

Chapter 4. FUNCTION BLOCK

This shows function block for A/D conversion module on the GMWIN.

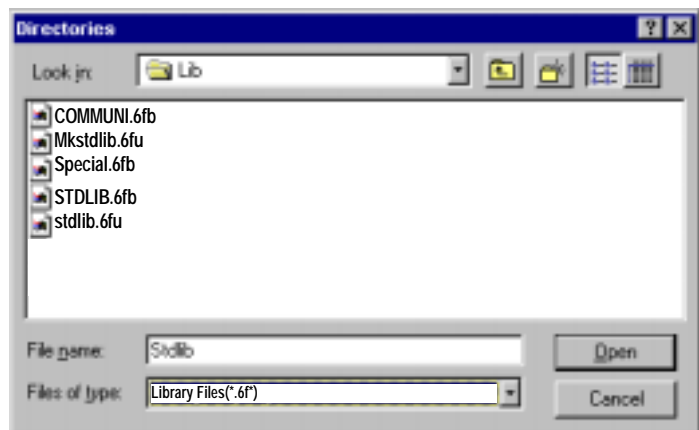
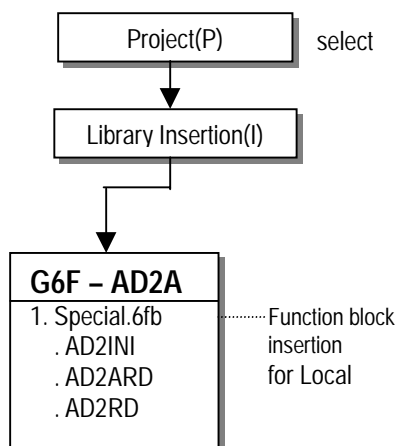
A kind of function block is as follows.

No	Local	Function
1	AD2INI	Initializing module
2	AD2ARD	Reading A/D converted value(Array Type)
3	AD2RD	Reading A/D converted value(Single Type)

4.1 Registration of the Function Block for A/D Conversion Module on the GMWIN

Function Block is inserted on the execution of the GMWIN according to following procedure.

Function block can be inserted only in the open condition of the Project.



4.2 Function Block for Local

4.2.1 Module Initialization : (AD2INI)

Module Initialization function block is used in a program with setting of A/D conversion module located base number, slot number of located module on base, specifying a channel enable, analog input data type and information of average processing.

Function block	I/O	Variable	Data type	Descriptions
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> AD2INI REQ DONE BASE STAT SLOT ACT CH DATA TYPE AVG_ FN AVG_ NI IM </div>	Input	REQ	BOOL	Function Block Execution Request Area - The execution of function block initialization is requested in this area. - If the status of condition connected with this area is changed from low(0) to high(1), function block initialization for the module is executed.
		BASE	USINT	Base Location Number Area - The base No. on which A/D conversion module is mounted is written on this area. - Setting range : 0 to 1
		SLOT	USINT	Slot Location Number Area - The slot No. on which A/D conversion module is mounted is written on this area. - Setting range: 0 to 7
		CH	BOOL[4]	Available Channel Specification Area - Enabled channels are specified to 1 and disabled channels are specified to 0.
		DATA TYPE	BOOL[4]	Digital Output Data Type Specification Area - 0 is for the range of -48 ~ 4047 - 1 is for the range of -2048 ~ 2047
		AVG_ EN	BOOL[4]	Enable / Disable of Average processing - 0 is for the sampling processing. - 1 is for the average processing for the number of times.
		AVG_ NUM	USINT [4]	Set a constant of the average processing of the number of times. - Setting range : 2 ~ 255
	Output	DONE	BOOL	Function Block Execution Complete Area - When function block initialization is executed with no error, 1 is written and 1 is kept until next execution. When error occurs, 0 is written and operation come to stop.
		STAT	USINT	Error Code Display Area - When error occurs during function block initialization, the error code number is written.
		ACT	BOOL[4]	Channel Operation Display Area - The channel specified after executing the function block initialization with no error is right, 1 is written and, on the non-specified channel, 0 is written.

