied to elements of the COMM_IF_VARIABLE part.	Required

The items to be described for the COMM_IF_INFO element are shown in Table 6-51.

Table 6-51 List of Items in COMM_IF_INFO Part

No.	Item name	Description details	Description specifications	Required/Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (Use when the application software which uses the CSP+ file for machine supports multiple languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. This item is used when displaying the element name or contents on the application software.	Refer to Section 5.3.1.12.	Optional
5.	DATATYPE	Write the data type of the element.	Refer to Section 5.3.1.8.	Required
6.	DATA	Write the value held by an element.	Refer to Section 5.3.1.7.	Required

6.4.2.2. XML format of COMM_IF_INFO part

In the XML format, the COMM_IF_INFO part is described as an XML element with the XML element name "commIfInfo".

A list of attributes of the commIfInfo element is shown in Table 6-52, and a list of XML subelements is shown in Table 6-53.

Table 6-52 List of Attributes of the commIfInfo Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the COMM_IF_INFO part. (Refer to Section 5.3.1.10.) (Example: "CommIfInformation")	Required

Table 6-53 List of XML Subelements of the commIfInfo Element

No.	XML element name	Description details	Required/Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Write a comment on the COMM_IF_INFO part. (Refer to Section 5.3.1.6.)	Optional
3.	commIfInfoMember	Write the content of the element of the COMM_IF_INFO part.	Required

In the XML format, elements of the COMM_IF_INFO part are described as XML elements with the XML element name "commIfInfoMember".

A list of attributes of the commIfInfoMember element is shown in Table 6-54, and a list of XML subelements is shown in Table 6-55.

Table 6-54 List of Attributes of the commIfInfoMember Element

No.	Attribute name	Description details	Required/ Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10) What to be described for this label is specified in the CSP+ for machine specifications, and thus any description by users is not allowed. For details, refer to Section 6.4.2.3.	Required

Table 6-55 List of XML Subelements of the commIfInfoMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	data	Write the DATA item.

Describe the COMM_IF_INFO part using the following format:

```

<p:commIfInfo label="Description based on the description details for label (attribute name) in Table
6-52">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
6-53 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
Table 6-53 </p:comment>
  <p:commIfInfoMember label="Description based on the description details for label (attribute name)
in Table 6-54">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
6-55 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
Table 6-55 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
6-55 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
Table 6-55 </p:datatype>
    <p:data> Description based on the description details for data (XML element name) in Table
6-55 </p:data>
  </p:commIfInfoMember>
  <p:commIfInfoMember label="Description based on the description details for label (attribute name)
in Table 6-54">
    :
    :
  </p:commIfInfoMember>
  :
  :
</p:commIfInfo>

```

6.4.2.3. Description details of COMM_IF_INFO part

(1) Item description of DeviceInterface element

Table 6-56 Item Description Specifications of DeviceInterface Element

No.	Item name	Description details
1.	LABEL	Write "DeviceInterface".
2.	LABEL2	Write "DeviceInterface" in the case of English CSP+ files. [Recommended specifications]
3.	CATEGORY	Write "COMMON".
4.	NAME	Write "Method of Communications with Machine" in the case of English CSP+ files. [Recommended specifications]
5.	DATATYPE	Write "STRING(129)".
6.	DATA	Specify a communications method to be used for acquisition of machine information of the COMM_IF_VARIABLE part included in this COMM_IF section. Specifically, specify the LABEL name of the DEVICE_IF part of the DEVICE section.

(a) Item description example of DeviceInterface element

```

<p:commIfInfoMember label="DeviceInterface">
  <p:label2><p:item>DeviceInterface</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Method of Communications with Machine</p:item></p:name>
  <p:datatype><p:item>STRING(129)</p:item></p:datatype>
  <p:data><p:item>MyDevice.DeviceInterface</p:item></p:data>
</p:commIfInfoMember>

```

6.4.3. COMM_IF_VARIABLE part

6.4.3.1. Overview

For the COMM_IF_VARIABLE part, machine information for realtime monitor is described.

Define elements which compose the COMM_IF_VARIABLE part in accordance with information of the target machine.

The structure of each element of the COMM_IF_VARIABLE part, in other words, the items to be described in the element, is the same.

The structure of an element of the COMM_IF_VARIABLE part is shown in Figure 6-12.

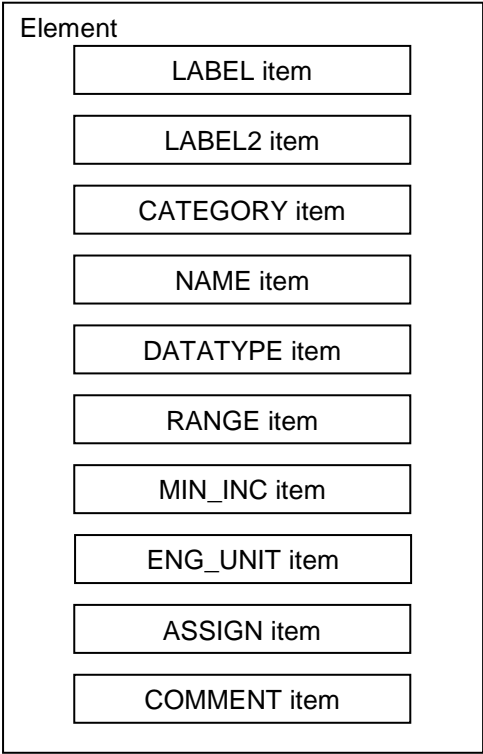


Figure 6-12 Structure Definition of an Element in the COMM_IF_VARIABLE Part

One element is described as one XML element. For description examples of the elements, see Section 6.4.3.3.

For items included in an element, describe the item names shown in Table 6-57.

Table 6-57 List of Items of Elements to Be Defined in the COMM_IF_VARIABLE Part

No.	Item name	Description details	Description specifications	Required/Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (Use when the application software which uses the CSP+ file for machine supports multiple languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. Use when displaying the name and content of an element on the application software (and others).	Refer to Section 5.3.1.12.	Optional
5.	DATATYPE	Write the data type of the element.	Refer to Section 5.3.1.8.	Optional
6.	RANGE	Write the setting range of the element.	Refer to Section 5.3.1.13.	Optional
7.	MIN_INC	Write the minimum unit to be applied to the value of an element along with ENG_UNIT.	Refer to Section 5.3.1.11.	Optional
8.	ENG_UNIT	Write the engineering unit to be applied to the value of an element together with MIN_INC.	Refer to Section 5.3.1.9.	Optional
9.	ASSIGN	Write the address and code to be assigned to an element.	Refer to Section 5.3.1.3	Optional
10.	COMMENT	Write explanation of elements, the meaning of each value, and precautions. This item is to be used by the application software when shown on the window as additional information for an element.	Refer to Section 5.3.1.6.	Optional

6.4.3.2. XML format of COMM_IF_VARIABLE part

In the XML format, the COMM_IF_VARIABLE part is described as an XML element with the XML element name "commIfVariable".

