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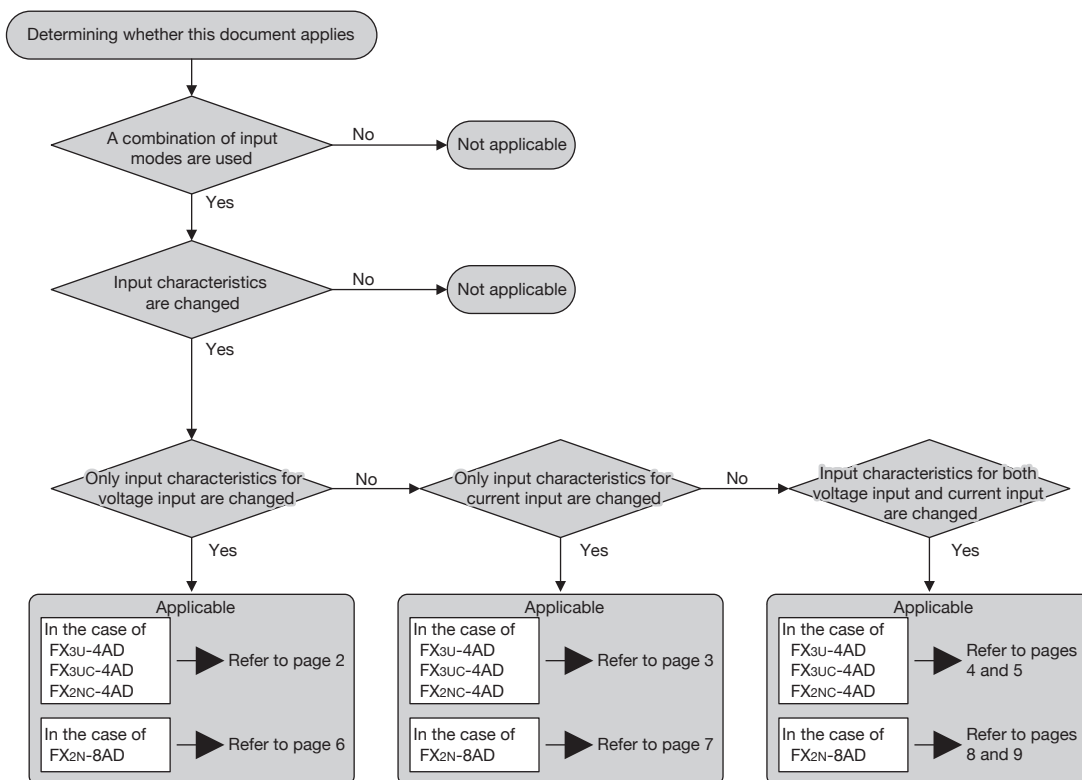
[Title] Cautions on changing the input characteristics for analog input special function blocks
FX3U-4AD, FX3UC-4AD, FX2NC-4AD, and FX2N-8AD

[Date of Issue] Dec. 2014 (Ver. B: Nov. 2015)

[Relevant Models] MELSEC-F series

Some precautions must be taken when changing the input characteristics for FX3U-4AD, FX3UC-4AD, FX2NC-4AD, or FX2N-8AD. Please change the settings by following the procedure below. However, products for which input characteristics were changed and are already being used may continue to be used without any changes, as long as those input characteristics are not changed.

Refer to the flowchart below to determine whether this document applies.



1. Cautions for FX3U-4AD, FX3UC-4AD and FX2NC-4AD

1.1 When changing the input characteristics of only voltage input mode

Initialize the module by setting BFM#20=K1 and change the input characteristics by following the procedure below.

<Step 1> Set the input mode (BFM#0) of all channels to voltage input mode.

(Ex.) BFM#0=H□□□□ (□: Input mode 0 to 2)

<Step 2> Change the voltage input mode input characteristics.

<Step 3> Change the input mode (BFM#0) of channels for current input to current input mode.

(Ex.) If using ch2 for current input

BFM#0=H□□■□ (■: Input mode 3 to 8)

Program example

Example for ch1, 3, 4 voltage input, ch2 current input (BFM#0=H0030) and changing ch1 input characteristics.

Execute this program only when changing the input characteristics.

