

# General Specifications

Model VJB1  
CT Converter (RMS)

**JUXTA**

GS 77J01B01-01E

## General

The VJB1 is a compact, plug-in type CT converter that converts sinusoidal AC current signal from a current transformer (CT output, etc.) into isolated DC voltage or DC current signals.



## Model and Suffix Codes

Model	VJB1-0	1	□	-	□	□	N	□	/	□
Output										
1: 1 output										
Power supply										
6: 100-240 V AC/DC (Operating range: 85 to 264 V)										
7: 15-30 V DC (Operating range: 12 to 36 V)										
Input signal										
A: 0 to 1 AAC										
B: 0 to 5 AAC										
Z: Custom order (AC current signal)										
See Table 1.										
Output signal										
A: 4 to 20 mA DC	1: 0 to 10 mV DC									
B: 2 to 10 mA DC	2: 0 to 100 mV DC									
C: 1 to 5 mA DC	3: 0 to 1 V DC									
D: 0 to 20 mA DC	4: 0 to 10 V DC									
E: 0 to 16 mA DC	5: 0 to 5 V DC									
F: 0 to 10 mA DC	6: 1 to 5 V DC									
G: 0 to 1 mA DC	7: -10 to +10 V DC									
Z: Custom order (DC current/voltage signal)										
See Table 2.										
CT (current transmitter) protector										
0: Not provided. <sup>*2</sup>										
1: 1 piece provided.										
Option										
/SN: No socket (with socket if not specified)										
/C0: Coating <sup>*1</sup>										
/FB: Fuse bypass <sup>*1</sup>										

- \*1 When option code /C0 or /FB is specified, the conformity to the safety and EMC standards is excluded. CE marking is not applicable.
  - \*2 When "0" is specified in the CT protector code, the CT protector (CTG-5) must be ordered separately.
- Note 1: "/C0" option: Polyurethane coating. The "/C0" option does not guaranteed the coating effect though it is expected that the corrosion resistance for electric circuit is reinforced. And it is not able to submit coating test data.
- Note 2: "/FB" option: The primary power supply fuse is deleted, short circuit and ship it.

## Ordering Information

- Model and Suffix Code: e.g. VJB1-016-BAN0

## Input/Output Specifications

Input signal: 0 to 1 AAC or 0 to 5 AAC  
 Input loss: 0.5 VA maximum  
 Input frequency range: 40 Hz to 10 kHz  
 Maximum allowable overrange input:  
 120% (continuous), 1000% (for 3 seconds)  
 Output signal: DC voltage or DC current  
 Output variable range: -6 to 106 %  
 Allowable load resistance:

Output Range	Allowable Load Resistance	Output Range	Allowable Load Resistance
4 to 20 mA DC	750 Ω maximum	0 to 10 mV DC	250 kΩ minimum
2 to 10 mA DC	1500 Ω maximum	0 to 100 mV DC	250 kΩ minimum
1 to 5 mA DC	3000 Ω maximum	0 to 1 V DC	2 kΩ minimum
0 to 20 mA DC	750 Ω maximum	0 to 10 V DC	10 kΩ minimum
0 to 16 mA DC	900 Ω maximum	0 to 5 V DC	2 kΩ minimum
0 to 10 mA DC	1500 Ω maximum	1 to 5 V DC	2 kΩ minimum
0 to 1 mA DC	15 kΩ maximum	-10 to +10 V DC	10 kΩ minimum

Output resistance:  
 Current output: 500 kΩ or more  
 Voltage output other than below: 1 Ω or less  
 0 to 10 mV DC, 0 to 100 mV DC: 100 Ω or less  
 Zero adjustment: -5 to +5%  
 Span adjustment: 95 to 105%

## Standard Performance

Accuracy rating: ±0.5% of span; accuracy is not guaranteed for output level less than 0.5% of the span of a 0 to X mA output range type.  
 Response speed: 250 ms, 63% response (10 to 90%)  
 Effect of power supply voltage fluctuation: Within the accuracy range of span for power supply voltage fluctuation.  
 Effect of ambient temperature change: ±0.2% of span for change of 10°C

## Safety and EMC Standards

CE:  
 EMC directive  
 EN 61326-1 Class A Table 2 <sup>\*1</sup> compliance  
 EN 61326-2-3 compliance  
 EN 61000-3-2 compliance  
 EN 61000-3-3 compliance  
 EN 55011 Class A Group 1 compliance  
 Low voltage directive:  
 EN 61010-1, EN 61010-2-030  
 Overvoltage category II <sup>\*2</sup>, Pollution degree 2 <sup>\*3</sup>,  
 Measurement category II

CSA: CAN/CSA C22.2 No. 61010-1  
CAN/CSA C22.2 No. 61010-2-030  
Overvoltage category II<sup>2</sup>, Pollution degree 2<sup>3</sup>,  
Measurement category II