A list of attributes of the commIfVariable element is shown in Table 6-58, and a list of XML subelements is shown in Table 6-59.

Table 6-58 List of Attributes of the commIfVariable Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the COMM_IF_VARIABLE part. (Refer to Section 5.3.1.10.)	Required

Table 6-59 List of XML Subelements of the commIfVariable Element

No.	XML element name	Description details	Required/Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Write the comment related to the COMM_IF_VARIABLE part. (Refer to Section 5.3.1.6.)	Optional
3.	commIfVariableMember	Write the content of the element of the COMM_IF_VARIABLE part.	Required

In the XML format, elements of the COMM_IF_VARIABLE part are described as XML elements with the XML element name "commIfVariableMember".

A list of attributes of the commIfVariableMember element is shown in Table 6-60, and a list of XML subelements is shown in Table 6-61.

Table 6-60 List of Attributes of the commIfVariableMember Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10)	Required

Table 6-61 List of XML Subelements of the commIfVariableMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	range	Write the RANGE item.
6.	minInc	Write the MIN_INC item.
7.	engUnit	Write the ENG_UNIT item.
8.	assign	Write the ASSIGN item.
9.	comment	Write the COMMENT item.

Describe the COMM_IF_VARIABLE part using the following format:

```

<p:commIfVariable label="Description based on the description details for label (attribute name) in
Table 6-58">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
  6-59 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
  Table 6-59 </p:comment>
  <p:commIfVariableMember label="Description based on the description details for label (attribute
  name) in Table 6-60">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
    6-61 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
    Table 6-61 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
    6-61 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
    Table 6-61 </p:datatype>
    <p:range> Description based on the description details for range (XML element name) in Table
    6-61 </p:range>
    <p:minInc> Description based on the description details for minInc (XML element name) in
    Table 6-61 </p:minInc>
    <p:engUnit> Description based on the description details for engUnit (XML element name) in
    Table 6-61 </p:engUnit>
    <p:assign> Description based on the description details for assign (XML element name) in
    Table 6-61 </p:assign>
    <p:comment> Description based on the description details for comment (XML element name) in
    Table 6-61 </p:comment>
  </p:commIfVariableMember>
  <p:commIfVariableMember label="CommIfVariable2">
    :
    :
  </p:commIfVariableMember>
  :
  :
</p:commIfVariable>

```

6.4.3.3. Description example of an element

An item description example of an element of the COMM_IF_VARIABLE part is shown below. In the example below, the element name is "Current".

Table 6-62 Item Description Example of an Element

No.	Item name	Description details
1.	LABEL	"Current" is written.
2.	LABEL2	Not written because the item can be omitted
3.	CATEGORY	Not written because the item can be omitted
4.	NAME	"Amount of current" is written.
5.	DATATYPE	"UINT32" is written.
6.	RANGE	Not written because the item can be omitted
7.	MIN_INC	"1" is written.
8.	ENG_UNIT	"mA" is written.
9.	ASSIGN	"DA16:AA00000012" is written.
10.	COMMENT	Not written because the item can be omitted

(a) Item description example of an element

```

<p:commIfVariableMember label="Current">
  <p:name><p:item>Current</p:item></p:name>
  <p:datatype><p:item>UINT32</p:item></p:datatype>
  <p:minInc><p:item>1</p:item></p:minInc>
  <p:engUnit><p:item>mA</p:item></p:engUnit>
  <p:assign><p:item>DA16:AA00000012</p:item></p:assign>
</p:commIfVariableMember>

```


6.4.4. COMM_IF_CONFIGURATION part

6.4.4.1. Overview

The COMM_IF_CONFIGURATION part describes the machine information for the general purpose.

Define elements which compose the COMM_IF_CONFIGURATION part in accordance with information of the target machine.

The structure of each element of the COMM_IF_CONFIGURATION part, in other words, the items to be described in the element, is the same.

The structure of an element of the COMM_IF_CONFIGURATION part is shown in Figure 6-13.

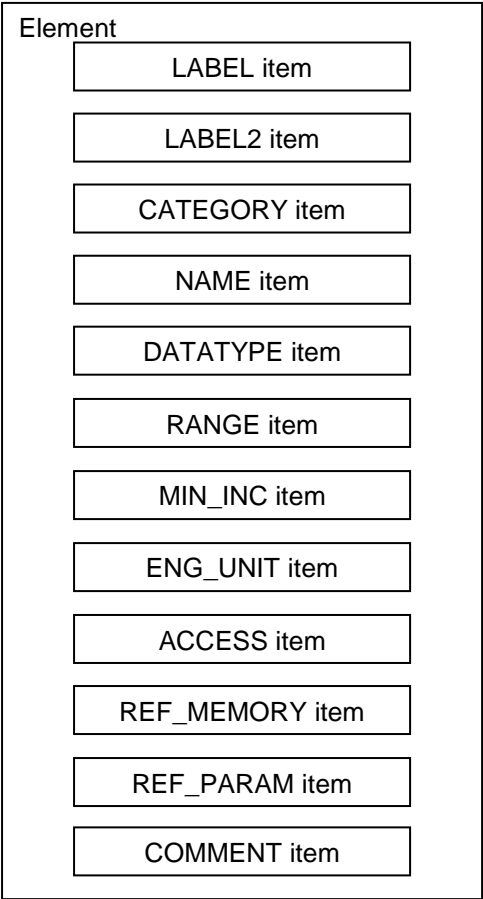


Figure 6-13 Structure Definition of an Element in the COMM_IF_CONFIGURATION Part

One element is described as one XML element. For description examples of the individual elements, refer to Section 6.4.4.3. For items included in an element, describe the item names shown in Table 6-63.