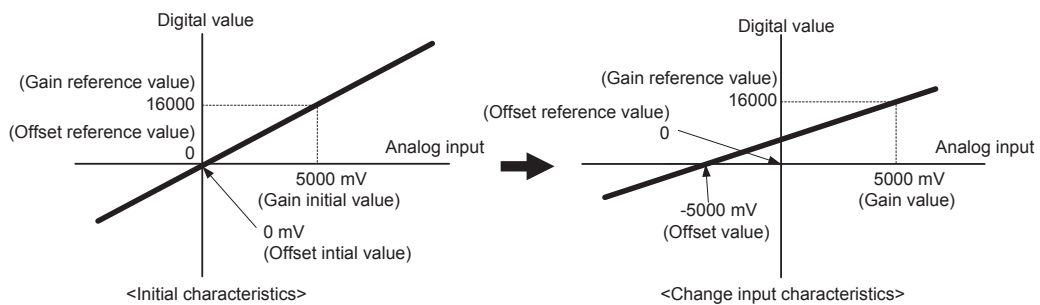
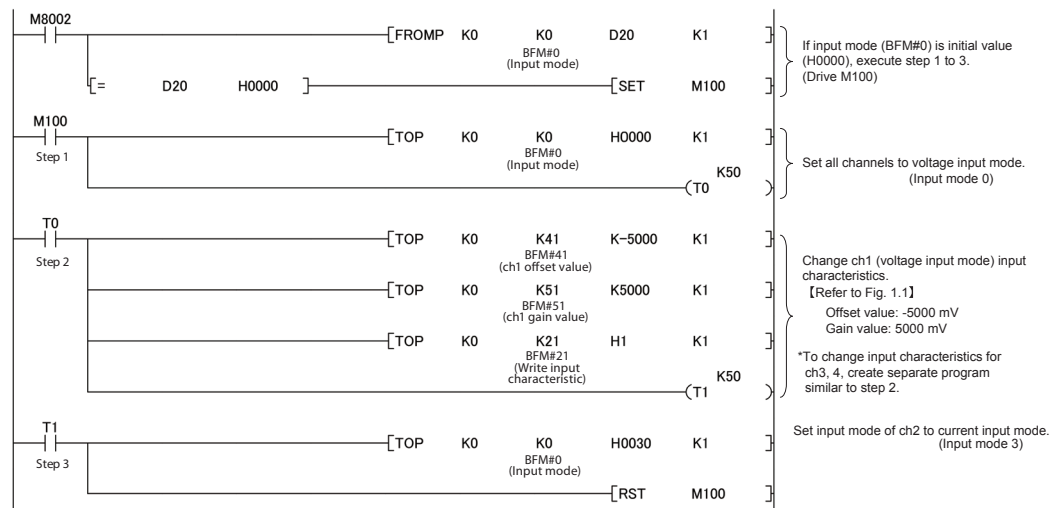


Fig. 1.1 : Example, changing voltage input mode (ch1) input characteristics

For input mode setting, method for changing input characteristics, refer to the following manual.

→FX3U-4AD, FX3UC-4AD: Refer to FX3U/FX3UC series User's Manual - Analog Control Edition

→FX2NC-4AD: Refer to the boxed manual.

1.2 When changing the input characteristics of only current input mode

Initialize the module by setting BFM#20=K1 and change the input characteristics by following the procedure below.

- <Step 1> Set the input mode (BFM#0) of all channels to current input mode.
(Ex.) BFM#0=H■■■■ (■: Input mode 3 to 8)
- <Step 2> Change the current input mode input characteristics.
- <Step 3> Change the input mode (BFM#0) of channels for voltage input to voltage input mode.
(Ex.) If using ch2 for voltage input
BFM#0=H■■□■ (□: Input mode 0 to 2)

Program example

Example for ch2 voltage input, ch1, 3, 4 current input (BFM#0: H3303) and changing ch1 input characteristics.

Execute this program only when changing the input characteristics.

