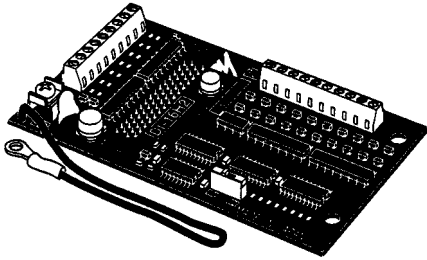


OMRON

# 3G3FV-PDI16H2 Digital Reference Card (For the 3G3FV only)

## INSTRUCTION SHEET

Thank you for purchasing this OMRON product. Please read this instruction sheet and thoroughly familiarize yourself with the functions and characteristics of the product before use. This instruction sheet describes procedures for mounting and wiring the 3G3FV-PDI16H2 Digital Reference Card, and should be read in conjunction with the *3G3FV Inverter User's Manual (I516)*. Please retain this sheet for future reference.



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### Safety Precautions

Before attempting to operate the Digital Reference Card, be sure to thoroughly familiarize yourself with the information contained in this instruction sheet and those of any other applicable equipment, make sure that you have a working knowledge about the equipment, and make sure that you are well versed on all safety procedures and precautionary items in order to ensure the safe and proper use of the OMRON Inverter and other peripheral devices.

Since diagrams in this instruction sheet may be shown with covers and protective shielding removed in order to provide more detailed explanations, make sure that covers and protective shielding are replaced as stipulated prior to using the product, and then use the product only as outlined in the *User's Manual*.

Be sure to contact our sales representative if the product is to be left in storage for an extended period of time.

Make sure that this instruction sheet and other applicable manuals are readily available to equipment operators.

Make sure that this instruction sheet is readily available once it is read.

- The precautionary items list critical information for safety. Be sure to heed these items at all times.
- The following conventions are used to indicate and classify precautions in this instruction sheet.

**! DANGER!** Not following a precaution given as a "DANGER" is likely to result in fatal or serious injury.

**! WARNING** Not following a precaution given as a "WARNING" may result in fatal or serious injury.

**! Caution** Not following a precaution given as a "Caution" can result in injury to people or damage to the product or system.

Items listed under caution may also have serious consequences depending on the circumstances, so be sure to heed these items at all times.

### Mounting

**! WARNING** Never reach inside the Inverter as this may result in an electrical shock.

**! WARNING** Do not mount, remove, or wire Optional Cards without first shutting the Inverter power OFF and waiting until the prescribed amount of time (indicated on the front cover of the Inverter) has passed after all indicators on the Inverter are no longer lit. Failure to do so may result in an electrical shock.

**! WARNING** Do not nick, apply undue stress, place heavy objects on, or sandwich cables. Otherwise, this may result in an electrical shock.

**! Caution** Do not touch the elements of Optional Cards. Otherwise, this may result in injury due to electrical shock.

### Connections and Settings

**! Caution** Do not change settings unless absolutely necessary. Otherwise, this will result in injury or equipment damage.

**! Caution** Do not mount or remove an Optional Card with Inverter power ON. Otherwise, this will result in injury or equipment damage.

**! Caution** Be sure to connect the ground wire (E) of Optional Cards. Otherwise, this may result in equipment damage or faulty operation due to noise.

