

FA Series Usage Procedure (Flashpro 4 Compatible)

The FA Series consists of dedicated adapters for writing to NEC microcontrollers that incorporate flash memory using a flash programmer (FL-PR2, FL-PR3, FL-PR4, PG-FP3 (NEC-made), PG-FP4 (NEC-made)).

Use these adapters following the procedure described below.

1. First perform wiring and circuit creation.

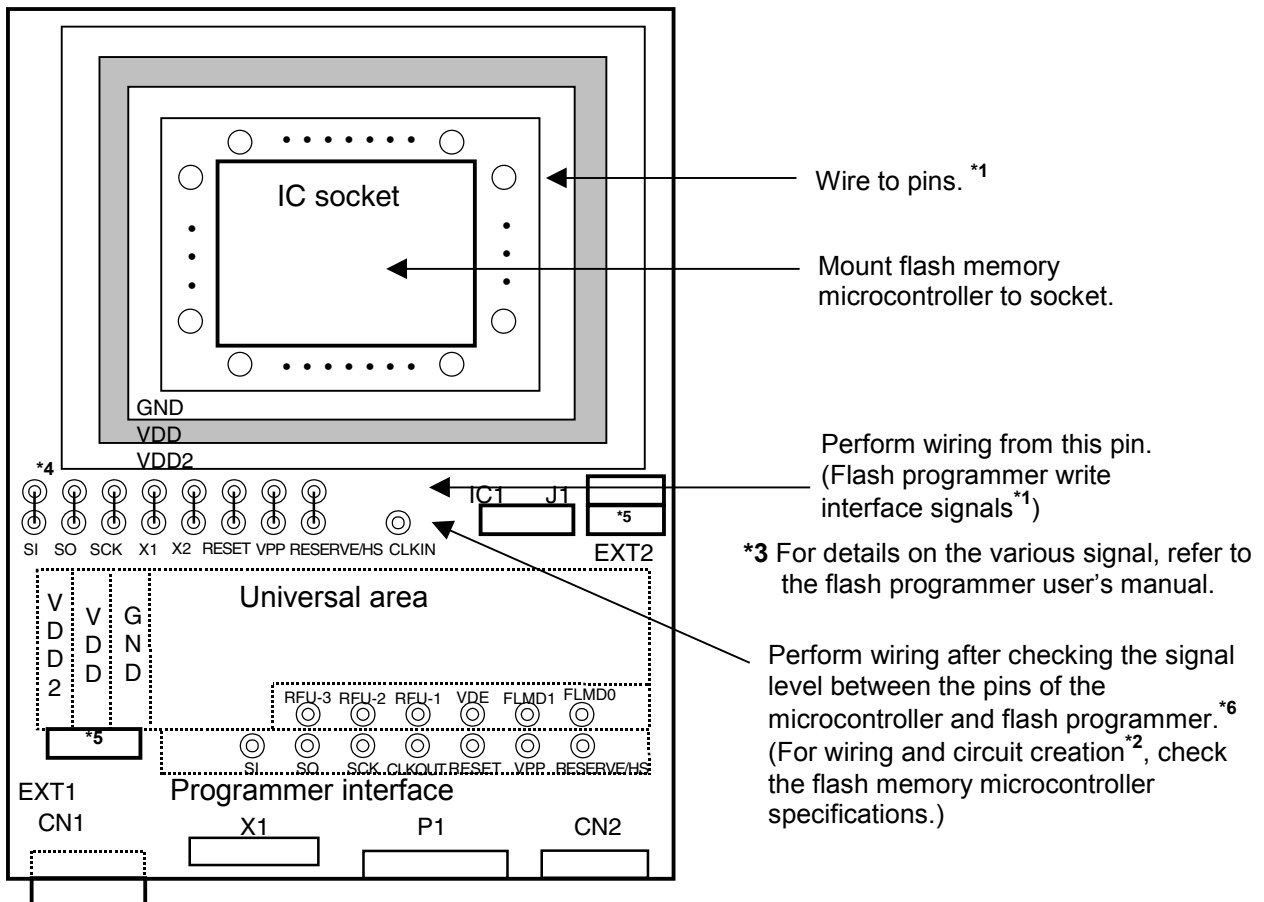
- The customer can use this board as a write adapter by preparing the wiring^{*1} and circuit^{*2}.

