

Chapter 5. PROGRAMMING

5.1 Programming for Distinction of A/D Conversion Value

1) System Configuration

| | | | |
|----------|----------|----------|----------|
| GM6-PAFB | GM6-CPUA | G6F-AD2A | G6Q-RY2A |
|----------|----------|----------|----------|

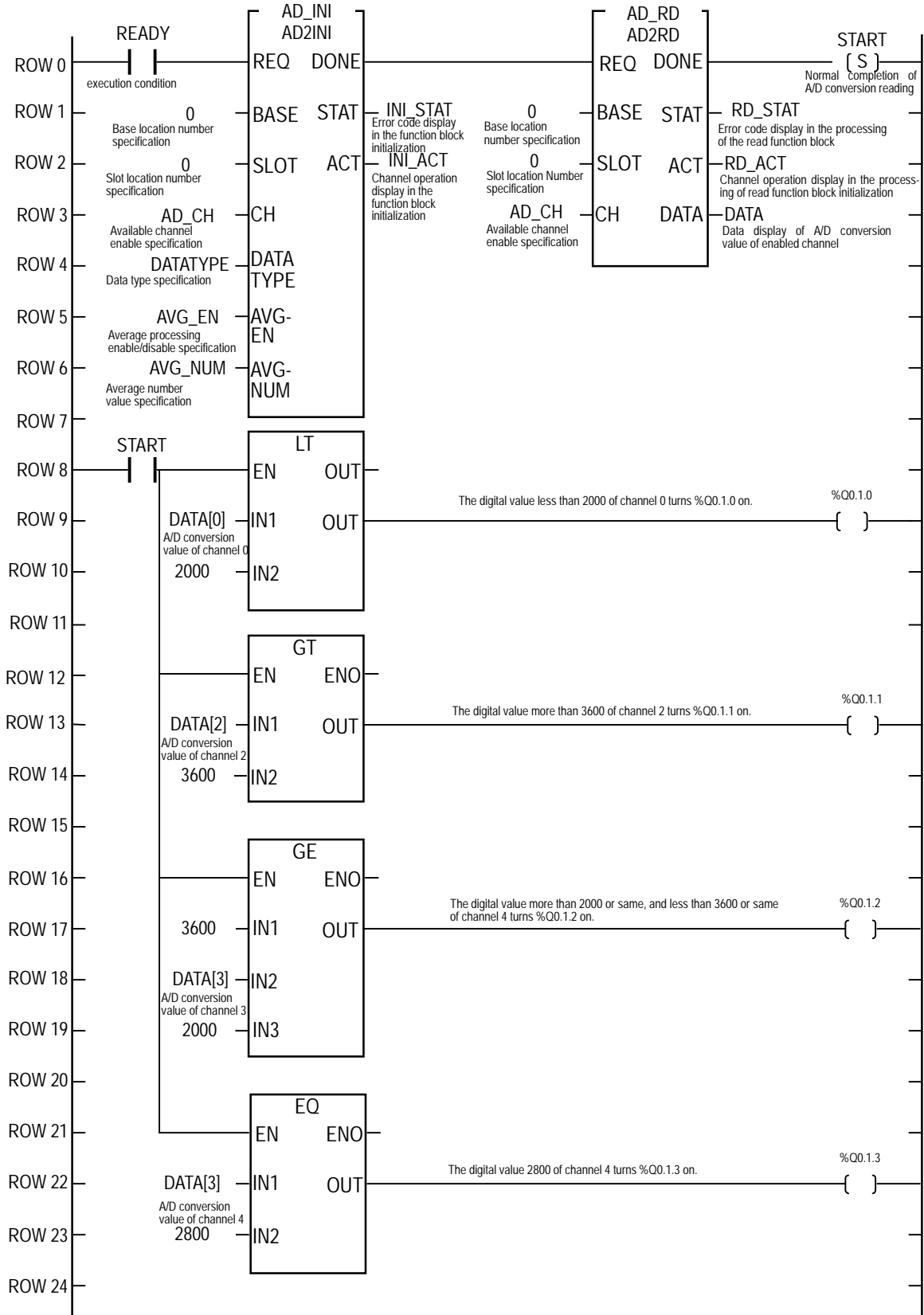
2) Initial Settings

- (1) Available channel enable : channel 0, 2, 3
- (2) Analog input : current input(DC4 ~ 20 mA)
- (3) Average processing setting : channel 2(100 times), channel 3(50 times)