Table 6-63 List of Items of Elements to Be Defined in the COMM_IF_CONFIGURATION Part

No.	Item name	Description details	Description specifications	Required/Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (Use when the application software which uses the CSP+ file for machine supports multiple languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. Use when displaying the name and content of an element on the application software (and others).	Refer to Section 5.3.1.12.	Optional
5.	DATATYPE	Write the data type of the element.	Refer to Section 5.3.1.8.	Optional
6.	RANGE	Write the setting range of the element.	Refer to Section 5.3.1.13.	Optional
7.	MIN_INC	Write the minimum unit to be applied to the value of an element along with ENG_UNIT.	Refer to Section 5.3.1.11.	Optional
8.	ENG_UNIT	Write the engineering unit to be applied to the value of an element together with MIN_INC.	Refer to Section 5.3.1.9.	Optional
9.	ACCESS	Write the access attribute of the element.	Refer to Section 5.3.1.2.	Optional
10.	REF_MEMORY	Write the reference to the BLOCK_MEMORY part, which is a machine data (variable value) list to be referred to by elements of the machine variable information list.	Refer to Section 5.3.1.14.	Optional
11.	REF_PARAM	Write the reference to the BLOCK_PARAM part, which is a machine data (set value) list to be referred to by elements of the machine variable information list.	Refer to Section 5.3.1.15.	Optional
12.	COMMENT	Write explanation of elements, the meaning of each value, and precautions. This item is to be used by the application software when shown on the window as additional information for an element.	Refer to Section 5.3.1.6.	Optional

6.4.4.2. XML format of COMM_IF_CONFIGURATION part

In the XML format, the COMM_IF_CONFIGURATION part is described as an XML element with the XML element name "CommIfConf". A list of attributes of the CommIfConf element is shown in Table 6-64, and a list of XML subelements is shown in Table 6-65.

Table 6-64 List of Attributes of the CommIfConf Element

No.	Attribute name	Description details	Required/ Optional
1.	label	Write the label which identifies the COMM_IF_CONFIGURATION part. (Refer to Section 5.3.1.10)	Required

Table 6-65 List of XML Subelements of the CommIfConf Element

No.	XML element name	Description details	Required/ Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Write a comment related to the COMM_IF_CONFIGURATION part. (Refer to Section 5.3.1.6)	Optional
3.	commIfConfigurationMember	Write the content of the element of the COMM_IF_CONFIGURATION part.	Required

In the XML format, elements of the COMM_IF_COMMAND part are described as XML elements with the XML element name "commIfConfigurationMember". A list of attributes of the commIfConfigurationMember element is shown in Table 6-66, and a list of XML subelements is shown in Table 6-67.

Table 6-66 List of Attributes of the commIfConfigurationMember Element

No.	Attribute name	Description details	Required/ Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10.)	Required

Table 6-67 List of XML Subelements of the commIfConfigurationMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	range	Write the RANGE item.
6.	minInc	Write the MIN_INC item.
7.	engUnit	Write the ENG_UNIT item.
8.	access	Write the ACCESS item.
9.	refMemory	Write the REF_MEMORY item.
10.	refParam	Write the REF_PARAM item.
11.	comment	Write the COMMENT item.

Describe the COMM_IF_CONFIGURATION part using the following format:

```
<p:commIfConfiguration label="Description based on the description details for label (attribute name)
in Table 6-64">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
  6-65 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
  Table 6-65 </p:comment>
  <p:commIfConfigurationMember label="Description based on the description details for label
  (attribute name) in Table 6-66">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
    6-67 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
    Table 6-67 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
    6-67 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
    Table 6-67 </p:datatype>
    <p:range> Description based on the description details for range (XML element name) in Table
    6-67 </p:range>
    <p:minInc> Description based on the description details for minInc (XML element name) in
    Table 6-67 </p:minInc>
    <p:engUnit> Description based on the description details for engUnit (XML element name) in
    Table 6-67 </p:engUnit>
    <p:access> Description based on the description details for access (XML element name) in
    Table 6-67 </p:access>
    <p: refMemory> Description based on the description details for refMemory (XML element
    name) in Table 6-67 </p: refMemory>
    <p: refParam> Description based on the description details for refParam (XML element name) in
    Table 6-67 </p: refParam>
    <p:comment> Description based on the description details for comment (XML element name) in
    Table 6-67 </p:comment>
  </p:commIfConfigurationMember>
  <p:commIfConfigurationMember label="Description based on the description details for label
  (attribute name) in Table 6-66">
    :
    :
  </p:commIfConfigurationMember>
  :
  :
</p:commIfConfiguration>
```

6.4.4.3. Description example of an element

An item description example of an element of the COMM_IF_CONFIGURATION part is shown below. In the example below, the element name is "ActionMode".

Table 6-68 Item Description Example of an Element

No.	Item name	Description details
1.	LABEL	"ActionMode" is written.
2.	LABEL2	Not written because the item can be omitted
3.	CATEGORY	Not written because the item can be omitted
4.	NAME	"Action Mode" is written.
5.	DATATYPE	"UINT32" is written.
6.	RANGE	Not written because the item can be omitted
7.	MIN_INC	Not written because the item can be omitted
8.	ENG_UNIT	Not written because the item can be omitted
9.	ACCESS	"R" is written.
10.	REF_MEMORY	"Block1.BlockMem1" is written.
11.	REF_PARAM	"Block1.BlockParam1" is written.
12.	COMMENT	Not written because the item can be omitted

(a) Item description example of an element

```

<p:commIfConfigurationMember label="ActionMode">
  <p:name><p:item>Action Mode</p:item></p:name>
  <p:datatype><p:item>UINT32</p:item></p:datatype>
  <p:access><p:item>R</p:item></p:access>
  <p:refMemory><p:item>Block1.BlockMem1</p:item></p:refMemory>
  <p:refParam><p:item>Block1.BlockParam1</p:item></p:refParam>
</p:commIfConfigurationMember>

```

6.4.5. ENUM part

6.4.5.1. Overview

The ENUM part (option list) describes the information related to options of values and return values to be set to the element. Use reference to the ENUM part in terms of an element for which setting with a list box is to be made with the application software and an element for which the meaning is to be shown for each value at the time of value reading. When referring to the ENUM part from the element in the COMM_IF section, describe the ENUM part in the same COMM_IF section.

Define elements which compose the ENUM part in accordance with options of the value to be used by the target unit.

