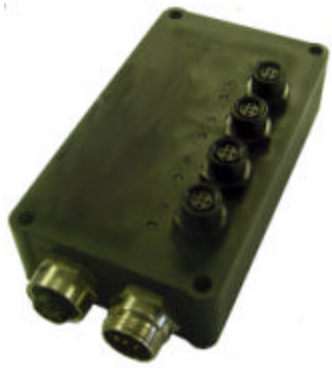
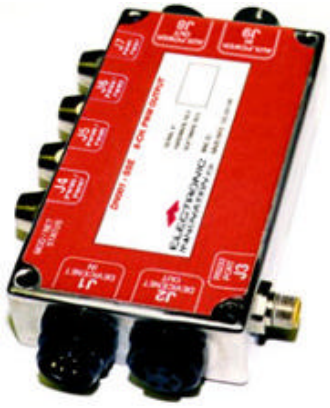
ELECTRONIC INNOVATION Inc.

DN004-OFE
DN004-PFE
DN004-SSE

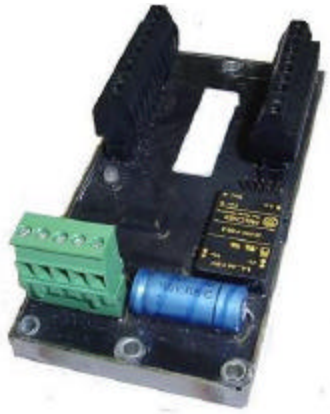
6 Point PWM, 2 Analog Voltage Output Module



DN004-PFE



DN004-SSE



DN004-OFE

The Electronic Innovation Inc. “DN” line of modules is intended to provide rugged, reliable, *DeviceNet*™ I/O capability in unusually harsh environments. These include applications such as on-board control of heavy mobile equipment.

The DN line has been designed from the ground up to survive these environments with special attention in the following areas:

- Mechanical design for high shock, vibration, and concussion tolerance, resistance to liquids such as water or oil, and most forms of corrosion, along with wide operating temperature ranges.
- Electrical design to ensure reliable operation in the face of severe electrical transients, which can occur on vehicle electrical systems. All modules have been designed and tested according to automotive standard SAE J1113 and mil spec QSTAG-307
- Electronic design to minimize electromagnetic emissions and provide low susceptibility to external electromagnetic interference.
- Extensive design effort has been expended to ensure that hardware, software, or network faults, if and when they occur, will result in a predictable and timely transition of the module to the safest achievable state.

The DN004 *DeviceNet*™ High Current Pulse Width Modulated (PWM) and Voltage Analog Output Module provides six outputs which are well suited to provide high-side control of heavy inductive vehicle loads such as the solenoids used for proportional electric control over hydraulic systems. The duty cycle of these outputs may be varied from true 0% to true 100% allowing them to also be used as discrete digital outputs. The wide PWM frequency range available permits operation with a range of available equipment from many manufacturers. The DN004 also provides two protected voltage output channels with a maximum span of –10V to +10V. These are often used for such purposes as providing the control input to servo positioning systems or the throttle input for electronic engine controls.

DeviceNet™ CONFORMANCE TESTED

DeviceNet Communications

Default MAC ID:	63, Software Selectable
Data Rates Supported:	125, 250, 500 kbps, Software Selectable
Master / Slave Connection Set:	Supported, Group 2 Only Server
Dynamic Connections (UCMM):	Not Supported
Fragmented Explicit Messaging:	Not Supported

DeviceNet Power Supply

Power Supply Voltage:	9 V to 65 V, continuous operating
Power Supply Isolation:	1.2 kV rms
Current Consumption:	200 mA @ 8.8 V Supply 150 mA @ 11.0 V Supply 80 mA @ 25.0 V Supply
Overvoltage Withstand:	120V, 20 seconds
Applicable Standards:	Exceeds QSTAG-307 & SAE 1113

Aux Power Supply

Operating Voltage:	4.5 to 39 VDC
Maximum Operating Current:	18 A Total
Reverse Polarity Protection:	Series Diode
Overvoltage Withstand:	Max. 120V, indefinite duration
Operation During Overvoltage:	Outputs turned off to protect load when Aux. Supply > max. operating voltage
Applicable Standards:	Exceeds QSTAG-307 & SAE 1113

Pulse Width Modulated (PWM) Outputs

Output Type:	High-Side Switch
PWM Frequency:	20 to 2500 Hz, Software Selectable
PWM Frequency Jitter:	100 ppm
PWM Resolution:	8 bits
PWM Duty Cycle Range:	0% to 100%
Overvoltage Shutdown:	39.5 to 42 VDC
Undervoltage Shutdown:	2.4 to 4.5 VDC
Operating Current:	5 A Max per output, 18 A Max Total
Overcurrent Protection:	Auto Reset Electronic Fuse
Overcurrent Trip Point:	7 to 35 A Initial Peak 6 to 10 A Repetitive
Thermal Overload Trip Temp:	150°C Min
Inductive Spike Protection:	Output clamped at 42 VDC, 1500W max. pulse
State of Outputs on Power Up:	All outputs off.
DeviceNet State Behavior:	All outputs immediately turned off any time the module is not in ***Established*** state.

Voltage Outputs

Selectable Ranges:	0 to 5 V, -5 to + 5 V, 0 to 10 V, -10 to +10 V
Resolution:	8 bit
Output Current:	5 mA (max.)
Short Circuit Protection:	Yes

Environmental

Operating Temperature:	-40 °C to +85 °C
Storage Temperature:	-55 °C to +125 °C

Ordering Information

DN004-OFE	Potted into Open Frame stainless steel tray, Terminal block connectors
DN004-SSE	Potted into Polyurethane Enclosure, Micro-Style connectors for outputs
DN004-SSE	Potted into Stainless Steel Enclosure, Micro-Style connectors for outputs

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