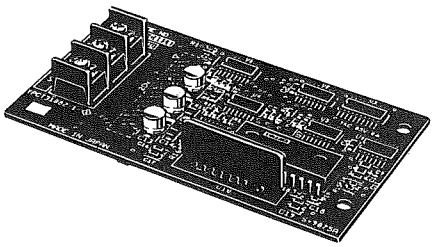
OMRON

Model **3G3IV-PAI14U**

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-PAI14U (hereinafter called PAI14U)* , 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 PAI14U 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 PAI14U can be adjusted by setting program constant bn-05 of the inverter. For details, refer to "INPUT SIGNAL LEVEL SETTING".

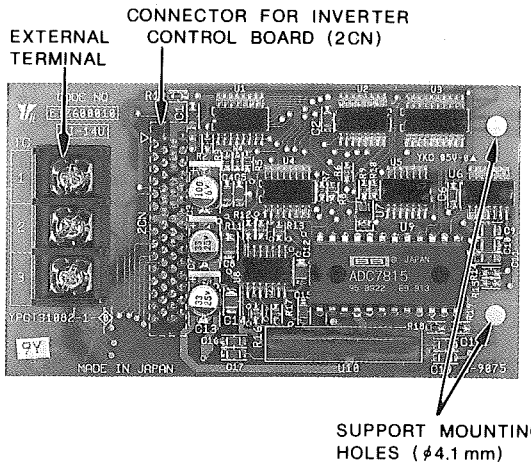
*AI-14U appears as a model number on the body of Analog referance Card (3G3IV-PAI14U).

CAUTION

(1) Read this instruction paper and the instruction manuals of the inverter (SYSDRIDE 3G3IV) which will be provided with this PAI14U before use.
(2) When connection from/to PAI14U 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 : 0 to 10VDC (input impedance : 20kΩ) 4 to 20mA (input impedance : 250Ω) · Input resolution : 14 bits (1/16384)



ANALOG SPEED REFERENCE CARD PAI14U

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 PAI14U 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 PAI14U support mounting holes(2 places) completely in order to stabilize PAI14U.
(3) After mounting PAI14U, perform connection with peripheral equipment. When the connection is completed, replace inverter face plate.

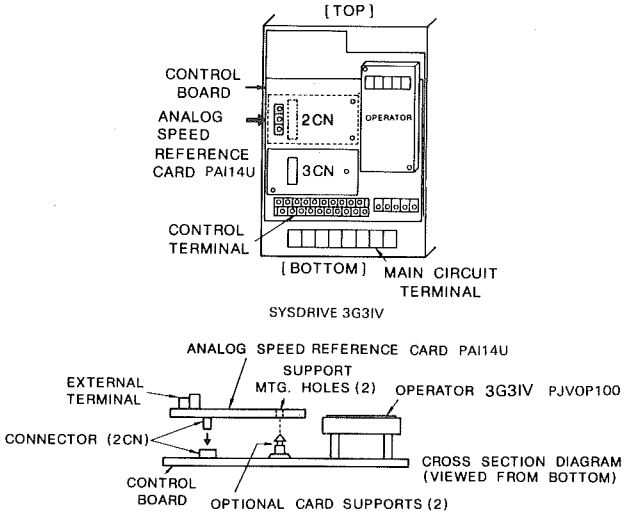
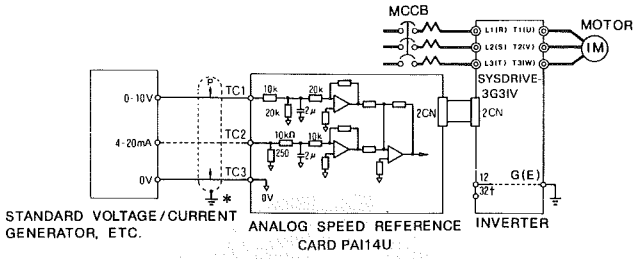


Fig. 1 Installation of Analog Speed Reference Card 3G3IV PAI14U

3. INTERCONNECTION BETWEEN EQUIPMENT

Fig.2 shows the inverter interconnection with PAI14U and peripheral equipment.



* Connect shielded cable to control terminal 12 on the inverter control board.

Fig. 2 Interconnection Diagram

PRECAUTIONS FOR WIRING

(1) Separate control signal wiring (terminal TC1 to TC3) of PAI14U from main circuit wiring or other power lines.
(2) Use shielded cable for control signal wiring and prepare its terminal ends as shown in Fig. 3 in order to prevent malfunction caused by noise. Wiring length must not exeed 10m.
(3) Connect terminals, which are not used for control signal input terminal TC1 or TC2, to 0V (terminal TC3).

