VIGOR
VS-3AV-EC
### Brief Voltage I/O Expansion Card

Forward

The VS-3AV-EC Brief Voltage I/O Expansion Card offers non-isolated 2 channels 0~10V input and 1 channel 0~10V output. In addition, it provides an accurate calibration DC 10V voltage output to connect with variable resistor or position transducer easily.

By using the built-in analog I/O circuit in the CPU of the installed Main Unit, this VS-3AV-EC expansion card could achieve low-cost but relatively convenient analog I/O function.

Precautions

1. This expansion card can ONLY be installed at the EC2 expansion card socket of the VS Series PLC.

2. The VS Series PLC Main Unit operates this expansion card through 3 specific special registers that instead of the expansion card working area (Simple Code). Its operation method is different from other SF cards and required special attention.

3. The length of external wiring should be as short as possible and kept away from interference sources.

4. If this expansion card does not function normally that due to strong external interference or unqualified equipment matching quality, please replace it with proper VS Series PLC special module.

Component Designation

Card Weight (N.W. / G.W.): 40g/75g
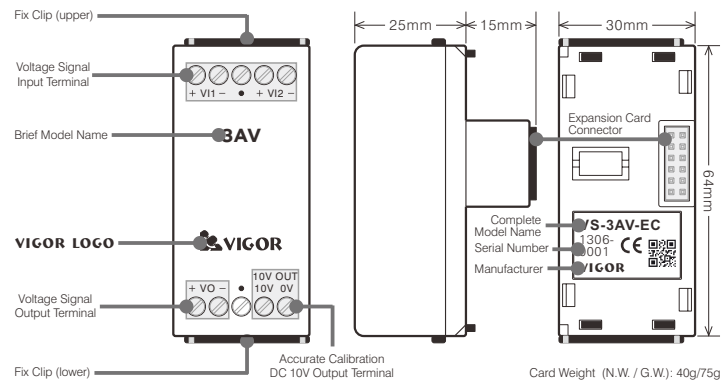
Specification

Basic Specification

Item	Specification
Power Consumption	DC12V 25mA (from PLC Main Unit)
Accurate Calibration Voltage Output	DC10V ± 1%, 10mA (Max.)

Voltage Input Specification

Item	Specification	Conversion Curve Diagram
Voltage Input Range	0~10V	
Converted Value	0~4000	
Input Resistance	56KΩ	
Max. Resolution	2.5mV	
Overall Accuracy	± 2% Overall Max.	
Response Time	Renew converted digital values every Scan Time	
Isolation Method	No isolation	

Voltage Output Specification

Item	Specification	Conversion Curve Diagram
Voltage Output Range	0~10V	
Digital Set Range	0~1000	
External Load Resistance	1KΩ~1MΩ	
Max. Resolution	10mV	
Overall Accuracy	± 2% Overall Max.	
Response Time	Renew output every Scan Time	
Isolation Method	No isolation	

Special Register Related to VS-3AV-EC

| Register ID No.	Component Description
■ D9030	The AD converted value of VI1 at the VS-3AV-EC, 0~10V = 0~4000
■ D9031	The AD converted value of VI2 at the VS-3AV-EC, 0~10V = 0~4000
D9032	The DA digital set value for the VO at the VS-3AV-EC, 0~1000 = 0~10V

■ Represents that component is read only.

External Wiring
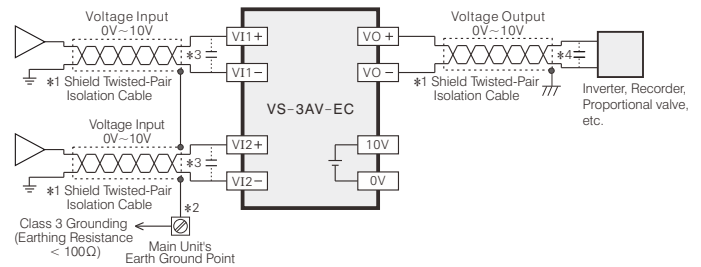
∗1: Please use the Shield Twisted-Pair isolation cable for every voltage input or output channel and keep the signal cable away from power lines to minimize external interference.

∗2: First, please combine the ends of the cable shields. Then, connect that junction to the earth ground point of Main Unit. After that, make use of class 3 grounding for the point.

∗3: If a voltage ripple occurs at converted value or there is electrically induced noise on the wiring, please parallel connect a smoothing capacitor (0.1μF~0.47μF, 25V) between the input terminals.

∗4: If a voltage ripple occurs at the signal input of the load device, please parallel connect a smoothing capacitor (0.1μ~0.47μ, 25V) between the input terminals to reduce the induced noise.

Usage Example of Product

- A typical application of this expansion card is to build a simple volume input by connecting the voltage input point and accurate calibration DC 10V voltage output on the VS-3AV-EC expansion card to a variable resistor on the surface of operation panel.
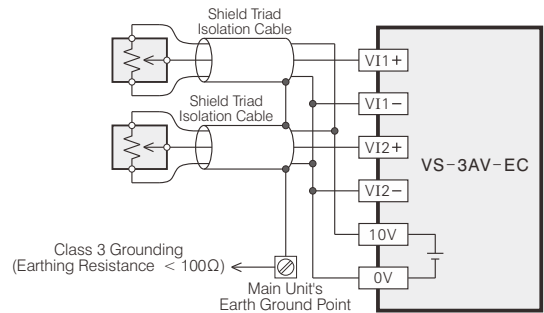
Expansion Card Installation Guide

- Every VS Series Expansion Card has 2 black fix clips (upper & lower), those have symbols and grooves.

Use a slot head screwdriver to slide the fix clips.

LOCK ⟷ OPEN

Fix clip moves left to fasten card on PLC. Fix clip moves right to loosen card from PLC.

- To install an expansion card, firstly, slide both the fix clips to the right, and insert the card to EC Socket on the Main Unit, then slide the fix clips to the left to fix the card.

- To remove an expansion card from the Main Unit, must slide both the fix clips to the right first, then pull the card from the Main Unit out.

Slide both the Fix Clips to the right.   Slide both the Fix Clips to the left.