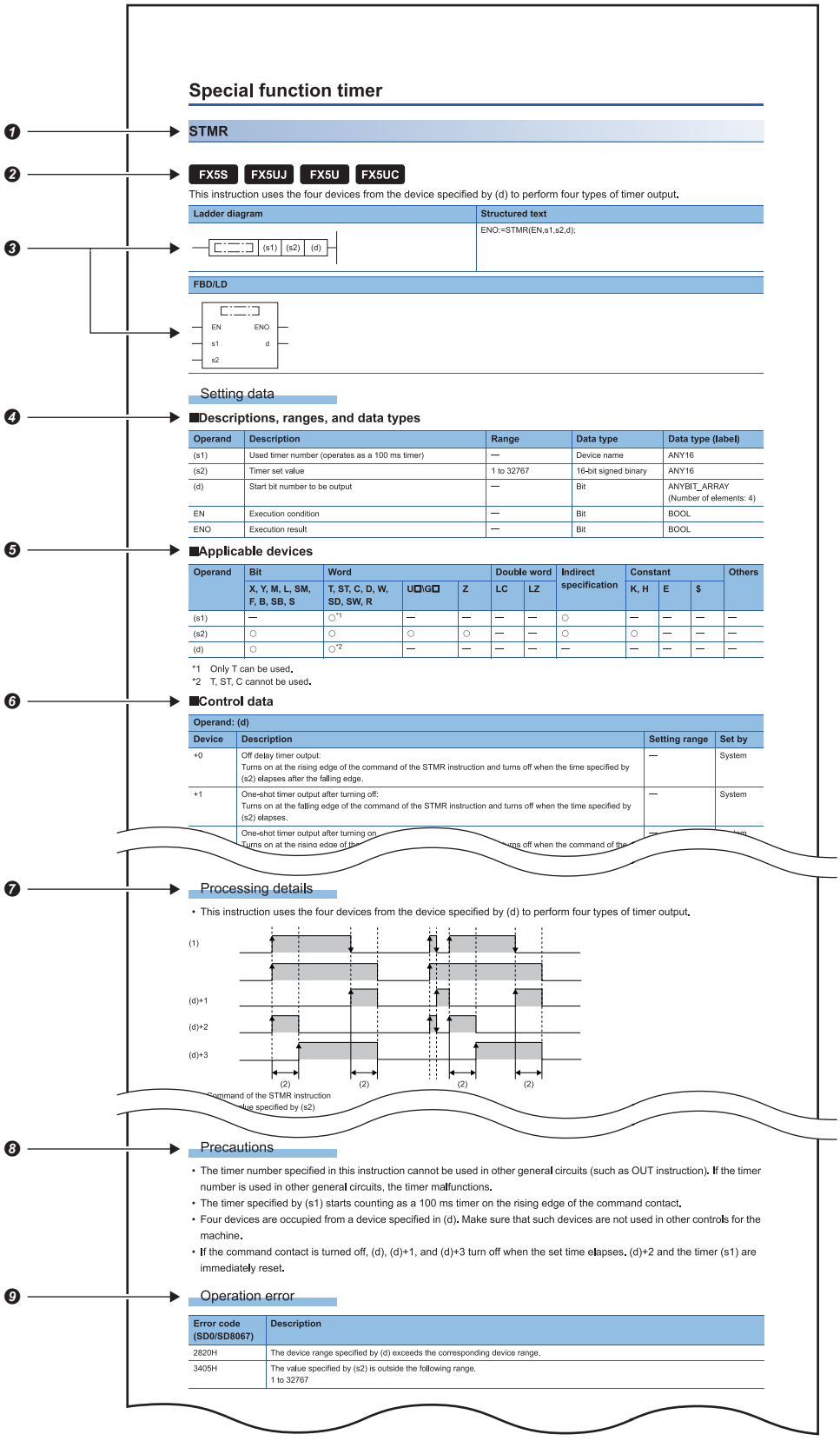
HOW TO READ THIS MANUAL

The following describes the page layout and symbols used in this manual.