***1** Wire the flash programmer write signals (SI, SO, SCK, X1, X2, RESET, VPP, RESERVE/HS), as well as GND, VDD, VDD2 (FL-PR4, PG-FP4 only) and the IC socket pins according to the write specifications of each flash microcontroller. (Regarding the wiring specifications, refer to the flash memory microcontroller user's manual and other relevant documents.)

For chips that have an NMI pin, first process that pin following those specifications.

***2** Check the flash programmer and device signal level, and if level conversion is necessary, create a circuit for that purpose.

(In the case of the FL-PR2, FL-PR3, and PG-FP3 (NEC-made), the customer must create a level conversion circuit in the universal area. Moreover, in the case of a dual power supply (5 V and 3 V), the FA-TVC (sold separately), which is the FA option board, can be used.)



***4** Wire SI to the serial output pin of the flash memory microcontroller.

Wire SO to the serial input pin of the flash memory microcontroller.

***5** FA-TVC dedicated connector

***6** Wiring is not required between the pins of the microcontroller and flash programmer when using FA-TVC.

2. Check the clock oscillator.

Check in the user's manual for the relevant flash memory microcontroller whether the recommended clock circuit uses the 74HCU04.

The external clock generator for this board uses the 74HCU04.

Check the recommended clock circuit in the user's manual of the flash memory microcontroller, and if an oscillator other than the 74HCU04 is used, it must be provided by the customer.

At this time, switch the VDD level to VDD2 or VDD with J1.

Special items (For microcontrollers that can write only with fixed operating frequency)

In the case of a microcontroller that can operate only using a fixed operating frequency per the specifications of that microcontroller, it is possible to use any crystal oscillator mounted on a product of the FA Series.

- Usage method

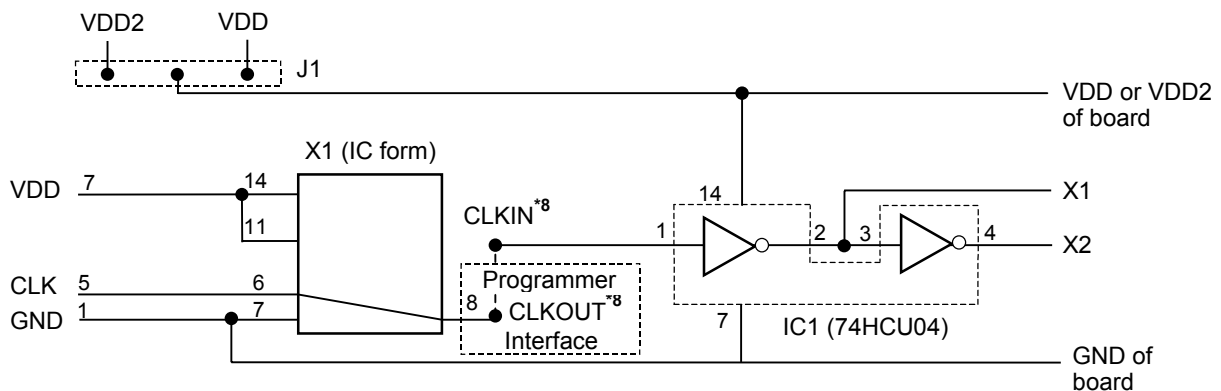
A crystal oscillator of the customer's choice can be mounted by removing the IC form on the X1 IC socket of the board and installing the oscillator.

(Both a 14-pin type and 8-pin type can be used.*7)

At this time, the customer has to provide the VDD for the board (because it is not possible to stabilize the crystal oscillator using the VDD power supply from the flash programmer).

*7 It is not possible to install a crystal resonator.

The following figure shows the clock circuit diagram of the board.



*8 When using VDD2 for the CLK signal, a level conversion circuit must be provided between CLKOUT and CLKIN.

3. Connect the writer and perform write.

- Following wiring, connect the programmer to the board.

There are three connection methods.

