CANDRIVE

CANdrive offers a cost-effective instrument solution for modern electronic engines.

CANdrive modules read engine ECU CAN bus/J1939 data, drive standard electric panel gauges and provide LED indication of status and faults. CANdrive has three dedicated outputs for tachometer, oil pressure and coolant temperature gages, with DIP switch selectable compatibility for Murphy, VDO or Datcon gauges. For volume orders, the outputs can be custom configured for other gage types, lamps, relays or remote signaling.

Power Supply

Operating voltage:
12V range (switch S5 on/up): 7 to 16 VDC
24V range (switch S5 off/down): 19 to 30 VDC

Current consumption:
CDV100: 25 mA typ.
CDV300: 50 mA typ. (2 LEDs lit)

Inputs
CAN bus: SAE J1939 protocol. Input has a 120 Ohm terminating resistor, removable by switch S4.

Outputs (all ratings non-reactive)
Oil pressure gage, engine temperature gage:
switch selectable for Murphy, VDO or Datcon gages: see Gage Compatibility section for pressure/temperature verses equivalent sender resistance tables
Tachometer: pulsed DC, 119 Hz ±1% @ 1500 RPM

Physical
Case material: polycarbonate / polyester / epoxy encapsulation
Overall dimensions (w x h x d): 68 x 92 x 22mm / 2.7 x 3.8 x 0.9 in. (allow 50mm / 2.0 in. depth with connector)
Weight: approx 80g / 0.2 lb
Temperature:
- **Operation:** –40 to +85°C / –40 to +185°F, 70% RH
- **Storage:** –55 to +105°C / –67 to +221°F

Environmental sealing: IP60 (CDV300R: IP65 from front with optional CDVG gasket)
Vibration: 15g, 10 to 2000 Hz, 3 axes
Shock: 50g, 11 mS, 3 axes

INTELLIGENT XPANSION POWER DISTRIBUTION MODULE

The Murphy Intelligent Xpansion™ Power Distribution Module (PDM) expands CAN bus control networks by replacing existing relay and fuse boxes with more reliable solid-state switches that can directly drive work lights, wiper motors, cooling fans, directional DC motors and other high current loads.

Featuring digital switching and up to 15-amp outputs, the module is housed in a compact, sealed enclosure which can be mounted remotely on the equipment to greatly reduce wiring costs. For applications not requiring a CAN bus control, the inputs can directly trigger outputs without the need for a dedicated controller.

Operating Voltage: 8-32V (IX3212-24) for 12V and 24V Systems
Total Current: 70 A maximum continuous
Dimensions: 245 mm (L) x 140 mm (W) x 50 mm (H)
Mass: 0.9 kg (2.0 lb)
Operating Temperature: -40°F to 185°F (-40°C to 85°C)
Storage Temperature: -40°F to 275°F (-40°C to 135°C)
Electrical and EMI/EMC:
2004/108/EC and 2006/95/EC directives
IEC 61000-4-3, -4-6 and -4-8
EN 60945 / CISPR 11
EN 61326-1
Shock: 30G, 3 cycles
Vibration: 5-25g, 50-2,000Hz, 72 hrs per axis
Sealing:
IP66 and 67
SAE J1455 4.5.3 (10,300 kPa @ 50°C and 100 mm away for 15 min)

12 Outputs:
(6) 15 A max per channel, 500 Hz
(6) 15 A max, 1 kHz
Channel overload set in 2.5 A increments
High-side, open-loop PWM and directional DC motor control (H-bridge) modes
Off-state leakage current <0.1 mA

20 Inputs:
12 digital, tri-state, input impedance 7.7 kΩ
6 analog, 0-5 V, input impedance 100 kΩ pull-down
2 analog, resistive, input impedance 2.2 kΩ pull-up
10 bit resolution on all analog inputs

Sensor Supply: 5V @ 70 mA
Communications: 1 CAN 2.0B, 250 kbps, J1939 proprietary messaging
Mating Connectors:
Deutsch DTHD, DT, and DTP Series
J1, J2 – DTHD06-1-4S
J3 – DT06-12SA (Gray)
J4 – DT06-12SB (Black)
J5 – DT06-12SC (Green)
J6 – DTP06-2S

Certifications: CE mark

MEREX

SENDERCAN

SenderCAN is a compact, encapsulated input & output module for J1939 CANbus systems.

