JUXTA G Series Instruction Manual

Model GD5
Tachometer Transmitter

JUXTA

1. GENERAL

Model GD5 Tachometer transmitter converts an output signal from the tachometer generator to a DC voltage or current signal. An AC or DC (rectified in the generator) input is switched by a jumper. Seven types of output range are provided (see Section 4-2 Setting Output Ranges). Any one of the output ranges can easily be selected.

Accessories:

A fuse (0.5A) (Part number G9055ZF).

Tag number label; 4 sheets

2. INPUT/OUTPUT SPECIFICATIONS

2-1. AC Input.

Input range:

15 Hz (span) to 1 kHz (span)
Yokogawa Types 2612, 2613, 2615, and 2616
Converted numbers of rotation (by tachometer transmitter)
N (rpm) to (N x 2)/60 (Hz)
500 to 5000 (rpm) Span to 16.7 to 166.7 Hz (Span).

Accuracy:

±0.3% for Span 100 Hz or more.

±[0.3 + (100 – Span) x 0.008]% for Span 100 Hz or less.

where input is at least 10 Hz.

2-2. DC Input.

Input range

4 to 150V DC (Span)
Converted numbers of rotation by Yokogawa Types 2614 and 2617:
10V DC/50 rpm (by Type 2614)
4V DC/50 rpm (by Type 2617)

Accuracy:

±1% of span.

3. INSTALLATION AND WIRING

3-1. Installation.

CAUTION

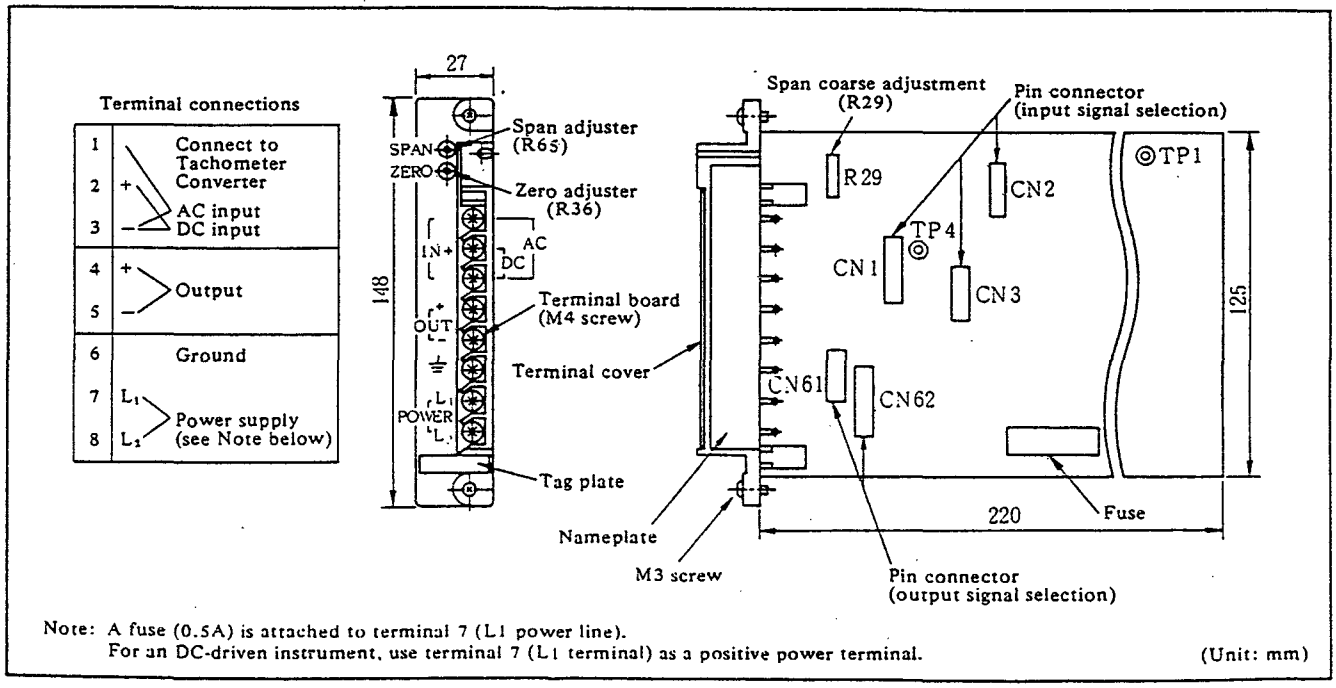
When the input signal or power supply voltage exceeds 30V DC or AC, install and wire the transmitter so that operators cannot easily touch the printed circuit board or terminal board.