The structure of each element of the ENUM part, in other words, the items to be described in the element, is the same. The structure of an element of the ENUM part is shown in Figure 6-14.

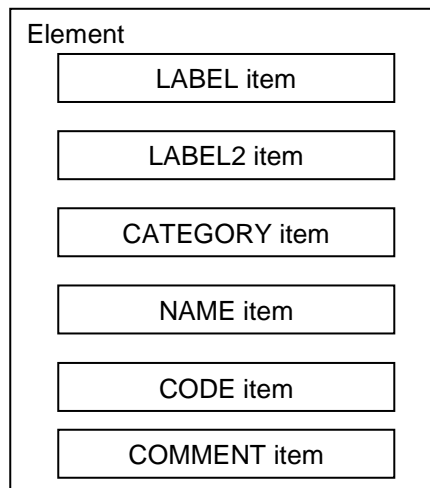


Figure 6-14 Structure Definition of an Element in the ENUM Part

One element is described as one XML element. For details on the description specifications of each element, refer to [Section](#).

For items included in an element, describe the item names shown in Table 6-69.

Table 6-69 List of Items of Elements to Be Defined in the ENUM Part

No.	Item name	Description details	Description specifications	Required/Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (Use when the application software which uses the CSP+ file for machine supports multiple languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. This item is used when displaying the element name or contents on the application software.	Refer to Section 5.3.1.12.	Required
5.	CODE	Write the value which identifies an element. The value indicated by the element of the reference source is compared with the value of the code, and the matching element is selected.	Refer to Section 5.3.1.5.	Required
6.	COMMENT	Write explanation of elements, the meaning of each value, and precautions. This item is to be used by the application software when shown on the window as additional information for an element.	Refer to Section 5.3.1.6.	Optional

6.4.5.2. XML description of ENUM part

In the XML format, the ENUM part is described as an XML element with the XML element name "enum".

A list of attributes of the enum element is shown in Table 6-70, and a list of XML subelements is shown in Table 6-71.

Table 6-70 List of Attributes of the enum Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the ENUM part. (Refer to Section 5.3.1.10.)	Required

Table 6-71 List of XML Subelements of the enum Element

No.	XML element name	Description details	Required/Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Write a comment on the ENUM part. (Refer to Section 5.3.1.6.)	Optional
3.	enumMember	Write the content of the element of the ENUM part.	Required

In the XML format, elements of the ENUM part are described as XML elements with the XML element name "enumMember".

A list of attributes of the enumMember element is shown in Table 6-72, and a list of XML subelements is shown in Table 6-73.

Table 6-72 List of Attributes of the enumMember Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10.)	Required

Table 6-73 List of XML Subelements of the enumMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	code	Write the CODE item.
5.	comment	Write the COMMENT item.

Describe the ENUM part using the following format:

```
<p:enum label="Description based on the description details for label (attribute name) in Table 6-70">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
  6-71 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
  Table 6-71 </p:comment>
  <p:enumMember label="Description based on the description details for label (attribute name) in
  Table 6-72">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
    6-73 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
    Table 6-73 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
    6-73 </p:name>
    <p:code> Description based on the description details for code (XML element name) in Table
    6-73 </p:code>
    <p:comment> Description based on the description details for comment (XML element name) in
    Table 6-73 </p:comment>
  </p:enumMember>
  <p:enumMember label="Description based on the description details for label (attribute name) in
  Table 6-72">
    :
    :
  </p:enumMember>
  :
  :
</p:enum>
```


6.4.5.3. Description example of an element

An item description example of an element of the ENUM part is shown below. In the examples below, the element names are "R0to10V" and "R0to5V".

Table 6-74 Item Description Example of an Element (R0to10V)

No.	Item name	Description details
1.	LABEL	"R0to10V" is written.
2.	LABEL2	Not written because the item can be omitted
3.	CATEGORY	Not written because the item can be omitted
4.	NAME	"0 to 10V" is written.
5.	CODE	"0" is written.
6.	COMMENT	Not written because the item can be omitted

Table 6-75 Item Description Example of an Element (R0to5V)

No.	Item name	Description details
1.	LABEL	"R0to5V" is written.
2.	LABEL2	Not written because the item can be omitted
3.	CATEGORY	Not written because the item can be omitted
4.	NAME	"0 to 5V" is written.
5.	CODE	"1" is written.
6.	COMMENT	Not written because the item can be omitted

(a) Item description example of an element

```

<p:enum label="DataRange">
  <p:enumMember label="R0to10V">
    <p:name><p:item>0 to 10V</p:item></p:name>
    <p:code><p:item>0</p:item></p:code>
  </p:enumMember>
  <p:enumMember label="R0to5V">
    <p:name><p:item>0 to 5V</p:item></p:name>
    <p:code><p:item>1</p:item></p:code>
  </p:enumMember>
</p:enum>

```

6.5. BLOCK Section

6.5.1. Structure of BLOCK section

For the BLOCK section, the definition information (BLOCK) of machine data is composed of multiple parts as below.

One part is described as one XML element. A comment can be described as an option.

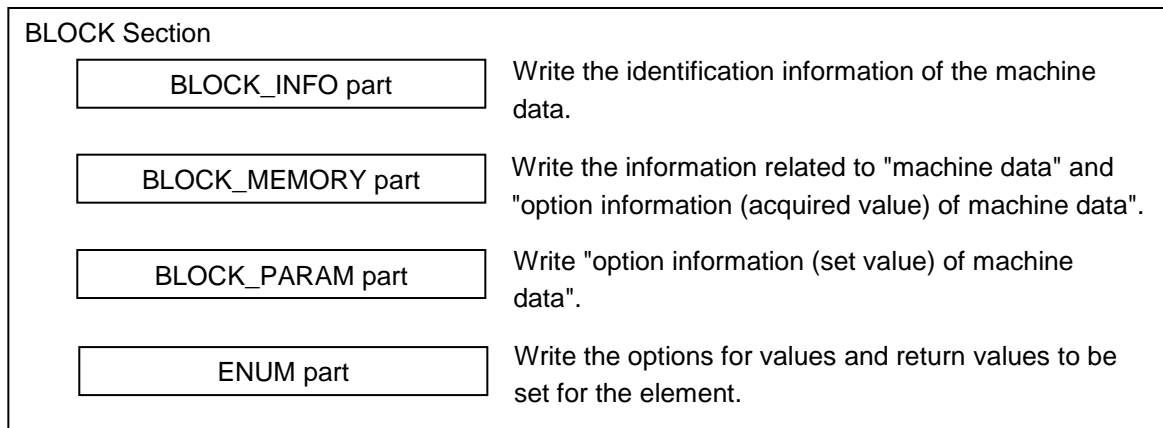


Figure 6-15 Structure of BLOCK Section

In the XML format, the BLOCK section is described as an XML element with the XML element name "block". A list of attributes of the block element is shown in Table 6-76, and a list of XML subelements is shown in Table 6-77.

