

**Programmed with HCT's Intella Software Suite™**

14 I/O (8 inputs & 6 outputs), 1 CAN interface  
Supply voltage 9-30Vdc

The DVC707 is a robust programmable controller for solenoid-operated proportional valves. It is uniquely designed with configurable I/O and one CAN communication port. This controller has fewer I/O than the DVC710, making it more affordable for smaller stand-alone applications. However, it can also be utilized as a system master module or as an expansion module for the DVC700 series controllers.

- Advanced stand-alone programmable controller
- Total system master controller when combined with DVC700 series expansion modules
- Selectable PID closed-loop processes for pressure/speed control
- Configurable inputs and outputs
- Configurable input and output function curves
- CAN communication
- Current regulated outputs
- Open/short detection for diagnostics
- Auto scale outputs for EDC valves (1 to 125 mA)
- Rugged and fully encapsulated
- SAE J1455 environment and load dump compliant
- IP67, 69K
- CE Certified



**Operational Specifications**

<b>Supply Voltage</b>	9-30 V <sub>DC</sub> (recommended operating voltage +12 to +28 V <sub>DC</sub> , absolute maximum +/-32 V <sub>DC</sub> )
<b>Supply Current</b>	15 Amps (recommended supply current per power pin 5 Amps, absolute maximum 8 Amps)
<b>Operating Temperature</b>	-40 to +85°C
<b>Storage Temperature</b>	-40 to +100°C
<b>Weight</b>	1.29 lbs (0.58 kg)
<b>Dimensions</b>	L: 5.50 in (140 mm) x W: 4.70 in (119 mm) x H: 1.65in (42 mm)
<b>Enclosure</b>	Solid potted, industry standard Deutsch enclosure with automotive connectors
<b>NEMA / IP Rating</b>	NEMA 6P / IP67, 69K

**Communication**

<b>CAN</b>	2.0B (maximum voltage +/-14V <sub>DC</sub> )
	Baud rates 125 kb/s, 250kb/s, 500kb/s, software configurable
	Protocol SAE J1939, HCT DeviceNet
	Default baud rate 250kb/s
<b>Serial Interface</b>	RS232 (maximum voltage Rxd,RTS = +/-15V <sub>DC</sub> Txd = +/-8 V <sub>DC</sub> )



**Inputs**

<b>Digital (Qty 3)</b>	Discrete high/low, pulse (RPM and count), software configurable
Input Range	0 to +Supply, (Impedance Z = 32.4KΩ) Pulse: RPM/Pulse inputs will accept up to 24kHz on all RPM/Pulse inputs combined
Debounce Time	0 to 10 seconds, 10ms intervals, software configurable
<b>Analog (Qty 2)</b>	0 - 5 V <sub>DC</sub> , digital, (Impedance Z > 100KΩ), software configurable (Note: 2)
<b>Universal (Qty 3)</b>	0 - 5 V <sub>DC</sub> , 4 - 20 mA, digital, pulse (RPM, count, and quadrature), software configurable (Note: 2)
Input Range	Current mode: 0 to +22 mA maximum allowable current, (Impedance Z = 120KΩ) Pulse: RPM/Pulse inputs will accept up to 24kHz on all RPM/Pulse inputs combined

- NOTE:
- 1) Maximum voltage on any input pin +/-32 V<sub>DC</sub>
  - 2) Analog and Universal inputs have configurable calibration, center and inverse modes

**Outputs**

<b>Digital (Qty 6)</b>	3,000 mA sourcing, software configurable
Current Leakage	Off = 370µA, Supply = +28 V <sub>DC</sub> Off = 180µA, Supply = +13.6 V <sub>DC</sub>
Diagnostics	Open/short circuit detection
Fly back protection	Integrated
<b>PWM (Qty 2)</b>	<b>DVC707:</b> 0 - 3,000 mA sinking proportional 10-bit resolution, software configurable <b>DVC707LC:</b> 0 - 1,500 mA sinking proportional 10-bit resolution, software configurable
Dither Frequency	1 - 500 Hz, software configurable
Diagnostics	Open/short circuit detection
Fly back protection	Integrated
<b>Reference Output</b>	0 - 5 V <sub>DC</sub> (500 mA Max)

