26 COMPARISON FUNCTIONS

26.1 Compare

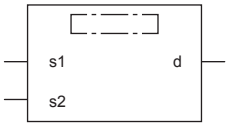
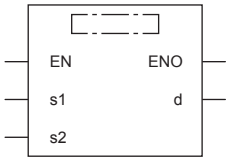
GT(_E), GE(_E), EQ(_E), LE(_E), LT(_E)

FX5S FX5UJ FX5U FX5UC

These functions output the data comparison result of input values.

Ladder diagram, FBD/LD*1		Structured text*1

[Without EN/ENO]	[With EN/ENO]	[Without EN/ENO]*2
		d:=GT(s1,s2);
		d:=GE(s1,s2);
		d:=EQ(s1,s2);
		d:=LE(s1,s2);
		d:=LT(s1,s2);
		[With EN/ENO]
		d:=GT_E(EN,ENO,s1,s2);
		d:=GE_E(EN,ENO,s1,s2);
		d:=EQ_E(EN,ENO,s1,s2);
		d:=LE_E(EN,ENO,s1,s2);
		d:=LT_E(EN,ENO,s1,s2);

*1 The input variable "s" can be changed in the range of 2 to 28.

*2 Supported by engineering tool version "1.035M" and later. In earlier versions, write in operator form. (MELSEC iQ-F FX5 Programming Manual (Program Design))

Setting data

■Descriptions, types, and data types

Argument	Description	Type	Data type
EN	Execution condition (TRUE: Execution, FALSE: Stop)	Input variable	BOOL
s1(IN1) to s28(IN28)	Input	Input variable	ANY_ELEMENTARY
ENO	Output status (TRUE: Normal, FALSE: Abnormal)	Output variable	BOOL
d(GT(_E) / GE(_E) / EQ(_E) / LE(_E) / LT(_E))	Output (TRUE: True value, FALSE: False value)	Output variable	BOOL

Processing details

■Operation processing

- These functions perform a comparison operation of input values of (s) and output operation results from (d) in the BOOL type.
  - GT(_E): These functions compare $[(s1)>(s2)]\&[(s2)>(s3)]\&\cdots\&[(s)_{(n-1)}>(s)_{(n)}]$.
    - When all the operation results are $(s)_{(n-1)}>(s)_{(n)}$, these functions output TRUE.
    - When any of the operation results is $(s)_{(n-1)}\leq(s)_{(n)}$, these functions output FALSE.
  - GE(_E): These functions compare $[(s1)\geq(s2)]\&[(s2)\geq(s3)]\&\cdots\&[(s)_{(n-1)}\geq(s)_{(n)}]$.
    - When all the operation results are $(s)_{(n-1)}\geq(s)_{(n)}$, these functions output TRUE.
    - When any of the operation result is $(s)_{(n-1)}<(s)_{(n)}$, these functions output FALSE.
  - EQ(_E): These functions compare $[(s1)=(s2)]\&[(s2)=(s3)]\&\cdots\&[(s)_{(n-1)}=(s)_{(n)}]$.
    - When all the operation results are $(s)_{(n-1)}=(s)_{(n)}$, these functions output TRUE.
    - When any of the operation results is $(s)_{(n-1)}\neq(s)_{(n)}$, these functions output FALSE.
  - LE(_E): These functions compare $[(s1)\leq(s2)]\&[(s2)\leq(s3)]\&\cdots\&[(s)_{(n-1)}\leq(s)_{(n)}]$.
    - When all the operation results are $(s)_{(n-1)}\leq(s)_{(n)}$, these functions output TRUE.
    - When any of the operation result is $(s)_{(n-1)}>(s)_{(n)}$, these functions output FALSE.
  - LT(_E): These functions compare $[(s1)<(s2)]\&[(s2)<(s3)]\&\cdots\&[(s)_{(n-1)}<(s)_{(n)}]$.
    - When all the operation results are $(s)_{(n-1)}<(s)_{(n)}$, these functions output TRUE.
    - When any of the operation results is $(s)_{(n-1)}\geq(s)_{(n)}$, these functions output FALSE.
- A data value of the INT, DINT, REAL, BOOL, WORD, DWORD, TIME, or STRING type can be input to (s).

■Operation result

1. Function without EN/ENO

The following table lists the operation results.

Operation result	(d)
No operation error occurred	Operation output value
An operation error occurred	Indefinite value

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 error did not occur)	Operation output value
	FALSE (Operation error occurred)*1	Indefinite 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.

Operation error

- (s1) to (s28) are the STRING type

Error code (SD0/SD8067)	Description
2820H	In the corresponding device range of the device specified by (s1) to (s28) and later, "00H" does not exist.
3405H	The character string specified by (s1) to (s28) has more than 16383 characters.
3406H	The whole specified character string cannot be stored in the devices from the device specified by (d) to the last device in the corresponding device range.

- The above errors do not occur in LE(_E) and LT(_E)