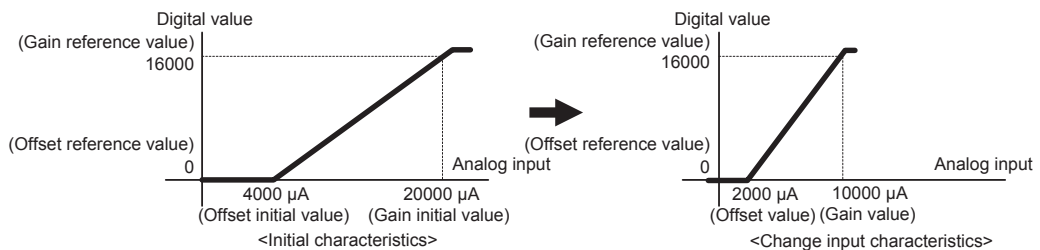
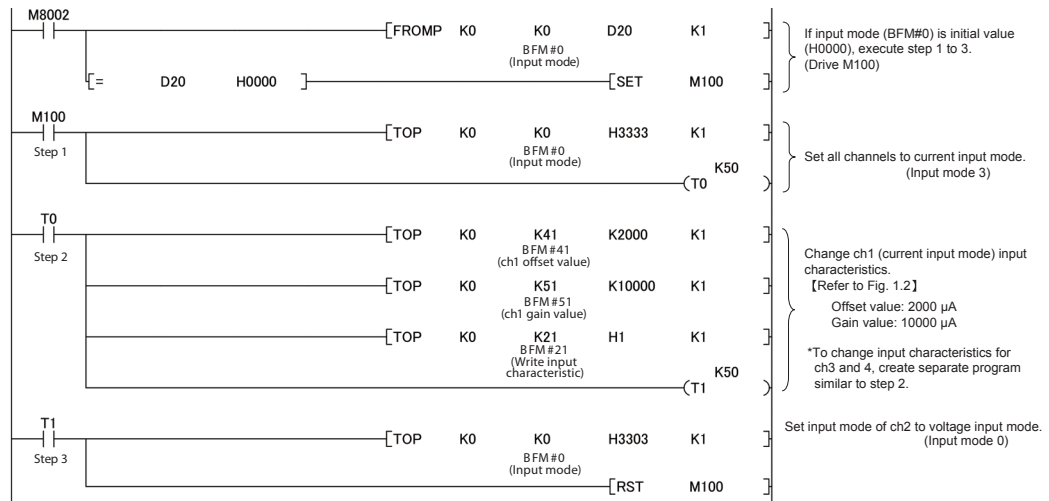


Fig. 1.2 : Example, change current input mode (ch1) input characteristics

For input mode setting, method for changing input characteristics, refer to the following manual.

→FX3U-4AD, FX3UC-4AD: Refer to FX3U/FX3UC series User's Manual - Analog Control Edition

→FX2NC-4AD: Refer to the boxed manual.

1.3 When changing the input characteristics of both voltage input mode and current input mode

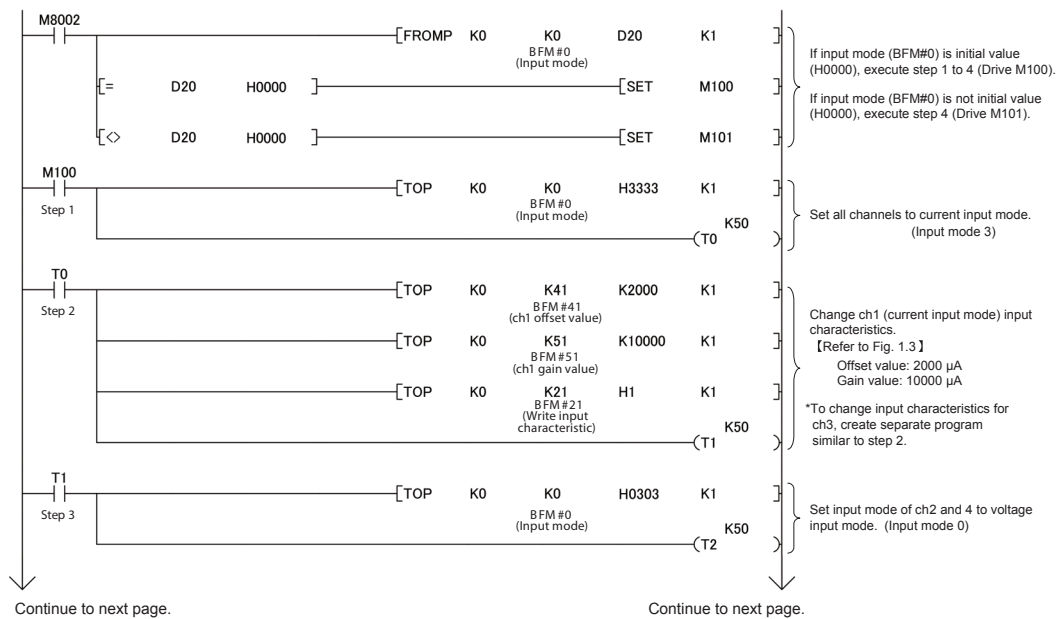
Initialize the module by setting BFM#20=K1 and change the input characteristics by following the procedure below.
 Change the input characteristics for current input mode and then voltage input mode, in that order as below.

