Chapter 9 Analog function block libraries

9. Analog function block libraries

Describes respective analog function block library

Note

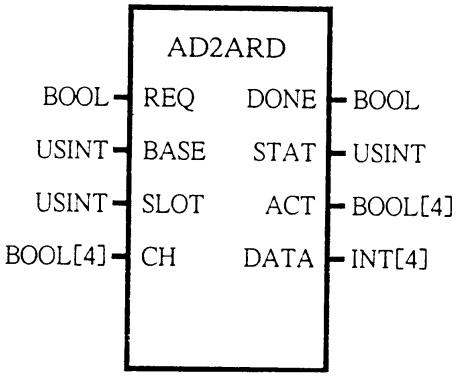
Note 1), Note 2) and Note 3) are described as below.

Content	Description
Note 1)	The element number of array is same to channel(loop) number.
Note 2)	If the function block execution request (REQ) is on, the output variable value changes to new value of every scan and if the function block execution request (REQ) is off, it holds previous value.
Note 3)	1) The element number of array is same to channel(loop) number. 2) If the function block execution request (REQ) is on, the output variable value changes to new value of every scan and if REQ is off, it holds previous value.

AD2ARD

Read G4F-AD2A conversion value(ARRAY type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

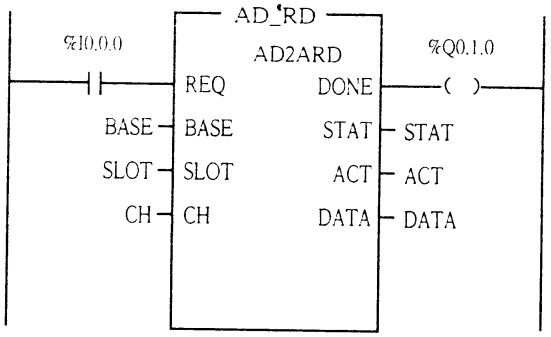
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request BASE : G4F-AD2A module installation base location number SLOT : Slot location number of G4F-AD2A module installation base Note 1) CH : Assign the channel to read A/D conversion data. Assign the respective element value to '1' for channel. **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution. Note 3) ACT : Channel display that read the conversion value after completing the function block. The element value of the channel will be '1'. Note 3) DATA : A/D conversion data. Data range is 0~16000 or -8000~ +8000 according to the module initialization assign.

■ Function

As G4F-AD2A module initialization function block(AD2INI), operate G4F-AD2A module and assign the channel to read A/D conversion data and read A/D conversion data of each channel.

■ Program example

LD



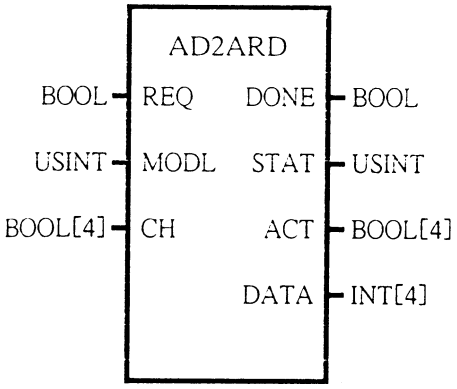
IL

```
CAL   AD2ARD     AD_RD
      REQ : =    %I0.0.0
      BASE : =   BASE
      SLOT : =   SLOT
      CH : =     CH
LD                AD_RD.DONE
ST                %Q0.1.0
LD                AD_RD.STAT
ST                STAT
LD                AD_RD.ACT
ST                ACT
LD                AD_RD.DATA
ST                DATA
```

AD2ARD

Read G5F-AD2A conversion value(ARRAY type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable					●

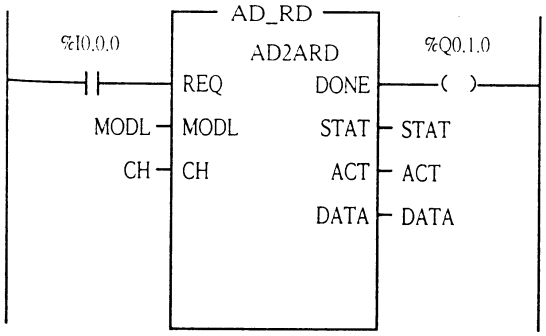
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request MODL : Location number of G5F-AD2A module Note 1) CH : Assign the channel to read A/D conversion data. Assign the respective element value to '1' for channel. **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution. Note 3) ACT : Channel display that read the conversion value after completing the function block. The element value of the channel will be '1'. Note 4) DATA : A/D conversion data. Data range is 0~16000 or -8000~+8000 according to the module initialization assign.

■ Function

As G5F-AD2A module initialization function block(AD2INI), operate G5F-AD2A module and assign the channel to read A/D conversion data and read A/D conversion data of each channel.

■ Program example

LD



IL

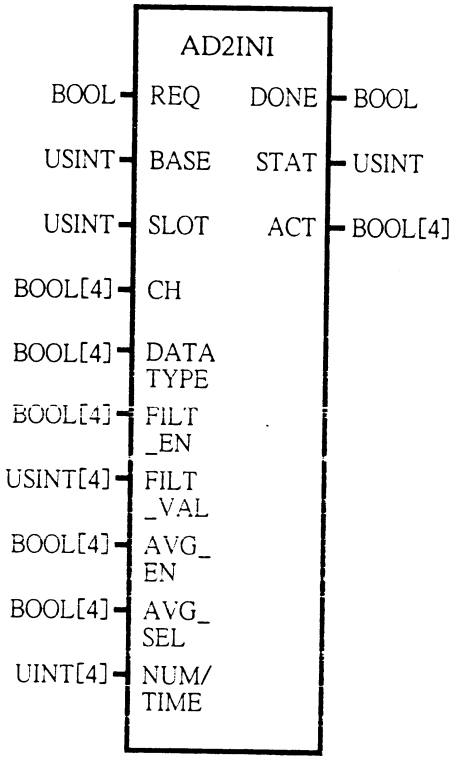
```
CAL   AD2ARD      AD_RD
      REQ :=      %I0.0.0
      MODL :=     MODL
      CH :=       CH
LD                AD_RD.DONE
ST                %Q 0.1.0
LD                AD_RD.STAT
ST                STAT
LD                AD_RD.ACT
ST                ACT
LD                AD_RD.DATA
ST                DATA
```

AD2INI

G4F-AD2A Module initialization

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

Function block



[ ] : Indicate ARRAY variable and number in the parenthesis is the element number.

Description

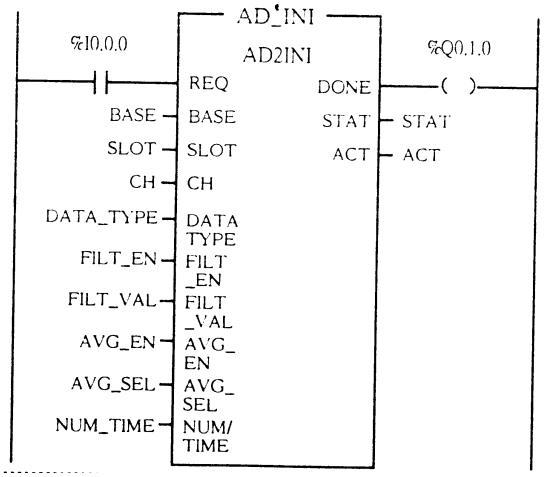
Input	REQ	:	Function block execution request at rising edge
	BASE	:	G4F-AD2A module installation base location umber
	SLOT	:	Slot location number of G4F-AD2A module installation base
Note 1)	CH	:	Assign the channel to be used. Assign the respective element value to '1' for each channel.
Note 1)	DATATYPE:		Assign the range of conversion data for each channel. ('0': 0 ~ 16000, '1': -8000 ~ +8000)
Note 1)	FILT_EN	:	Define the use of digital filter. ('0': Not used. '1': Used)
Note 1)	FILT_VAL	:	Set the filter constant during using the digital filter. Setting range: 1 ~ 99
Note 1)	AVG_EN	:	Define the use of average process. ('0': Not used. '1': Used)
Note 1)	AVG_SEL	:	Define the process method during using the average process. ('0': Number average process. '1': Time verage process)
	NUM/TIME	:	Set the number(Times) or time(mS) according to the process method assigned at AVG_SEL. (Average number range: 2~4000 times) (Average time range: 40~20000 mS)
Output	DONE	:	On if the function block is executed without error and Off if the error occurs or REQ is not generated.
	STAT	:	Error status during the function block execution.
Note 1)	ACT	:	Channel display that initialized after completing the function block. The element value of the initialized channel will be '1'.

■ Function

Set the preset value for each channel and arrange the operation to operate G4F-AD2A module.

