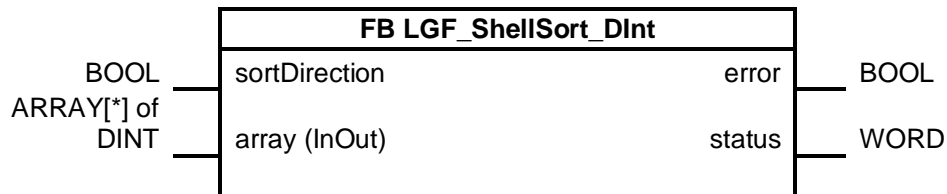## LGF_ShellSort_DInt

Short description

This block sorts an array of type "DInt" with any number of elements (max. 1000) in ascending or descending order.

Block

```
              FB LGF_ShellSort_DInt
BOOL        ┤ sortDirection            error ├       BOOL
ARRAY[*] of
DINT        ┤ array (InOut)           status ├       WORD
```

Input parameters

Parameters	Data type	Description
sortDirection	BOOL	FALSE: sort in ascending order (default) TRUE: sort in descending order

Input/output parameters (InOut)

Parameters	Data type	Description
array	ARRAY[*] of DINT	Array to sort.

Output parameters

Parameters	Data type	Description
error	BOOL	FALSE: No error TRUE: An error occurred during the execution of the FB.
status	WORD	16#0000-16#7FFF: Status of the FB, 16#8000-16#FFFF: Error identification (see following Table).

Status and error displays

status	Meaning	Remedy / notes
16#0000	No error	-
16#8200	Actual parameter at the "array" input has only one element.	At the "array" input, connect an array with at least two elements.
16#8201	Actual parameter at the "array" input has too many elements.	Connect an array with less than 1000 elements at input "array".

Note	The status of called commands is output in "subFunctionStatus". In this case, the output value in "status" indicates which command caused the error. In this case, refer to the TIA Portal Online Help section for information on the respective commands.

Principle of operation

The block sorts according to the shell sort procedure. Note that the execution time of the block depends significantly on how many elements the array to be sorted has. The overview below shows several measured values of the block depending on the number of array elements.

Number of array elements	SIMATIC S7-1212C DC/DC/DC	SIMATIC S7-1516-3 PN/DP
100	approx. 11-16 ms	approx. 1-2 ms
1000	approx. 185-205 ms	approx. 10-12 ms

Note	The block is executed synchronously and is not split over several PLC cycles. Thus the execution time has a direct effect on the PLC cycle time. Note this behavior for your project of the controller used and adjust the monitoring time of the controller if necessary.

Further information on libraries in TIA Portal:

- Topic page libraries
  https://support.industry.siemens.com/cs/ww/en/view/109738702
- Guideline on Library Handling
  https://support.industry.siemens.com/cs/ww/en/view/109747503
- Programming Guideline for S7-1200/1500 in chapter "Libraries"
  https://support.industry.siemens.com/cs/ww/en/view/81318674
- Programming Styleguide
  https://support.industry.siemens.com/cs/ww/en/view/81318674