Table 6-76 List of Attributes of the block Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the BLOCK section. (Refer to Section 5.3.1.10.) (Example: "BlockSection")	Required

Table 6-77 List of XML Subelements of the block Element

No.	XML element name	Description details	Required/Optional
1.	comment	Write a comment on the BLOCK section. (Refer to Section 5.3.1.6.)	Optional
2.	blockInfo	Write the content of the BLOCK_INFO part.	Required
3.	blockMemory	Write the content of the BLOCK_BLOCKMEMORY part.	Required
4.	blockParam	Write the content of the BLOCK_PARAM part.	Required
5.	enum	Write the content of the ENUM part.	Optional

6.5.2. BLOCK_INFO part

6.5.2.1. Overview

The BLOCK_INFO part describes the general machine information.

Elements which compose the BLOCK_INFO part are shown in Figure 6-16.

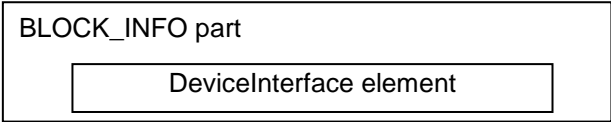


Figure 6-16 Structure of BLOCK_INFO Part

The structure of each element of the BLOCK_INFO part, in other words, the items to be described in the element, is the same.

The structure of an element of the BLOCK_INFO part is shown in Figure 6-17.

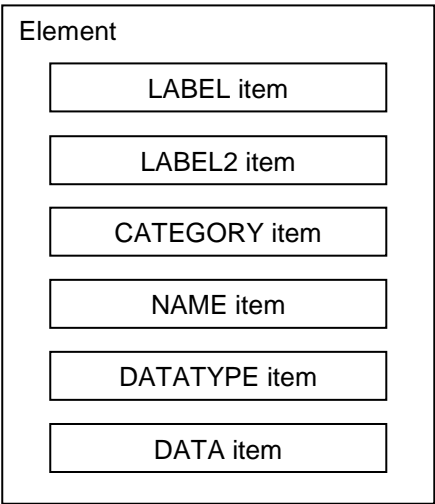


Figure 6-17 Structure Definition of an Element in the BLOCK_INFO Part

The element list of the BLOCK_INFO part is shown in Table 6-78. One element is described as one XML element. For details on the description specifications of each element, refer to Section 6.5.2.3.

Table 6-78 Element of the BLOCK_INFO Part

No.	Element	Description details	Required/ Optional
1.	DeviceInterface	Write the method of communications with the machine. This description is applied to elements of the BLOCK_MEMORY part.	Required

Regarding elements to be described for BLOCK_INFO, describe the information shown in Table 6-78 as an element common to machine information items.

However, LABEL2 and NAME are recommended specifications, and can be omitted.

For CATEGORY of these elements, writing "COMMON" is recommended.

The items to be described for the BLOCK_INFO element are shown in Table 6-79.

Table 6-79 List of Items in BLOCK_INFO Part

No.	Item name	Description details	Description specifications	Required/ Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (Use when the application software which uses the CSP+ file for machine supports multiple languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. This item is used when displaying the element name or contents on the application software.	Refer to Section 5.3.1.12.	Optional
5.	DATATYPE	Write the data type of the element.	Refer to Section 5.3.1.8.	Optional
6.	DATA	Write the value held by an element.	Refer to Section 5.3.1.7.	Required

6.5.2.2. XML format of BLOCK_INFO part

In the XML format, the BLOCK_INFO part is described as an XML element with the XML element name "blockInfo". A list of attributes of the blockInfo element is shown in Table 6-80, and a list of XML subelements is shown in Table 6-81.

Table 6-80 List of Attributes of the blockInfo Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the BLOCK_INFO part. (Refer to Section 5.3.1.10.)	Required

Table 6-81 List of XML Subelements of the blockInfo Element

No.	XML element name	Description details	Required/Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Describe a comment on the BLOCK_INFO part. (Refer to Section 5.3.1.6.)	Optional
3.	blockInfoMember	Write the content of the element of the BLOCK_INFO part.	Required

In the XML format, elements of the BLOCK_INFO part are described as XML elements with the XML element name "blockInfoMember". A list of attributes of the blockInfoMember element is shown in Table 6-82, and a list of XML subelements is shown in Table 6-83.

Table 6-82 List of Attributes of the blockInfoMember Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10.) What to be described for this label is specified in the CSP+ for machine specifications, and thus any description by users is not allowed. For details, refer to Section 6.5.2.3.	Required

Table 6-83 List of XML Subelements of the blockInfoMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	data	Write the DATA item.

Describe the BLOCK_INFO part using the following format:

```
<p:blockInfo label="Description based on the description details for label (attribute name) in Table
6-80">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
6-81 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
Table 6-81 </p:comment>
  <p:blockInfoMember label="Description based on the description details for label (attribute name)
in Table 6-82">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
6-83 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
Table 6-83 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
6-83 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
Table 6-83 </p:datatype>
    <p:data> Description based on the description details for data (XML element name) in Table
6-83 </p:data>
  </p:blockInfoMember>
  <p:blockInfoMember label="Description based on the description details for label (attribute name)
in Table 6-82">
    :
    :
  </p:blockInfoMember>
  :
  :
</p:blockInfo>
```

6.5.2.3. Description details of individual elements

(1) Item description of DeviceInterface element

Table 6-84 Item Description Specifications of DeviceInterface Element

No.	Item name	Description details
7.	LABEL	Write "DeviceInterface".
8.	LABEL2	Write "DeviceInterface" in the case of English CSP+ files. [Recommended specifications]
9.	CATEGORY	Write "COMMON".
10.	NAME	Write "Method of Communications with Machine" in the case of English CSP+ files. [Recommended specifications]
11.	DATATYPE	Write "STRING(129)".
12.	DATA	Specify a communications method to be used for acquisition of machine data included in this BLOCK section. More precisely, specify the LABEL name of the DEVICE_IF part of the DEVICE section.

