Configured Using HCT's Program Loader Monitor (PLM)

12 high side output expansion module, 1 CAN interface
Supply voltage 9-30Vdc

The DVC745 is a robust digital output expansion controller for solenoid-operated ON/OFF valves, lights, alarms, etc. It is designed to be used as an output expansion module for the DVC700 series controllers or as a stand-alone output module using direct CAN bus communication.

- 12 ON / OFF output expansion module
- Can be used with any J1939 CAN capable control device
- Can be combined with DVC700 series controllers as an output expansion module for large system solutions
- Utilize as a stand-alone output module via J1939
- SAE J1939 or DVC DeviceNet CAN bus communication
- Open/short detection for diagnostics
- Rugged and fully encapsulated
- SAE J1455 environment and load dump compliant
- IP67, 69K
- CE Certified

Operational Specifications

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

Communication

CAN	2.0B (maximum voltage +/-14V_{DC})
Baud rates	125 kb/s, 250kb/s, 500kb/s, 1Mb/s, software configurable
Protocol	SAE J1939, HCT DeviceNet
Default baud rate	250kb/s
Serial Interface	RS232 (maximum voltage Rxd,RTS = +/-15V_{DC} Txd = +/-8 V_{DC})

Outputs

Digital (Qty 12)	3,000 mA sourcing, software configurable
Current Leakage	Off = 370µA, Supply = +28 V_{DC} Off = 180µA, Supply = +13.6 V_{DC}
Diagnostics	Open/short circuit detection
Fly back protection	Integrated

NOTE: 1) Maximum voltage on any input pin +/-32 V_{DC}

Standards

Environmental	SAE J1455	**Immunity**	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	**Emissions**	89/336/EEC, EN 61000-6-4
Load Dump	Section 4.13.2.2.1.a		EN 55011

Certifications

CE

Pin Out

Pin	Function
A1	Output 1
A2	CAN H
A3	RXD

Pin	Function
B1	Output 2
B2	CAN L
B3	TXD

Pin	Function
C1	Output 3
C2	POWER COM
C3	POWER COM

Pin	Function
D1	Output 4
D2	POWER COM
D3	POWER COM

Pin	Function
E1	Output 5
E2	Output 6
E3	Output 7

Pin	Function
F1	Output 8
F2	Output 9
F3	Output 10

Pin	Function
G1	Output 11
G2	POWER COM
G3	POWER COM

Pin	Function
H1	Output 12
H2	POWER COM
H3	POWER COM

Pin	Function
J1	+ POWER IN 1
J2	+ POWER IN 2
J3	+ POWER IN 3

Pin	Function
K1	+ POWER IN 1
K2	+ POWER IN 2
K3	+ POWER IN 3

Recommended Operating Parameters / Pin Functions

Pin	Name	Function/Features	Range
J1, K1	Power In 1 (Note: 1)	Positive Power Supply Input Outputs 1 – 4 and Logic	+12V_{DC} to +28V_{DC}
J2, K2	Power In 2 (Note: 1)	Positive Power Supply Input Outputs 5 - 8	+12V_{DC} to +28V_{DC}
J3, K3	Power In 3 (Note: 1)	Positive Power Supply Input Outputs 9 - 12	+12V_{DC} to +28V_{DC}
C2, C3, D2, D3 G2, G3, H2, H3	Power Common (Note: 1)	Return for Power Supply or Signal Com	0 Volts (GND)
A1, B1, C1, D1, E1, E2, E3, F1, F2, F3, G1, H1	Outputs	Sourcing Discreet Output	**Default Mode** On = +Supply 3,000mA Off = +Supply 370µA, Supply = 28V_{DC} Off = +Supply 180µA, Supply = 13.6V_{DC} **LED Mode** On = +Supply 3,000mA Off = 2.3V_{DC} 342µA, Supply = 28V_{DC} Off = 1.13V_{DC} 166µA, Supply = 13.6V_{DC}

Notes:

1. Maximum continuous current allowed on any single connector Pin = 8 Amps
2. All limits are guaranteed by testing or statistical analysis
3. Each Power pin used must be individually fused with an ATO 5, AGC 5 or smaller fuse
4. High voltage transient protection is monitored on Power In 1 (Load Dump)
5. Power In 1, Power In 2 and Power In 3 are electrically separate Power Planes
6. Outputs 1 – 4 and the controllers on board logic is supplied from Power In 1
7. Outputs 5 – 8 are supplied from Power In 2
8. Outputs 9 – 12 are supplied from Power In 3

LED Diagnostic Indicators

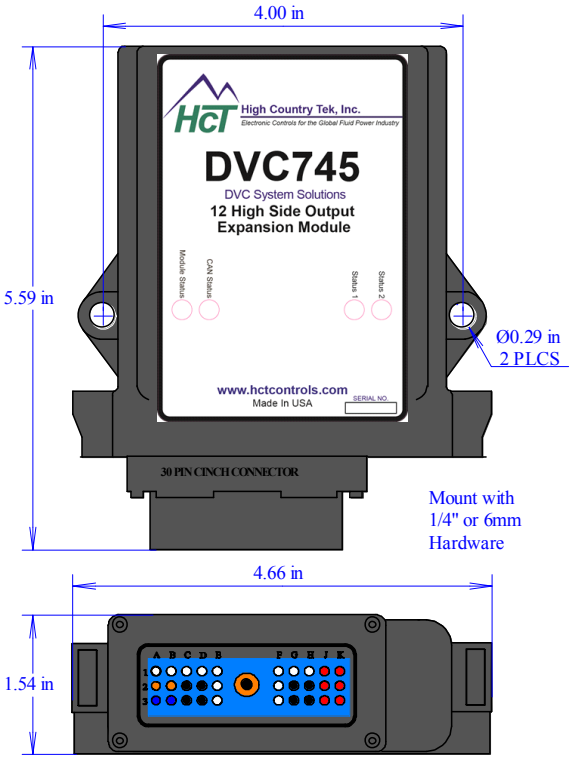
Module Status	
LED STATE	**MEANING**
Off	There is no power applied to the module.
On **GREEN**	The module is operating in a normal condition.
Flashing **GREEN**	Device is in standby state. May need servicing.
On **RED**	Module has an unrecoverable fault.
Flashing **RED**	Low Supply Voltage.