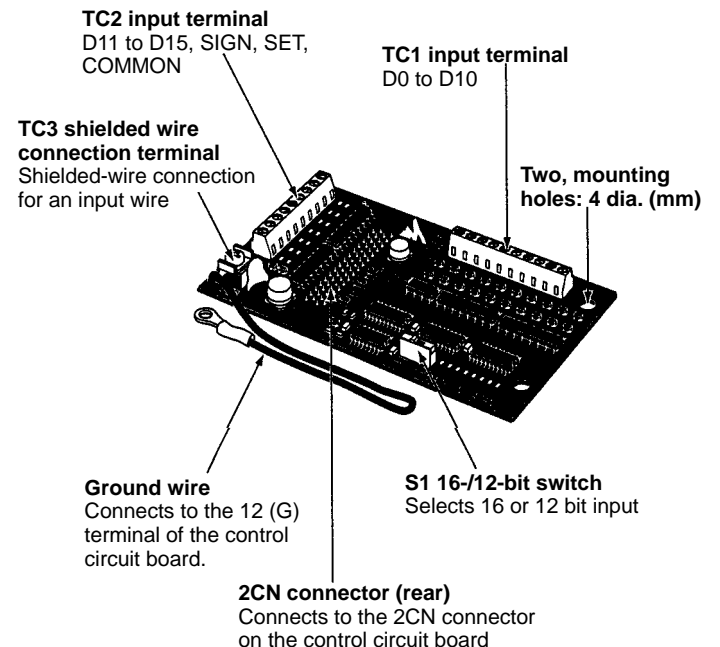
### Description

The 3G3FV-PDI16H2 Digital Reference Card is an Optional Card used only with the SYSDRIVE 3G3FV Inverter.

This Optional Card inputs 3G3FV Inverter frequency references using 16- and 12-bit (BCD or binary) digital signals.

The Card is mounted on a 3G3FV Inverter control circuit board.

### Nomenclature

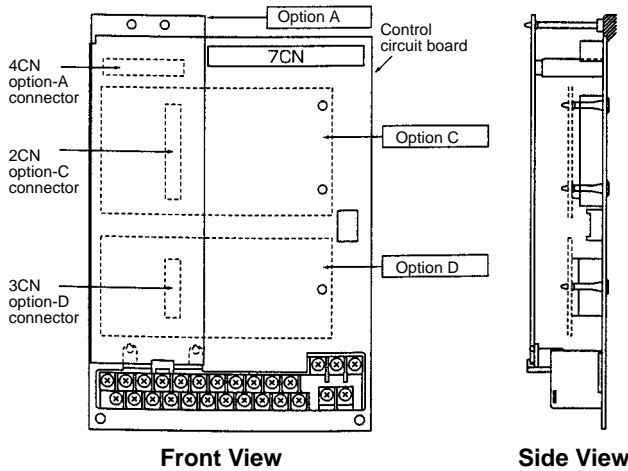


## Specifications

<b>Input signal</b>	16 or 12 bits Binary/4- or 3-digit BCD SIGN signal, SET (READ) signal
<b>Input power supply voltage</b>	24-VDC internal power supply (Insulated)

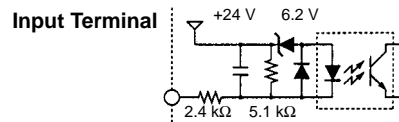
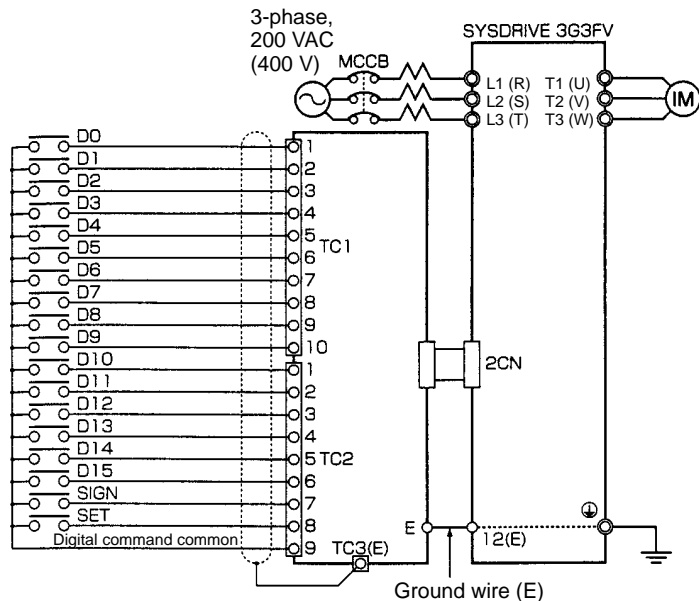
## Mounting Procedure