(a) Item description example of DeviceInterface element

```

<p:blockInfoMember label="DeviceInterface">
  <p:label2><p:item>DeviceInterface</p:item></p:label2>
  <p:category><p:item>COMMON</p:item></p:category>
  <p:name><p:item>Method of Communications with Machine</p:item></p:name>
  <p:datatype><p:item>STRING(129)</p:item></p:datatype>
  <p:data><p:item>MyDevice.DeviceInterface</p:item></p:data>
</p:blockInfoMember>

```

6.5.3. BLOCK_MEMORY part

6.5.3.1. Overview

The BLOCK_MEMORY part describes the information related to "machine data" and "option information (variable values) of machine data" .

Elements which compose the BLOCK_MEMORY part are shown in Figure 6-18.

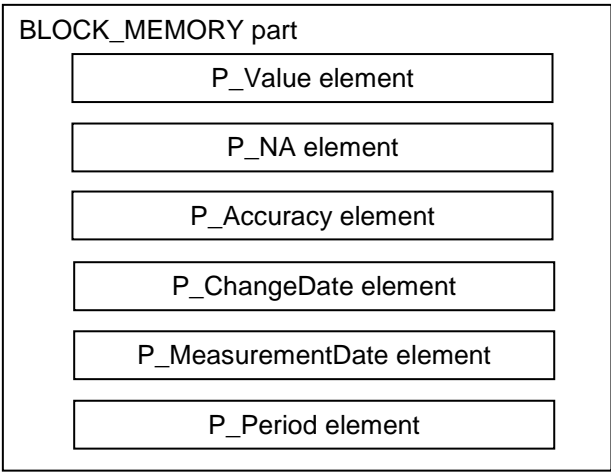


Figure 6-18 Structure of BLOCK_MEMORY Part

The structure of each element of the BLOCK_MEMORY part, in other words, the items to be described in the element, is the same.

The structure of an element of the BLOCK_MEMORY part is shown in Figure 6-19.

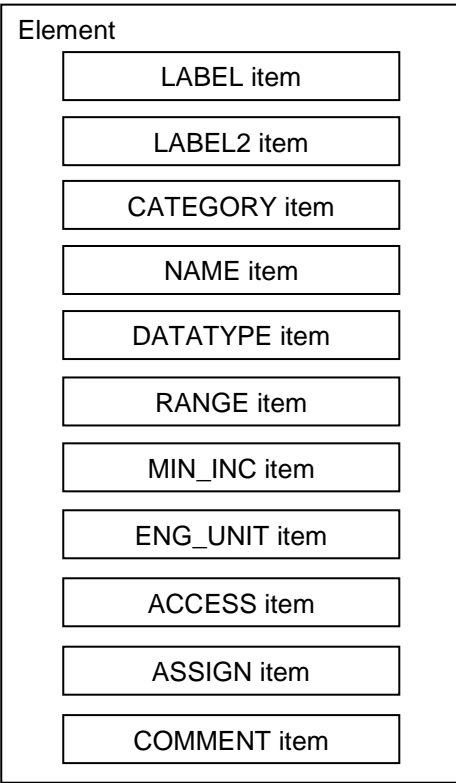


Figure 6-19 Structure Definition of an Element in the BLOCK_MEMORY Part

The element list of the BLOCK_MEMORY part is shown in Table 6-85.

One element is described as one XML element.

Table 6-85 Element of the BLOCK_MEMORY Part

No.	Element	Description details	Required/ Optional
1.	P_Value	Indicates machine data.	Required
2.	P_NA	Indicates whether machine data is missing.	Optional
3.	P_Accuracy	Indicates accuracy of machine data.	Optional
4.	P_ChangeDate	Indicates time when machine data was changed to the current value.	Optional
5.	P_MeasurementDate	Indicates time when machine data was measured.	Optional
6.	P_Period	Indicates period during which machine data was measured.	Optional

For items included in an element, describe the item names shown in Table 6-86.

Table 6-86 List of Items to Be Defined with BLOCK_MEMORY

No.	Item name	Description details	Description specifications	Required/ Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (Use when the application software which uses a profile data supports multiple languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. This item is used when displaying the element name or contents on the application software.	Refer to Section 5.3.1.12.	Required
5.	DATATYPE	Write the data type of the element.	Refer to Section 5.3.1.8.	Required
6.	RANGE	Write the setting range of the element.	Refer to Section 5.3.1.13.	Optional
7.	MIN_INC	Write the minimum unit to be applied to the value of an element along with ENG_UNIT.	Refer to Section 5.3.1.11.	Optional
8.	ENG_UNIT	Write the engineering unit to be applied to the value of an element together with MIN_INC.	Refer to Section 5.3.1.9.	Optional
9.	ACCESS	Write the access attribute of the element.	Refer to Section 5.3.1.2.	Optional
10.	ASSIGN	Write the address and code to be assigned to an element.	Refer to Section 5.3.1.3.	Optional
11.	COMMENT	Write explanation of elements, the meaning of each value, and precautions. This item is to be used by the application software when shown on the window as additional information for an element.	Refer to Section 5.3.1.6.	Optional

6.5.3.2. XML format of BLOCK_MEMORY part

In the XML format, the BLOCK_MEMORY part is described as an XML element with the XML element name "blockInput". A list of attributes of the blockInput element is shown in Table 6-87, and a list of XML subelements is shown in Table 6-88.

Table 6-87 List of Attributes of the blockMemory Element

No.	Attribute name	Description details	Required/ Optional
1.	label	Write the label which identifies the BLOCK_MEMORY part. (Refer to Section 5.3.1.10.)	Required

Table 6-88 List of XML Subelements of the blockMemory Element

No.	XML element name	Description details	Required/ Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Write a comment on the BLOCK_MEMORY part. (Refer to Section 5.3.1.6.)	Optional
3.	blockMemoryMember	Write the content of the element of the BLOCK_MEMORY part.	Required

In the XML format, elements of the BLOCK_MEMORY part is described as XML elements with the XML element name "blockMemoryMember". A list of attributes of the blockMemoryMember element is shown in Table 6-89, and a list of XML subelements is shown in Table 6-90.