■ Program example

LD



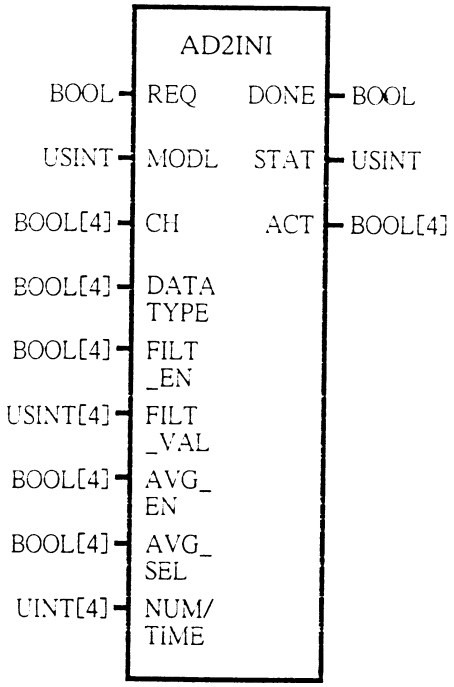
IL

```
CAL   AD2INI          AD_INI
      REQ : =         %I0.0.0
      BASE : =        BASE
      SLOT : =        SLOT
      CH : =          CH
      DATATYPE : =    DATA_TYPE
      FILT_EN : =     FILT_EN
      FILT_VAL : =    FILT_VAL
      AVG_EN : =      AVG_EN
      AVG_SEL : =     AVG_SEL
      NUM/TIME : =    NUM_TIME
LD                    AD_INI.DONE
ST                    %Q 0.1.0
LD                    AD_INI.STAT
ST                    STAT
LD                    AD_INI.ACT
ST                    ACT
```

AD2INI

G5F-AD2A Module initialization

Product	GM1	GM2	GM3	GM4	GM5
Applicable					●

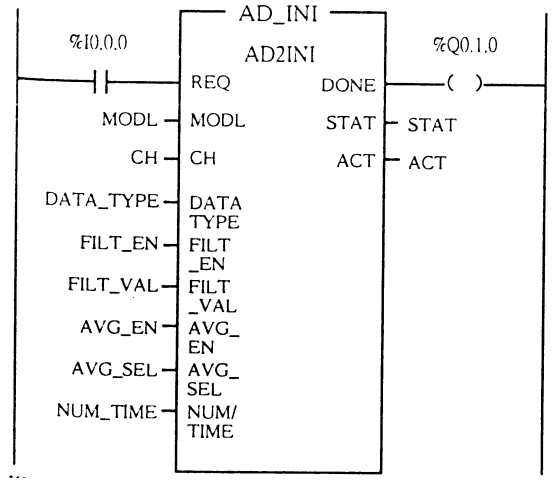
Function block	Description
	**Input** REQ : Function block execution request at rising edge MODL : G5F-AD2A module location number Note 1) CH : Assign the channel to be used. Assign the respective element value to'1' for each channel. Note 1) DATATYPE: Assign the range of conversion data for each channel. ('0': 0 ~ 16000, '1': -8000 ~ +8000) Note 1) FILT_EN : Define the use of digital filter. ('0': Not used. '1': Used) Note 1) FILT_VAL : Set the filter constant during using the digital filter. (Setting range: 1 ~ 99) Note 1) AVG_EN : Define the use of average process. ('0': Not used. '1': Used) Note 1) AVG_SEL : Define the process method during using the average process. ('0': Number average process. '1': Time average process) NUM/TIME : Set the number(Times) or time(mS) according to the process method assigned at AVG_SEL. (Average number range:2~4000 times) (Average time range: 40~20000 mS) **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. STAT : Error status during the function block execution. Note 1) ACT : Channel display that initialized after completing the function block. The element value of the initialized channel will be '1'.
[ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	

■ Function

Set the preset value for each channel and arrange the operation to operate G5F-AD2A module.

■ Program example

LD



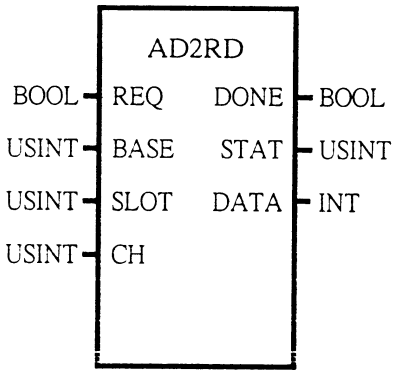
IL

```
CAL   AD2INI          AD_INI
      REQ :=          %I0.0.0
      MODL :=         MODL
      CH :=           CH
      DATATYPE :=     DATA_TYPE
      FILT_EN :=      FILT_EN
      FILT_VAL :=     FILT_VAL
      AVG_EN :=       AVG_EN
      AVG_SEL :=      AVG_SEL
      NUM/TIME :=     NUM_TIME
LD                    AD_INI.DONE
ST                    %Q0.1.0
LD                    AD_INI.STAT
ST                    STAT
LD                    AD_INI.ACT
ST                    ACT
```

AD2RD

Read G4F-AD2A conversion value(Single type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

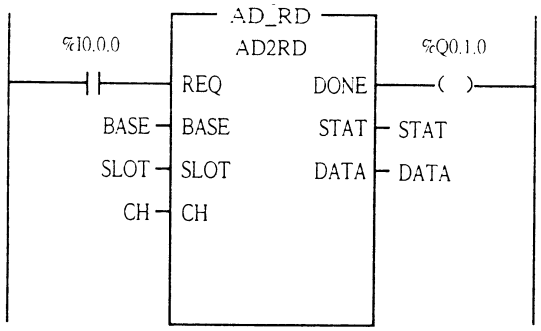
Function block	Description
	**Input** REQ : Function block execution request BASE : G4F-AD2A module installation base location number SLOT : Slot location number of G4F-AD2A module installation base CH : Assign the channel to read A/D conversion data. (Preset range: 0 ~ 3) **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution. Note 2) DATA : A/D conversion data. Data range is 0~16000 or -8000~+8000 according to the module initialization assign.

■ Function

As G4F-AD2A module initialization function block(AD2INI), operate G4F-AD2A module and assign the channel to read A/D conversion data and read A/D conversion data of each channel.

■ Program example

LD



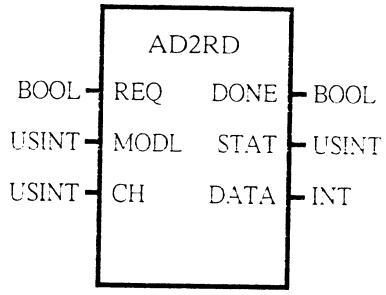
IL

```
CAL   AD2RD      AD_RD
      REQ : =    %I0.0.0
      BASE : =   BASE
      SLOT : =   SLOT
      CH : =     CH
LD                AD_RD.DONE
ST                %Q0.1.0
LD                AD_RD.STAT
ST                STAT
LD                AD_RD.DATA
ST                DATA
```

AD2RD

Read G5F-AD2A conversion value(Single type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable					●

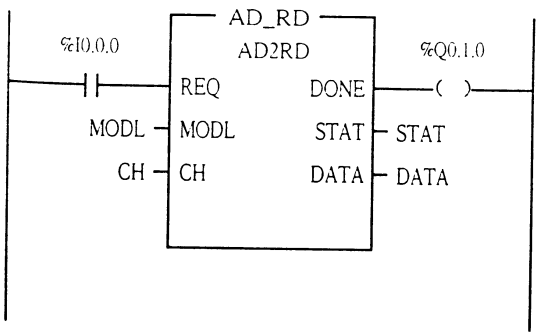
Function block	Description
	**Input** REQ : Function block execution request MODL : G5F-AD2A module location number CH : Assign the channel to read A/D conversion data. (Preset range: 0 ~ 3) **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution. Note 2) DATA : A/D conversion data. Data range is 0~16000 or -8000~+8000 according to the module initialization assign.

■ Function

As G5F-AD2A module initialization function block(AD2INI), operate G5F-AD2A module and assign the channel to read A/D conversion data and read A/D conversion data of each channel.

■ Program example

LD



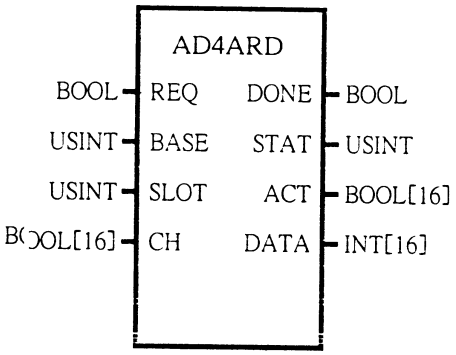
IL

```
CAL   AD2RD      AD_RD
      REQ :=     %I0.0.0
      MODL :=    MODL
      CH :=      CH
LD                AD_RD.DONE
ST                %Q0.1.0
LD                AD_RD.STAT
ST                STAT
LD                AD_RD.DATA
ST                DATA
```

AD4ARD

Read G3F-AD4A conversion value(Array type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

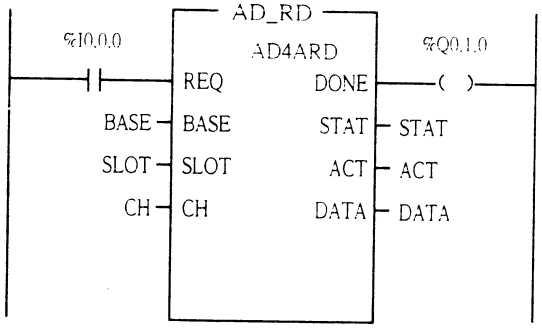
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request BASE : G3F-AD4A module installation base location number SLOT : Slot location number of G3F-AD4A module installation base Note 1) CH : Assign the channel to read A/D conversion data. Assign the respective element value to '1' for channel. **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution. Note 3) ACT : Channel display that read the conversion value after completing the function block. The element value of the channel will be '1'. Note 3) DATA : A/D conversion data. Data range is 0~16000 or -8000~+8000 according to the module initialization assign.

■ Function

As G3F-AD4A module initialization function block(AD4INI), operate G3F-AD4A module and assign the channel to read A/D conversion data and read A/D conversion data of each channel.

■ Program example

LD



IL

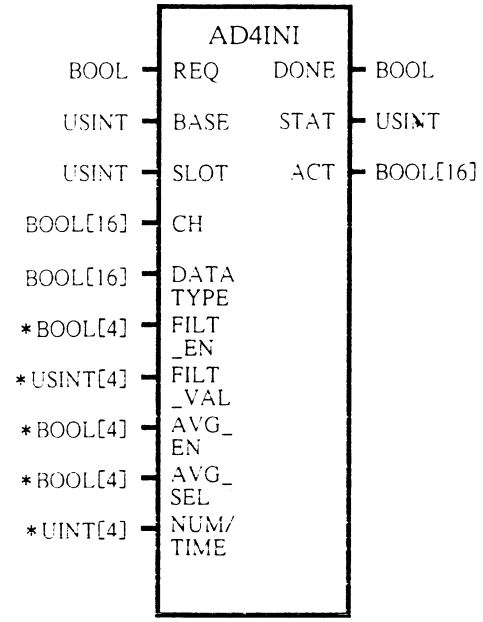
```
CAL   AD4ARD      AD_RD
      REQ :=      %I0.0.0
      BASE :=     BASE
      SLOT :=     SLOT
      CH :=       CH
LD                AD_RD.DONE
ST                %Q0.1.0
LD                AD_RD.STAT
ST                STAT
LD                AD_RD.ACT
ST                ACT
LD                AD_RD.DATA
ST                DATA
```

AD4INI

G3F-AD4A Module initialization

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

Function block



[ ]: Indicate ARRAY variable and number in the parenthesis is the element number.