**Standards**

<b>Environmental</b>	SAE J1455	<b>Immunity</b>	89/336/EEC, EN 61000-6-2
Temperature	Section 4.1.3.2	ESD	EN 61000-4-2
Salt Spray	Section 4.3.3.1	EMC	EN 61000-4-3
Steam Cleaning & Pressure Washing	Section 4.5.3.2	EMC	EN 61000-4-4
Vibration	Section 4.10.4.2	RF	EN 61000-4-6
Shock	Section 4.11.3.4	<b>Emissions</b>	89/336/EEC, EN 61000-6-4
Load Dump	Section 4.13.2.2.1.a		EN 55011

**Certifications**

CE



Pin Out

30 Pin Cinch					
Pin	Function	Pin	Function	Pin	Function
L1	TXD	M1	CAN H	N1	CAN L
L2	RXD	M2	PWR COM	N2	PWR COM
L3	RTS	M3	PWR COM	N3	PWR COM
P1	UNI 1 INPUT	R1	UNI 2 INPUT	S1	UNI 3 INPUT
P2	ANA 1 INPUT	R2	ANA 2 INPUT	S2	DIG 1 INPUT
P3	PWR COM	R3	5V REF OUTPUT	S3	DIG 2 INPUT
T1	HS 1 OUTPUT	W1	PWM 1 OUTPUT	X1	HS 2 OUTPUT
T2	HS 3 OUTPUT	W2	PWM 2 OUTPUT	X2	HS 4 OUTPUT
T3	DIG 3 INPUT	W3	HS 5 OUTPUT	X3	HS 6 OUTPUT
Y1	+ POWER IN				
Y2	+ POWER IN				
Y3	+ POWER IN				



**Recommended Operating Parameters / Pin Functions**

Pin	Name	Function/Features	Range
Y1, Y2, Y3	Power In	Positive Power Supply Input	+12V <sub>DC</sub> to +28V <sub>DC</sub> (Note: 1)
M2, M3, N2, N3, P3	Power Common	Return for Power Supply and Sensors	0 Volts (GND) (Note: 1)
C2, D2, E2	Universal Inputs (Notes: 3, 4, 6)	Analog Digital Pulse (RPM) Counter Quadrature (Uni_2 & 3)	0-5Volts (Notes: 3, 4-20mA
R3	5V REF	Reference Output	5 V <sub>DC</sub> , 500mA
S2, S3, T3	Digital Inputs	On / Off. RPM	0 to +Supply (Note: 5, 6)
P2, R2,	Analog Inputs	Analog Active Low Digital	0-5 V <sub>DC</sub> 0 to +Supply
T1, T2, W3, X1, X2, X3	High Side Outputs	Sourcing Discreet Output	On = +Supply 3,000mA (0-1,500mA) Off = +Supply 370µA, Supply = Off = +Supply 180µA, Supply = 13.6V <sub>DC</sub>
W1, W2	PWM Outputs	Sinking PWM Output	10 bit resolution 0 to +Supply 0 to 3,000 mA (0-1,500mA DVC707LC)

**Notes:**

1. Maximum continuous current allowed on any single connector Pin = 8 Amps
2. All limits are guaranteed by testing or statistical analysis
3. Input impedance, 100KΩ with respect to Ground (0V<sub>DC</sub>)
4. Input impedance, 120Ω with respect to Ground (0V<sub>DC</sub>)
5. Input impedance, 32.4KΩ with respect to Ground (0V<sub>DC</sub>)
6. RPM/Pulse inputs will accept up to 24kHz on all RPM/Pulse inputs combined



**LED Diagnostic Indicators**

Module Status	
LED STATE	MEANING
Off	There is no power applied to the module.
On <b>GREEN</b>	The module is operating in a normal condition.
Flashing <b>GREEN</b>	Device is in standby state. May need servicing.
On <b>RED</b>	Module has an unrecoverable fault.
On <b>YELLOW</b>	System Disabled active
Flashing <b>RED</b>	Low Supply Voltage.