- <Step 1> Set the input mode (BFM#0) of all channels to current input mode.
 (Ex.) BFM#0=H■■■■■ (■: Input mode 3 to 8)
- <Step 2> Change the current input mode input characteristics.
- <Step 3> Change the input mode (BFM#0) of channels for voltage input to voltage input mode.
 (Ex.) If using ch2, 4 for voltage input
 BFM#0=H□■■■ (□: Input mode 0 to 2)
- <Step 4> Digital values of channels in voltage input mode are obtained by changing the input characteristics as in the program below.
 Digital values of channels in current input mode can be read directly from BFM.

Program example

Example for ch2, 4 voltage input, ch1, 3 current input (BFM#0=H0303) and changing ch1, ch2 input characteristics.

Execute the program for steps 1 to 3 only when changing the input characteristics. (When M101 is driven, only step 4 is executed.)



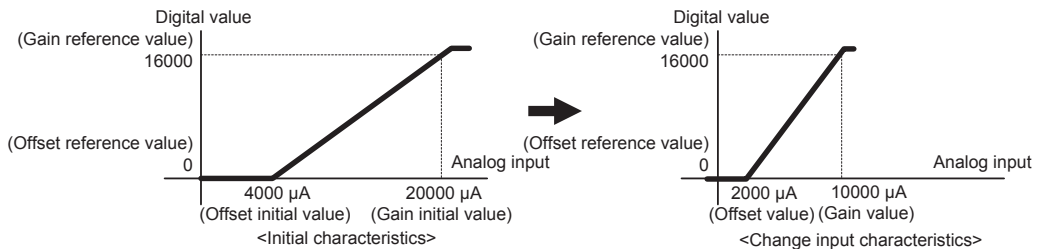
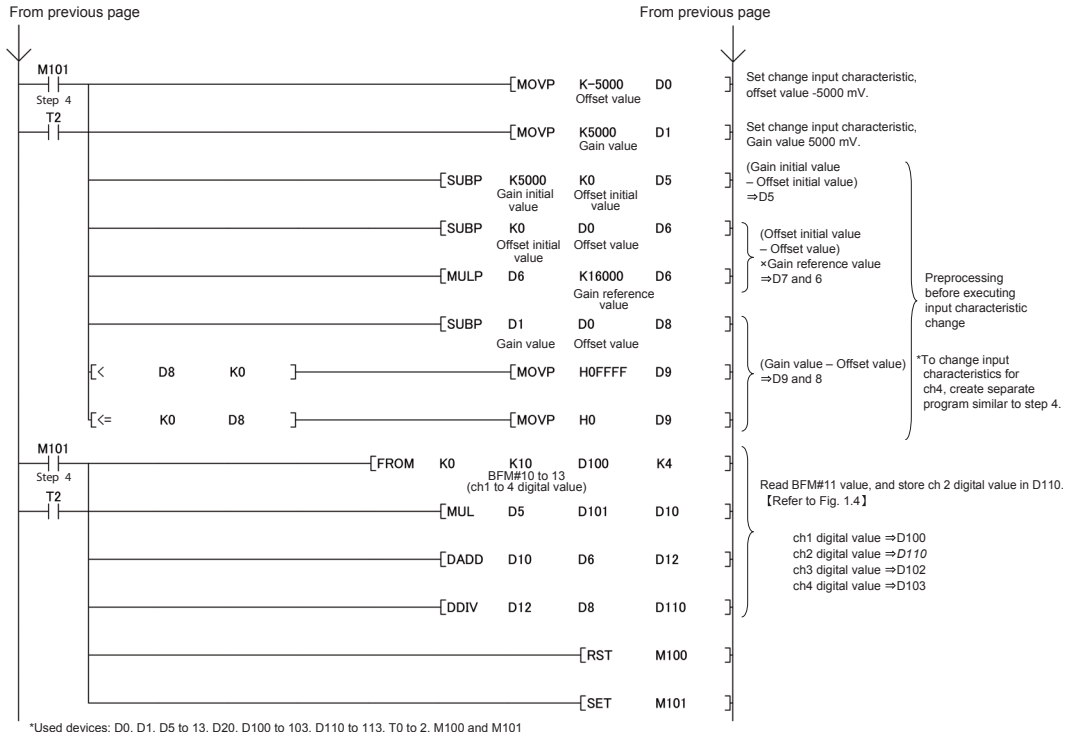