How to read PART 3 and PART 4

The contents described in this section are provided only for explaining how to read this manual. Thus, the actual description may differ.



Special function timer

❶ **STMR**

❷ FX5S FX5UJ FX5U FX5UC

This instruction uses the four devices from the device specified by (d) to perform four types of timer output.

Ladder diagram	Structured text
❸ (s1) (s2) (d)	ENO:=STMR(EN,s1,s2,d);

FBD/LD

EN ENO
s1 d
s2

Setting data

❹ **■Descriptions, ranges, and data types**

Operand	Description	Range	Data type	Data type (label)
(s1)	Used timer number (operates as a 100 ms timer)	—	Device name	ANY16
(s2)	Timer set value	1 to 32767	16-bit signed binary	ANY16
(d)	Start bit number to be output	—	Bit	ANYBIT_ARRAY (Number of elements: 4)
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

❺ **■Applicable devices**

Operand	Bit	Word			Double word		Indirect specification	Constant			Others
	X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U□\G□	Z	LC	LZ		K, H	E	$	
(s1)	—	○*1	—	—	—	—	○	—	—	—	—
(s2)	○	○	○	○	—	—	○	○	—	—	—
(d)	○	○*2	—	—	—	—	—	—	—	—	—

*1 Only T can be used.
*2 T, ST, C cannot be used.

❻ **■Control data**

Operand: (d)			
Device	Description	Setting range	Set by
+0	Off delay timer output: Turns on at the rising edge of the command of the STMR instruction and turns off when the time specified by (s2) elapses after the falling edge.	—	System
+1	One-shot timer output after turning off: Turns on at the falling edge of the command of the STMR instruction and turns off when the time specified by (s2) elapses.	—	System
	One-shot timer output after turning on Turns on at the rising edge of th... ...ns off when the command of the...	—	...tem

❼ Processing details

• This instruction uses the four devices from the device specified by (d) to perform four types of timer output.

❽ Precautions

• The timer number specified in this instruction cannot be used in other general circuits (such as OUT instruction). If the timer number is used in other general circuits, the timer malfunctions.
• The timer specified by (s1) starts counting as a 100 ms timer on the rising edge of the command contact.
• Four devices are occupied from a device specified in (d). Make sure that such devices are not used in other controls for the machine.
• If the command contact is turned off, (d), (d)+1, and (d)+3 turn off when the set time elapses. (d)+2 and the timer (s1) are immediately reset.

❾ Operation error

Error code (SD0/SD8067)	Description
2820H	The device range specified by (d) exceeds the corresponding device range.
3405H	The value specified by (s2) is outside the following range. 1 to 32767

❶Indicates the instruction symbol.

- The instruction symbol with brackets means multiple instructions. For example, "GRY(P)(_U)" means the GRY, GRYP, GRY_U, and GRYP_U instructions.

Instruction symbol	Description of symbol
Instruction symbol with "(P)"	The instruction is executed on the rising edge.
Instruction symbol with "(_U)"	The instruction handles 16-bit or 32-bit unsigned binary data.

- The instruction symbol with "□" means multiple instructions. For example, "LDDT□" means the LDDT=, LDDT<>, LDDT>, LDDT<=, LDDT<, and LDDT>= instructions.

❷Indicates the availability of instructions for each CPU module. (The instruction cannot be used with CPU modules marked with an ×.)

❸Indicates the description format of the ladder diagram, FBD/LD language and ST (structured text) language

Instruction symbols are input in each corresponding place surrounded in a square in the ladder diagram.

❹Indicates the description, setting range, data type, and data type (label) of each operand.

- For the data type, refer to the following.

MELSEC iQ-F FX5 Programming Manual (Program Design)

❺Indicates the applicable devices for each operand. The following table describes the usage classification.

Operand	Bit	Word			Double word		Indirect specification	Constant			Others*5
	X*2, Y*2, M*2, L*2, SM*2, F*2, B*2, SB*2, S*2	T*3, ST*3, C*3, D*4,W*4, SD*4, SW*4, R*4	U□\G□*4	Z	LC*3	LZ		K, H	E	$	
Applicable devices*1	X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U□\G□	Z	LC	LZ	@□ @□.□	K, H	E	$	P, I, U, DX, DY, N, BL, BL□\S□

*1 For the description of each device, refer to the following.
MELSEC iQ-F FX5 User's Manual (Application)

*2 "○" is described in positions where bit devices or digit specification of bit devices is available.