CAN Status	
On <b>GREEN</b>	Communication established with another Master Controller
Flashing <b>GREEN</b>	Waiting to establish communication with the Master Controller
On <b>RED</b>	The device has detected an error that has rendered it incapable of communicating on the network.
Flashing <b>RED</b>	The DVC Devicenet communication is in a timed-out state

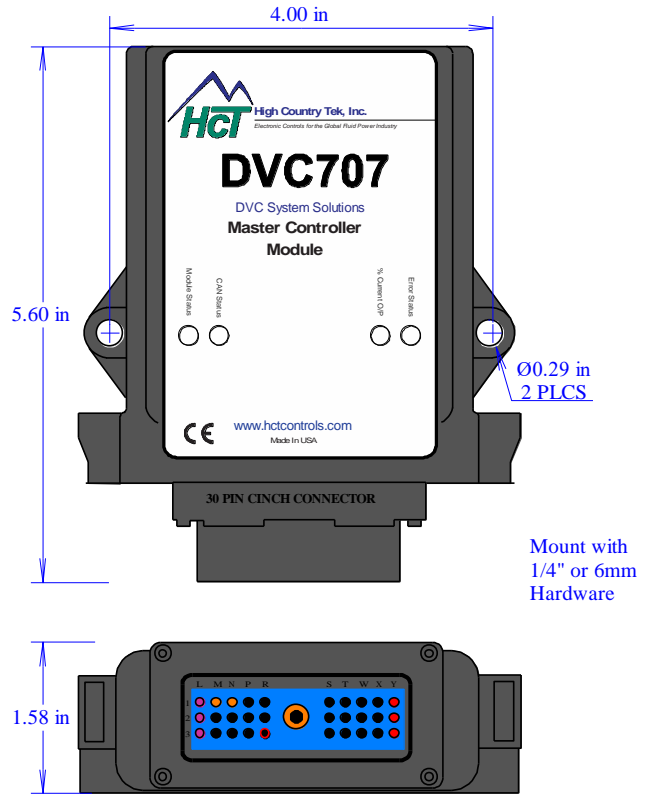
% Current O/P	
LED STATE	MEANING
Off (Outputs Disabled) <b>GRN</b> (0-33%) <b>YEL</b> (34-66%) <b>RED</b> (66-100%)	
Flashing <b>GREEN</b>	PWM or High Side output Open circuit detected
Flashing <b>RED</b>	PWM or High Side output Short circuit detected

Error Status	
LED STATE	MEANING
Off	No errors
On <b>RED</b>	PWM1 Open or Short Detected
On <b>GREEN</b>	PWM2 Open or Short Detected
Flashing <b>YELLOW</b>	High Side Open or Short Detected
Multi Digit Blink Code	Application defined blink codes.

**Physical Description**

**Notes:**

- 1) All dimensions are in Inches (Millimeters).
- 2) Use 1/4 x 20 SAE Grade 2 bolts (M6 x 1 ISO Grade 8)
  - \* Torque to 4 ft-lbs (5.4 N-m) Dry
  - \* Torque to 3 ft-lbs (4.1 N-m) Oiled
- 2) Mount to a flat hard surface protected from excess heat and moving parts.
- 3) Factory recommended 18-22 AWG (1.02mm to 0.64mm) TXL, XSL, and GXL automotive grade wire
- 4) Each Power pin used must be individually fused with an ATO 5, AGC 5 or smaller fuse



**Connections**

<b>Module Connector - 30 Pin</b>	Cinch 581-01-30-002
<b>Mating Connector - 30 Pin</b>	Delphi Packard 15492542-B
<b>Mating Connector Pins</b>	Delphi Packard 12103881

**Part Number Description**

<b>DVC707</b>	2x dual channel master controller, 1x CAN ports (0 to 3 Amp output)
<b>DVC707LC</b>	2x dual channel master controller, 1x CAN ports (0 to 1.5 Amp output)

**DVC707 Output Features**

<b>Output Groups (Qty2)</b>	Designed with 3 output groups consisting of 2x digital sourcing outputs and 1x PWM sinking output allowing the user to configure each output group in one of four different configurations. <b>Reference Figures 1 and 2.</b>
Dual Coil High-Side	To be used with proportional dual coil applications
Single Coil High-Side	Independently control a single proportional output and a single discrete output
Single Coil Low-Side	Independently control a single proportional output and two discrete outputs
High-Side Only	Independently control two discrete outputs