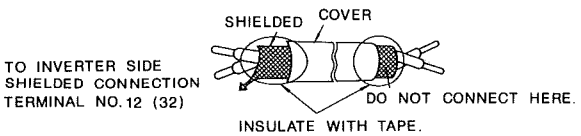


Fig. 3 Preparation of Shielded Cable Ends

4. EXTERNAL TERMINAL FUNCTIONS

PAI14U has external terminals (3poles) for connection with peripheral equipment. Table 1 shows the terminal functions.

Table 1 PAI14U External Terminal Functions

Terminal Symbol	Screw Size	Function	Signal Level	Linearity
TC1	M3	Analog voltage input	Input voltage: 0 to 10V Input impedance: 20kΩ Input resolution: 1/16384 (14 bits)	±0.1%
TC2		Analog current input	Input current: 4 to 20mA Input impedance: 250Ω Input resolution: 1/16384 (14 bits)	
TC3		Common terminal	0V	–

Note: Input signal level (input voltage, input current) of TC1 and TC2 analog signals can be adjusted by setting the inverter program constants. For details, refer to "INPUT SIGNAL LEVEL SETTING."

PRECAUTIONS FOR ANALOG SPEED REFERENCE ACCURACY

Analog speed reference is converted by 1/16384 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

Input signal gain and bias of external terminal TC1 or TC2 can be adjusted by setting program constant bn-05 or bn-06 respectively. Table 2 shows the setting contents.

Teble 2 Adjustment of Input Signal Gain and Bias

Program Constant No.	Contents	Setting Range	Setting Unit	Initial Value
bn-05	Input signal gain (10 V/□□□%)	0.0 to 1000.0%	0.1%	10 V/100.0%
bn-06	Input signal bias	−100 to 100%	1%	0%
		−100.0 to 100.0%	0.1%	0.0%

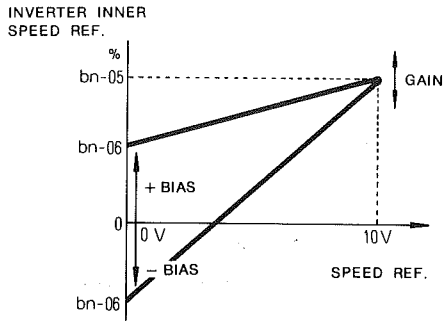


Fig. 4 Gain and Bias in Voltage Input (TC1 – TC3)

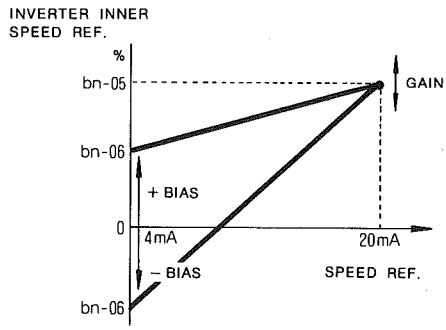


Fig. 5 Gain and Bias in Current Input (TC2 – TC3)

OMRON CORPORATION
FA Division H.Q.
13F Gotenyama Mori Bldg.4-7-35,
Kitashinagawa, Shinagawa-ku, Tokyo 140 Japan
Phone: 03-5488-3183 Fax: 03-5488-3271
Telex: 522-2484 OMRONO J

OMRON ELECTRONICS INC.
1 East Commerce Drive, Schaumburg, IL 60173
Phone: (312)843-7900 Fax: (312)843-8568
Telex: 910-291-0426 OMRONELEC SHBU
OMRON ELECTRONICS B.V.
Planetenweg 77, 2132HM Hoofddorp The Netherlands
Phone: 31-2503-62100 Fax: 31-2503-36313 Telex: 44-71343
OMRON ELECTRONICS ASIA LTD.
Unit 1510-12, Silvercord Tower 1
30, Canton Road, Tsimshatsui, Kowloon
Phone: (3)7233827 Fax: (3)7231475 Telex: 41092 OMRON HX
OMRON SINGAPORE (PTE.) LTD.
5 Little Rode #08-01, Cemtex Industrial Bldg, 1953
Phone: 2830006 Fax: 2850682 Telex: RS23403
OMRON TAIWAN ELECTRONICS INC.
6F, Home Young Bldg.
No. 363, Fu-shing N.Rd, Taipei, ROC
Phone: 2-716-3745 Fax: 2-712-6712

NOTE: Specification subject to change without notice.
Printed in Japan.

1091-5P Manual No.I023-E1-1