(Note)* : Element number of array and the channel configuration is as below.

Element Number [0]:
Channel 0,1,2,3 batch assignment

Element Number [1]:
Channel 4,5,6,7 batch assignment

Element Number [2]:
Channel 8,9,10,11 batch assignment

Element Number [3]:
Channel 12,13,14,15 batch assignment

Description

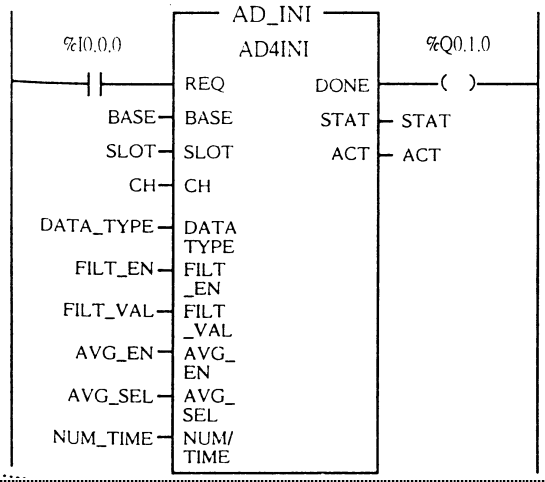
Input	REQ	:	Function block execution request at rising edge
	BASE	:	G3F-AD4A module installation base location number
	SLOT	:	Slot location number of G3F-AD4A module installation base
Note 1)	CH	:	Assign the channel to be used. Assign the respective element value to '1' for channel.
Note 1)	DATATYPE	:	Assign the range of conversion data for each channel. ('0': 0 ~ 16000, '1': -8000 ~ +8000)
	FILT_EN	:	Define the use of digital filter. ('0': Not used. '1': Used)
	FILT_VAL	:	Set the filter constant during using the digital filter. (Setting range: 1 ~ 99) Refer to (Note) for element number of array and channel number configuration.
	AVG_EN	:	Define the use of average process. ('0': Not used. '1': Used) Refer to (Note) for element number of array and channel number configuration.
	AVG_SEL	:	Define the process method during using the average process. ('0': Number average process. '1': Time average process) Refer to (Note) for element number of array and channel number configuration.
	NUM/TIME	:	Set the number(Times) or time(mS) according to the process method assigned at AVG_SEL. (Average number range: 2~4000 times) (Average time range: 96~12000 mS)
Output	DONE	:	On if the function block is executed without error and Off if the error occurs or REQ is not generated.
	STAT	:	Error status during the function block execution.
Note 1)	ACT	:	Channel display that read the conversion value after completing the function block. The element value of the channel will be '1'.

■ Function

Set the preset value for each channel and arrange the operation to operate G3F-AD4A module.

■ Program example

LD



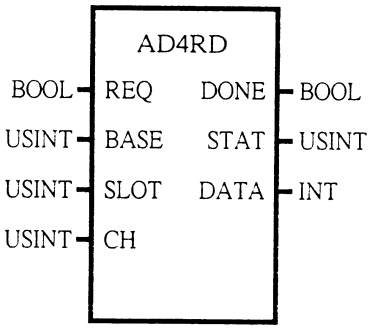
IL

```
CAL   AD4INI          AD_INI
      REQ : =         %I0.0.0
      BASE : =        BASE
      SLOT : =        SLOT
      CH : =          CH
      DATATYPE : =    DATA_TYPE
      FILT_EN : =     FILT_EN
      FILT_VAL : =    FILT_VAL
      AVG_EN : =      AVG_EN
      AVG_SEL : =     AVG_SEL
      NUM/TIME : =    NUM_TIME
LD                    AD_INI.DONE
ST                    %Q0.1.0
LD                    AD_INI.STAT
ST                    STAT
LD                    AD_INI.ACT
ST                    ACT
```

AD4RD

Read G3F-AD4A conversion value(Single type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

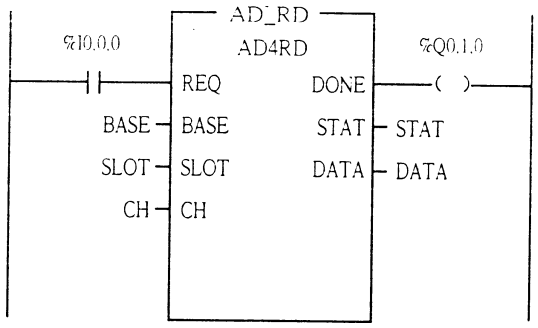
Function block	Description
	**Input** REQ : Function block execution request BASE : G3F-AD4A module installation base location number SLOT : Slot location number of G3F-AD4A module installation base CH : Assign the channel to read A/D conversion data. (Preset range: 0 ~ 15) **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution. Note 2) DATA : A/D conversion data. Data range is 0~16000 or -8000~+8000 according to the module initialization assign.

■ Function

As G3F-AD4A module initialization function block(AD4INI), operate G3F-AD4A module and assign the channel to read A/D conversion data and read A/D conversion data of each channel.

■ Program example

LD



IL

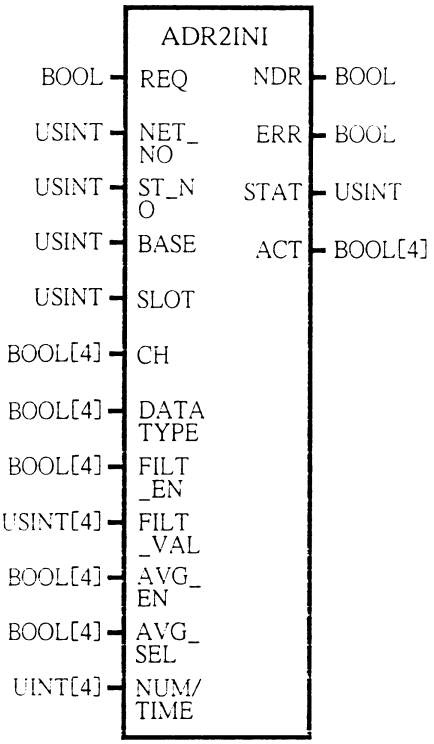
```
CAL   AD4RD      AD_RD
      REQ : =    %I0.0.0
      BASE : =   BASE
      SLOT : =   SLOT
      CH : =     CH
LD                AD_RD.DONE
ST                %Q0.1.0
LD                AD_RD.STAT
ST                STAT
LD                AD_RD.DATA
ST                DATA
```

ADR2INI

G4F-AD2A Module initialization(Remote type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

Function block



[ ] : Indicate ARRAY variable and number in the parenthesis is the element number.

Description

Input	REQ	:	Function block execution request at rising edge
	NET_NO	:	Slot location number(0~7) installed the communication module of local station(G4L-FUEA, G4L-FUOA) to send the function block
	ST_NO	:	Prefix number(0~63) of communication module(G4L-RBEA, G4L-RBOA) installed at remote I/O station
	BASE	:	G4F-AD2A module installation base location number
	SLOT	:	Slot location number of G4F-AD2A module installation base
Note 1)	CH	:	Assign the channel to be used. Set '1' for respective element value for channel setting.
Note 1)	DATATYPE	:	Assign the range of conversion data for each channel. ('0': 0 ~ 16000, '1': -8000 ~ +8000)
Note 1)	FILT_EN	:	Define the use of digital filter. ('0': Not used. '1': Used)
Note 1)	FILT_VAL	:	Set the filter constant during using the digital filter. Setting range: 1 ~ 99
Note 1)	AVG_EN	:	Define the use of average process. ('0': Not used. '1': Used)
Note 1)	AVG_SEL	:	Define the process method during using the average process. ('0': Number average process. '1': Time average process)
	NUM/TIME	:	Set the number(Times) or time(mS) according to the process method assigned at AVG_SEL. (Average number range: 2~4000 times) (Average time range: 40~20000 mS)
Output	NDR	:	On if the function block is executed without error and Off at next SCAN
	ERR	:	On when the error occurs during executing the function block.
	STAT	:	Error status display during the function block execution.
Note 1)	ACT	:	Channel display that read the conversion value after completing the function block. The element value of the channel will be '1'.

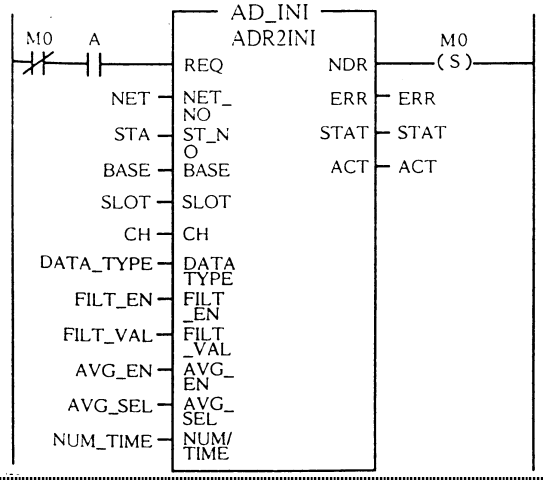
■ Function

Assign the preset value for each channel and arrange the operation to operate G4F-AD2A module installed at Remote.