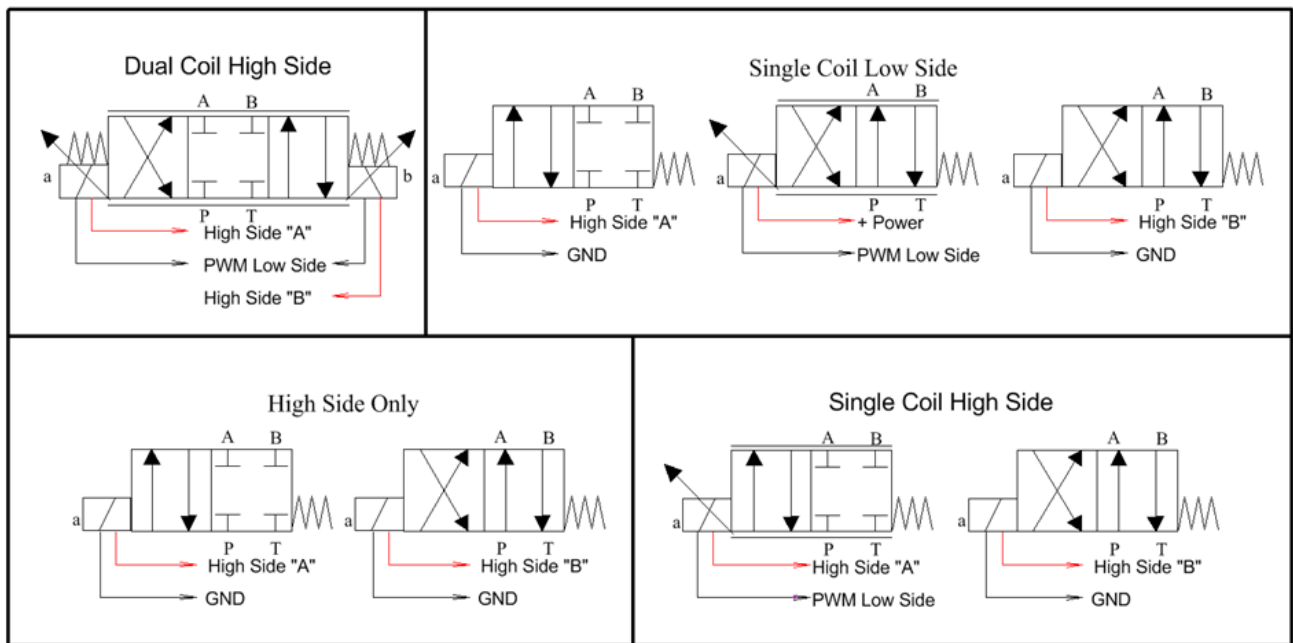


Figure 1: DVC707 output configurations.

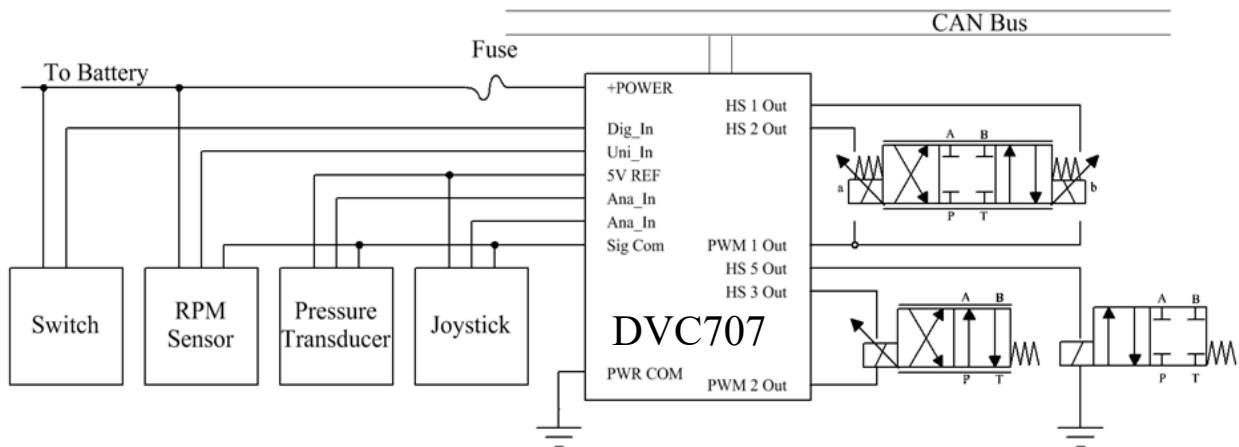


Figure 2: DVC707 example wiring diagram using two different output group configurations.



High Country Tek  
by Enovation Controls

**DVC700 Series**  
**Programmable System Controller**

**DVC707**  
**DVC707LC**



**High Country Tek**  
**by Enovation Controls**

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