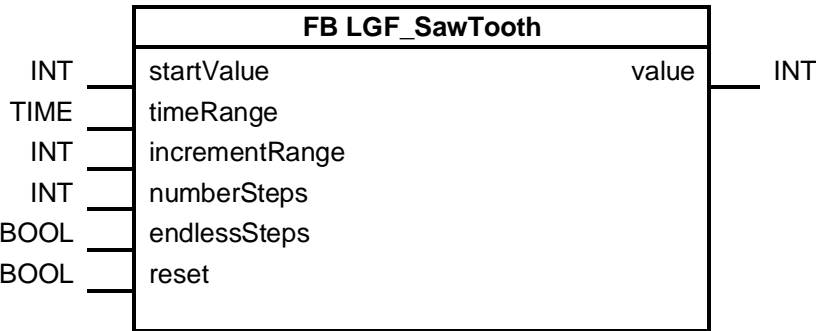


# LGF\_SawTooth

## Short description

This block generates a sawtooth-shaped signal profile. Each sawtooth consists of a defined number of steps (increments).

## Block



## Input parameters

Parameters	Data type	Description
startValue	INT	Start value at which the signal begins.
timeRange	TIME	Time after which the output parameter "value" is incremented
incrementRange	INT	Size of the jump from one increment to the next.
numberSteps	INT	Number of increments per sawtooth. (In the case of an endless sawtooth signal, this information is not necessary).
endlessSteps	BOOL	Specifies whether an endless sawtooth signal will be generated.
reset	BOOL	Sawtooth starts again at the start value, "startValue".

**Note** Please note that changes at the input parameters only become effective with "reset".

## Output parameters

Parameters	Data type	Description
value	INT	Current value of the sawtooth signal.

## Principle of operation

The block calculates the values for a sawtooth-shaped signal profile, which is output to the output parameter "value". The signal begins with the start value "startValue" and is added with the value "increment" after each elapse of the time interval "timeRange". The value can also be negative.

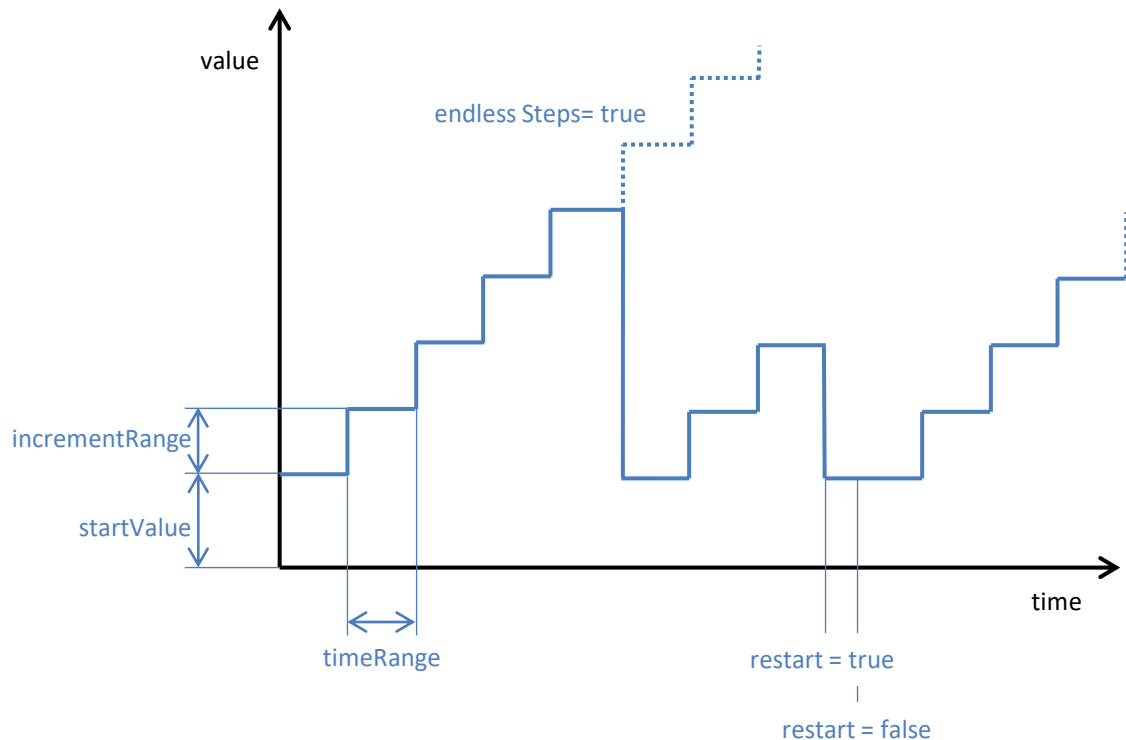
If the variable "endlessSteps" is set to "FALSE", the number of add operations is counted. If this exceeds the value "numberSteps", the output parameter "value" is set back to the start value. A new sawtooth begins.

If the variable "endlessSteps" is set to "TRUE", the value "increment" is added without interruption, starting once at "startValue". If the maximum positive INT value range (32767) is exceeded, "value" changes to the maximum negative INT value range (-32768) and will continue to be added up.

### Note

The duration of a sawtooth at "endlessSteps" on "FALSE" is calculated as follows:

$$\text{Duration} = \text{timeRange} * (\text{numberSteps} + 1)$$



**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>