Fig. 1.3 : Example, current input mode (ch1) input characteristics

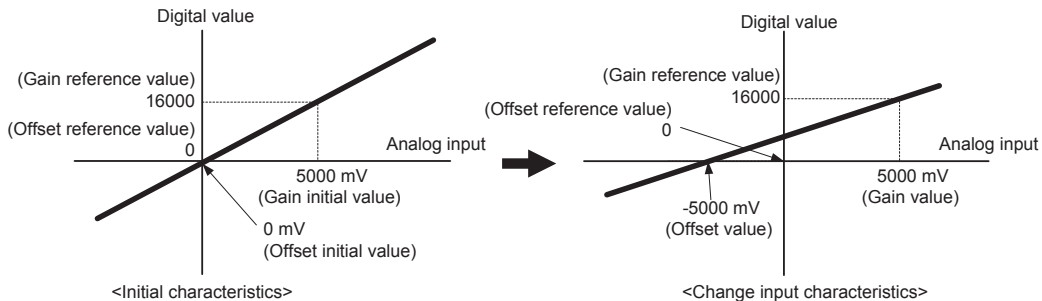


Fig. 1.4 : Example, change voltage input mode (ch2) input characteristics

For input mode setting, method for changing input characteristics, offset initial value, gain initial value, and gain reference value, refer to the following manual.

→FX3U-4AD, FX3UC-4AD: Refer to FX3U/ FX3UC series User's Manual - Analog Control Edition

→FX2NC-4AD: Refer to the boxed manual

2. Cautions for FX2N-8AD

2.1 When changing the input characteristics of only voltage input mode

Initialize the module by setting BFM#20=K1 and change the input characteristics by following the procedure below.

- <Step 1> Set the input mode (BFM#0, 1) of all channels to voltage input mode.
(Ex.) BFM#0=H□□□□, BFM#1=H□□□□ (□: Input mode 0 to 2)
- <Step 2> Change the voltage input mode input characteristics.
- <Step 3> Change the input mode (BFM#0, 1) of channels for current input or thermocouple input to current input mode or thermocouple input mode.
(Ex.) If using ch2 for current input and ch4 for thermocouple input
BFM#0=H★□□□, BFM#1=H□□□□ (■: Input mode 3 to 8, ★: Input mode 9 to E)

Program example

Example for ch1, 3, 5 to 8 voltage input, ch2 current input, ch4 thermocouple input (BFM#0=H9030, BFM#1=H0000) and changing ch1 input characteristics.
Execute this program only when changing the input characteristics.

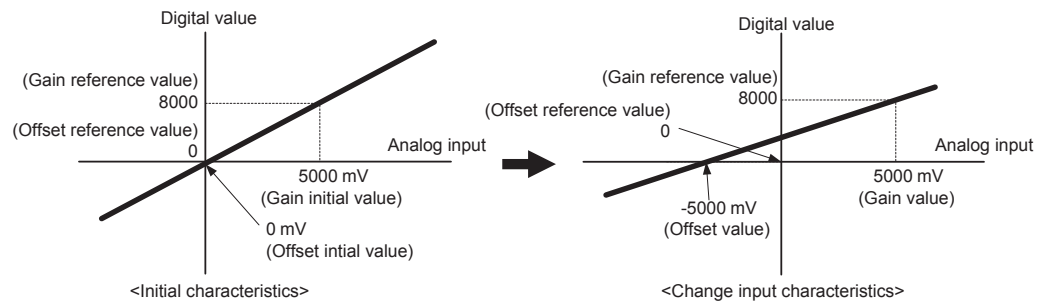
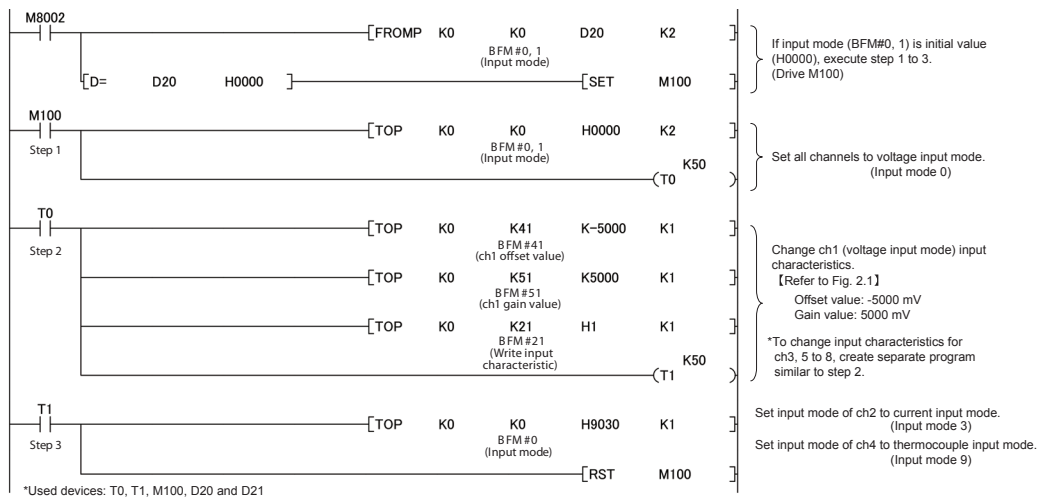