(1) When the transmitter is housed in the HB-16 Rack mounting enclosure, follow the Model HB-16 Instruction Manual.

(2) When the transmitter is mounted on a rack, use a mounting angle (see Figure 2). Users should prepare a suitable mounting angle.
When the transmitter is covered with a metalic case, ground the case.

3-2. Wiring.

Use flexible stranded cables and solderless terminal (crimp-on) lugs conforming to JIS C 2805.



Note: A fuse (0.5A) is attached to terminal 7 (L1 power line).
For an DC-driven instrument, use terminal 7 (L1 terminal) as a positive power terminal.

(Unit: mm)

Figure 1. Component Names.

3rd Edition: Apr. 2004 (YK)

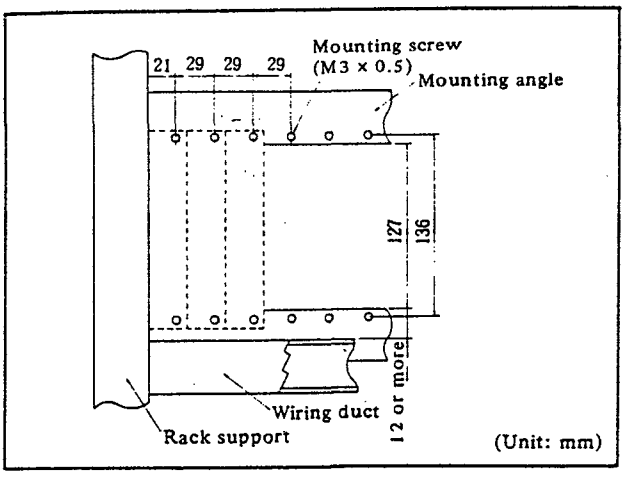


Figure 2. Mounting Conditioner on Rack.

(1) Signal cable.
Nominal cross-sectional area of conductor: 0.5 to 0.75 mm^2
Applicable cable example: PVC insulated cable (VSF) conforming to JIS C3306.

3-3. Grounding Wire.

The transmitter ground terminal is isolated from the signal and power supply circuits. Ground it independently, or when several transmitters are used, ground their ground terminals globally.

Grounding: JIS Class 3 ground (up to 100 ohms).

Note: If grounding methods are limited by measuring or control instruments used with the transmitters follow them.

4. OPERATION

4-1. Setting Input Ranges.

Figures 3 and 4 illustrate CN1, CN2, and CN3 pin connectors which allow you to set input ranges by short-circuiting the pin connectors using sockets.

(1) For AC (Hz) input (see Figure 3).
- Connect sockets to AC pin connector (shaded) on CN1 connector and pin connector (8.5 to 30) (shaded) on CN3 connector. Any of the pin connectors ×5, ×1, DIODE 1, DIODE 2, SHORT on CN3 may be connected by a socket.
- Connect a socket to the desired CN2 pin connector (shaded) which allows a frequency signal to be measured.
- To select an input filter circuit, connect a socket to "2 SEC" on CN3 when the input frequency span is less than 200 Hz; connect a socket to "0.1 SEC" on CN3 when the input frequency span is greater than 200 Hz.
- After connecting the sockets, apply 100% AC input (100% AC voltage output of tachometer generator, or a sine wave signal of 4V AC) to the transmitter, and turn the span (coarse) adjustment (R29) until the voltage across TP1 and TP4 terminal pin (see Figure 1) is 4.74 ± 0.04V.
- For the accuracy test, refer to Section 5-2 Calibration.