3) Descriptions of the Program

- (1) The digital value less than 2,000 of channel 0 turns %Q0.1.0 on.
- (2) The digital value more than 3,600 of channel 2 turns %Q0.1.1 on.
- (3) The digital value more than 2,000 or same, and less than 3,600 or same of channel 3 turns %Q0.1.2 on.
- (4) The digital value of the same as 2,800 of channel 3 turns %Q0.1.3 on.

4) Programming Example



5) Specifying initial value of input/output variables on the program.(Specifying channels)

The image shows three sequential dialog boxes used for configuring an array variable:

- Add/Edit Variables:** Shows the configuration for variable `AD_CH`. The `Variable Kind` is set to `VAR`. Under `Data Type`, the `Array (0.. 3) OF` option is selected, indicating an array of 4 channels. The `Initial Value` field is empty. The `Memory Allocation` section has `Auto` selected. An arrow points to the array definition with the text "This denotes 4 channels".
- Initialize Array:** Shows the initialization options for the array `AD_CH : ARRAY [0..3] OF BOOL`. The `Initialize` radio button is selected. Below, a table shows the channel numbers and their corresponding initial values:

| | |
|-----|---|
| [0] | 0 |
| [1] | 0 |
| [2] | 0 |
| [3] | 0 |

 An arrow points to the channel numbers with the text "Channel No.".
- Initialize Array Element:** Shows the configuration for a specific array element, `AD_CH[0]`. The `Initial Value` is set to `0`. The `Prev Item` and `Next Item` buttons are visible. An arrow points to the `Next Item` button with the text "To select next Ch.". Another arrow points to the `Next Item` button with the text "To select previous Ch.". A third arrow points to the `Initial Value` field with the text "To specify channel enable/disable".

Additional annotations include:

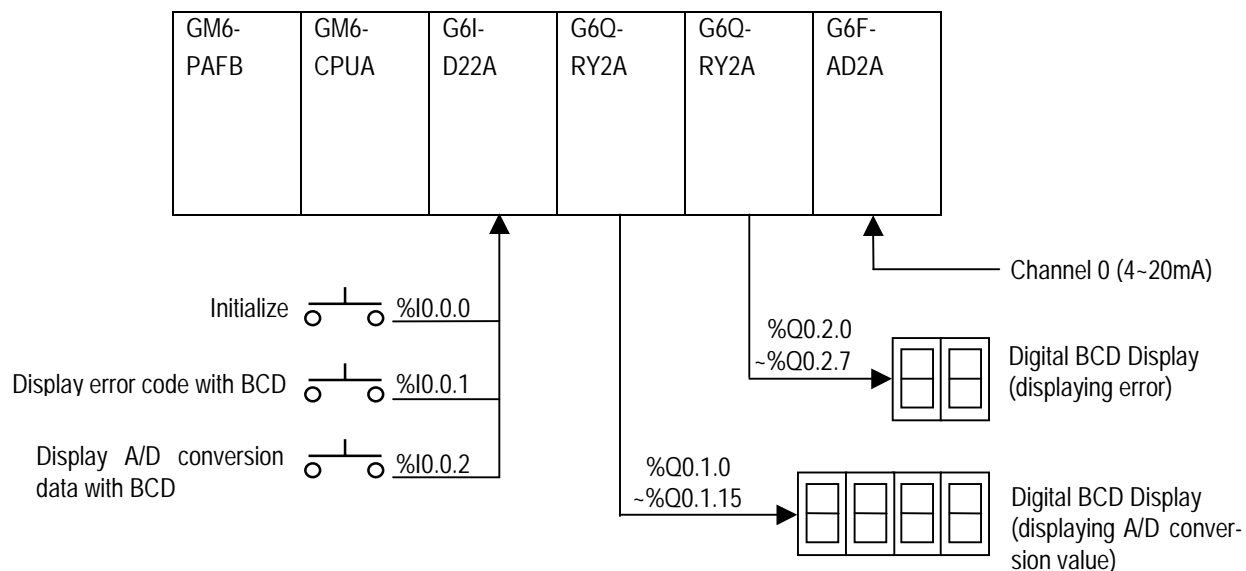
- An arrow pointing to the `Init. Array...` button in the first dialog with the text "Select this and this screen appears".
- An arrow pointing to the `Close` button in the second dialog with the text "Select this and this screen appears".

