

## 1746sc Isolated-Channel Analog Output Modules

Catalog Nos. 1746sc-INO4i and 1746sc-INO4vi

### Product Profile



- Installs and operates exactly like an Allen-Bradley product for full compatibility
- Ideal for demanding analog applications in electrically noisy environments
- Features 750 Vdc channel-to-channel isolation for immunity to electrical noise, cross-talk between channels and ground loop problems
- Eliminates the need for expensive, resolution- and accuracy-robbing external isolation blocks
- Fully auto-calibrating with on-board ambient temperature compensation. No external reference source required

The 1746sc-INO4i provides four isolated channels of current, while the 1746sc-INO4vi provides four isolated channels of current *or* voltage (in any combination). In both modules, the voltage and/or current ranges are independently configurable for each channel. These modules provide new, advanced features to make your control systems more dependable and flexible.

### Increase System Reliability

Both modules provide 750 Vdc channel-to-channel isolation, which means no electrical noise crosstalk (resulting in a high *usable* resolution—something to consider with a high-performance, 16-bit module). They also provide 750 Vdc field-wiring-to-backplane isolation to protect the processor and rack. These modules feature onboard temperature compensation to maintain their accuracy with fluctuating ambient temperatures, important for crowded control cabinets.

### Reduce System Costs

Because isolation is built into these modules, you can improve system accuracy while saving hundreds of dollars on system installation costs. Expensive, external isolation blocks are simply not required. They also provide a single-slot solution for applications requiring up to four, mixed analog outputs so you don't have to purchase more I/O than you need.

### Get State-of-the-Art Features

These modules incorporate proprietary Allen-Bradley technology so they operate and perform like an Allen-Bradley product. They also provide 16-bits of resolution, user-programmable range setting, continuous auto-calibration (no field calibration), software configuration, programmable output limits and programmable safe states in case of a fault.

## 1746sc-INO4i/vi Specifications

### 1746sc-INO4i/vi Wiring

		-INO4i	
Not used ▶	0		
Current output, ch. 0 ▶	1		
Analog ground, ch. 0 ▶	2		
Chassis ground ▶	3		
Not used ▶	4		
Current output, ch. 1 ▶	5		
Analog ground, ch. 1 ▶	6		
Not used ▶	7		
Current output, ch. 2 ▶	8		
Analog ground, ch. 2 ▶	9		
Chassis ground ▶	10		
Not used ▶	11		
Current output, ch. 3 ▶	12		
Analog ground, ch. 3 ▶	13		
+24 Vdc external ▶	14		
Ground external ▶	15		

		-INO4vi	
Voltage output, ch. 0 ▶	0		
Current output, ch. 0 ▶	1		
Analog ground, ch. 0 ▶	2		
Chassis ground ▶	3		
Voltage output, ch. 1 ▶	4		
Current output, ch. 1 ▶	5		
Analog ground, ch. 1 ▶	6		
Voltage output, ch. 2 ▶	7		
Current output, ch. 2 ▶	8		
Analog ground, ch. 2 ▶	9		
Chassis ground ▶	10		
Voltage output, ch. 3 ▶	11		
Current output, ch. 3 ▶	12		
Analog ground, ch. 3 ▶	13		
+24 Vdc external ▶	14		
Ground external ▶	15		

Outputs per Module	4 (differential)
Channels per Common	1
Module Location	1746 I/O chassis—1 slot
Output Current Ranges	4 to 20 mA 0 to 20 mA 0 to 21 mA
Output Voltage Ranges (-INO4vi only)	-10 to +10 VDC 0 to 10 VDC 0 to 5 VDC 1 to 5 VDC
Resolution Current Voltage (-INO4vi only)	366 nA per count 320 µV per count
Advanced Features	Extended output ranges, auto-calibration Programmable limits and safe states
SLC Communication Formats	16-bit two's complement Scaled engineering units Scaled for PID 1746-NO4 format User-defined proportional counts
Accuracy Current  Voltage (-INO4vi only)	0.08% of full scale @ 25 °C 0.15% of full scale @ 60 °C 0.08% of full scale @ 25 °C 0.35% of full scale @ 60 °C
Non-Linearity	0.02% of full scale
Opto-Electrical Isolation	750 Vdc channel-to-channel 750 Vdc field-wiring-to-backplane
Output impedance Current Voltage (-INO4vi only)	>1 M $\Omega$ <1.0 $\Omega$
Max. Resistance, Current Mode	500 $\Omega$
Max. Current, Voltage Mode	10 mA (-INO4vi only)
Backplane Current Required (max.)	120 mA @ 5 V; 250 mA @ 24 V
Thermal Dissipation	4.5 Watts, maximum
Update Time (maximum)	33.7 ms for all 4 channels in parallel
Step Response Time (typical)	1 ms (0–95% of full scale)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity	0° to 60°C (32° to 140°F) -40° to 85°C (-40° to 185°F) 5 to 95% (non-condensing)
Certifications	UL/CUL (Class I, Div 2, Groups ABCD) and CE
Recommended Cable	Shielded, twisted-pair, Belden 8761



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