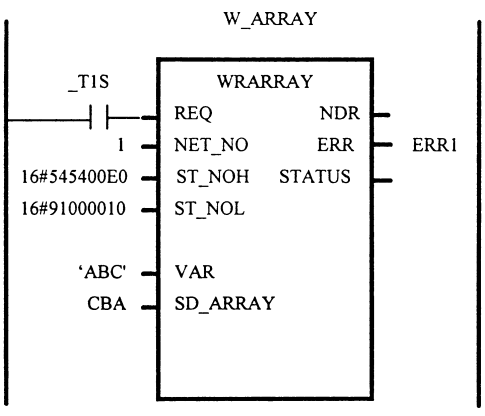
Note The execution request response speed of remote function block(ADR2INI) relates to the remote (communication module) station number(Refer to remote manual). When NDR output of remote function block(ADR2INI) is on, the input preset value is sent to G4F-AD2A module.

■ Program example

LD



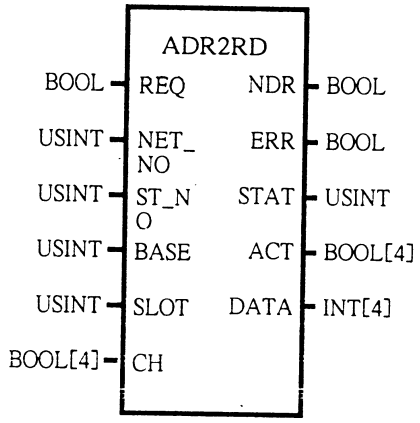
IL



ADR2RD

Read G4F-AD2A conversion value(Remote type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request at rising edge NET_NO : Slot location number(0~7) installed the communication module of local station(G4L-FUEA, G4L-FUOA) to send the function block ST_NO : Prefix number(0~63) of communication module(G4L-RBEA, G4L-RBOA) installed at remote I/O station BASE : G4F-AD2A module installation base location number SLOT : Slot location number of G4F-AD2A module installation base Note 1) CH : Assign the channel to be used. Set '1' for respective element value for channel setting. **Output** NDR : On if the function block is executed without error and Off at next SCAN ERR : On when the error occurs during executing the function block. STAT : Error status display during the function block execution. Note1) ACT : Channel display that read the conversion value after completing the function block. The element value of the channel will be '1'. Note1) DATA : A/D conversion data. Data range is 0~16000 or -8000~+8000 according to the module initialization assign.

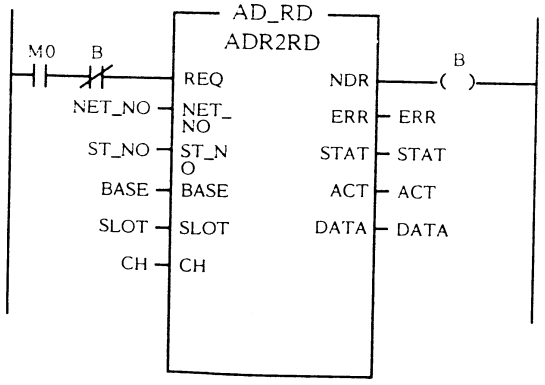
■ Function

Read A/D conversion data of G4F-AD2A module installed at remote.

Note The execution request response speed of remote function block(ADR2RD) relates to the remote (communication module) station number(Refer to remote manual). NDR output contact of remote module initialization function block(ADR2INI) shall be used as REQ input condition when remote function block(ADR2RD) is used.
Output contents(ERR, STAT...) of remote function block(ADR2RD) is changed to new value when NDR output contact(ADR2RD) is on.

■ Program example

LD



IL

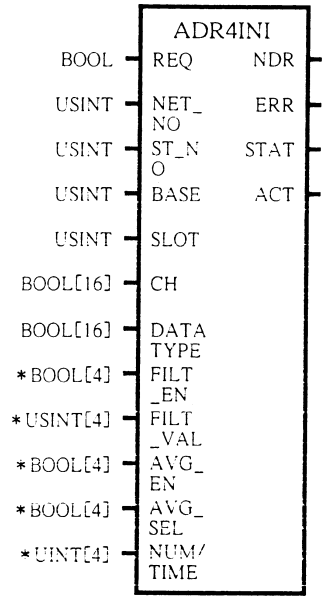
```
LD      M0
ANDN    B
ST      RD_REQ
CAL     AD_RD
        ADR2RD
        REQ := RD_REQ
        NET_NO := NET_NO
        ST_NO := ST_NO
        BASE := BASE
        SLOT := SLOT
        CH := CH
LD      AD_RD.NDR
ST      B
LD      AD_RD.ERR
ST      ERR
LD      AD_RD.STAT
ST      STAT
LD      AD_RD.ACT
ST      ACT
LD      AD_RD.DATA
ST      DATA
```

ADR4INI

G3F-AD4A Module initialization(Remote type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

Function block



[ ] : Indicate ARRAY variable and number in the parenthesis is the element number.

(Note)* : Element number of array and the channel configuration is as below.

Element Number [0]:
Channel 0,1,2,3 batch assignment

Element Number [1]:
Channel 4,5,6,7 batch assignment

Element Number [2]:
Channel 8,9,10,11 batch assignment

Element Number [3]:
Channel 12,13,14,15 batch assignment

Description

Input	REQ	:	Function block execution request at rising edge
	NET_NO	:	Slot location number(0~7) installed the communication module of local station(G3L-FUEA, G3L-FUOA) to send the function block
	ST_NO	:	Prefix number(0~63) of communication module(G3L-RBEA, G3L-RBOA) installed at remote I/O station
	BASE	:	G3F-AD4A module installation base location number
	SLOT	:	Slot location number of G3F-AD4A module installation base
Note 1)	CH	:	Assign the channel to be used. Set '1' for respective element value for channel setting.
Note 1)	DATATYPE	:	Assign the range of conversion data for each channel. ('0': 0 ~ 16000, '1': -8000 ~ +8000)
	FILT_EN	:	Define the use of digital filter. ('0': Not used. '1': Used) Refer to (Note) for element number of array and channel number configuration.
	FILT_VAL	:	Set the filter constant during using the digital filter. (Setting range: 1 ~ 99) Refer to (Note) for element number of array and channel number configuration.
	AVG_EN	:	Define the use of average process. ('0': Not used. '1': Used) Refer to (Note) for element number of array and channel number configuration.
	AVG_SEL	:	Define the process method during using the average process. ('0': Number average process. '1': Time Refer to (Note) for element number of array and channel number configuration.
	NUM/TIME	:	Set the number(Times) or time(mS) according to the process method assigned at AVG_SEL. (Average number range: 2~4000 times) (Average time range: 96~12000 mS)
Output	NDR	:	On if the function block is executed without error and Off at next SCAN
	ERR	:	On when the error occurs during executing the function block.
	STAT	:	Error status display during the function block execution.
Note 1)	ACT	:	Channel display that read the conversion value after completing the function block. The element value of the channel will be '1'.

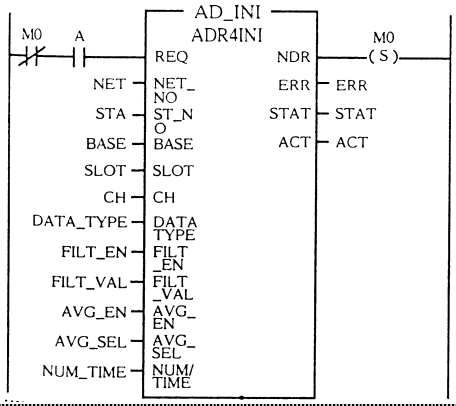
■ Function

Assign the preset value for each channel and arrange the operation to operate G3F-AD4A module installed at Remote.

Note The execution request response speed of remote function block(ADR4INI) relates to the remote(communication module) station number.(Refer to remote manual) When NDR output of remote function block(ADR4INI) is on, the input preset value is input to G3F-AD4A module.

■ Program example

LD



IL

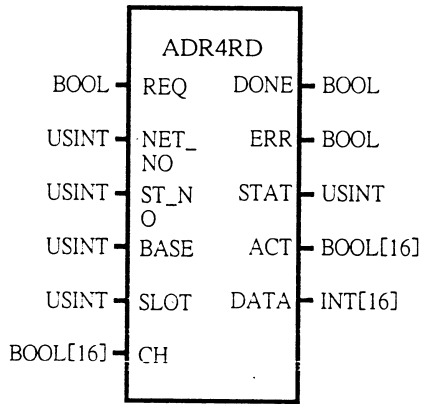
```
LDN   M0
AND   A
ST    INI_REQ
CAL   ADR4INI   AD_INI
      REQ :=    INI_REQ
      NET_NO := NET
      ST_NO :=  STA
      BASE :=   BASE
      SLOT :=   SLOT
      CH :=     CH
      DATATYPE := DATA_TYPE
      FILT_EN :=  FILT_EN
      FILT_VAL := FILT_VAL
      AVG_EN :=   AVG_EN
      AVG_SEL :=  AVG_SEL
      NUM/TIME := NUM_TIME
LD    AD_INI.NDR
S     M0
LD    AD_INI.ERR
ST    ERR
LD    AD_INI.STAT
ST    STAT
LD    AD_INI.ACT
ST    ACT
```

ADR4RD

Read G3F-AD4A conversion value(Remote type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

Function block



[ ] : Indicate ARRAY variable and number in the parenthesis is the element number.

Description

Input	REQ	:	Function block execution request at rising edge
	NET_NO	:	Slot location number(0~7) installed the communication module of local station(G3L-FUEA, G3L-FUOA) to send the function block
	SET_NO	:	Prefix number(0~63) of communication module (G3L - RBEA, G3L-RBOA) installed at remote I/O station
	BASE	:	G3F-AD4A module installation base location number
	SLOT	:	Slot location number of G3F-AD4A module installation base
Note 1)	CH	:	Assign the channel to be used. Set'1' for respective element value for channel setting.
Output	NDR	:	On if the function block is executed without error and Off at next SCAN
	ERR	:	On when the error occurs during executing the function block.
	STAT	:	Error status display during the function block execution.
Note 1)	ACT	:	Channel display that read the conversion value after completing the function block. The element value of the channel will be '1'.
Note 1)	DATA	:	A/D conversion data. Data range is 0~16000 or -8000~+8000 according to the module initialization assign.