REMARK

BOOL[4] and USINT[4] of data type means that the number of element is 4, and also this means the whole number of channels and channel number.

4.2.2 Module Reading-Array Type : (AD2ARD)

Array type of function block for reading is performed for all channels in module and the specified channel is used to read output variable of data displayed from A/D conversion digital value.

Function block	I/O	Variable	Data type	Descriptions
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> AD2ARD REQ DONE BASE STAT SLOT ACT CH DATA </div>	Input	REQ	BOOL	Function Block Execution Request Area - The execution of function block reading is requested in this area. - If input condition is changed from low(0) to high(1), function block initialization for the module is executed.
		BASE	USINT	Base Module Location Number Area - The base No. on which A/D conversion module is mounted is written on this area. - Setting range : 0 ~ 1
		SLOT	USINT	Slot Location Number Area - The slot No. on which A/D conversion module is mounted is written on this area. - Setting range: 0 to 7
		CH	BOOL[4]	Available Channel Specification Area - Available channels are specified in this area. - Enabled channels are specified to 1 and disabled channels are specified to 0.
	Output	DONE	BOOL	Function Block Execution Complete Area - When function block reading is executed with no error, 1 is written and 1 is kept until next execution. When error occurs, 0 is written and operation come to stop
		STAT	USINT	Error Code Display Area - When error occurs during function block reading, the error code number is written. - Error code is referred to Manual 4.3.
		ACT	BOOL[4]	Channel Operation Display Area - The channel specified after executing the function block read with no error is right, 1 is written and, on the non-specified channel, 0 is written
		DATA	INT[4]	A/D Conversion Value Output Area - Output data range : -48 ~ 4047 or -2048 ~ 2047

4.2.3 Module Reading - Single Type : (AD2RD)

Single type of function block for reading the module is performed for only one channel and the specified channel is used to read output variable of data displayed from A/D conversion digital value.

Function block	I/O	Variable	Data type	Descriptions
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> AD2RD REQ DONE BASE STAT SLOT DATA CH </div>	Input	REQ	BOOL	Function Block Execution Request Area - The execution of function block reading is requested in this area. - If input condition is changed from low(0) to high(1), function block initialization for the module is executed.
		BASE	USINT	Base Module Location Number Area - The base No. on which A/D conversion module is mounted is written on this area. - Setting range : 0 ~ 1
		SLOT	USINT	Slot Location Number Area - The slot No. on which A/D conversion module is mounted is written on this area. - Setting range: 0 to 7
		CH	BOOL[4]	Available Channel Specification Area Setting range : 0 ~ 3
	Output	DONE	BOOL	Function Block Execution Complete Area - When function block reading is executed with no error, 1 is written and 1 is kept until next execution. When error occurs, 0 is written and operation come to stop
		STAT	USINT	Error Code Display Area - When error occurs during function block reading, the error code number is written. - Error code is referred to Manual 4.3.
		DATA	INT[4]	A/D Conversion Value Output Area - Output data range : -48 ~ 4047 or -2048 ~ 2047

4.3 Errors on Function Block

This shows errors and resolutions in accordance with them.

STAT No.	Descriptions	Function block			Measures
		Initiali- zation	Read		
			Array type	Single type	
0	Operating with no fault	0	0	0	-
1	The base location number is exceeding the proper setting range	0	0	0	Correct the number in accordance with the proper range
2	H/W error of the base	0	0	0	Contact the service station
3	The slot location number is exceeding the proper setting range	0	0	0	Set the right number to the slot loading the A/D conversion module
4	The A/D conversion module on the slot is empty	0	0	0	Load the A/D conversion module to the specified slot
5	The module loaded isn't the A/D module	0	0	0	Load the A/D conversion module to the specified slot
6	The channel number is exceeding the proper range	-	-	0	Specify the available channel correctly
7	H/W error of the A/D conversion module	0	0	0	Contact the service station
8	The A/D conversion module's shared memory error	0	0	0	Contact the service station
9	The available channels are not specified	-	0	0	Make a correct specification of the available channel on the initialize function block
17	The number of times for average / time value exceeding the proper range	0	-	-	Correct the value to the proper range Setting range : 2 ~255