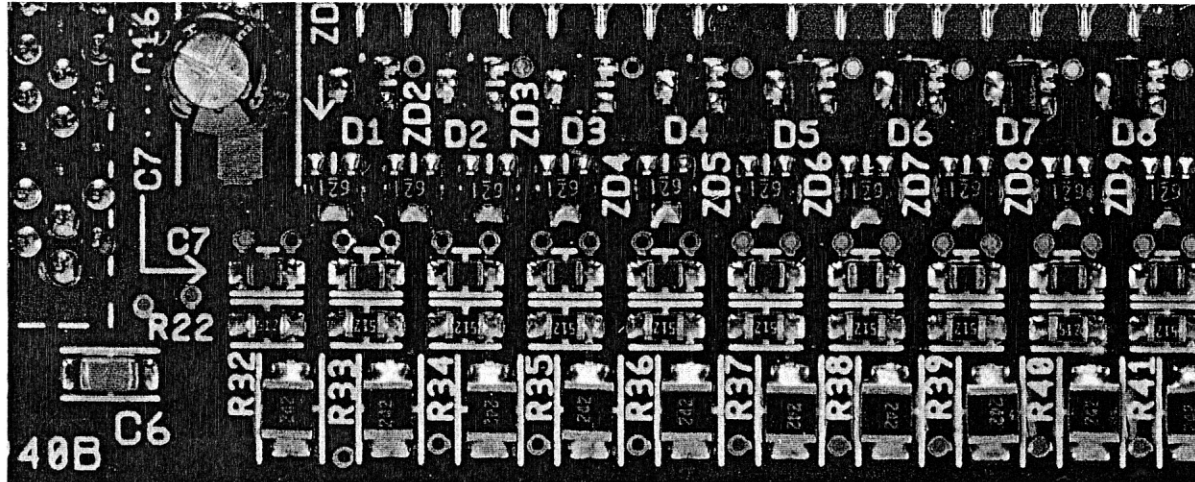# DIGITAL SPEED REFERENCE CARD

FOR Varispeed SERIES OPTION CARD

MODEL DI-08

Before initial operation, read these instructions thoroughly, and retain for future reference.

YASKAWA

Digital speed reference card DI−08 (hereinafter called DI−8), an on-board type optional card, is mounted on the inverter control board. This allows digital speed reference setting with high accuracy and high resolution. When DI−08 is used to set speed reference, select inverter system constant 4 (run signal selection 1) so that external terminal input will be set as main speed frequency reference. Also select system constant 8 (run signal selection 5) so that frequency reference from the optional card will be effective.

- Sn−04: ☐☐☐0   Set 0 as the 1st digit, where 1 has been set prior to shipping.
- Sn−08: ☐☐☐0   Set 0 as the 1st digit, where 0 has been set prior to shipping.

This DI−08 is applicable to VS−616G3 or VS−616H3 series.

--- CAUTION ---

(1) Read this instruction paper and instruction manuals of the inverter (VS−616G3 or VS−616H3) which will be provided with this DI−08 before use.

(2) When connection to DI−08 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.

INSTALLATION TO INVERTER (Fig. 1)

(1) Turn off AC main circuit power supply and remove inverter face plate. Check if CHARGE indicator lamp is out.

(2) Mount DI−08 connector 2CN on connector 2CN (number of pins: 60 poles) on the inverter control board. Insert optional card supports on the control board to DI−08 support mounting holes (2 places) to stabilize DI−08.

(3) After mounting DI−08, perform connection with peripheral equipment. When the connection is completed, replace inverter face plate.

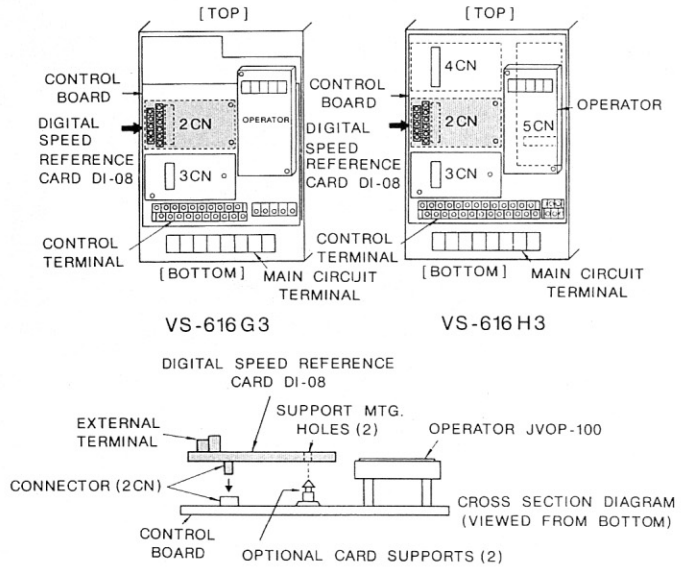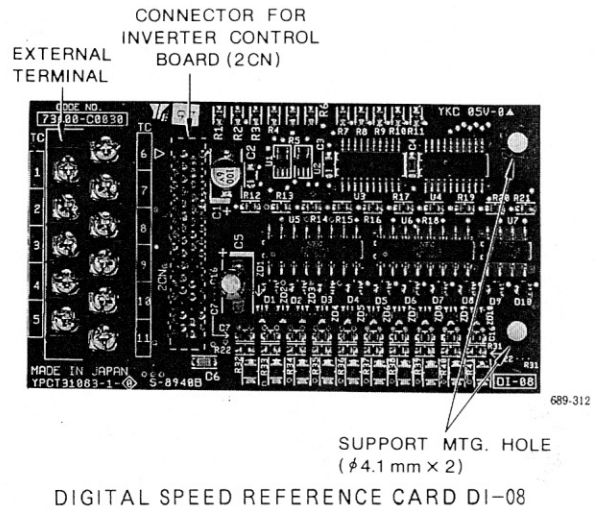| Name	Code No.	Input Method
Digital Speed Reference Card DI−08	73600−C003X	• Input signal: Binary 8 bits/BCD 2−digit, SIGN signal, SET signal • Input voltage: +24 V (isolated)

DIGITAL SPEED REFERENCE CARD DI−08

Fig. 1   Installation of Digital Speed Reference Card DI−08

INTERCONNECTION BETWEEN EQUIPMENT

Fig.2 shows a typical inverter interconnection with DI−08 to peripheral equipment.
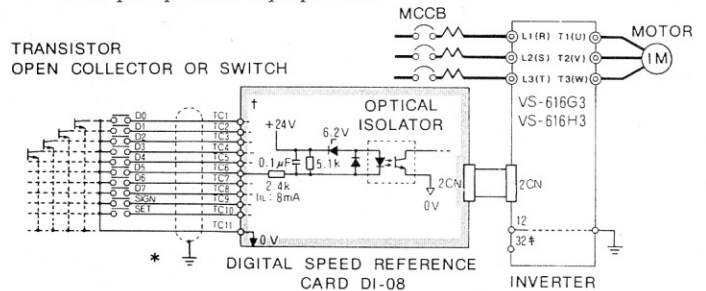
∗ Connect cable shield to control terminal ⑫ on the inverter control board.

† Input circuits of TC1 to TC10 are the same. (Figure shows TC6 input circuit.)

‡ For VS−616H3, control terminal ㉜ on the control board can also be grounding.

Fig. 2   Interconnection Diagram

- 2 -
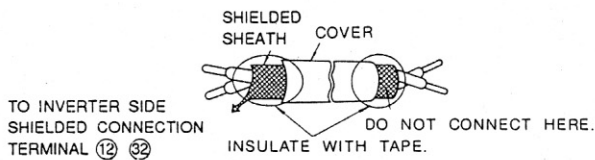
EXTERNAL TERMINAL FUNCTIONS

DI−08 has external terminals (11 poles) for connection with peripheral equipment so that digital signals (binary 8 bits/BCD 2−digit+SIGN and SET signals) can be input. Table 1 shows the terminal functions.
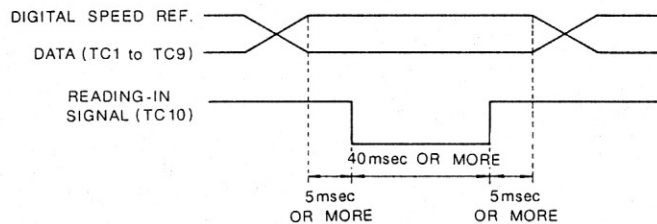
Fig. 4   Digital Speed Reference Read-in Signal Timing

Table 1   DI−08 External Terminal Functions

Terminal	Function		Remarks
	Binary Input	BCD Input	
TC1	2^0	1	· Input signal
TC2	2^1	2	Open: 0
TC3	2^2	4	Close: 1 (short-circuited with TC11)
TC4	2^3	8	· Binary or BCD input is selected by setting inverter system constant 26.(Refer to DIGITAL SPEED REFERENCE SELECTION METHOD).
TC5	2^4	1	
TC6	2^5	2	
TC7	2^6	4	
TC8	2^7	8	
TC9	· SIGN signal		
TC10	· SET (reading-in signal) *		· External terminal screw size: M3
TC11	· Speed ref. common signal (0V)		

(For TC1–TC4: $\times 10^0$; for TC5–TC8: $\times 10^1$)

* Terminal symbol TC10 "SET (read−in) signal" enables digital speed reference reading−in. When reading−in, short circuit TC10 and TC11 as shown in Fig. 4. When continuous reading−in required without using this read−in signal, short circuit TC10 and TC11 in advance.

PRECAUTIONS FOR INPUT SIGNAL APPLICATION

DI−08 input circuit can receive output from relay contacts or transistor (open collector). The following should be carefully noted.

(1) When relay contact is used as digital speed reference signal, use highly reliable relay contact (for very small current) with a capacity of 30VDC or more and rated current of 100mA or higher.

(2) Use transistor (open collector) with rated voltage of 35VDC or more and rated current of 30mA or higher.

DIGITAL SPEED REFERENCE SELECTION METHOD

Digital speed reference (binary 8−bit input, BCD 2−digit input) can be selected by setting SN−26. Table 2 shows set values and digital speed references that may be selected. When the contents of digital speed reference is selected as shown in Fig.2, however, set 0 or 1 to (Cn−20). (0 has been set prior to shipping.)

Table 2   Digital Speed Reference Selection

System Constant No.	Set Value	Digital Speed Ref. *		Setting Range
Sn−26	0000	BCD	1%	0 to 159%
	0001	BCD	0.1%	0.0 to 15.9%
	0010	BCD	0.01%	0.00 to 1.59%
	0011	BCD	1Hz	0 to 159Hz
	0100	BCD	0.1Hz	0.0 to 15.9Hz
	0101	BCD	0.01Hz	0.00 to 1.59Hz
	0111	Binary	255/100%	0.00 to Max. frequency/100% †
	1000	Binary	255/100%	0.00 to Max. frequency/100% †

* For BCD 2−digit input, 0 to F can be set for upper digit.

† Operator displays of set values 0111 and 1000 differ as follows:
  0111: Digital speed reference is expressed in %.
  1000: Digital speed reference binary 8−bit input is expressed in a value converted to decimal.