*3 When T, ST, C, and LC are used with an instruction other than the following instructions, they can be used only as word data. They cannot be used as bit data.
[Instruction which can be used as bit data]
LD, LDI, AND, ANI, OR, ORI, LDP, LDF, ANDP, ANDF, ORP, ORF, LDPI, LDFI, ANDPI, ANDFI, ORPI, ORFI, OUT, RST, BKRST, MOVB(P), CMLB(P)

*4 "○" is described in positions where word device or bit specification of word device is available.

*5 Devices which can be set are described in the "Others" column.

❻Depending on the instruction, the control data to set the operation of the instruction exists. When the "Set by" column is "User", the value must be specified according to the setting range.

❼Indicates the function details of the instruction. When no details are described, the following programs correspond to "Interrupt program".

- Interrupt program using the interrupt pointer (I)
- Fixed scan execution type program
- Event execution type program which is triggered by an interrupt by the interrupt pointer (I)

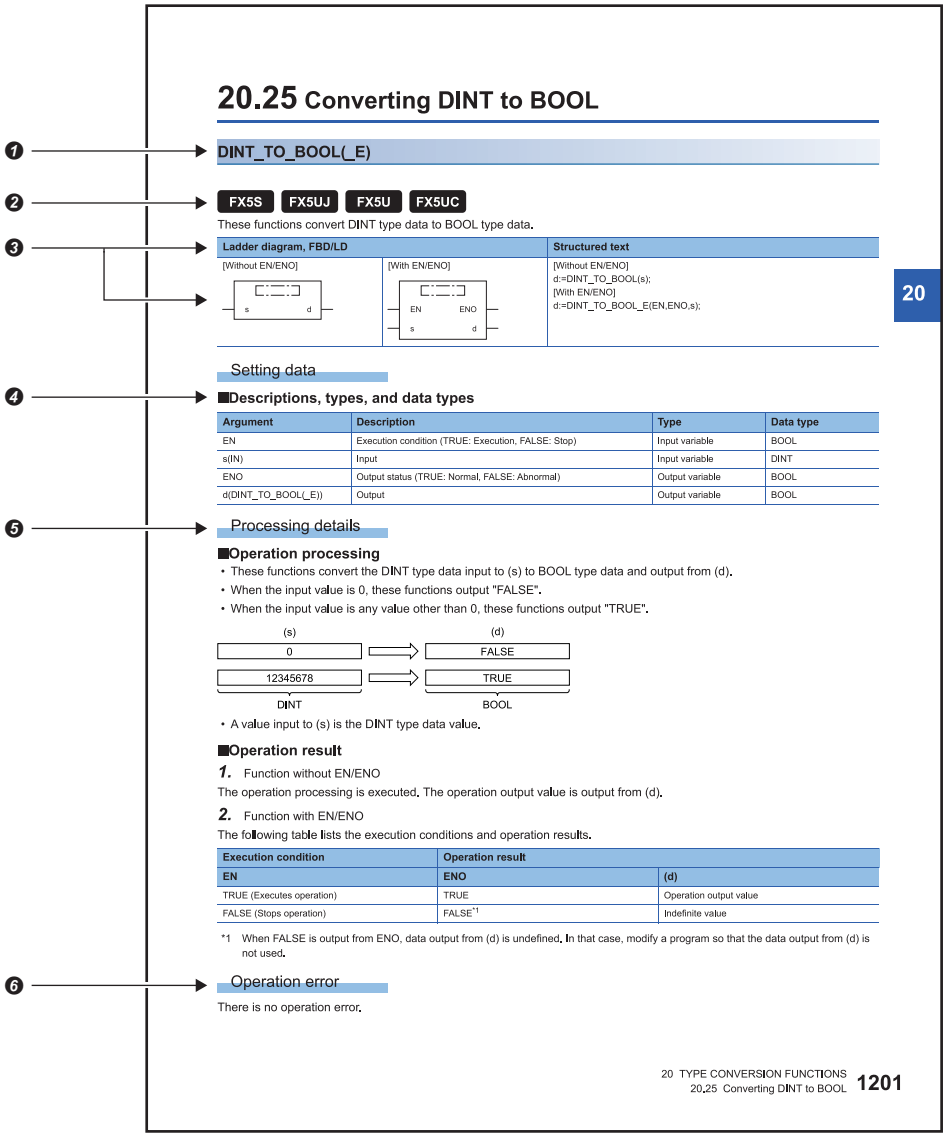
❽Indicates the cautions.