- 1, 2, 3... 1. Be sure to turn OFF the main Inverter power supply, wait at least 1 minute (at least 3 minutes for 30-kW-or-higher Inverters), remove the front cover of the Inverter, and make sure the charge indicator is not lit.
2. The Digital Reference Card is an option C. Mount the Card in the option-C location as shown in the diagram below.
3. Insert the spacer that is provided into the spacer mounting hole located on the mounting base of the Inverter.
4. Make sure the Optional Card connector and the control circuit board connector are properly aligned, and then push the spacer through the spacer mounting hole on the Card until it clicks into place.
5. Connect the ground wire of the Card to FG terminal 12(E) on the Inverter control circuit board.



## Wiring

### Peripheral Device Wiring Example



- Note** 1. Be sure to connect the ground wire (E) to terminal 12(E) of the Inverter control circuit board.

2. Use shielded cable for the control wire and connect the wire to the TC3 shielded-wire connector.
3. Make sure the wire length is less than 50 m and that it is placed at least 30 cm away from other power lines.

## Description of Input Terminals

Terminal	No.	Code	Description				
			Binary input	BCD input	5-digit BCD		
TC1	1	D0	2 <sup>0</sup>	1	x 10 <sup>0</sup>	2	x 10 <sup>0</sup>
	2	D1	2 <sup>1</sup>	2		4	
	3	D2	2 <sup>2</sup>	4		8	
	4	D3	2 <sup>3</sup>	8		1	x 10 <sup>1</sup>
	5	D4	2 <sup>4</sup>	1	x 10 <sup>1</sup>	2	
	6	D5	2 <sup>5</sup>	2		4	
	7	D6	2 <sup>6</sup>	4		8	
	8	D7	2 <sup>7</sup>	8		1	x 10 <sup>2</sup>
	9	D8	2 <sup>8</sup>	1	x 10 <sup>2</sup>	2	
	10	D9	2 <sup>9</sup>	2		4	
TC2	1	D10	2 <sup>10</sup>	4		8	
	2	D11	2 <sup>11</sup>	8		1	x 10 <sup>3</sup>
	3	D12	2 <sup>12</sup>	1	x 10 <sup>3</sup>	2	
	4	D13	2 <sup>13</sup>	2		4	
	5	D14	2 <sup>14</sup>	4		8	
	6	D15	2 <sup>15</sup>	8		1	x 10 <sup>4</sup>
	7	SIGN	SIGN signal input			2	
	8	SET	SET (READ) signal input				
	9	0V	Digital command COMMON terminal				
TC3	(E)	Shielded line terminal					

- Note** 1. Input specifications for individual input terminals:  
+24 VDC (internal power supply), approx. 8 mA
2. Select one of the following external input elements.  
Relay: 30 VDC min., 100 mA max.  
Transistor: 35 VDC min., 30 mA min.

## Wire Thicknesses

Terminal	Wire thickness (mm <sup>2</sup> )	Type of wire
TC (1, 2, 3)	Stranded wire: 0.5 to 1.25 Single wire: 0.5 to 1.25	Shielded twisted-pair wire

## Solderless Terminal Sizes (For Signal Line Connection)

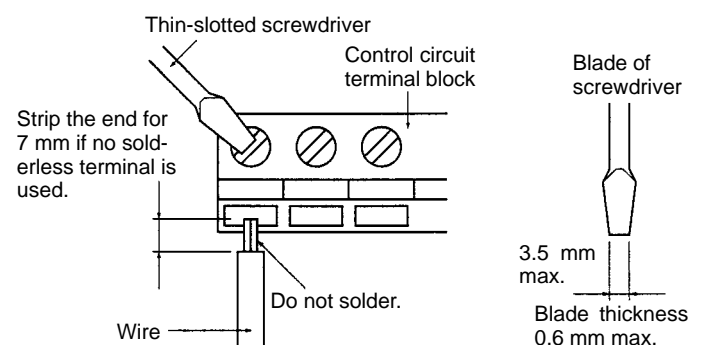
For better reliability and easier wiring, we recommend using solderless terminals for input signals.