(2) For DC voltage input (see Figure 4).
- Use the input signal selection pin connectors CN1 and CN3.
- Any of the CN2 pin connectors may be set.
- Connect a socket to CN1 DC pin connector.
- Connect a socket to DIODE 1 or DIODE 2 on CN1 connector, which is built into Type 2614 or 2617.
  Types 2614-02 and 2617-04 use DIODE 1, and Types 2614-01 and 2617-03 use DIODE 2.
- Pin connector "SHORT" on CN1 connector is used to provide the tachometer generator output when its diode output characteristics are not compensated.
- Select CN1 and CN3 pin connectors to match the measurement range and connect sockets.
- Connect a socket to pin connector "2 SEC" on CN3.
- After connecting sockets, apply 100% DC input to the transmitter. Turn the span (coarse) adjustment

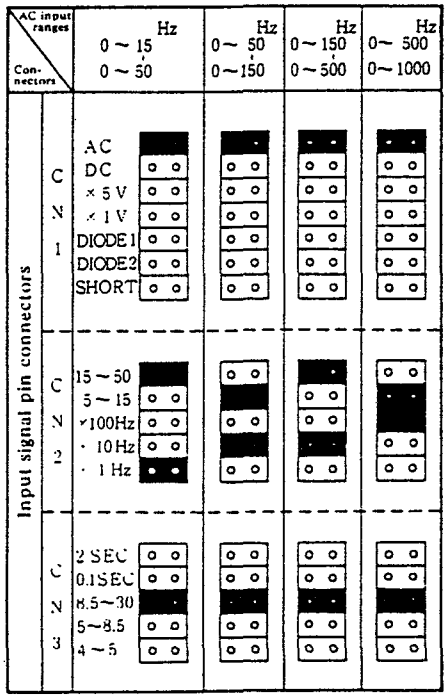


Figure 3. AC Input Pin Connectors.

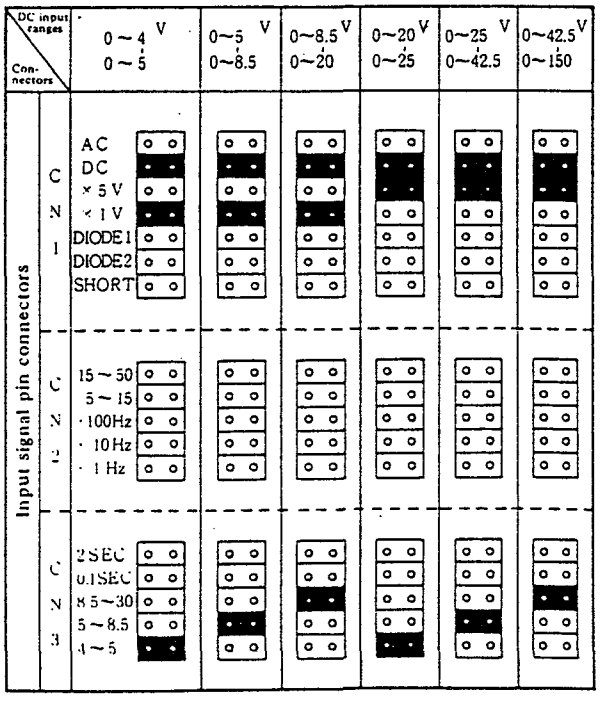


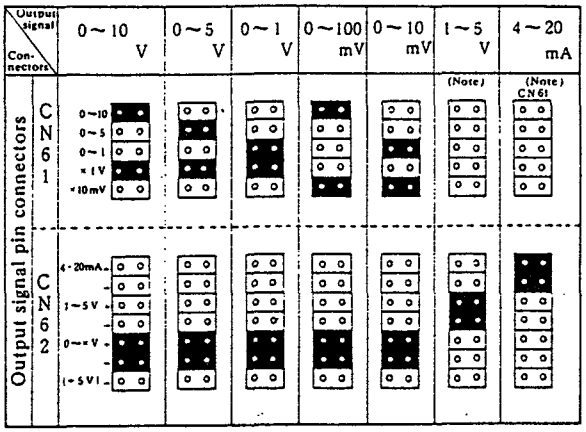
Figure 4. DC Input Pin Connectors.