❾Indicates an error code (hexadecimal) which occurs at the execution and the error description when the instruction has a specific operation error.

- A device in which an error code is stored is described in the error code column. When an error code is stored in SD0/SD8067, the error flag (SM0, SM1, SM56, SM8067) turns on.

How to read PART 5 and PART 6

The contents described in this section are provided only for explaining how to read this manual. Thus, the actual description may differ.



20.25 Converting DINT to BOOL

❶ DINT_TO_BOOL(_E)

❷ FX5S FX5UJ FX5U FX5UC

These functions convert DINT type data to BOOL type data.

❸

Ladder diagram, FBD/LD		Structured text

[Without EN/ENO]	[With EN/ENO]	[Without EN/ENO]
		d:=DINT_TO_BOOL(s);
		[With EN/ENO]
		d:=DINT_TO_BOOL_E(EN,ENO,s);

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❹ Setting data

■Descriptions, types, and data types

Argument	Description	Type	Data type
EN	Execution condition (TRUE: Execution, FALSE: Stop)	Input variable	BOOL
s(IN)	Input	Input variable	DINT
ENO	Output status (TRUE: Normal, FALSE: Abnormal)	Output variable	BOOL
d(DINT_TO_BOOL(_E))	Output	Output variable	BOOL

❺ Processing details

■Operation processing

- These functions convert the DINT type data input to (s) to BOOL type data and output from (d).
- When the input value is 0, these functions output "FALSE".
- When the input value is any value other than 0, these functions output "TRUE".

(s) 0 → (d) FALSE

(s) 12345678 → (d) TRUE

DINT BOOL

- A value input to (s) is the DINT type data value.

■Operation result

1. Function without EN/ENO

The operation processing is executed. The operation output value is output from (d).

2. Function with EN/ENO

The following table lists the execution conditions and operation results.

Execution condition	Operation result	
EN	ENO	(d)
TRUE (Executes operation)	TRUE	Operation output value
FALSE (Stops operation)	FALSE*1	Indefinite value

*1 When FALSE is output from ENO, data output from (d) is undefined. In that case, modify a program so that the data output from (d) is not used.

❻ Operation error

There is no operation error.

20 TYPE CONVERSION FUNCTIONS
20.25 Converting DINT to BOOL 1201

❶Indicates function symbols.

When character strings in brackets are added to the end of the function symbol for standard functions and function blocks, the function symbol indicates multiple functions. For example, "DINT_TO_INT(_E)" means "DINT_TO_INT" and "DINT_TO_INT_E".

Function symbol	Description of symbol
Function symbol to which "(_E)" is added.	Indicates that the description format with EN/ENO can be used in the standard function and function block.

❷Indicates the availability of standard functions or function blocks for each CPU module. (The standard function or function block cannot be used with CPU modules marked with an ×.)

❸Indicates the description format of the ladder diagram, FBD/LD language and ST (structured text) language.

In the square , either of the following symbol should be described.

- Standard function: Function symbol
- Standard function block: Instance name and function block symbol

The sign of return value of the standard function of FBD/LD is not displayed.

❹Indicates the description, type and data type of each argument.

❺Indicates the functions of each standard function or function block.

❻Indicates an error code which occurs at the execution and the error description when the standard function or the function block has a specific operation error.
A device in which an error code is stored is described in the error code column. When an error code is stored in SD0, the error flag SM0 turns on.