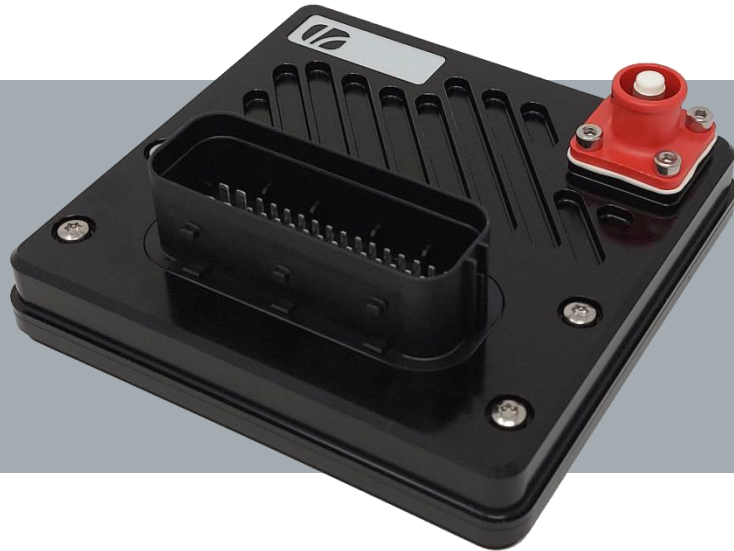


PDUx2 Datasheet



High power motorsport Power Distribution Unit (PDU). Combines a robust billet aluminium case and the very latest power driving technology with the highest efficiency in the industry.

A total of 16 output channels with a max current capacity of 160A

Clear and Powerful Fully Graphical Logic Programming Software - Easy to read and follow with full logic simulation ability, complete operational logic schematics can be physically printed giving quick and easy reference material for engineers working on building or maintaining the vehicle wiring.

Inputs - 12 flexible input channels capable of support 0-5v, Thermistor, Bi-polar and Frequency type signals

Slave Link - enables Life Racing ECU units to directly claim access to the PDUx2's input and output channels in order to receive data from or else control those channels with ultra-low latency

Flexible outputs - 4x extremely flexible output drivers configurable to operate as high power High side or low side power switching, as Half-bridge or paired into 2x Full-bridges.

The PDUx2's combined flexibility allows racing vehicle system designers the freedom to use these robust PDU output channels to perform high speed control tasks managed by any Life Racing ECU. Some examples of are, direct closed loop power control of electric engine coolant pumps, fuel and oil pump power, VVT position actuators (both motors and solenoids), direct control of DBW systems.

The PDUx2 is capable of configurable soft starting of electrical loads as well as closed loop current limitation, this can be used to reduce large, short duration inrush current which can be generated when switching on large electrical loads such as high power radiator cooling fans.

Powerful Networking - 3x CAN 2.0b, 1x LIN as well as a two port Ethernet switch

Advanced Power Management - the PDUx2 can be user configured with options for simple on/off operation with the units main supply voltage. But is also capable of automatic wake/sleep operation which can be set to be triggered either by switching dedicated "wake" pin, or can be configured to wake on activation of inputs channels 05 to 08.

The wake and sleep operation of the unit can also be controlled by CAN bus operation, wake on bus activity or upon receipt of a specific CAN message, all with fully user configurable address's and operational parameters as well as timeout settings for auto sleep.

Features:

- Schematic based calibration including logic simulation tool
- I/O slaving to an LR ECU
- Low power state woken on physical input, CAN activity, or specific CAN frame

Outputs:

- 16 main Power Outputs
 - 4 multifunction high side, low side, PWM, H-Bridge outputs (35A continuous, soft-start inrush limiting 35A)
 - 2 High Side outputs (35A continuous, hard-start inrush 60A)
 - 10 High Side outputs (12A continuous, hard-start inrush 17.5A)
 - Output teaming to support very high current devices
- 2 Additional Low Side signal PWM Outputs
- All outputs short circuit and thermally protected with multi-stage in-rush control
- Combined diagnostic output with reset input
- Up to 64 soft outputs via CAN

Inputs:

- 12 physical switch inputs or, when slaved, general purpose analogue sensor inputs including:
 - 4x frequency measurement inputs
 - software selectable 3k ohm pull-up resistors
 - 4x inputs capable of programmable “wake up” functionality
- Dedicated wake pin
- Up to 64 soft inputs via CAN with configurable validation and debounce time

Interfaces:

- 2x 100Mbit/s full duplex Ethernet (can be used as Ethernet switch)
- 3x CAN 2.0B
- RS232C serial interface
- LIN Bus

Power Supply:

- 6V to 20V input voltage (12V option)
- 6V to 30V input voltage (24V option)
- Dedicated 12V logic power input
- Regulated 5V sensor supply output with short circuit protection

Physical:

- 1 Leavysel connector with a total of 62 pins
- Amphenol SurLok Power Stud
- Machined Aluminium enclosure
- 135x125x50mm (including connectors)
- 750grams
- Operating Temperature up to +85C

Ordering Information:

Description	Part number
PDUx2	PDU-C06
PDUx2 Connector Kit	CON-B12

Wiring Information:

Power Stud

*Mating connector: Surlok SLPPBxxBSR
(xx=size: 35 150A, 50 200A)*

Pin	Gauge	Signal Name	Signal Notes
1	-	+12V Supply	Positive battery supply

Connector 1

Mating Connector: TE 1-1418883-1, Hood TE 1418882-1

Pin	Gauge	Signal Name	Signal Notes
1	24-16AWG	5V OUT	Regulated 5V sensor supply rail
2	24-16AWG	INPUT #12	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake ⁽⁴⁾
3	24-16AWG	INPUT #11	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake ⁽⁴⁾
4	24-16AWG	INPUT #10	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake ⁽⁴⁾
5	24-16AWG	INPUT #09	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake ⁽⁴⁾
6	24-16AWG	INPUT #08	Analogue 0-5V, 3kΩ programmable pullup to 5V
7	24-16AWG	INPUT #07	Analogue 0-5V, 3kΩ programmable pullup to 5V
8	24-16AWG	INPUT #06	Analogue 0-5V, 3kΩ programmable pullup to 5V
9	24-16AWG	INPUT #05	Analogue 0-5V, 3kΩ programmable pullup to 5V
10	24-16AWG	INPUT #04	Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V ⁽³⁾
11	24-16AWG	INPUT #03	Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V ⁽³⁾
12	24-16AWG	INPUT #02	Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V ⁽³⁾
13	24-16AWG	INPUT #01	Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V ⁽³⁾
14	24-16AWG	SENSOR GND	Protected sensor ground
15	24-16AWG	DNC	DO NOT CONNECT
16	24-16AWG	LIN	NOT CURRENTLY IN USE
17	24-16AWG	RS232 TX	RS232 transmit
18	24-16AWG	RS232 RX	RS232 receive
19	24-16AWG	CAN #03 LO	NOT CURRENTLY IN USE
20	24-16AWG	CAN #03 HI	NOT CURRENTLY IN USE
21	24-16AWG	CAN #02 LO	ECU Slave (terminated)
22	24-16AWG	CAN #02 HI	ECU Slave (terminated)
23	24-16AWG	CAN #01 LO	CAN communication port 120Ω software selectable termination
24	24-16AWG	CAN #01 HI	CAN communication port 120Ω software selectable termination
25	24-16AWG	DNC	DO NOT CONNECT
26	24-16AWG	DNC	DO NOT CONNECT
27	24-16AWG	ETHERNET2 TX-	Ethernet communication port 2
28	24-16AWG	ETHERNET2 TX+	Ethernet communication port 2
29	24-16AWG	ETHERNET2 RX-	Ethernet communication port 2
30	24-16AWG	ETHERNET2 RX+	Ethernet communication port 2
31	24-16AWG	ETHERNET1 TX-	Ethernet communication port 1
32	24-16AWG	ETHERNET1 TX+	Ethernet communication port 1
33	24-16AWG	ETHERNET1 RX-	Ethernet communication port 1
34	24-16AWG	ETHERNET1 RX+	Ethernet communication port 1
35	24-16AWG	DNC	DO NOT CONNECT
36	24-16AWG	DNC	DO NOT CONNECT
37	24-16AWG	WAKEUP	Dedicated Wake ⁽⁴⁾
38	24-16AWG	LOGIC POWER IN	+12V Battery supply; recommended independent logic supply <0.5A

