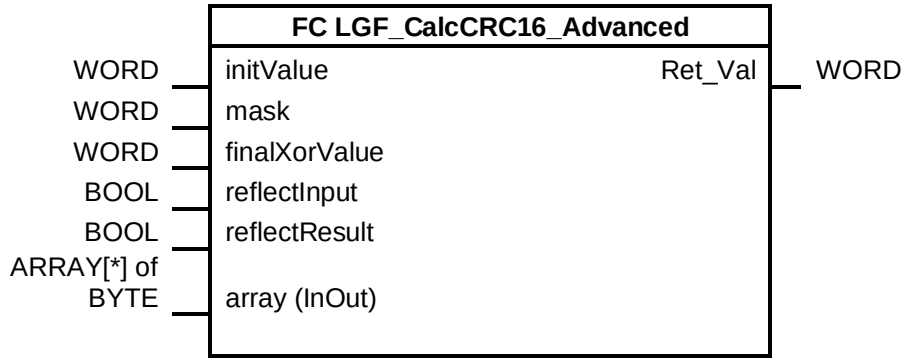
LGF_CalcCRC16Advanced

Short description

The CRC calculation is used for error detection at data transmission. The result of a calculation returns a CRC value via the data sent. The receiver detects a faulty transmission due to the unequal CRC value. The function “LGF_CalcCRC16Advanced” uses 16 bits as the generator polynomial (mask) and the parameters “finalXorValue”, “reflectInput”, and “reflectResult.

Block



Input parameters

Parameters	Data type	Description
initValue	WORD	Start value with which the calculation is executed. If you do not need a start value, assign 0x0 to the parameter.
mask	WORD	Generator polynomial with which the calculation is executed.
finalXorValue	WORD	Value with which another XOR operation is performed at the end
reflectInput	BOOL	If the value is TRUE, the sequence of the bits within the input byte is mirrored. The sequence 0...7 becomes 7...0.
reflectResult	BOOL	If the value is TRUE, the order of the bits within the result is mirrored. The sequence 0…15 becomes 15…0.

Input/output parameters (InOut)

Parameters	Data type	Description
array	ARRAY[*] of BYTE	Data stream for which the CRC value will be calculated.

Output parameters

Parameters	Data type	Description
Ret_Val	WORD	Calculated CRC value (return value of the function).

Principle of operation

The block calculates the CRC value from a data stream of any size. The data stream is composed of the individual elements of the array at the input/output parameter “array”. The start value “initValue” and the generator polynomial “mask” can be freely selected.

Via the boolean input parameters “reflectInput” and “reflectResult”, you may optionally mirror the bits of the input data or the CRC value. An XOR operation is also performed with the CRC value at the end and the value “finalXorValue”.

Note

Various online tools are available for calculating the CRC values. The function of the block was tested with the following online tool, since it supports the same input parameters:

http://www.sunshine2k.de/coding/javascript/crc/crc_js.html

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