Wire thickness	Model	d1	d2
0.5 mm <sup>2</sup>	AI 0.5-8 WH	1.00	2.60
0.75 mm <sup>2</sup>	AI 0.75-8 GY	1.20	2.80
1 mm <sup>2</sup>	AI 1-8 RD	1.40	3.00
1.5 mm <sup>2</sup>	AI 1.5-8 BK	1.70	3.50

(Manufacturer: Phoenix Contact)

## Wiring Procedure for Output and Control Circuit Terminals

- 1, 2, 3... 1. Use a thin-slotted screwdriver to loosen the terminal screws.
2. Insert the wire from underneath the terminal block.
3. Tighten the terminal screws firmly.

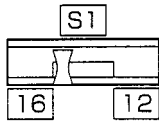


## Input Settings

### 16 and 12-bit Switch Settings

Set 16 or 12 bits to match the bit count of the input digital signal. Slide the switch to the left for 16 bits and to the right for 12 bits.

[16/12-bit switch]



### Parameter Settings

Set "3" (option) for the reference source (b1-01) setting.

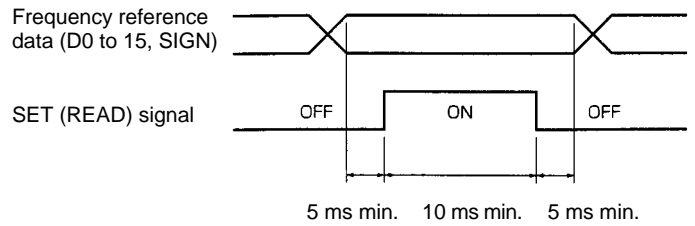
Set the Digital Reference Card input (DI) selection (F3-01) for the input signal specifications.

Setting	Description
0	BCD 1% units
1	BCD 0.1% units
2	BCD 0.01% units
3	BCD 1 Hz units
4	BCD 0.1 Hz units
5	BCD 0.01 Hz units
6	Special BCD settings (5-digit input from 0.00 to 399.99 Hz) (See notes 1 and 2.)
7	Binary input (binary values displayed in decimal)

- Note**
1. The second digit below the decimal point is set by bits  $8 \times 10^0$ ,  $4 \times 10^0$ , and  $2 \times 10^0$ , so the settings are made in units of 0.02 Hz. (If these three bits are "111," "110," and "101," they will be recognized as "9.")
  2. Only positive data can be set in order to use the Sign (CODE) bit as a data bit.

## Digital READ Timing

Use the following data settings and SET (READ) signal ON timing to provide frequency references to the Inverter.



## **OMRON**

### **OMRON Corporation**

Systems Components Division  
14F Nissei Bldg.  
1-6-3, Osaki, Shinagawa-ku,  
Tokyo 141 Japan  
Tel: (03)3779-9038/Fax: (03)3779-9041

### **Regional Headquarters**

#### **OMRON EUROPE B.V.**

Wegalaan 67-69, NL-2132 JD Hoofddorp  
The Netherlands  
Tel: (31)2356-81-300/Fax: (31)2356-81-388

#### **OMRON ELECTRONICS, INC.**

1 East Commerce Drive, Schaumburg, IL 60173  
U.S.A.  
Tel: (847)843-7900/Fax: (847)843-8568

#### **OMRON ASIAPACIFIC PTE. LTD.**

510 Thomson Road #13-03  
SLF Bldg.  
1129 Singapore  
Tel: (65)353-2611/Fax: (65)353-5391

**Note:** Specifications subject to change without notice.

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