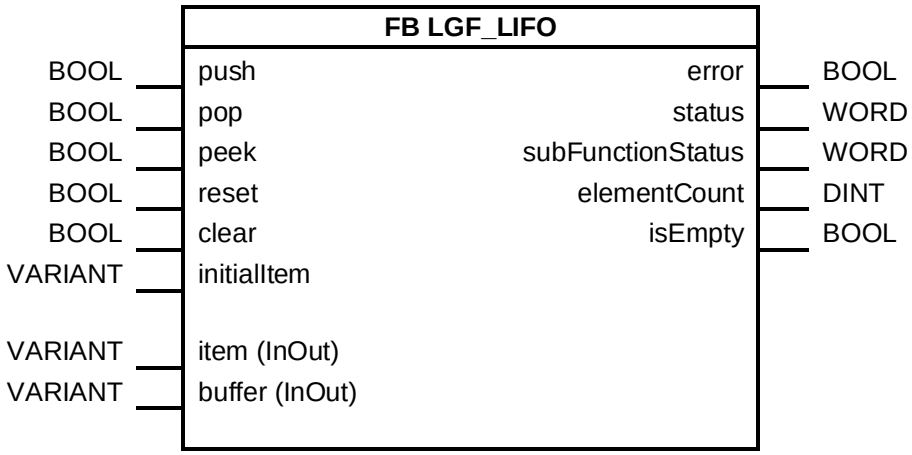
LGF_LIFO

Short description

This block stores incoming data and outputs the latest/most recent not-yet-processed data.

Block



Input parameters

Parameters	Data type	Description
push	BOOL	Sending data to the buffer
pop	BOOL	Get data from the buffer
peek	BOOL	View data in buffer (the buffer is not changed)
reset	BOOL	Initialize buffer (reset index and counter)
clear	BOOL	Empty the buffer and initialize with the initial value “initialItem” (Reset index and counter).
initialItem	VARIANT	Value for initializing the buffer (usually: 0)

Input/output parameters (InOut)

Parameters	Data type	Description
item	VARIANT	Value that will be returned from the buffer or written into the ring buffer.
buffer	VARIANT	Buffer (Array of…)

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).
subFunctionStatus	WORD	Status or return value of the called FCs and system blocks.
elementCount	DINT	Number of elements in the buffer
isEmpty	BOOL	TRUE: Buffer is empty

Status and error displays

status	Meaning	Remedy / notes
16#0000	No error	-
16 #7000	Initial value	-
16#8001	The buffer is empty.	-
16#8002	The buffer is full.	-
16#8200	There is no array on the “buffer” input.	-
16#8201	The data type of the InOut parameter “item” does not equal the data type of the array elements of the input “buffer”.	-
16#8202	The data type of the “initialItem” input does not correspond to the data type of the InOut parameter “item”.	-
16#8601	The variable “nextEmptyItemIndex” does not lie within the array boundaries.	-
16#8602	The variable “firstItemIndex” is not within the array boundaries.	-
16#8610	Error in “MOVE_BLK_VARIANT” command. (clearing buffer)	Check the error code in “subFunctionStatus”
16#8611	Error in “MOVE_BLK_VARIANT” command. (return first entry of buffer)	Check the error code in “subFunctionStatus”
16#8612	Error in “MOVE_BLK_VARIANT” command. (replace item by initial value)	Check the error code in “subFunctionStatus”
16#8613	Error in “MOVE_BLK_VARIANT” command. (write entry to buffer)	Check the error code in “subFunctionStatus”

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.

Note I computer science the stack is also based on the LIFO principle.

Principle of operation

With the “push” input, a new item is stored at the InOut parameter “item” at the next free position in the buffer. The output “elementCount” is incremented by the value “1”.

With the “pop” input, the latest/most recent item is output to the InOut parameter “item”, and this field in the buffer is replaced by the value at the parameter “initialItem”. The output “elementCount” is decremented by the value “1”.

The “peek” input allows the last entry in the buffer to be read out. The buffer is not changed.

With the “reset” input, the buffer is initialized and the index and counter are reset. The “elementCount” output is set to “0” and the “isEmpty” output is set to TRUE.

With the “clear” input, the buffer is emptied and initialized with the initial value “initialItem”. Index and counter are reset. The “elementCount” output is set to “0” and the “isEmpty” output is set to TRUE.

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