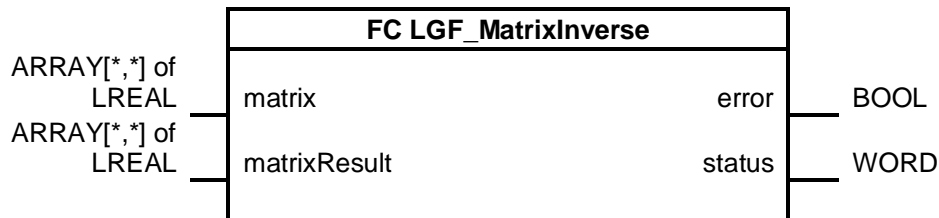


LGF_MatrixInverse

Short description

This function block inverts a square matrix of the data type ARRAY[*,*] of LREAL.

Block



Input/output parameters (InOut)

Parameters	Data type	Description
matrix	ARRAY[*,*] of LREAL	Square input matrix (Array[0..x, 0..x] of REAL)
matrix Result	ARRAY[*,*] of LREAL	Inverted matrix

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	Input matrix is not square.	The number of rows must be equal to the number of columns.
16#8201	Application of the algorithm for the input matrix is not possible.	First element (a _{1,1}) of the input matrix must not be zero.
16#8202	Lower-limit rows(Dim1) of the arrays of Matrix1 and Result Matrix are different.	All arrays must have the same low limit, for example: Array[0..2, 0..2] of LREAL
16#8203	Lower-limit columns(Dim2) of the arrays of Matrix1 and Result Matrix are different.	All arrays must have the same low limit, for example: Array[0..2, 0..2] of LREAL
16#8204	Upper-limit rows(Dim1) of the arrays of Matrix1 and Result Matrix are different.	All arrays must have the same high limit, for example: Array[0..2, 0..2] of LREAL
16#8205	Upper-limit columns(Dim2) of the arrays of Matrix1 and Result Matrix are different.	All arrays must have the same high limit, for example: Array[0..2, 0..2] of LREAL

Principle of operation

The block inverts a square matrix of any size according to the Shipley-Coleman method.

Note

Note that the input matrix must be square. This means that the number of rows must be equal to the number of columns.

The output matrix must be the same size and have the same array boundaries as the input matrix.

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>