6) Input/output variables on Programming

| Variable Name | Var_Kind | Data Type | (AT Address) (Initial Value) |
|---------------|----------|-------------------------|-----------------------------------|
| AD_CH | : VAR | : ARRAY [0..3] OF BOOL | : = { 1,0,1,1 } |
| AD_INI | : VAR | : FB instance | |
| AD_RD | : VAR | : FB instance | |
| AVG_EN | : VAR | : ARRAY [0..3] OF BOOL | : = { 0,1,0,1 } |
| AVG_NUM | : VAR | : ARRAY [0..3] OF USINT | : = { 0,0,100,50 } |
| DATA | : VAR | : ARRAY [0..3] OF INT | |
| DATATYPE | : VAR | : ARRAY [0..3] OF BOOL | : = { 0,0,0,0,0,0,0,0,0,0,0,0,0 } |
| INI_ACT | : VAR | : ARRAY [0..3] OF BOOL | |
| INI_STAT | : VAR | : USINT | |
| RD_ACT | : VAR | : ARRAY [0..3] OF BOOL | |
| RD_STAT | : VAR | : USINT | |
| READY | : VAR | : BOOL | |
| START | : VAR | : BOOL | |

5.2 Programming for Display of A/D Conversion Value and Error Code on BCD Display

1) System Configuration



2) Initial Settings

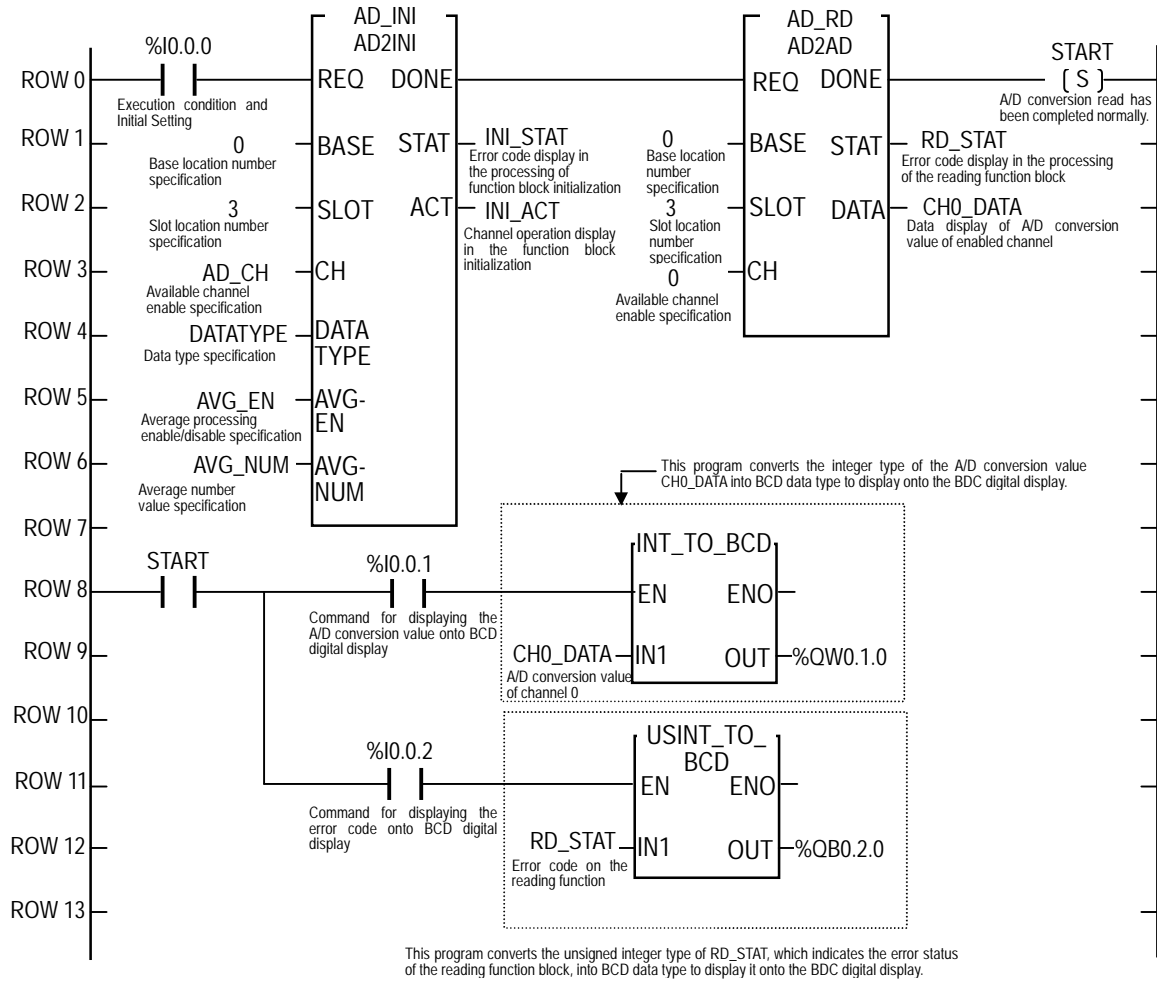
- (1) Available channel enabled : channel 0,
- (2) Analog input : current input(DC 4 to 20 mA)
- (3) Average processing setting : 10 times

