

# CANdrive™

## CAN bus J1939 to Electric Gage Interface

As part of the MurphyLink® family, CANdrive offers a cost-effective instrument solution for modern electronic engines. CANdrive modules read engine ECU CAN bus/J1939 data, drive standard electric panel gages and provide LED indication of status and faults.

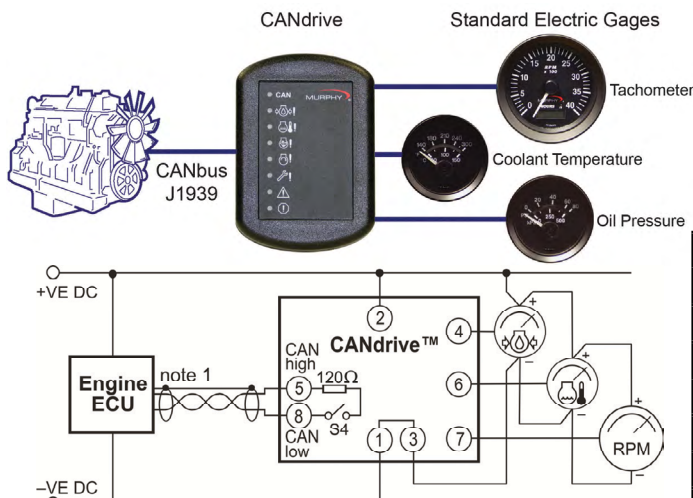
CANdrive has three dedicated outputs for tachometer, oil pressure and coolant temperature gages, with DIP switch selectable compatibility for Murphy, VDO or Datcon gages. For volume orders, the outputs can be custom configured for other gage types, lamps, relays or remote signaling.

CANdrive advantages include:

- the retrofitting of existing electric gage panels to new J1939 compatible engines
- the use of standard, economical electric gages with new J1939 engines
- no need for installation of additional gage senders, tachometer magnetic pickups and wiring.

CANdrive is packaged in a compact, surface-mounted case with epoxy encapsulation for maximum durability and environmental sealing. Electrical connection is via a 12-way automotive type connector. Model CDV100F has a forward facing connector and one power/CAN status LED. Model CDV300R has eight LEDs for indication of J1939-transmitted engine faults and status. All models include a six-way DIP switch for flexible configuration.

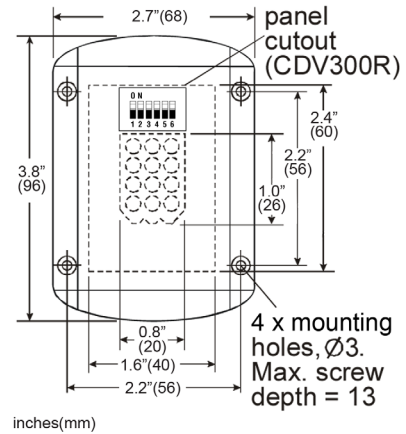
### Diagram



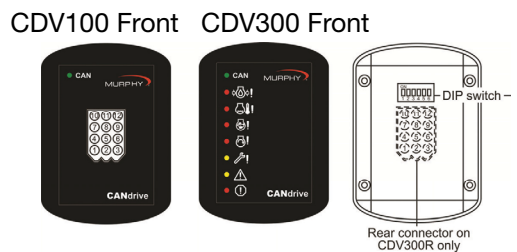
**NOTE:** CAN bus J1939 networks typically have two 120 Ohm terminating resistors (one at each end) with a shield/screen connected to ground/earth at one end only. Check engine and ECU documentation for details.



### Dimensions



### Models and Configuration



Switch Position					Options
S1	S2	S3	S4	S5	
on	on	on			Murphy EG(S) temp. & pressure gages
off	on	on			Datcon temp. & 0 – 7 bar pressure gages
off	on	off			Datcon temp. & 0 – 10 bar pressure gages
on	off	on			VDO temp. & 0 – 5 bar pressure gages
on	off	off			VDO temp. & 0 – 10 bar pressure gages
			on		CAN 120 Ohm terminating resistor in circuit
			off		CAN 120 Ohm terminating resistor removed
				on	12V DC power supply
				off	24V DC power supply

# Specifications

## 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  $\pm$ 1% @ 1500 RPM

## Physical

**Electromagnetic compatibility:** 2004/108/EC

**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

# Gage Compatibility

Pressure Gage Compatibility Table: pressure versus approximate equivalent sender resistance (Ohms)																
Pressure	psi	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140
	bar	0	0.7	1.4	2.1	2.8	3.4	4.1	4.8	5.5	6.2	6.9	7.6	8.3	9.0	9.7
Murphy ES series		240	205	171	143	123	103	88	74	60	47	33				
Datcon 0 – 7 bar		240	195	160	140	115	100	82	68	55	43	35				
Datcon 0 – 10 bar		240	215	190	168	150	135	118	107	97	87	77	67	58	50	42
VDO 0 – 5 bar		10	38	61	85	110	130	155	180							
VDO 0 –10 bar		15	30	45	60	70	81	92	103	114	125	136	148	160	170	182

Temperature Gage Compatibility Table: temperature versus approximate equivalent sender resistance (Ohms)													
Temperature	°C	40	50	60	70	80	90	100	110	120	130	140	
	°F	104	122	140	158	176	194	212	230	248	266	284	
Murphy ES series		1029	680	460	321	227	164	120	89	74	52	40	
Datcon		360		160		80		50		38			
VDO		282.4	190.0	134.0	95.2	69.1	51.2	38.5	29.4	22.7	18.0	14.5	

# How To Order

Part Number	Description	Notes
79700104	CDV100F, CANdrive™ J1939 to gage interface, 1 x CAN status LED, connector forward	CANdrive
79700105	CDV300R, CANdrive™ J1939 to gage interface, 8 x status/fault LEDs, connector rearward	CANdrive
78000437	CDV-PW-30, 8 way wiring harness, length 30 in./760mm	Accessories
79701003	CDVG, optional sealing gasket for CDV300R	
78700363	CDV100F plus CDV-PW-30 harness	
78700364	CDV300R, CDV-PW-30 and CDVG gasket	
79701001	CANdrive connector plug shell	
79701002	Connector pins for above (pack of 50)	
00020618	CANdrive installation and operation	Documentation
00020251	EG(S)21 series electric gage installation	
00020258	AT series tachometer installation	