Table 6-89 List of Attributes of the blockMemoryMember Element

No.	Attribute name	Description details	Required/ Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10.)	Required

Table 6-90 List of XML Subelements of the blockMemoryMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	range	Write the RANGE item.
6.	minInc	Write the MIN_INC item.
7.	engUnit	Write the ENG_UNIT item.
8.	access	Write the ACCESS item.
9.	assign	Write the ASSIGN item.
10.	comment	Write the COMMENT item.

Describe the BLOCK_MEMORY part using the following format:

```

<p:blockMemory label="Description based on the description details for label (attribute name) in Table
6-87">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
6-88 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
Table 6-88 </p:comment>
  <p:blockMemoryMember label="Description based on the description details for label (attribute
name) in Table 6-89">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
6-90 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
Table 6-90 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
6-90 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
Table 6-90 </p:datatype>
    <p:range> Description based on the description details for range (XML element name) in Table
6-90 </p:range>
    <p:minInc> Description based on the description details for minInc (XML element name) in
Table 6-90 </p:minInc>
    <p:engUnit> Description based on the description details for engUnit (XML element name) in
Table 6-90 </p:engUnit>
    <p:access> Description based on the description details for access (XML element name) in
Table 6-90 </p:access>
    <p:assign> Description based on the description details for assign (XML element name) in
Table 6-90 </p:assign>
    <p:comment> Description based on the description details for comment (XML element name) in
Table 6-90 </p:comment>
  </p:blockMemoryMember>
  <p:blockMemoryMember label="Description based on the description details for label (attribute
name) in Table 6-89">
    :
    :
  </p:blockMemoryMember>
  :
  :
</p:blockMemory>

```

6.5.3.3. Description example of an element

An item description example of an element of the BLOCK_MEMORY part is shown below. In the examples below, the element names are "P_Value" and "P_Accuracy".

Table 6-91 Item Description Example of an Element (P_Value)

No.	Item name	Description details
1.	LABEL	"P_Value" is written.
2.	LABEL2	Not written because the item can be omitted
3.	CATEGORY	"Electric Energy" is written.
4.	NAME	"Current Value" is written.
5.	DATATYPE	"UINT32" is written.
6.	RANGE	Not written because the item can be omitted
7.	MIN_INC	"1" is written.
8.	ENG_UNIT	"kWh" is written.
9.	ACCESS	"R" is written.
10.	ASSIGN	"DA16:AA00000014" is written.
11.	COMMENT	Not written because the item can be omitted

Table 6-92 Item Description Example of an Element (P_Accuracy)

No.	Item name	Description details
1.	LABEL	"P_Accuracy" is written.
2.	LABEL2	Not written because the item can be omitted
3.	CATEGORY	"Electric Energy" is written.
4.	NAME	"Accuracy" is written.
5.	DATATYPE	"ACCURACY" is written.
6.	RANGE	Not written because the item can be omitted
7.	MIN_INC	"1" is written.
8.	ENG_UNIT	"%" is written.
9.	ACCESS	"R" is written.
10.	ASSIGN	"DA16:AA00000016" is written.
11.	COMMENT	Not written because the item can be omitted

(a) Item description example of an element

```

<p:blockMemoryMember label="P_Value">
  <p:category><p:item>Electric Energy</p:item></p:category>
  <p:name><p:item>Electric Energy</p:item></p:name>
  <p:datatype><p:item>UINT32</p:item></p:datatype>
  <p:min_inc><p:item>1</p:item></p:min_inc>
  <p:eng_unit><p:item>kWh</p:item></p:eng_unit>
  <p:access><p:item>R</p:item></p:access><p:comment>
  <p:assign><p:item>DA16:AA00000014</p:item></p:assign>
</p:blockMemoryMember>
<p:blockMemoryMember label="P_Accuracy">
  <p:category><p:item>Electric Energy</p:item></p:category>
  <p:name><p:item>Accuracy</p:item></p:name>
  <p:datatype><p:item>ACCURACY</p:item></p:datatype>
  <p:min_inc><p:item>1</p:item></p:min_inc>
  <p:eng_unit><p:item>%</p:item></p:eng_unit>
  <p:access><p:item>R</p:item></p:access><p:comment>
  <p:assign><p:item>DA16:AA00000016</p:item></p:assign>
</p:blockMemoryMember>

```

6.5.4. BLOCK_PARAM part

6.5.4.1. Overview

The BLOCK_PARAM part describes "option information (set value) of machine data".

Elements which compose the BLOCK_PARAM part are shown in Figure 6-20.

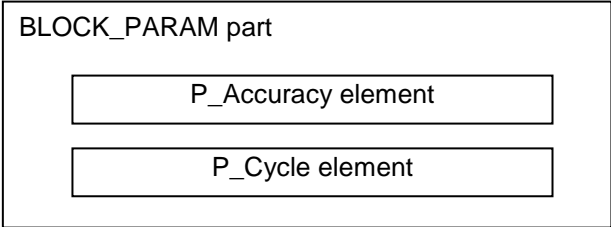


Figure 6-20 Structure of BLOCK_PARAM Part

The structure of each element of the BLOCK_PARAM part, in other words, the items to be described in the element, is the same. The structure of an element of the BLOCK_PARAM part is shown in Figure 6-21.

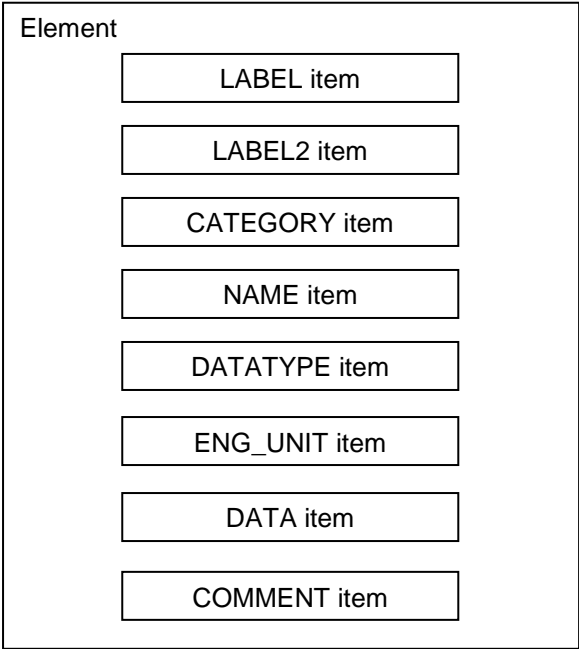


Figure 6-21 Structure Definition of an Element in the BLOCK_PARAM Part

The element list of the BLOCK_PARAM part is shown in Table 6-93.

