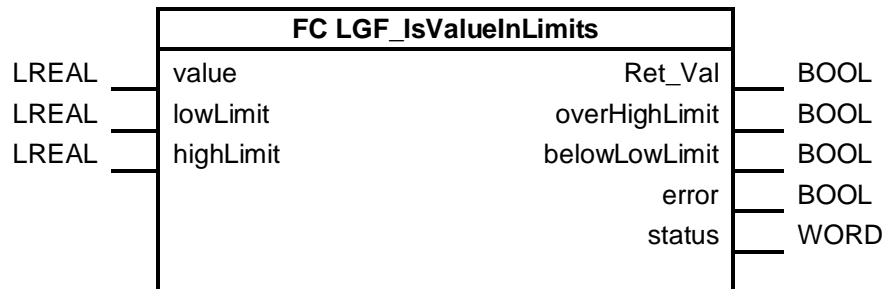# LGF_IsValueInLimits

Short description

The function checks whether a value is within a defined value range. The value range is defined with a lower and an upper limit.

Block

```
          ┌─────────────────────────────────────┐
          │         FC LGF_IsValueInLimits       │
LREAL ────┤ value                       Ret_Val  ├──── BOOL
LREAL ────┤ lowLimit              overHighLimit   ├──── BOOL
LREAL ────┤ highLimit             belowLowLimit   ├──── BOOL
          │                              error    ├──── BOOL
          │                              status   ├──── WORD
          │                                       │
          └─────────────────────────────────────┘
```

Input parameters

Parameters	Data type	Description
value	LREAL	Value to be checked to determine whether it is within the defined value range
lowLimit	LREAL	Lower limit of the value range
highLimit	LREAL	Upper limit of the value range

Output parameters

Parameters	Data type	Description
Ret_Val	BOOL	"TRUE", if the "value" is in the value range between lower and upper limit.
overHighLimit	BOOL	"TRUE" if "value" is greater than the upper limit value "highLimit".
belowLowLimit	BOOL	"TRUE", if "value" is smaller than the lower limit value "lowLimit".
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#8401	Error, upper limit value smaller than lower limit value	-

Principle of operation

The variables "lowLimit" and "highLimit" define a value range. The function checks whether the "value" is below, in or above the value range. The outputs "belowLowLimit", "Ret_Val", or "overHighLimit" show where the "value" is located.

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