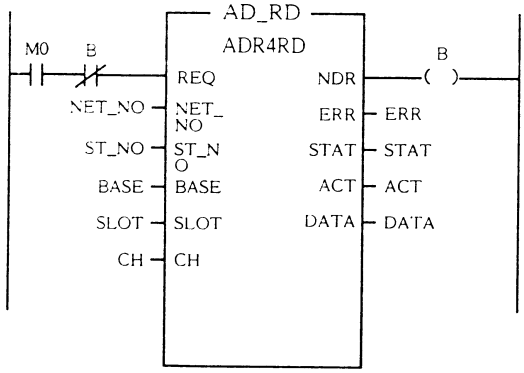
■ Function

Read A/D conversion data of G3F-AD4A module installed at remote.

Note The execution request response speed of remote function block(ADR4RD) relates to the remote(communication module) station number(Refer to remote manual). NDR output contact of remote module initialization function block(ADR4INI) shall be used as REQ input condition when remote function block(ADR4RD) is used.
Output contents(ERR, STAT...) of remote function block(ADR4RD) is changed to new value when NDR output contact(ADR4RD) is on.

■ Program example

LD



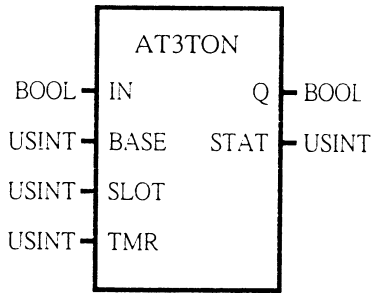
IL

```
LD      M0
ANDN    B
ST      RD_REQ
CAL     ADR4RD  AD_RD
        REQ :=  RD_REQ
        NET_NO := NET_NO
        ST_NO := ST_NO
        BASE := BASE
        SLOT := SLOT
        CH :=   CH
LD      AD_RD.NDR
ST      B
LD      AD_RD.ERR
ST      ERR
LD      AD_RD.STAT
ST      STAT
LD      AD_RD.ACT
ST      ACT
LD      AD_RD.DATA
ST      DATA
```

AT3TON

G4F-AT3A Timer driving

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

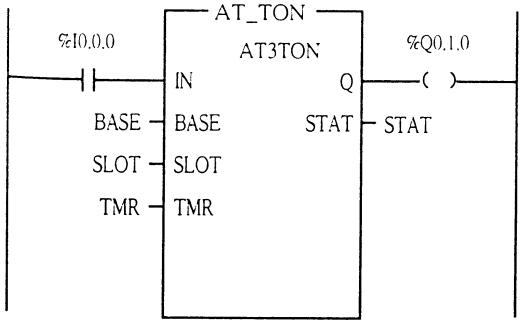
Function block	Description
	**Input** IN : Timer driving contact BASE : G4F-AT3A module installation base location number SLOT : Slot location number of G4F-AT3A module installation base TMR : Timer number to be drived(0~7) **Output** Q : Operation contact of the timer (ON delay operation) STAT : Error status display during the function block execution.

■ Function

Drive each timer installed at G4F-AT3A module.

■ Program example

LD



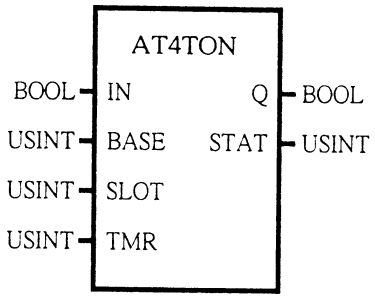
IL

```
CAL   AT3TON      AT_TON
      IN : =      %I0.0.0
      BASE : =    BASE
      SLOT : =    SLOT
      TMR : =     TMR
LD                AT_TON.Q
ST                %Q0.1.0
LD                AT_TON.STAT
ST                STAT
```

AT4TON

G3F-AT4A Module Timer driving

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

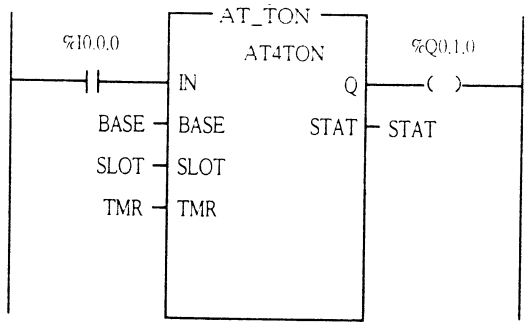
Function block	Description
	**Input** IN : Timer driving contact BASE : G3F-AT4A module installation base location number SLOT : Slot location number of G3F-AT4A module installation base TMR : Timer number to be drived(0~15) **Output** Q : Operation contact of the timer(ON delay operation) STAT : Error status display during the function block execution.

■ Function

Drive each timer installed at G3F-AT4A module.

■ Program example

LD



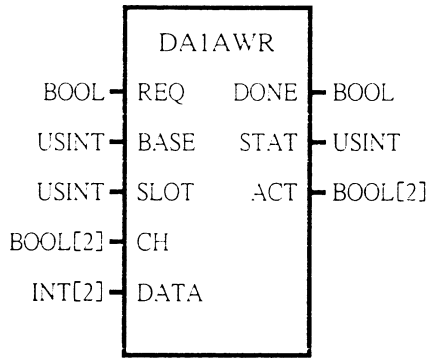
IL

```
CAL   AT4TON     AT_TON
      IN : =     %I0.0.0
      BASE : =   BASE
      SLOT : =   SLOT
      TMR : =    TMR
LD                AT_TON.Q
ST                %Q0.1.0
LD                AT_TON.STAT
ST                STAT
```

DA1AWR

G4F-DA1A Input Data write(Array type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

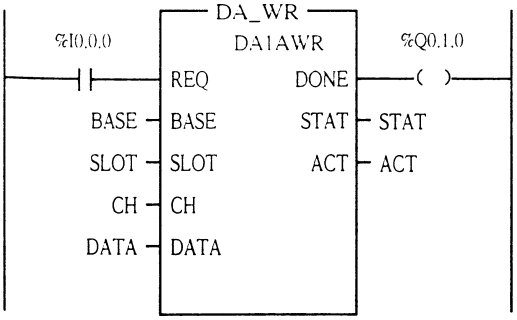
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request BASE : G4F-DA1A module installation base location number SLOT : Slot location number of G4F-DA1A module installation base Note1) CH : Assign the channel to write input data. Assign '1' of respective element value for channel assignment. Note 1) DATA : Input data of each channel Input range is 0~16000 or -8000~+8000 according to the module initialization assign. **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note2) STAT : Error status during the function block execution. Note3) ACT : Channel display that write the data after completing the function block. The element value of the channel will be '1'.

■ Function

As G4F-DA1A module initialization function block(DA1INI), operate G4F-DA1A module and assign the channel to write D/A conversion data and write D/A conversion data of each channel.

■ Program example

LD



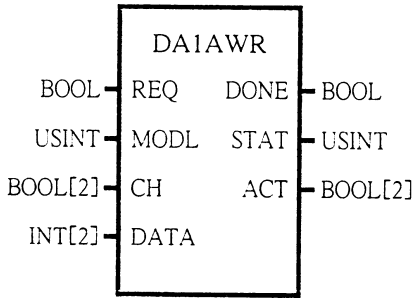
IL

```
CAL   DA1AWR    DA_WR
      REQ :=    %I0.0.0
      BASE :=   BASE
      SLOT :=   SLOT
      CH :=     CH
      DATA :=   DATA
LD              DA_WR.DONE
ST              %Q0.1.0
LD              DA_WR.STAT
ST              STAT
LD              DA_WR.ACT
ST              ACT
```

DA1AWR

G5F-DA1A Input Data write(Array type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable					●

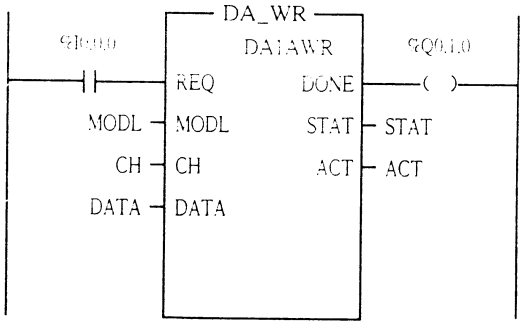
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request MODL : G5F-DA1A module location number Note 1) CH : Assign the channel to write input data. Assign '1' of respective element value for channel assignment. Note 1) DATA : Input data of each channel Input range is 0~16000 or -8000~+8000 according to the module initialization assign. **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution. Note 3) ACT : Channel display that write the data after completing the function block. The element value of the channel will be '1'.

■ Function

As G5F-DA1A module initialization function block(DA1INI), operate G5F-DA1A module and assign the channel to write D/A conversion data and write D/A conversion data of each channel.