UL: UL61010-1 (CSA NRTL/C)  
UL 61010-2-030 (CSA NRTL/C)  
Overvoltage category II<sup>2</sup>, Pollution degree 2<sup>3</sup>,  
Measurement category II

RCM: EN 55011 Class A Group 1 compliance

KC: Electromagnetic wave interference prevention  
standard, electromagnetic wave protection  
standard compliance

- \*1 The instrument continues to operate at a measurement accuracy of within  $\pm 20\%$  of the range during testing.
- \*2 Overvoltage category II: Describes a number which defines a transient overvoltage condition. Implies the regulation for impulse withstand voltage. "II" applies to electrical equipment which is supplied from the fixed installation like a distribution board.
- \*3 Pollution degree 2: Describes the degree to which a solid, liquid, or gas which deteriorates dielectric strength or surface resistivity is adhering. "2" applies to normal indoor atmosphere. Normally, only non-conductive pollution occurs.

However, if optional code /C0 or /FB is specified, the conformity to the safety and EMC standards is excluded.

## ■ Environment Standard

EU RoHS directive: EN IEC 63000  
(However, when option code /C0 or /FB is specified, CE marking is not applicable because the product does not comply with the Safety and EMC standards.)

## ■ Power Supply and Isolation

Power supply rated voltage:  
100-240 V AC/DC  $\approx$  50/60 Hz or  
15-30 V DC  $\dots$

Power supply input voltage:  
100-240 V AC/DC  $\approx$  (-15, +10%) 50/60 Hz  
or 15-30 V DC  $\dots$  ( $\pm 20\%$ )

Power consumption:  
1.3 W at 24 V DC ; 1.3 W at 110 V DC;  
3.2 VA at 100 V AC; 4.2 VA at 200 V AC

Insulation resistance: 100 M $\Omega$  minimum at 500 V DC  
between input, output, power supply and  
grounding terminals mutually

Withstanding voltage: 2000 V AC for one minute  
between input, output, power supply and  
grounding terminals mutually

## ■ Environmental Conditions

Temperature: -10 to 55°C (45°C or less for side-by-side close installation\*)

- \* If the previous model (style S3.xx earlier) is installed together, the ambient temperature is 0 to 40°C.

Humidity: 5 to 90% RH (no condensation)

Ambient Condition: Avoid installation in such environments as corrosive gas like sulfide hydrogen, dust, sea breeze and direct sunlight.

Magnetic field: 400 A/m or less.

Continuous vibration (at 5 to 9 Hz) Half amplitude of 3 mm or less (at 9 to 150 Hz) 4.9 m/s<sup>2</sup> or less, 1 oct/min for 90 minutes each in the 3-axis directions.

Impact: 98 m/s<sup>2</sup> or less, 11 msec, 3-axis 3 times each in 6 directions.

Altitude: 2000 m or less.

Installation location: Indoors

Warm-up time: At least 30 minutes after power on.

## ■ Transport and Storage Conditions

Ambient temperature: -25 to 70°C

Temperature change rate: 20°C per hour or less

Ambient humidity: 5 to 95%RH (no condensation)

## ■ Mounting and Appearance

Construction: Compact plug-in type

Material: Modified polyphenylene oxide (casing)

Mounting method: Wall, DIN rail or dedicated VJ mounting base (VJCE) mounting

Connection method: M3 screw terminals

External dimensions:

76 (H)  $\times$  29.5 (W)  $\times$  124.5 (D) mm  
(including a socket)

Weight: Main unit: 100 g or less

Socket: 50 g or less

## ■ Accessories

Tag number label: 1 sheet

Socket (T9093FL): 1 piece (when /SN option is not specified.)

CT protector (CTG-5): 1 piece (when "1" is specified for the CT protector code.)

## ■ Customized Signal Specifications

### ● Input custom specification

Table 1 Manufacturable Ranges

	AC Current Signal
Input range	0 to 5 AAC
Span	0.1 to 5 AAC
Zero elevation	0% only

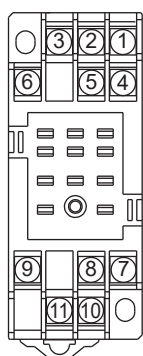
### ● Output custom specification

Table 2 Manufacturable Ranges

	Current Signal	Voltage Signal
Output range (DC)	0 to 24 mA	-10 to +10 V
Span (DC)	1 to 24 mA	10 mV to 20 V
Zero elevation	0 to 200%	-100 to +200%

Note: Customized specifications for the output signal within 0 to 20 mA DC or within -10 to +10 V DC comply with safety standards, EMC standards, and environmental standards. Other customized specifications do not conform to these standards.

