# OPC-E1-PG3 Instruction Manual (Additional)

This instruction manual contains the additional information about OPC-E1-PG3 to the instruction manual INR-SI47-1118-E.

## 1. Acceptance Inspection

The model name "OPC-E1-PG3" is printed on the PG interface card.

## 2. PG Specifications

**Table 2.1 Specifications of Applicable PG and PG Interface Card**

| Item | | Specifications |
|---|---|---|
| Applicable PG | Encoder system | Incremental system |
| | Pulse resolution | 20 to 3000 P/R |
| | Input power requirements | 12Vdc± 10%/80mA or less, 15Vdc± 10%/60mA or less |
| PG power supply | Internal power supply | 12Vdc± 10%/80mA or 15Vdc± 10%/60mA |
| | External power supply | 12Vdc± 10%/more than 80mA or 15Vdc± 10%/more than 60mA |
| Output signal | | Open collector (pull-up resistor: 2350Ω)<br>Complementary (totem-pole push-pull) voltage output |
| Max. input frequency | Open collector | cable up to 30m : 100kHz    up to 100m : 30kHz |
| | Complementary | cable up to 30m : 30kHz |

Note 1 : When the PG power is 200mA or more, use an external power supply.
Note 2 : The external power supply should satisfy the voltage specifications of the PG.

## 3. Terminal Specifications

**Table 3.1 Terminal Specifications**

| Terminal symbol | Name | Functions |
|---|---|---|
| PI | External power supply input | Power input terminal from the external device<br>External power supply capacity:<br>12Vdc± 10%/80mA or more or15Vdc± 10%/60mA or more |
| PO | Power supply for PG | Power output terminal<br>12Vdc± 10%/80mA or 15Vdc± 10%/60mA |
| CM | PG common | Common terminal for power supply and PG input |
| YA | A phase pulse input Y | Assigned functions as follows according to functions. |
| YB | B phase pulse input Y | For commands (Same as XA,XB,XZ at p.1-5, Table1.4) |
| YZ | Z phase pulse input Y | For feedback (Same as YA,YB,YZ at p.1-5, Table1.4) |

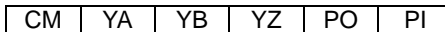| CM | YA | YB | YZ | PO | PI |
|---|---|---|---|---|---|

**Figure 3.1 Terminal layout**

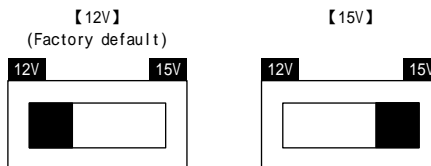Select internal power supply for PG (12V/15V) by SW12 on the interface card.



**Figure 3.2 Select internal power supply**

# 4. Function Specifications

OPC-E1-PG3 changes into the following specification compared with OPC-E1-PG.

## Chapter 6 SPEED CONTROL   P.6-2
## Chapter 7 POSITIONING CONTROL   P.7-6

This function code switches the feedback pulse input mode with the data in the ones place as listed below. Setting of tens digit of o01 is ignored and don't reflect to any operating.

**Table 4.1 Data for o01**

| Feedback pulse input mode | Data for o01 |
|---|---|
| B phase pulse input | 0 |
| Forward/reverse pulse input | 1 |
| A/B phase pulse input | 2 |

## Chapter 6 SPEED CONTROL   P.6-2,P.6-3,P.6-4

The function codes of the feedback input setting of the speed control with PG are a table below.

**Table 4.2 Function Codes**

| Code | | Name | | Data setting range | Unit | Default setting | Change when running |
|---|---|---|---|---|---|---|---|
| OPC-E1-PG | OPC-E1-PG3 | | | | | | |
| o09 | o05 | Feedback Input | (Encoder pulse resolution) | 20 to 3600 | P/R | 1024 | N |
| o10 | o06 | | (Filter time constant) | 0.000 to 5.000 | s | 0.005 | Y |
| o11 | o07 | | (Pulse count factor 1) | 1 to 9999 | - | 1 | N |
| o12 | o08 | | (Pulse count factor 2) | 1 to 9999 | - | 1 | N |

## Chapter 7 POSITIONING CONTROL   P.7-9

Table 4.3 lists input assignments for terminals [XA], [XB] and [XZ] when the positioning control, speed control with PG and speed control with pulse rate input share the PG terminals.
The specifications of those terminals when shared differ from the ones when not shared.

**Table 4.3 Function Assignments of PG Terminals**

| Pulse train input, F01/C30 data is 12. | Speed control with PG, F42/A14 data is 3 or 4. | Positioning control, *S/R* is assigned. | Normal mode (Except the right column mode) | Serial pulse receiving mode, *SPRM* is ON |
|---|---|---|---|---|
| No | No | No | Pulse monitor | |
| | | Yes | Positioning control | Serial pulse (J86) |
| | Yes | No | Speed control | |
| | | Yes | Speed control / Positioning control | |
| Yes | No | No | Pulse train input | |
| | | Yes | Pulse monitor (Pg alarm happens.) | |
| | Yes | No | | |
| | | Yes | | |

# 5. Terminal "PLC"

Terminal "PLC" can supply source current of digital input terminals X1-X5,FWD,REV only when digital input terminals are used as source logic.

Note   Don't use terminal "PLC" in a purpose except the above. Otherwise the inverter may damaged.