SenderCAN allows the integration of analogue and digital measurement, control and indicating devices into modern CAN and ECU-based engines and systems. SenderCAN has up to four inputs and two outputs, each of which is factory configured to OEM requirements. Inputs can be set for use with resistive sender or switch signals, which are translated into J1939 CANbus messages with appropriate PGN address, data scaling and transmission rate. Outputs can be configured to drive gauges, lamps, relays or other control devices, based on received J1939 data.

Power supply

Operating voltage: 7 to 35 VDC
Current consumption: 25mA (typ.)

Input/Output

Input range: OEM/application specific, -2 to +35 VDC max
Output: OEM/application specific, 250mA max.
CANbus: SAE J1939 protocol, optional 120 Ohm terminating resistor

Physical

Case material: High impact ABS, epoxy filled
Weight: Approx 60 g / 0.13 lb
Operating temperature: -40oF to +185oF / (-40o C to +85o C)
Environmental Sealing: IP65 case, exposed lead ends
Electromagnetic compatibility: 2004/108/EC
Electrical:
J1113-11 pulses 1c, 2a, 3a/b and 5a
EN 61000-4-2 ESD
EN 61000-4-3 Radiated disturbance
EN 61000-4-4 Fast transients
EN 61000-4-5 High Energy transients
EN 61000-4-6 Conducted RF disturbance
CISPR 16-1-2, 4.3 Conducted emissions
CISPR 16-2-3 Radiated emissions

XM500

The XM500 module is a configurable Input/Output (I/O) module designed to bring analog and digital inputs and output onto the SAE J1939 CAN.

The XM500 is ideally suited to bring the additional information needed onto the J1939 CAN bus and can be configured to broadcast fault codes and activate digital outputs per input condition such as fuel level low, hydraulic oil temperature high, etc. Because the XM500 broadcasts information using the J1939 standard protocol, the information can be displayed using standard J1939 display modules, such as the PowerView® 101.

Electrical

Power Input: 8 to 28VDC
Communication Ports: CAN J1939
Operating Temperature: -40°F to 185°F (-40°C to 85°C)
Digital Inputs: 4 - Ground or battery positive activation
Digital Outputs*: 2 Sinking (500 mA)
Product Weight: 10 ounces
Shipping Weight: 12 ounces
Shipping Dimensions: 4" x 6" x 2"
*(Outputs are NOT reverse polarity protected. Damage will occur if B+ is connected to the outputs. Damage incurred from improper installation is not covered under the Murphy limited warranty policy.)
Thermocouple Input1: Type K and Type J
Analog Inputs[2]:
1 - Battery Supply Voltage (dedicated)
7 - Configurable as 0-5VDC, 4-20mA, resistive senders3 or used as an additional digital input

Speed Sensing Input: Magnetic pickup (2 to 120VAC RMS from 30 to 10,000 Hz)

[1]When the thermocouple input is used, only 5 resistive, 4-20 mA, or 0-5 VDC can be used instead of 7.

[2]Analog inputs can be exchanged for digital inputs (battery ground activation only) for a total of 11 digital inputs.

[3]Other resistive senders can be supported. Contact Murphy's Industrial Panel Division for programming charges.

ZERO OFF GPS SPEED CONTROL SYSTEM

Zero Off is a GPS speed control based solely on input from satellites and engine management systems. It is based on the speed you are traveling across the surface of the water; therefore, there is no requirement for skier weight, crew weight, KX, PX or even any kind of wind adjustment. You simply set the desired speed and go. This easy-to-use technology has made Zero Off the industry standard.

Zero Off has been tested and developed since early 2005, not only with some of the best skiers in the world, but also with engineers who develop the engine management systems for the boats. Zero Off has the same concept of pull for all events in our sport and has built-in timing that does not require magnets on the course.

MEREX