■ Program example

LD



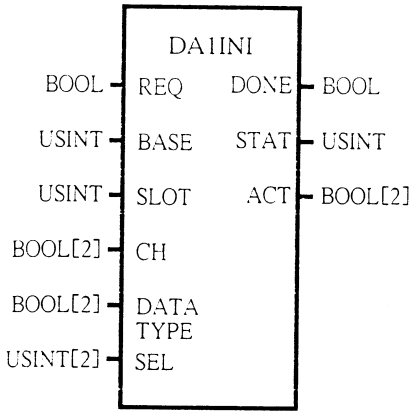
IL

```
CAL   DA1AWR      DA_WR
      REQ` : =    %I0.0.0
      MODL : =    MODL
      CH : =      CH
      DATA : =    DATA
LD                DA_WR.DONE
ST                %Q0.1.0
LD                DA_WR.STAT
ST                STAT
LD                DA_WR.ACT
ST                ACT
```

DA1INI

G4F-DA1A module initialization

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

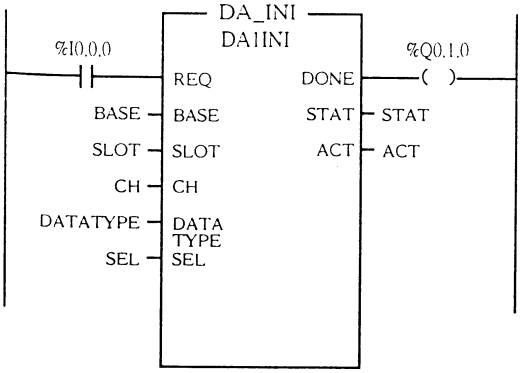
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request at rising edge BASE : G4F-DA1A module installation base location number SLOT : Slot location number of G4F-DA1A module installation base Note 1) CH : Assign the channel to write input data. Assign '1' of respective element value for channel assignment. Note 1) DATATYPE: Assign input data range of each channel ('0': 0~16000, '1': -8000 ~ +8000) Note 1) SEL : Select the output value when the channel is not used or GM4-CPUA is stop. ('00': Intermediate value output of output range) ('01': Previous value output) ('02': Max. value output of output range) ('03': Min. value output of output range) **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. STAT : Error status display during the function block execution. Note 1) ACT : Channel display that initialized after completing the function block. The element value of the channel will be '1'.

■ Function

Arrange the operation by assigning each channel and the preset value(DATATYPE, SEL) for each channel to operate G4F-DA1A module.

■ Program example

LD



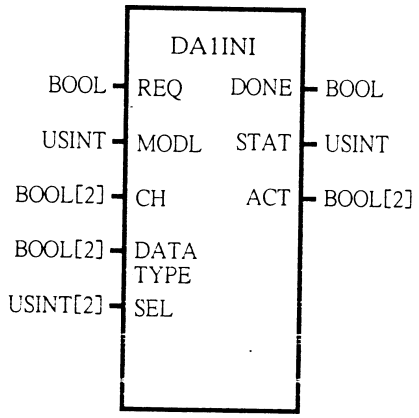
IL

```
CAL   DA1INI          DA_INI
      REQ :=          %I0.0.0
      BASE :=         BASE
      SLOT :=         SLOT
      CH :=           CH
      DATATYPE :=     DATATYPE
      SEL :=          SEL
LD                    DA_INI.DONE
ST                    %Q0.1.0
LD                    DA_INI.STAT
ST                    STAT
LD                    DA_INI.ACT
ST                    ACT
```

DA1INI

G5F-DA1A module initialization

Product	GM1	GM2	GM3	GM4	GM5
Applicable					●

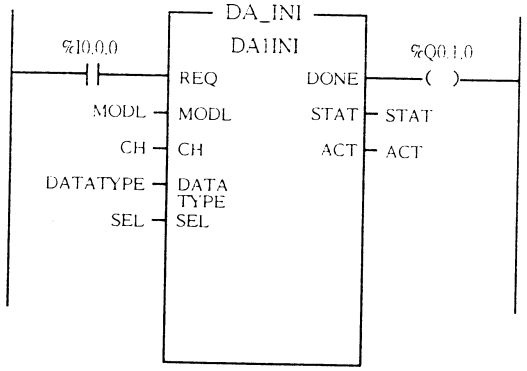
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request at rising edge MODL : G5F-DA1A module location number Note 1) CH : Assign the channel to write input data. Assign '1' of respective element value for channel assignment. Note 1) DATATYPE : Assign input data range of each channel ('0': 0~16000, '1': -8000 ~ +8000) Note 1) SEL : Select the output value when the channel is not used or GM5-CPUA is stop. ('00': Intermediate value output of output range) ('01': Previous value output) ('02': Max. value output of output range) ('03': Min. value output of output range) **Output** DONE : On if the function block is executed without error and holds on till next function block execution is requested. However, Off if the error occurs during executing the function block. STAT : Error status display during the function block execution. Note 3) ACT : Channel display that initialized after completing the function block. The element value of the channel will be '1'.

■ Function

Arrange the operation by assigning each channel and the preset value(DATATYPE, SEL) for each channel to operate G5F-DA1A module.

■ Program example

LD



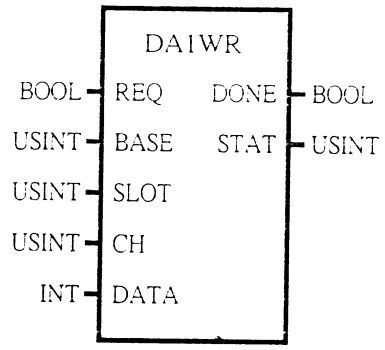
IL

```
CAL   DA1INI          DA_INI
      REQ : =         %I0.0.0
      MODL : =        MODL
      CH : =          CH
      DATATYPE : =    DATATYPE
      SEL : =         SEL
LD                    DA_INI.DONE
ST                    %Q0.1.0
LD                    DA_INI.STAT
ST                    STAT
LD                    DA_INI.ACT
ST                    ACT
```

DA1WR

G4F-DA1A Input Data write(Single type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

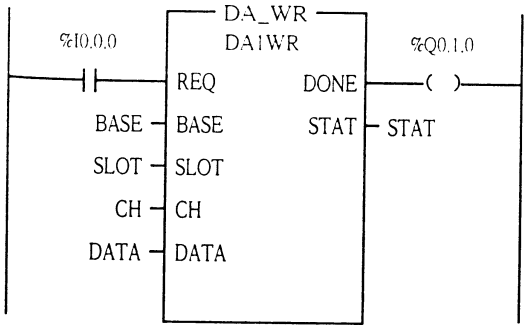
Function block	Description
	**Input** REQ : Function block execution request BASE : G4F-DA1A module installation base location number SLOT : Slot location number of G4F-DA1A module installation base CH : Assign the channel to write input data. DATA : Input data of respective channel Input range is 0~16000 or -8000~+8000 according to the module initialization assign. **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution.

■ Function

As G4F-DA1A module initialization function block(DA1INI), operate G4F-DA1A module and assign the channel to write D/A conversion data and write D/A conversion data of respective channel.

■ Program example

LD



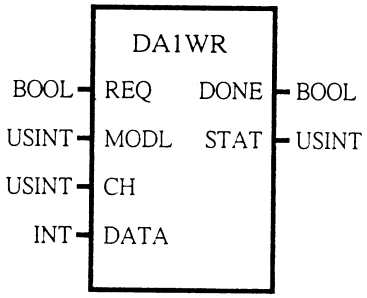
IL

```
CAL   DA1WR      DA_WR
      REQ : =    %I0.0.0
      BASE : =   BASE
      SLOT : =   SLOT
      CH : =     CH
      DATA : =   DATA
LD                DA_WR.DONE
ST                %Q0.1.0
LD                DA_WR.STAT
ST                STAT
```

DA1WR

G5F-DA1A Input Data write(Single type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable					●

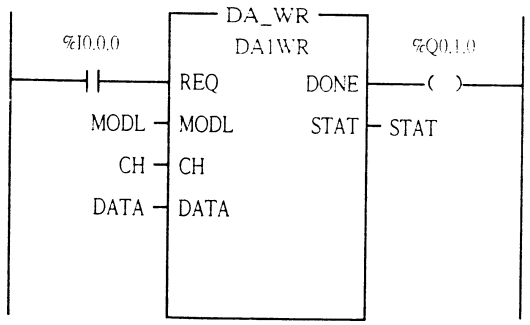
Function block	Description
	**Input** REQ : Function block execution request MODL : G5F-DA1A module location number CH : Assign the channel number to write input data. DATA : Input data of respective channel Input range is 0~16000 or -8000~+8000 according the module initialization assign. **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated Note 2) STAT : Error status during the function block execution.

■ Function

As G5F-DA1A module initialization function block(DA1INI), operate G5F-DA1A module and assign the channel to write D/A conversion data and write D/A conversion data of respective channel.

■ Program example

LD



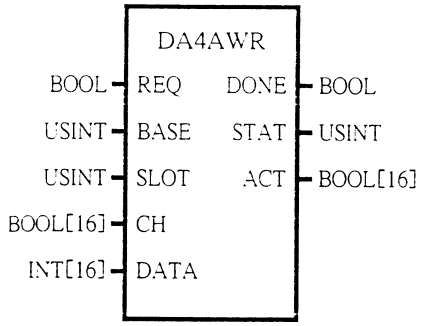
IL

```
CAL   DA1WR      DA_WR
      REQ : =    %I0.0.0
      MODL : =   MODL
      CH : =     CH
      DATA : =   DATA
LD                DA_WR.DONE
ST                %Q0.1.0
LD                DA_WR.STAT
ST                STAT
```

DA4AWR

G3F-DA4V, G3F-DA4I module input data write(Array type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

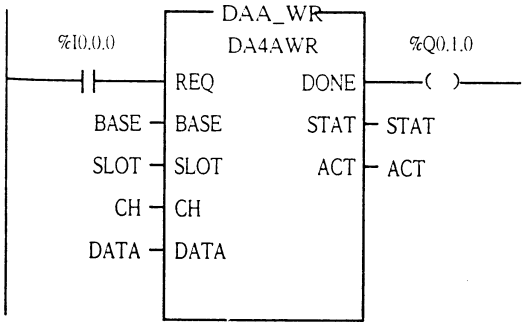
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request BASE : G3F-DA4V or G3F-DA4I module installation base location number SLOT : Slot location number of G3F-DA4V or G3F-DA4I module installation base Note 1) CH : Assign the channel to write input data. Assign '1' of respective element value for channel assignment. Note 1) DATA : Input data of each channel. Input range is 0~16000 or –8000~8000 according to the module initialization assign. **Output** DONE : On if the function block is executed without error and holds on till next function block execution is requested. However, Off if the error occurs during executing the function block. Note2) STAT : Error status display during the function block execution. Note 3) ACT : Channel display that write the data after completing the function block. The element value of the channel will be '1'.

■ Function

As G3F-DA4V or G3F-DA4I module initialization function block(DA4INI), operate G3F-DA4V or G3F-DA4I module and assign the channel to write D/A conversion data and write D/A conversion data of each channel.