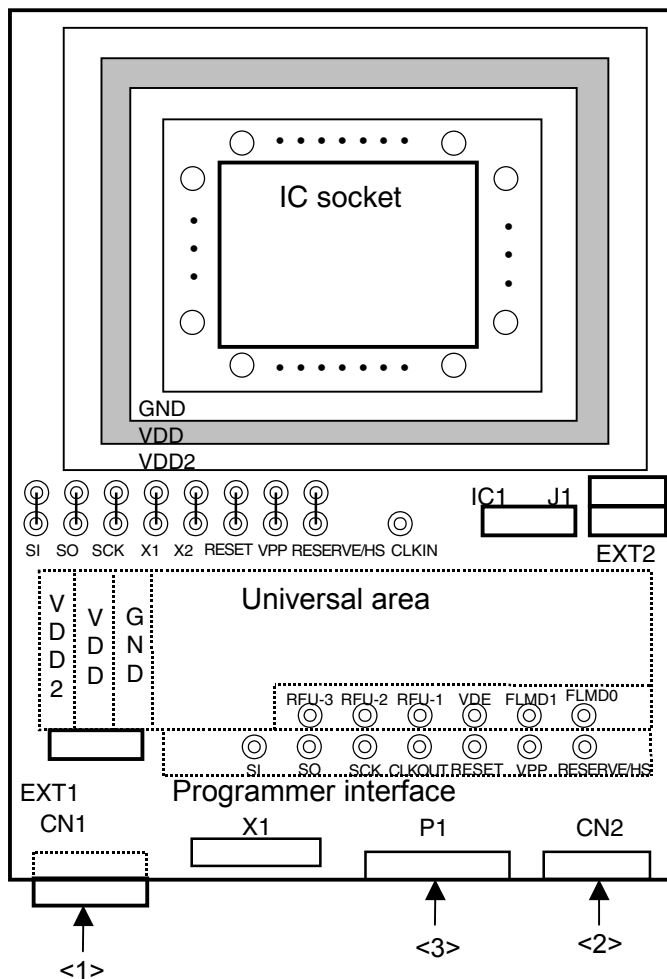
Perform connection referring to the following correspondence table.

[Device Correspondence Table]

	FL-PR2	PG-FP3 FL-PR3	PG-FP4 FL-PR4
<1> CN1	√	√	×
<2> CN2	√ ^{*1}	√ ^{*1}	√ ^{*2}
<3> P1	×	×	√ ^{*2}

*1 Use a target I/F cable 1 (10-pin connector type).

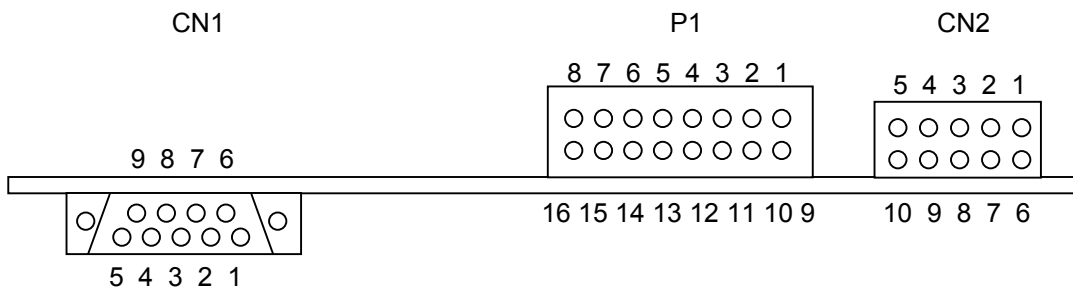
*2 Use a target I/F cable (10-pin/16-pin dual-type connector).



Connector Signal Table

- The following table shows the relationships among CN1, CN2, and P1.

CN1	CN2	P1	Signal Name	Layout on Substrate
1	1	1	GND	GND pattern
2	2	2	SI	SI through-hole (EXT1 side)
3	3	3	SO	SO through-hole (EXT1 side)
4	4	4	SCK	SCK through-hole (EXT1 side)
5	5	5	CLK	Pin 6 of X1
6	6	9	/RESET	RESET through-hole (EXT1 side)
7	7	10	VDD	VDD pattern
8	8	11	VPP	VPP pattern
9	9	12	RESERV/HS	RESERV/HS through-hole (EXT1 side)
-	10	13	VDE	VDE through-hole (EXT1 side)
-	-	6	VDD2	VDD2 pattern
-	-	14	FLMD1	FLMD1 through-hole
-	-	7	RFU-1	RFU-1 through-hole
-	-	15	FLMD0	FLMD0 through-hole
-	-	8	RFU-2	RFU-2 through-hole
-	-	16	RFU-3	RFU-3 through-hole



Pin number positions as seen from connector

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