Fig. 2.1 : Example, changing voltage input mode (ch1) input characteristics

For input mode setting and method for changing input characteristics, refer to the boxed manual.

2.2 When changing the input characteristics of only current input mode

Initialize the module by setting BFM#20=K1 and change the input characteristics by following the procedure below.

- <Step 1> Set the input mode (BFM#0, 1) of all channels to current input mode.
(Ex.) BFM#0=H■■■■■, BFM#1=H■■■■■ (■: Input mode 3 to 8)
- <Step 2> Change the current input mode input characteristics.
- <Step 3> Change the input mode (BFM#0, 1) of channels for voltage input or thermocouple input to voltage input mode or thermocouple input mode.
(Ex.) If using ch2 for voltage input and ch4 for thermocouple input
BFM#0=H★■□■, BFM#1=H■■■■■ (□: Input mode 0 to 2, ★: Input mode 9 to E)

Program example

Example for ch2 voltage input, ch1, 3, 5 to 8 current input, ch4 thermocouple input (BFM#0=H9303, BFM#1=H3333) and changing ch1 input characteristics. Execute this program only when changing the input characteristics.

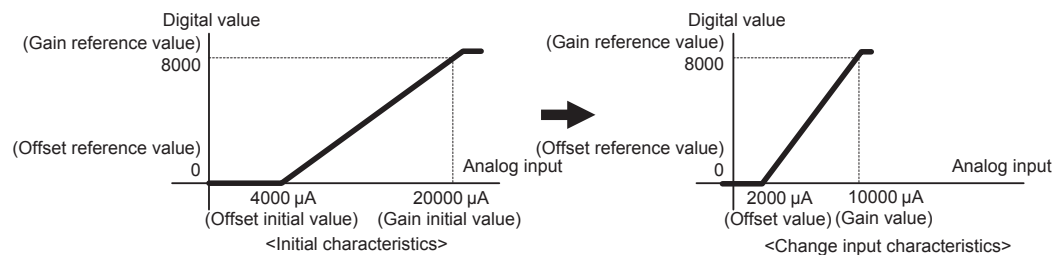
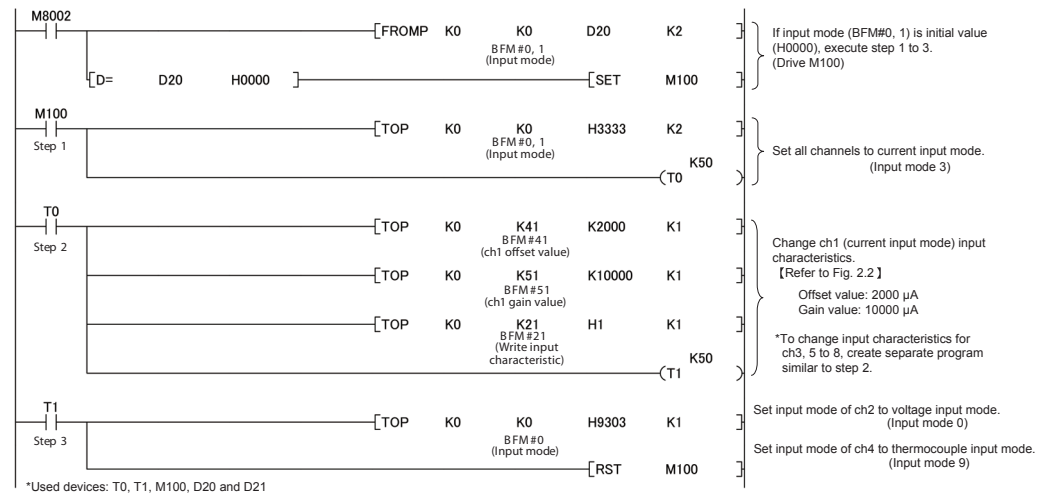


Fig. 2.2 : Example, change current input mode (ch1) input characteristics

For input mode setting and method for changing input characteristics, refer to the boxed manual.