3) Descriptions of the Program

- (1) %I0.0.0 turning On leads to the initial setting of A/D conversion module.
- (2) %I0.0.1 turning On leads to displaying A/D conversion value on the BCD display.(%Q0.1.0 to %Q0.1.15)
- (3) %I0.0.2 turning On leads to displaying error code of function block on the BCD display, (%Q0.2.0 to %Q0.2.7)

Chapter 2. PROGRAMMING

4) Programming



5) Input/output variables on the programming

| Variable Name | Var_Kind | Data Type | (AT Address) (Initial Value) |
|---------------|----------|------------------------|------------------------------|
| AD_CH | : VAR | : ARRAY [0..3] OF BOOL | := {1,0,0,0} |
| AD_INI | : VAR | : FB Instance | |
| AD_RD | : VAR | : FB Instance | |
| AVG_EN | : VAR | : ARRAY [0..3] OF BOOL | := {1,0,0,0} |
| CH0_DATA | : VAR | : INT | |
| DATA | : VAR | : DINT | |
| DATATYPE | : VAR | : ARRAY [0..3] OF BOOL | := {0,0,0,0} |
| INI_ACT | : VAR | : ARRAY [0..3] OF BOOL | |
| INI_STAT | : VAR | : USINT | |
| NUM_TIME | : VAR | : ARRAY [0..3] OF UINT | := {100,0,0,0} |
| RD_STAT | : VAR | : USINT | |
| START | : VAR | : BOOL | |