■ Program example

LD



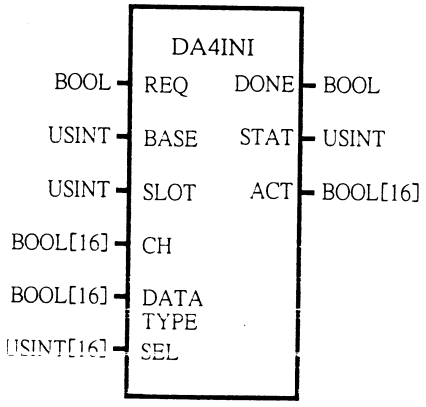
IL

```
CAL   DA4AWR    DAA_WR
      REQ : =   %I0.0.0
      BASE : =  BASE
      SLOT : =  SLOT
      CH : =    CH
      DATA : =  DATA
LD              DAA_WR.DONE
ST              %Q0.1.0
LD              DAA_WR.STAT
ST              STAT
LD              DAA_WR.ACT
ST              ACT
```

DA4INI

G3F-DA4V, G3F-DA4I module initialization

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

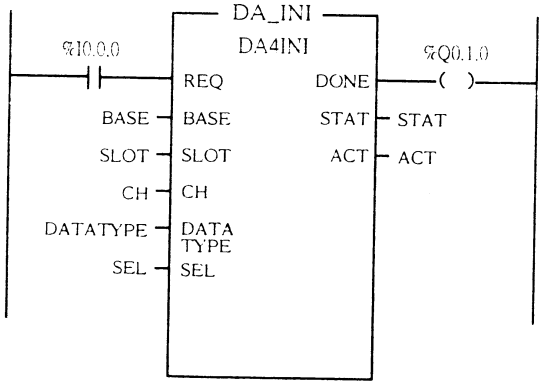
Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request at rising edge BASE : G3F-DA4V or G3F-DA4I module installation base location number SLOT : Slot location number of G3F-DA4V or G3F-DA4I module installation base Note 1) CH : Assign the channel to be used. Assign '1' of respective element value for channel assignment. Note 1) DATATYPE: Assign input data range of each channel ('0': 0~16000, '1': -8000 ~ +8000) Note 1) SEL : Select the output value when the channel is not used or G3F-CPUA is at stop status. ('00': Intermediate value output of output range) ('01': Previous value output) ('02': Max. value output of output range) ('03': Min. value output of output range) **Output** DONE : On if the function block is executed without error and holds on till next function block execution is requested. However, Off if the error occurs during executing the function block. STAT : Error status display during the function block execution. Note 3) ACT : Channel display that write the data after completing the function block. The element value of the channel will be '1'.

■ Function

Assign each channel for each channel to operate G3F-DA4V or G3F-DA4I module.

■ Program example

LD



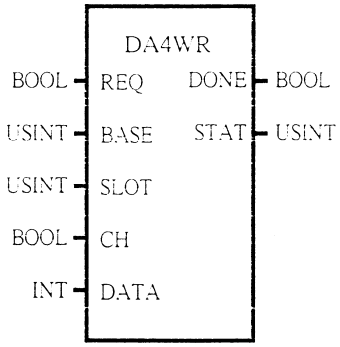
IL

```
CAL   DA4INI      DA_INI
      REQ :=      %I0.0.0
      BASE :=     BASE
      SLOT :=     SLOT
      CH :=       CH
      DATATYPE := DATATYPE
      SEL :=      SEL
LD                DA_INI.DONE
ST                %Q0.1.0
LD                DA_INI.STAT
ST                STAT
LD                DA_INI.ACT
ST                ACT
```

DA4WR

G3F-DA4V, G3F-DA4I Input Data write(Single type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

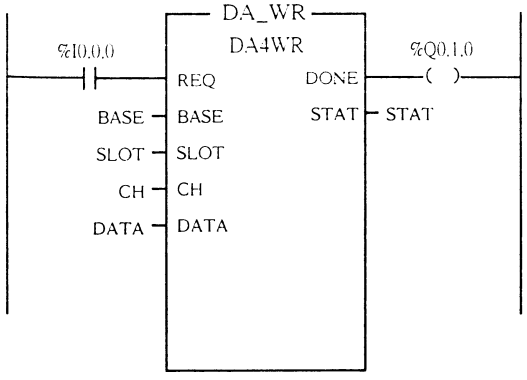
Function block	Description
	**Input** REQ : Function block execution request BASE : G3F-DA4V or G3F-DA4I module installation base location number SLOT : Slot location number of G3F-DA4V or G3F-DA4I module installation base CH : Assign the channel number to write input data DATA : Input data of respective channel Input range is 0~16000 or -8000~+8000 according to the module initialization assign. **Output** DONE : On if the function block is executed without error and Off if the error occurs or REQ is not generated. Note 2) STAT : Error status during the function block execution.
[ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	

■ Function

As G3F-DA4V or G3F-DA4I module initialization function block(DA4INI), operate G3F-DA4V or D3F-DA4I module and assign the channel to write D/A conversion data and write D/A conversion data of respective channel.

■ Program example

LD



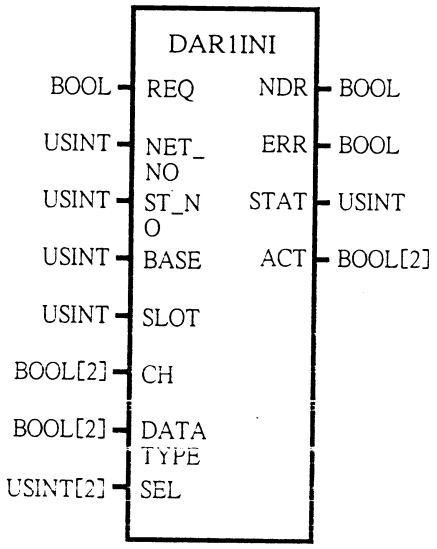
IL

```
CAL   DA4WR      DA_WR
      REQ :=     %I0.0.0
      BASE :=    BASE
      SLOT :=    SLOT
      CH :=      CH
      DATA :=    DATA
LD                DA_WR.DONE
ST                %Q0.1.0
LD                DA_WR.STAT
ST                STAT
```

DAR1INI

G4F-DA1A module initialization(Remote type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request at rising edge NET_NO : Slot location number(0~7) installed the communication module of local station(G4L-FUEA, G4L-FUOA) to send the function block SET_NO : Prefix number(0~63) of communication module(G4L-RBEA, G4L-RBOA) installed at remote I/O station BASE : G4F-DA1A module installation base location number SLOT : Slot location number of G4F-DA1A module installation base Note 1) CH : Assign the channel to be used. Assign '1' of respective element value for channel assignment. Note 1) DATATYPE: Assign input data range of each channel ('0': 0~16000, '1': -8000 ~ +8000) Note 1) SEL : Select the output value when the channel is not used or maid body is at stop status. ('00': Intermediate value output of output range) ('01': Previous value output) ('02': Max. value output of output range) ('03': Min. value output of output range) **Output** NDR : On if the function block is executed without error and Off at next SCAN ERR : On when the error occurs during executing the function block. STAT : Error status display during the function block execution. Note 1) ACT : Channel display that initialized after completing the function block. The element value of the channel will be '1'.

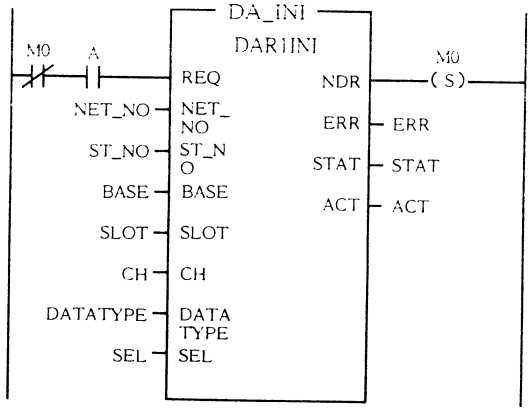
■ Function

Assign each channel and preset value(DATATYPE, SEL) for each channel to operate G4F-DA1A module installed at Remote.

Note The execution request response speed of remote function block(DAR1INI) relates to the remote station number(Refer to remote manual). When NDR output of remote function block(DAR1INI) is on, the input preset value is input to G4F-DA1A module.

■ Program example

LD



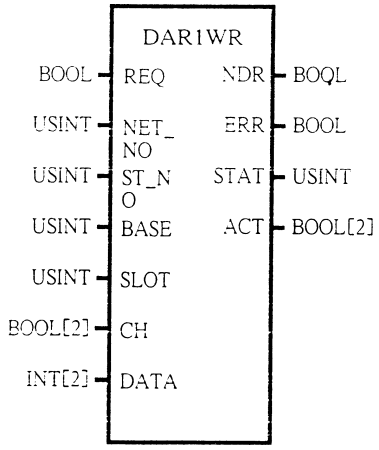
IL

```
LDN   M0
AND   A
ST    INI_REQ
CAL   DAR1INI   DA_INI
      REQ :=    INI_REQ
      NET_NO := NET_NO
      ST_NO :=  ST_NO
      BASE :=   BASE
      SLOT :=   SLOT
      CH :=     CH
      DATATYPE := DATATYPE
      SEL :=    SEL
LD    DA_INI.NDR
S     M0
LD    DA_INI.ERR
ST    ERR
LD    DA_INI.STAT
ST    STAT
LD    DA_INI.ACT
ST    ACT
```

DAR1WR

G4F-DA1A Input Data write(Remote type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable				●	

Function block	Description
 [ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	**Input** REQ : Function block execution request at rising edge NET_NO : Slot location number(0~7) installed the communication module of local station(G4L-FUEA, G4L-FUOA) to send the function block ST_NO : Prefix number(0~63) of communication module(G4L-RBEA, G4L-RBOA) installed at remote I/O station BASE : G4F-DA1A module installation base location number SLOT : Slot location number of G4F-DA1A module installation base Note 1) CH : Assign the channel to write input data Assign '1' of respective element value for channel assignment. Note 1) DATA : Input data of each channel Input range is 0 ~ 16000 or -8000 ~ +8000 according to module initialization assignment. **Output** NDR : On if the function block is executed without error and Off at SCAN ERR : On when the error occurs during executing the function block. STAT : Error status display during the function block execution. Note 1) ACT : Channel display that write the data after completing the function block. The element value of the channel will be '1'.