2.3 When changing the input characteristics of both voltage input mode and current input mode

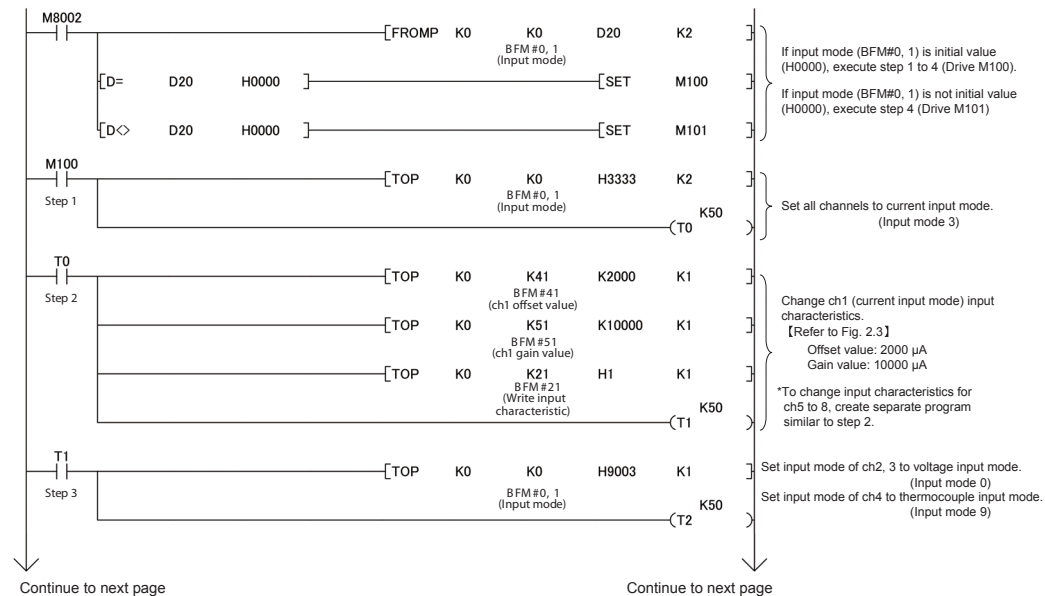
Initialize the module by setting BFM#20=K1 and change the input characteristics by following the procedure below.

Change the input characteristics for current input mode and then voltage input mode (or thermocouple input mode), in that order as below.

- <Step 1> Set the input mode (BFM#0, 1) of all channels to current input mode.
(Ex.) BFM#0=H■■■■■, BFM#1=H■■■■■ (■: Input mode 3 to 8)
- <Step 2> Change the current input mode input characteristics.
- <Step 3> Change the input mode (BFM#0, 1) of channels for voltage input or thermocouple input to voltage input mode or thermocouple input mode.
(Ex.) If using ch2, 3 for voltage input and ch4 for thermocouple input
BFM#0=H★□□■, BFM#1=H■■■■■ (□: Input mode 0 to 2, ★: Input mode 9 to E)
- <Step 4> Digital values of channels in voltage input mode are obtained by changing the input characteristics as in the program below.
Digital values of channels in current input mode can be read directly from BFM.

Program example

Example for ch2, 3 voltage input, ch1, 5 to 8 current input, ch4 thermocouple input (BFM#0=H9003, BFM#1=H3333) and changing ch1, ch2 input characteristics. Execute the program for steps 1 to 3 only when changing the input characteristics. (When M101 is driven, only step 4 is executed.)