One element is described as one XML element.

Table 6-93 Element of the BLOCK_PARAM Part

No.	Element	Description details	Required/ Optional
1.	P_Accuracy	Indicates accuracy of machine data.	Optional
2.	P_Cycle	Indicates the refreshing cycle of the concerned machine data in the machine. Acquisition of machine data by the application software at this cycle or longer cycle is recommended.	Optional

For items included in an element, describe the item names shown in Table 6-94.

Table 6-94 List of Items of Elements to Be Defined in the BLOCK_PARAM Part

No.	Item name	Description details	Description specifications	Required/ Optional
1.	LABEL	Write the label for identifying the element.	Refer to Section 5.3.1.10.	Required
2.	LABEL2	Write the label for identifying the element. (Use when the application software which uses a profile data supports multiple languages.)	Refer to Section 5.3.1.10.	Optional
3.	CATEGORY	Write the category for grouping the element.	Refer to Section 5.3.1.4.	Optional
4.	NAME	Write the name of the element. This item is used when displaying the element name or contents on the application software.	Refer to Section 5.3.1.12.	Required
5.	DATATYPE	Write the data type of the element.	Refer to Section 5.3.1.8.	Required
6.	ENG_UNIT	Write the engineering unit to be applied to the value of an element together with MIN_INC.	Refer to Section 5.3.1.9.	Optional
7.	DATA	Write the value held by an element.	Refer to Section 5.3.1.7.	Required
8.	COMMENT	Write explanation of elements, the meaning of each value, and precautions. This item is to be used by the application software when shown on the window as additional information for an element.	Refer to Section 5.3.1.6.	Optional

6.5.4.2. XML format of BLOCK_PARAM part

In the XML format, the BLOCK_PARAM part is described as an XML element with the XML element name "blockParam".

A list of attributes of the blockParam element is shown in Table 6-95, and a list of XML subelements is shown in Table 6-96.

Table 6-95 List of Attributes of the blockParam Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the BLOCK_PARAM part. (Refer to Section 5.3.1.10.)	Required

Table 6-96 List of XML Subelements of the blockParam Element

No.	XML element name	Description details	Required/Optional
1.	label2	Write the second label related to the FILE_INFO part. (Refer to Section 5.3.1.10.)	Optional
2.	comment	Write a comment on the BLOCK_PARAM part. (Refer to Section 5.3.1.6.)	Optional
3.	blockParamMember	Write the content of the element of the BLOCK_PARAM part.	Required

In the XML format, the element of the BLOCK_PARAM part is described as XML elements with the XML element name "blockParamMember". A list of attributes of the blockParamMember element is shown in Table 6-97, and a list of XML subelements is shown in Table 6-98.

Table 6-97 List of Attributes of the blockParamMember Element

No.	Attribute name	Description details	Required/Optional
1.	label	Write the label which identifies the element. (Refer to Section 5.3.1.10.)	Required

Table 6-98 List of XML Subelements of the blockParamMember Element

No.	XML element name	Description details
1.	label2	Write the LABEL2 item.
2.	category	Write the CATEGORY item.
3.	name	Write the NAME item.
4.	datatype	Write the DATATYPE item.
5.	engUnit	Write the ENG_UNIT item.
6.	access	Write the ACCESS item.
7.	data	Write the DATA item.
8.	comment	Write the COMMENT item.

Describe the BLOCK_PARAM part using the following format:

```
<p:blockParam label="Description based on the description details for label (attribute name) in Table
6-95">
  <p:label2> Description based on the description details for label2 (XML element name) in Table
  6-96 </p:label2>
  <p:comment> Description based on the description details for comment (XML element name) in
  Table 6-96 </p:comment>
  <p:blockParamMember label="Description based on the description details for label (attribute
  name) in Table 6-97">
    <p:label2> Description based on the description details for label2 (XML element name) in Table
    6-98 </p:label2>
    <p:category> Description based on the description details for category (XML element name) in
    Table 6-98 </p:category>
    <p:name> Description based on the description details for name (XML element name) in Table
    6-98 </p:name>
    <p:datatype> Description based on the description details for datatype (XML element name) in
    Table 6-98 </p:datatype>
    <p:engUnit> Description based on the description details for engUnit (XML element name) in
    Table 6-98 </p:engUnit>
    <p:data> Description based on the description details for data (XML element name) in Table
    6-98 </p:data>
    <p:comment> Description based on the description details for comment (XML element name) in
    Table 6-98 </p:comment>
  </p:blockParamMember>
  <p:blockParamMember label="Description based on the description details for label (attribute
  name) in Table 6-97">
    :
    :
  </p:blockParamMember>
  :
  :
</p:blockParam>
```

6.5.4.3. Description example of an element

An item description example of an element of the BLOCK_PARAM part is shown below. In the example below, the element name is "P_Cycle".

Table 6-99 Item Description Example of an Element

No.	Item name	Description details
1.	LABEL	"P_Cycle" is written.
2.	LABEL2	Not written because the item can be omitted
3.	CATEGORY	"Electric Energy" is written.
4.	NAME	"Acquisition Cycle" is written.
5.	DATATYPE	"UINT32" is written.
6.	ENG_UNIT	"s" is written.
7.	DATA	"1800" is written.
8.	COMMENT	Not written because the item can be omitted

(a) Item description example of an element

```

<p:blockParamMember label="P_Cycle">
  <p:category><p:item>Electric Energy</p:item></p: category>
  <p:name><p:item>Acquisition Cycle</p:item></p:name>
  <p:datatype><p:item>UINT32</p:item></p:datatype>
  <p:engUnit><p:item>s</p:item></p:engUnit>
  <p:data><p:item>1800</p:item></p:data>
</p:blockParamMember>

```

6.5.5. ENUM part

6.5.5.1. Overview

The ENUM part (option list) describes the information related to options of values to be set to the element. Use reference to the ENUM part in terms of an element for which setting with a list box is to be made with the application software and an element for which the meaning is to be shown for each value at the time of value reading. When the description of the ENUM part is to be referred to from an element in the BLOCK section, describe the ENUM part in the same BLOCK section.

The structure of the ENUM part is the same as for definition in the COMM_IF section; therefore, refer to Section 6.4.5.

REFERENCES

None.