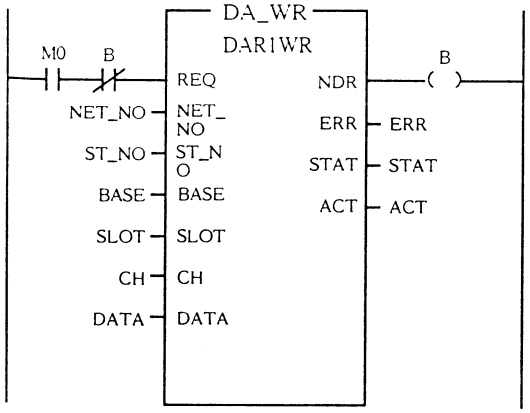
■ Function

As G4F-DA1A module initialization function block(DAR1INI) installed at remote, operate G4F-DA1A module and assign the channel to write D/A conversion data and write D/A conversion data of respective channel.

Note The execution request response speed of remote function block(DAR1WR) relates to the remote station number(Refer to remote manual). When remote function block(DAR1WR) is used, NDR contact among DAR1INI output shall be used for REQ input condition. The output contents(ERR, STAT...) of remote function block(DAR1WR) is changed to new value when NDR contact is on.

■ Program example

LD



IL

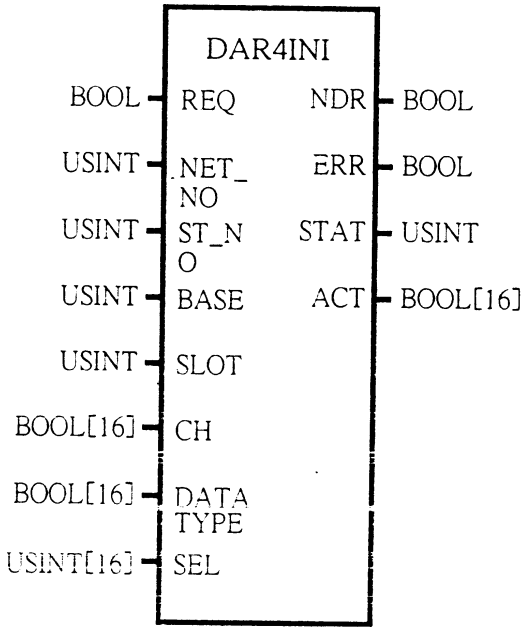
```
LD      M0
ANDN    B
ST      WR_REQ
CAL     DAR1WR      DA_WR
        REQ :=      WR_REQ
        NET_NO :=   NET_NO
        ST_NO :=    ST_NO
        BASE :=     BASE
        SLOT :=     SLOT
        CH :=       CH
        DATA :=     DATA
LD                  DA_WR.NDR
ST                  B
LD                  DA_WR.ERR
ST                  ERR
LD                  DA_WR.STAT
ST                  STAT
LD                  DA_WR.ACT
ST                  ACT
```

DAR4INI

G3F-DA4V, G3F-DA4I module initialization(Remote type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

Function block



[ ] : Indicate ARRAY variable and number in the parenthesis is the element number.

Description

Input	REQ	:	Function block execution request at rising edge
	NET_NO	:	Slot location number(0~7) installed the communication module of local station(G3L-FBEA, G3L-FBOA) to send the function block
	ST_NO	:	Prefix number(0~63) of communication module(G3L-RBEA, G4L-RBOA) installed at remote I/O station
	BASE	:	G3F-DA4V or G3F-DA4I module installation base location number
	SLOT	:	Slot location number of G3F-DA4V or G3F-DA4I module installation base
Note 1)	CH	:	Assign the channel to be used Assign '1' of respective element value for channel assignment.
Note 1)	DATATYPE:Assign input data range of each channel ('0': 0~16000, '1': -8000 ~ +8000)		
Note 1)	SEL	:	Select the output value when the channel is not used or GM5 main body is at STOP status. ('00': Intermediate value output of output range) ('01': Previous value output) ('02': Max. value output of output range) ('03': Min. value output of output range)
Output	NDR	:	On if the function block is executed without error and Off at next scan.
	ERR	:	On when the error occurs during executing the function block.
	STAT	:	Error status display during the function block execution.
Note 1)	ACT	:	Display the channel which was initiated after completing the function block. The element value of the channel will be '1'.

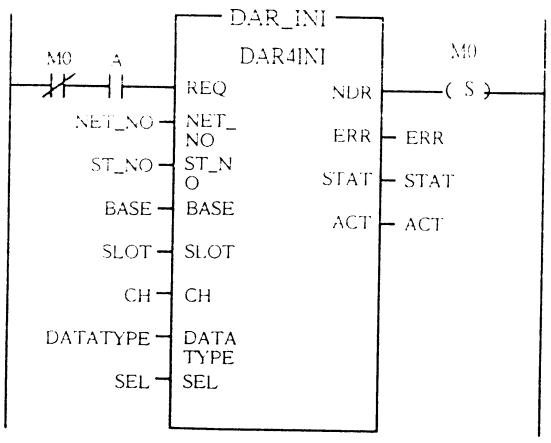
■ Function

Assign each channel to operate G3F-DA4V or G3F-DA4I module installed at Remote.

Note The execution request response speed of remote function block(DAR4INI) relates to the remote station number(Refer to remote manual). When NDR output of remote function block(DAR4INI) is on, input preset value is input to G3F-DA4V and G3F-DA4I module.

■ Program example

LD



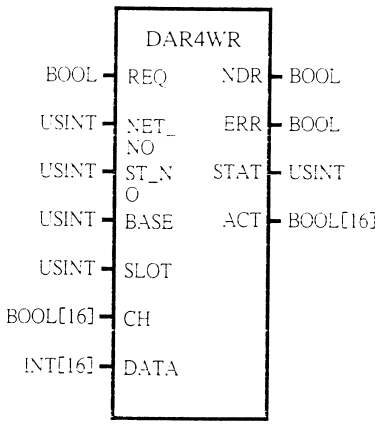
IL

```
LDN     M0
AND     A
ST      INI_REQ
CAL     DAR4INI     DAR_INI
        REQ :=      INI_REQ
        NET_NO :=   NET_NO
        ST_NO :=    ST_NO
        BASE :=     BASE
        SLOT :=     SLOT
        CH :=       CH
        DATATYPE := DATA TYPE
        SEL :=      SEL
LD      DAR_INI.NDR
S       M0
LD      DAR_INI.ERR
ST      ERR
LD      DAR_INI.STAT
ST      STAT
LD      DAR_INI.ACT
ST      ACT
```

DAR4WR

G3F-DA4V, G3F-DA4I Input Data write(Remote type)

Product	GM1	GM2	GM3	GM4	GM5
Applicable	●	●	●		

Function block	Description
	**Input** REQ : Function block execution request NET_NO : Slot location number(0~7) installed the communication module of local station(G3L-FUEA, G3L-FUOA) to send the function block ST_NO : Prefix number(0~63) of communication module(G3L -RBEA, G4L-RBOA) installed at remote I/O station BASE : G3F-DA4V or G3F-DA4I module installation base location number SLOT : Slot location number of G3F-DA4V or G3F-DA4I module installation base Note 1) CH : Assign the channel to write input data Assign '1' of respective element value for channel assignment. Note 1) DATA : Input data of each channel Input range is 0 ~ 16000 or -8000 ~ +8000 according to module initialization assignment. **Output** NDR : On if the function block is executed without error and Off at next SCAN ERR : On when the error occurs during executing the function block. STAT : Error status display during the function block execution. Note 1) ACT : Channel display that write the data after completing the function block. The element value of the channel will be '1'.
[ ] : Indicate ARRAY variable and number in the parenthesis is the element number.	

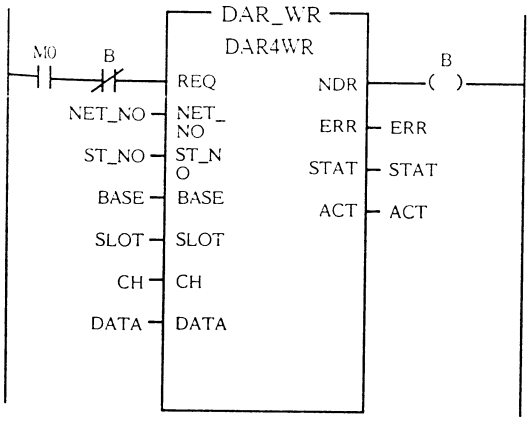
■ Function

As G3F-DA4V or G3F-DA4I module initialization function block installed at Remote, operate G3F-DA4V or G3F-DA4I module and assign the channel to write D/A conversion data and write D/A conversion data of respective channel.

Note The execution request response speed of remote function block(DAR4WR) relates to the remote station number(Refer to remote manual). When remote function block(DAR4WR) is used, NDR contact among DAR4INI output shall be used for REQ input condition. The output contents(ERR, STAT...) of remote function block(DAR4WR) is changed to new value when NDR contact is on.

■ Program example

LD



IL

```
LD      M0
ANDN    B
ST      WR_REQ
CAL     DAR4WR      DAR_WR
        REQ :=      %I0.0.0
        NET_NO :=   NET_NO
        ST_NO :=    ST_NO
        BASE :=     BASE
        SLOT :=     SLOT
        CH :=       CH
        DATA :=     DATA
LD      DAR_INI.NDR
ST      B
LD      DAR_INI.ERR
ST      ERR
LD      DAR_INI.STAT
ST      STAT
LD      DAR_INI.ACT
ST      ACT
```