Connector 1

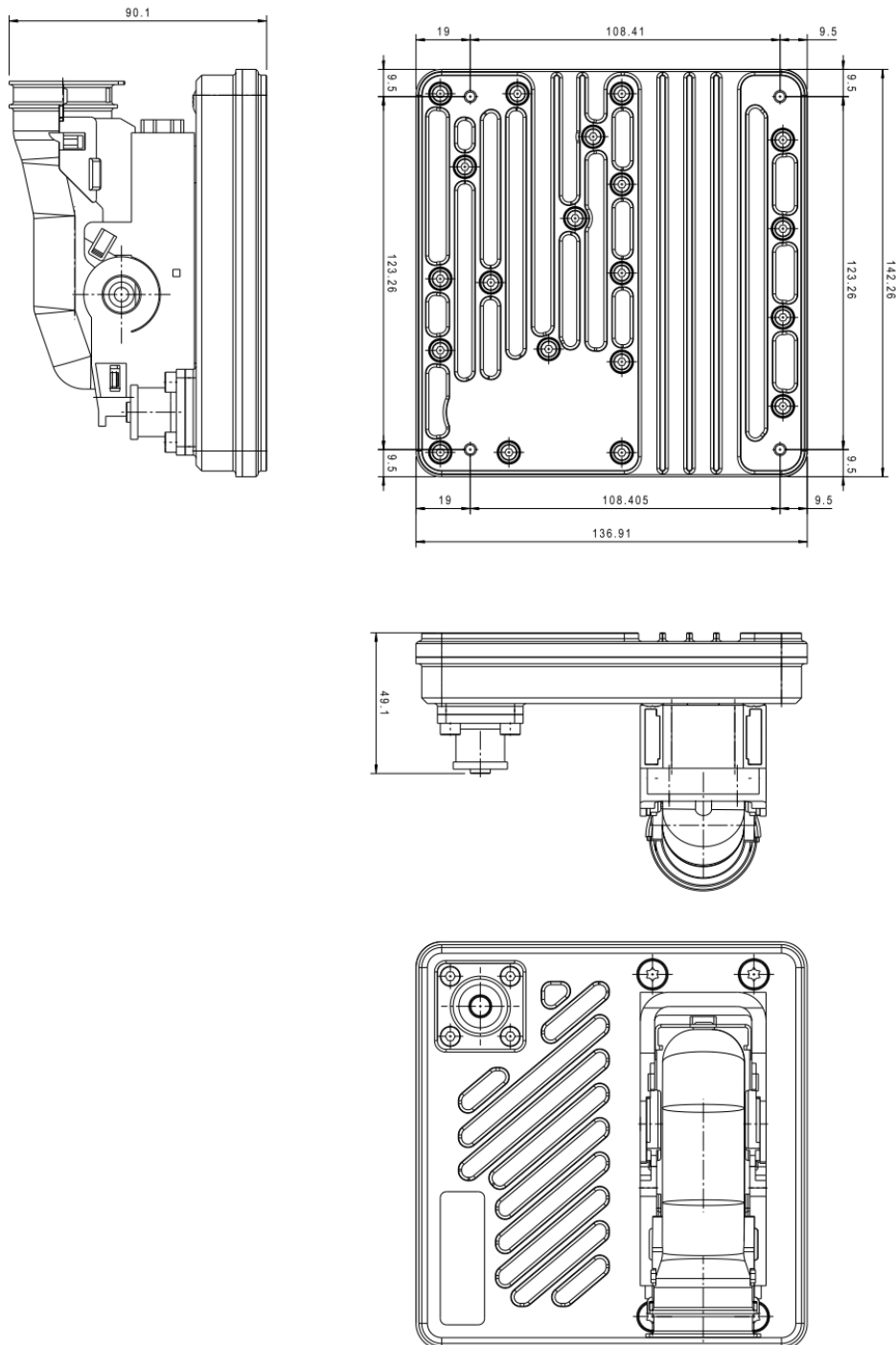
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Pin	Gauge	Signal Name	Signal Notes
39	24-16AWG	Low Output 06	Low Side, Low Side PWM
40	24-16AWG	Low Output 05	Low Side, Low Side PWM
41	24-16AWG	WARNING AND RESET SW	Warning output for an LED to ground. Short to ground for manual reset.
42	24-16AWG	Output 16D	High Side with Diode
43	24-16AWG	Output 16	High Side
44	24-16AWG	Output 15	High Side
45	24-16AWG	Output 14	High Side
46	24-16AWG	Output 13	High Side
47	24-16AWG	Output 12	High Side
48	24-16AWG	Output 11	High Side
49	24-16AWG	Output 10	High Side
50	24-16AWG	Output 09	High Side
51	24-16AWG	Output 08	High Side
52	24-16AWG	Output 07	High Side
53	24-16AWG	Power Ground	Negative battery supply
54	24-16AWG	Power Ground	Negative battery supply
55	24-16AWG	Power Ground	Negative battery supply
56	24-16AWG	Power Ground	Negative battery supply
57	22-14AWG	Output 06	High Side
58	22-14AWG	Output 05	High Side
59	22-14AWG	Output 04	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start ⁽¹⁾⁽²⁾
60	22-14AWG	Output 03	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start ⁽¹⁾⁽²⁾
61	22-14AWG	Output 02	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start ⁽¹⁾⁽²⁾
62	22-14AWG	Output 01	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start ⁽¹⁾⁽²⁾

Footnotes:

- ⁽¹⁾PWM, Half Bridge and Full Bridge via ECU slaving only.
⁽²⁾Full Bridge control is on adjacent pairs only (1+2, 3+4, 5+6, 7+8, 9+10).
⁽³⁾Bipolar and Frequency inputs via ECU slaving only.
⁽⁴⁾Can be calibrated to bring unit out of sleep mode when driven high.

Dimensions:



Warranty and Servicing:

- This equipment comes with a 1 year warranty against manufacturing defects and failures however misuse or damage will not be covered under warranty.
- This PDU contains a battery which can be returned to Life Racing for a replacement, a charge may be made for this service.