CAN Status	
On **GREEN**	Communication established with another Master Controller
Flashing **GREEN**	Waiting to establish communication with the Master Controller
On **RED**	J1939 Communications are in a timed out state
Flashing **RED**	The HCT DeviceNet communication is in a timed-out state

Status 1	
One **GREEN** Flash	An output has changed its state
On **GREEN**	Normal operation

Status 2	
On **GREEN**	Normal operation

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 minimum 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

Module Connector - 30 Pin	Cinch 581-01-30-001
Mating Connector - 30 Pin	Delphi Packard 12048455
Mating Connector Pins	Delphi Packard 12103881

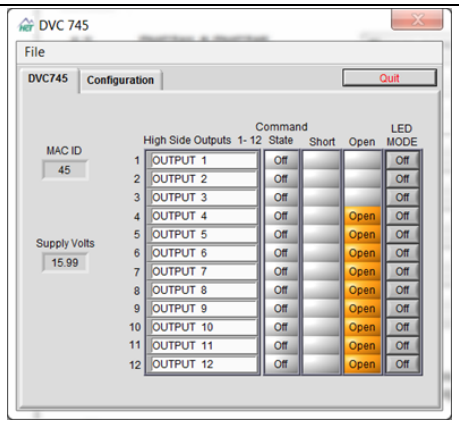
Order Guide

Part Number	Description
DVC745	12 high side ON / OFF output expansion module, 1x CAN port
999-10075	Communications Cable, multi-controller, 4-way to PC (RS232), 2m length, auto-grade
108-00119	Adapter, USB to RS232, use with 999-10075 assembly, only required if PC has no RS3232 'D' ports
999-10076	Serial port adapter for program updates, 4 wires
999-10318	DVC745, 30 pin connector kit with 1x CANbus (Deutsch) connector shell + pins, and serial port adapter 999-10076, assembly required
999-10313	DVC745, 30 pin prototype harness with 1x CANbus (Deutsch), 3m length, auto grade with serial port adapter 999-10076

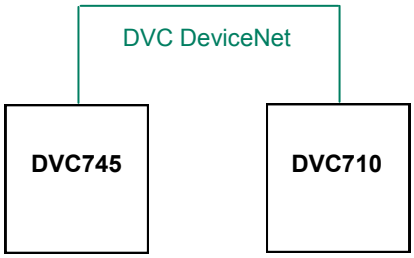
Program Loader Monitor Configuration

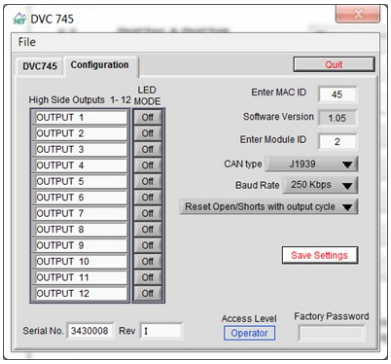
The DVC745 is configured using HCT's free Program Loader Monitor (PLM). The PLM is the separate graphical user interface component to the Intella Software Suite ™ and can be downloaded from HCT's website. Configuration through the PLM allows the user to;

- Enable or disable open circuit detection
- Configure output errors to reset with unit power cycle or command output cycle
- Configure MAC ID, Module ID, communication rate and CAN communication types



DVC745 PLM Dashboard Window

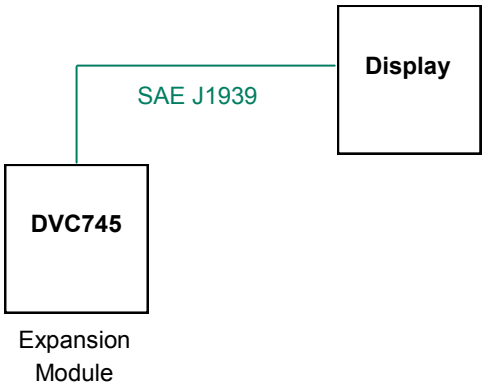




DVC745 PLM Configuration Window

Note: For more details on how to configure the DVC745, refer to the DVC745 User Manual.

Direct CAN bus Control Configuration



The DVC745 can be used with any J1939 capable control unit.

- Command Outputs directly for the DVC745 controller without needing a DVC710 or DVC707 master controller
- Configure the outputs directly from a CAN capable display or controller including: command state, open circuit detection and error reset mode
- Monitor output status directly from a CAN capable display or controller for safety messages and diagnostics
- Compatible with High Country Tek's rugged displays (PV780 and PV450)

Note: For more details on how to configure the DVC745, refer to the DVC745 User Manual.

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