## Terminal Assignments

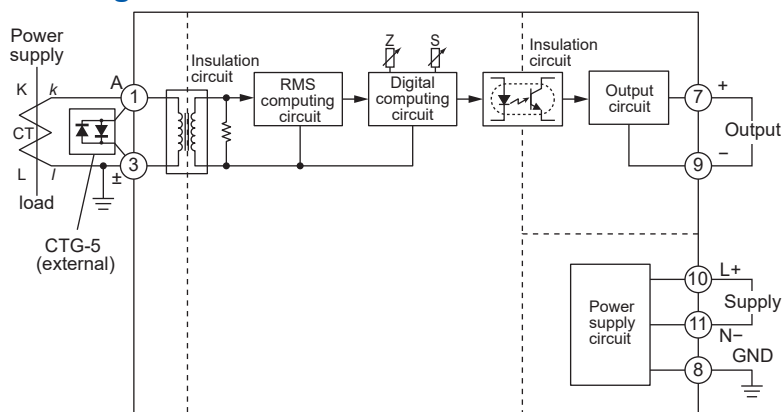


1	Input	(A)
2	Do not use	
3	Input	(±)
4	Do not use	
5	Do not use	
6	Do not use	
7	Output	(+)
8	GND	
9	Output	(-)
10	Supply	(L+)
11	Supply	(N-)

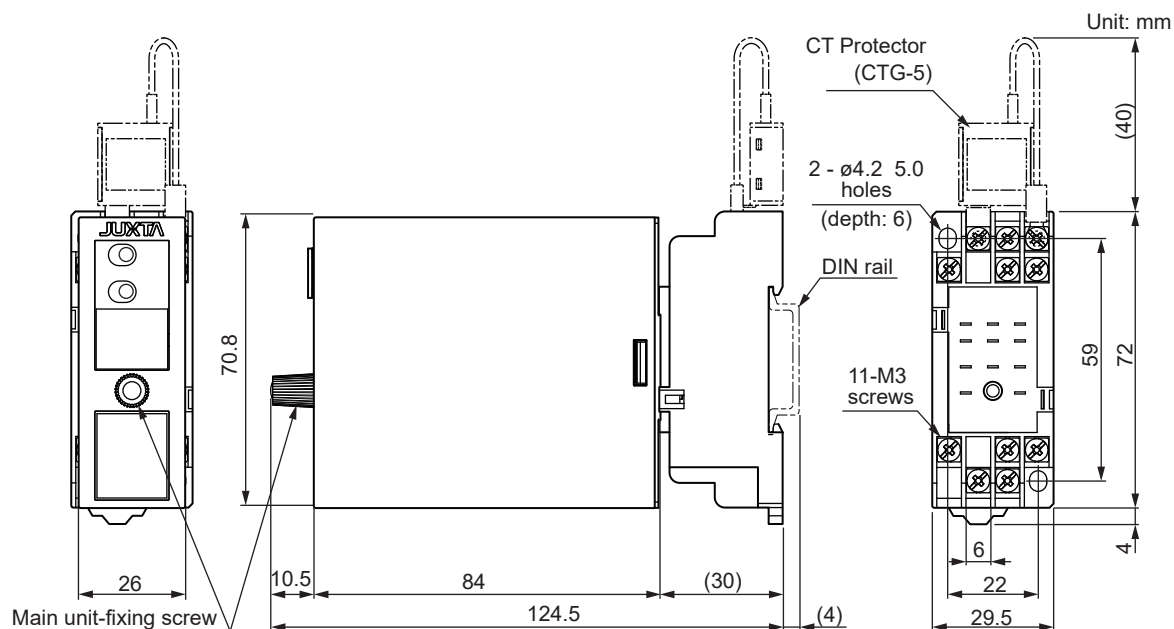
## CAUTION

It is recommended that CT protector (CTG-5) be attached to the current input terminals connected to the secondary stage of the CT. Since a high potential develops over the secondary stage, the CT may burn and break if you unplug the main unit from the socket while the converter is turned on and it has no CT protector.

## Block Diagram



## External Dimensions



Normal Allowable Deviation =  $\pm$  (Value of JIS B 0401-2016 tolerance grade IT18) / 2

## ■ CTG-5 specifications (CT protector)

Model and suffix codes: CTG-5

Mountable model: VJB1

Rated current: 5 A

Rated overcurrent: 6 A (for 3 minutes),  
25 A (for 5 seconds)

CTG is a diode protection type. Keep the  
overcurrent time as short as possible.

Temperature: -10 to 55°C

Humidity: 5 to 90% RH (no condensation)

Material:

Cover: PPS resin

Tip: Brass, Nickel plating

Weight: Approx. 6 g

External Dimensions:

