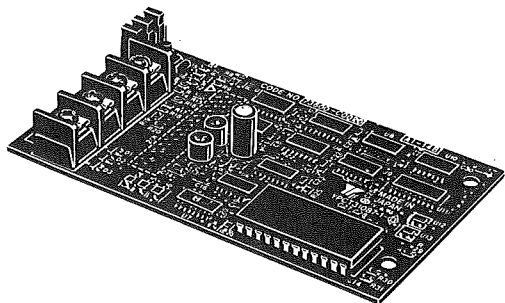


Model **3G3IV-PAI14B** ANALOG SPEED REFERENCE CARD

INSTRUCTION SHEET

Thank you for purchasing an OMRON product. Read this thoroughly and familiarize yourself with the functions and characteristics of the product before using it.
Keep this instruction sheet for future reference.



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Analog speed reference card 3G3IV-PAI14B (hereinafter called PAI14B)*, an on-board type optional card, is mounted on the inverter control board. This enables analog speed reference setting with higher accuracy and higher resolution.

When the PAI14B is used to set speed reference, select inverter system constant Sn-04 (run signal selection 1) so that external terminal input (analog frequency reference input) will be set as main speed frequency reference. Also select system constant Sn-08 (run signal selection 5) so that frequency reference from the optional card will be effective.

- Sn-04 ☐ ☐ ☐ 0 Set the 1st digit to 0.
It is set to 1 at the time of shipment.
- Sn-08 ☐ ☐ ☐ 0 Set the 1st digit to 0.
It is set to 1 at the time of shipment.

Analog input signal gain of PAI14B can be adjusted by setting program constant bn-05 of the inverter. For details, refer to "INPUT SIGNAL LEVEL SETTING".

*AI-14B appears as a model number on the body of Analog reference Card (3G3IV-PAI14B).

CAUTION

- (1) Read this instruction paper and the instruction manuals of the inverter (SYSDRIDE 3G3IV) which will be provided with this PAI14B before use.
- (2) When connection from/to PAI14B connector or external terminals is required, turn off the inverter AC main circuit power supply and check that the inverter CHARGE indicator lamp is out.

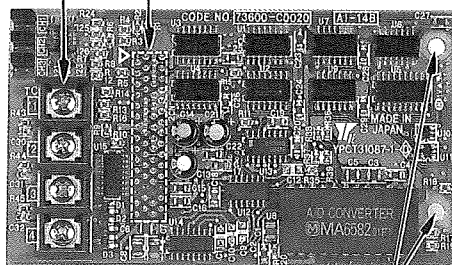
1. SPECIFICATIONS

Input Method

- Input signal level :
-10 to +10VDC (Input impedance : 20k Ω)
4 to 20mA (Input impedance : 500 Ω)
- Input resolution :
In case of voltage input-13 bits (1/8192) +sign
In case of current input-1/6554
- * Voltage input/current input can be selected by each channel (TC1 to TC3).

EXTERNAL
TERMINALS

CONNECTOR FOR INVERTER
CONTROL BOARD (2CN)



4.1 mm DIA MTG. HOLE

ANALOG SPEED REFERENCE CARD PAI14B

2. INSTALLATION TO INVERTER (Fig. 1)

- (1) Turn off AC main circuit power supply and remove inverter face plate. Then check if CHARGE indicator lamp is out.
- (2) Connect PAI14B connector 2CN to connector 2CN (number of pins: 60 poles) on the inverter control board. Then insert optional card supports on the control board to PAI14B support mounting holes (2 places) completely in order to stabilize PAI14B.
- (3) After mounting PAI14B, perform connection with peripheral equipment. When the connection is completed, replace inverter face plate.

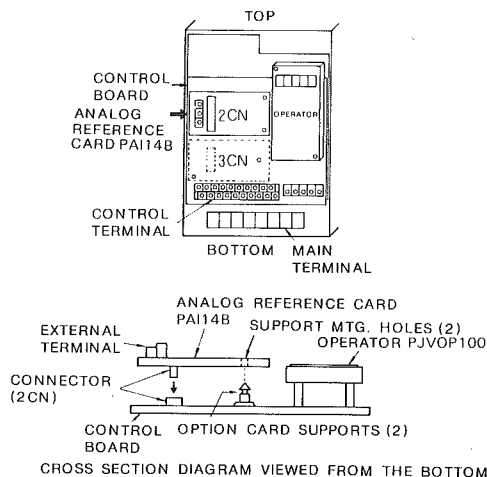
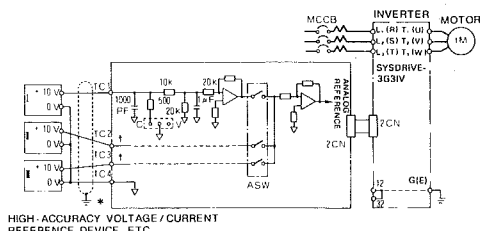


Fig. 1 Mounting of Analog Reference Card PAI14B

3. INTERCONNECTION BETWEEN EQUIPMENT

Fig.2 shows the connections between the inverter the analog reference card PAI14B and peripheral equipment.



ANALOG SPEED REFERENCE CARD PAI148

- * Connect the shielded lead to control terminal (12) or (32) of the inverter control board.
- † TC2 and TC3 have the same input circuit as TC1.

Fig. 2 Interconnection Diagram

PRECAUTIONS FOR WIRING

- (1) The wiring for the control signals (terminal TC1 to TC4) of the analog reference card PAI14B should be separated from main circuit wiring and other power lines.
- (2) Use the shielded lead for control signal wiring and terminate the cable end as shown in Fig.3 (to prevent malfunction due to noise). Wiring length should be 10m or less
- (3) If any of control signal input terminals TC1 to TC3 are not used, be sure to connect them to 0V terminal (TC4).

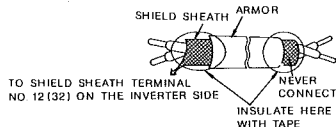


Fig. 3 Preparation of Shielded Cable Ends

4. EXTERNAL TERMINAL FUNCTIONS

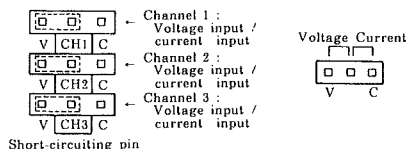
The analog reference card PAI14B has external terminals (4 pins) to be connected with peripheral equipment. Table 1 shows terminal functions.

Table 1 External Terminal Functions of Analog Reference Card PAI14B

| External Terminal | Terminal Thread Size | Functions | Signal Level | Linearity |
|-------------------|----------------------|---|--|-------------|
| TC1 | M3 | Channel 1 Analog voltage/ current input | Voltage input Input voltage : 0 to $\pm 10V/0$ to $\pm 100\%$ Input impedance : 20k Ω Input resolution : 1/8192 (13 bits) + sign | $\pm 0.1\%$ |
| TC2 | | Channel 2 Analog voltage/ current input | Current input Input current : 4 to 20mA/0 to $\pm 100\%$ Input impedance : 500 Ω Input resolution : 1/6554 | |
| TC3 | | Channel 3 Analog voltage/ current input | | |
| TC4 | | Common terminal | 0V | |

Notes:

1. The analog signal(input voltage/input current) input level of external terminals TC1 to TC3 can be adjusted by the setting of respective inverter program constants. See Section 4.
2. Voltage input/current input can be selected by the short-circuiting pin of respective channels: V-side voltage input, C-side current input. Voltage input is selected for each channel at the time of shipment.



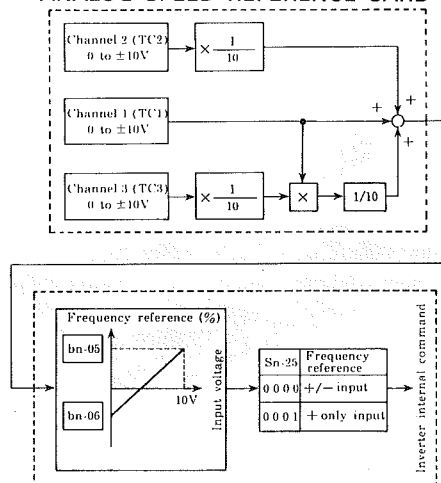
PRECAUTIONS FOR ANALOG SPEED REFERENCE ACCURACY

Analog speed reference is converted by 1/8192 resolution. In addition to wirings, voltage source accuracy to be used for analog speed reference must be considered. To improve speed control accuracy, use high-precision stabilized power supply for voltage source.

5. INPUT SIGNAL LEVEL SETTING

The analog signals entered from channel 1 (TC1), channel 2 (TC2), and Channel 3 (TC3) are added internally.

ANALOG SPEED REFERENCE CARD



* Setting Range of Constants

| Program Constant No. | Description | SYSDRIVE 3G3IV | | |
|----------------------|--------------------------|----------------|------|---------------------|
| | | Setting Range | Unit | at Factory Shipment |
| bn-05 | Frequency reference gain | 0.0 to 1000.0 | 0.1% | 100.0 |
| bn-06 | Frequency reference bias | -100 to 100 | 1% | 0 |

* Setting Example When 10V is entered to channel 1 of SYSDRIVE 3G3IV (if the set frequency shows only 59 Hz) adjust bn-05 as follows to obtain the set frequency of 60 Hz.

$$\text{bn-05: } \frac{60\text{Hz}}{59\text{Hz}} = 1.01695 = 101.7(\%)$$

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