(R29) until the DC voltage across TP1 and TP4 terminal pin (see Figure 1) is 4.74 ± 0.04V.

- For the accuracy test, refer to Section 5-2 Calibration.

4-2. Setting Output Ranges (see Figure 5).

- The transmitter provides seven different types of output signals. The desired output signals can be obtained by connecting sockets to output signal selection pin connectors (CN61 and CN62). Connect sockets to the (shaded) pin connectors (see Figure 5).
- When input ranges are changed, check the input and output accuracies (see Sections 2 and 5).



Note: For 1 to 5V DC or 4 to 20 mA DC outputs, the corresponding CN1 pin connectors (two) may be connected anywhere.

Figure 5. Pin Connectors for Selecting Output Signal.

4-3. Preliminary Checking Before Power On.

- Is the power supply normal?
  (The supply voltage must be rated 20 to 130V DC or 80 to 138V AC.)
- Are all wiring connections correct?
- Are installation, ambient temperature/humidity normal?
- Is the transmitter free of dust and vibration?

If the above are O.K., apply power to the transmitter.

5. MAINTENANCE

CAUTION

Do not touch the transmitter Printed circuit board. Allow five minutes before operating the instrument.

5-1. Calibration.

Instruments required are as follows:

- A digital multimeter (YOKOGAWA Type 2502A or equivalent).
- A DC Voltage/Current Standard (YOKOGAWA Type 2552 or equivalent).
- A sine wave generator and a frequency counter (Class 0.1).

5-2. Check

(1) Connect all instruments as shown in Figure 6. Apply power to the instruments and allow five minutes before checking the transmitter.

(2) Check the input/output characteristics (see Section 2 Input and Output Specifications).

(3) If the output signal is beyond the tolerances, the transmitter requires calibration adjustments (zero and span).

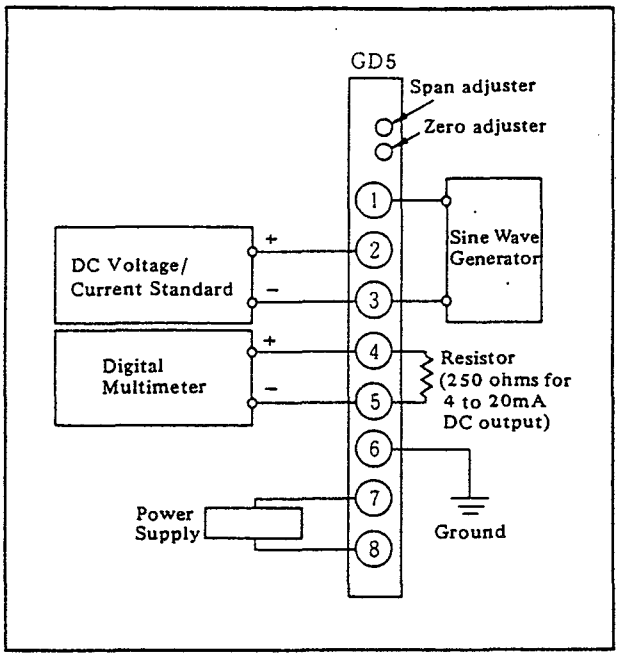


Figure 6. Interconnection Diagram.

5-3. Fuse Replacement.

For preventive maintenance, replace the fuse every three years. If the fuse is blown, check the probable cause and replace it with a new one. Turn off the power before replacing the fuse. If the fuse holder is dirty, clean it.

Subject to change without notice for grade up quality and performance.

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