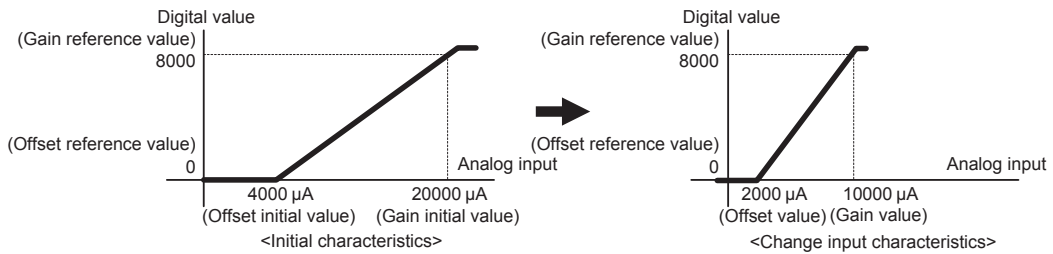
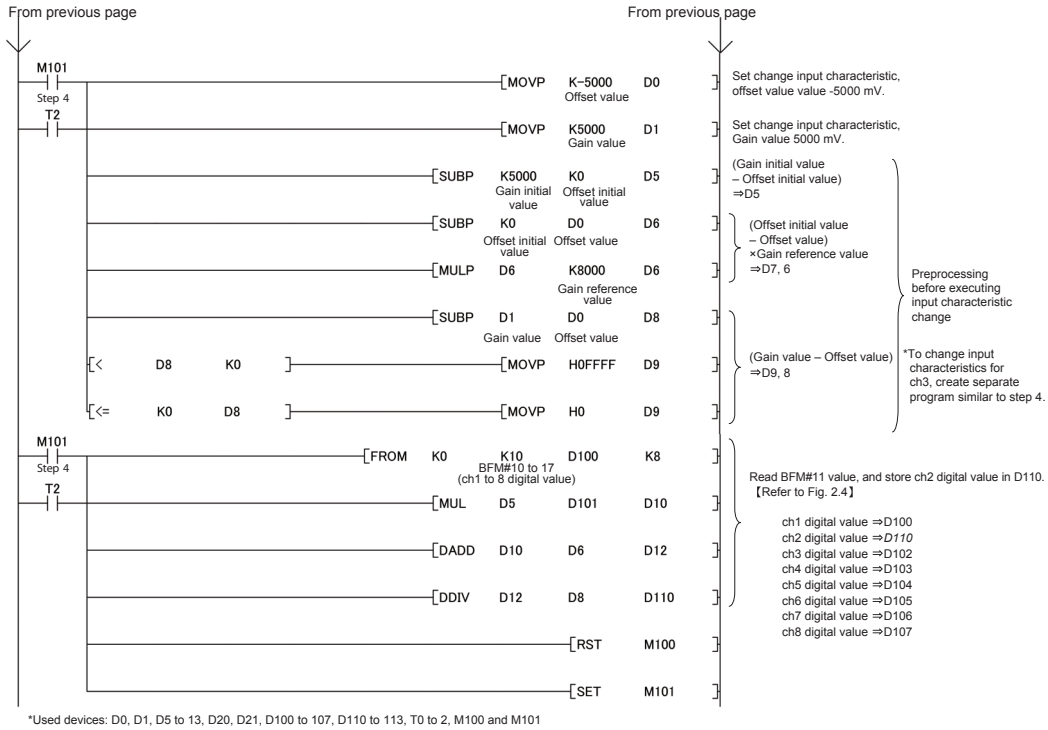


Fig. 2.3 : Example, current input mode (ch1) input characteristics

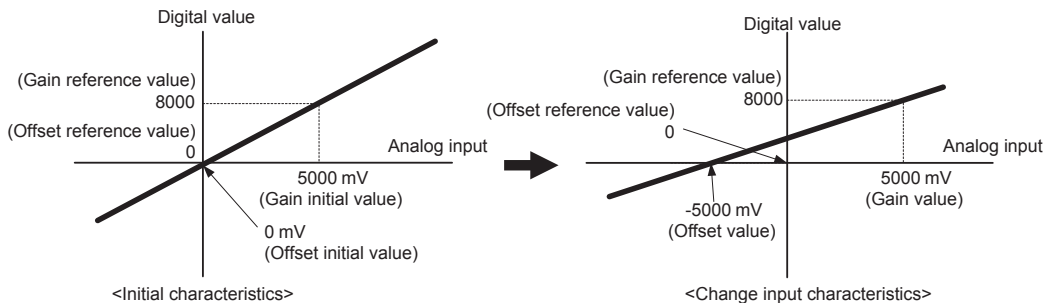


Fig. 2.4 : Example, change voltage input mode (ch2) input characteristics

For input mode setting, method for changing input characteristics, offset initial value, gain initial value, and gain reference value, refer to the boxed manual.

Revised History

Date	Revision	Description
Dec. 2014	A	First Edition
Nov. 2015	B	Partial design change

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