Professional Electronics for Automotive and Motorsport

6 Repton Close | Basildon Essex | SS13 1LE | United Kingdom +44 (0) 1268 904124 info@liferacing.com www.liferacing.com





The PDUX4B (12V) is a high-performance solid-state power distribution unit with a total of 48 powered output channels and maximum current capacity of 350A.

This includes ten flexible 40A output drivers which may be configured as half-bridge, high side or high side PWM (configurable frequency) outputs, with the ability to soft start electrical loads with closed loop current limitation.

In addition, two 40A capable output drivers, high side and high side PWM (configurable frequency) with the ability to soft start electrical loads and eight 15A capable output drives, high side and high side PWM (configurable frequency) with the ability to soft start electrical loads.

Using digitised, voltage, or linearised values from its 16 analogue inputs and from any of three CAN buses, the PDUX4B is calibrated using a clear graphical interface with full logic simulation and live monitoring capabilities.

The PDUX4B is able to operate in a low-power standby state, drawing <2mA, with configurable activation based on physical or CAN input.

Additionally, the PDUX4B may be used to expand input and output functionality of any Life Racing ECU.

The PDUX4B is available in 12V, 24V and 48V variants as well as an internal IMU option as detailed in the 'Ordering Information' section.

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Features:

- Schematic based calibration including logic simulation tool.
- Custom CAN across 3 buses including mux frames and retransmission (gateway) features, configured with a graphical display and import/export tool.
- Low power state woken on either a physical input, CAN activity or specific CAN frame
- Configurable evaluation frequency operation of schematic components in circuitry "Expert Frequency Mode"
- Optional internal IMU (Inertial Measurement Unit) feature offers a six-axis gyro and accelerometer which can be processed internally or transmitted over CAN.

Outputs:

- 48 main power outputs:
 - 10 multifunction outputs configurable as either half-bridge, high side, low side, high side PWM (100Hz-20kHz) outputs.
 - (40A continuous, soft-start inrush limiting 60A, hard-start inrush 60A)
 - 10 high side, two of which can be high side PWM (100Hz-20kHz) outputs. (40A continuous, hard-start inrush 60A)
 - 28 high side, eight of which can be high side PWM (100Hz-20kHz) outputs.
 (15A continuous, hard-start inrush 17.5A)
- Output linking ('teaming') to support very high current devices.
- Four additional low side outputs with configurable PWM (10Hz-10kHz, 5A maximum).
- All outputs short circuit and thermally protected with multi-stage in-rush control.
- All outputs additionally protected by physical fuses as required by worldwide regulations.
- Combined diagnostic output with reset input.
- 128 scalable CAN ('soft') outputs.
- Custom CAN datastream— i.e., customisable channel current, channel state and device information

Inputs:

- 16 physical 0-5V inputs, including software selectable 3k Ohm pull-up resistors.
- Four inputs capable of programmable "wake" functionality.
- Comparing and manipulating real numbers (floating point decimal) in schematic using configurable logic blocks.
- Analogue inputs can be linearised, viewed as raw voltage or Boolean values.
- Dedicated wake pin.
- 128 CAN 'soft' inputs with configurable scaling.

Interfaces:

- 2x 100Mbit/s full duplex Ethernet (Ethernet switch functionality).
- 3x CAN 2.0B fully flexible.
- Option for one galvanically isolated CAN bus (CAN3 custom projects only).
- RS232C serial interface (custom projects only).
- LIN Bus (custom projects only).



Power Supply:

- 6V to 20V input voltage (12V), 6V to 30V input voltage (24V), 6V to 60V (48V).
- Dedicated logic power input.
- Regulated 5V sensor supply output with full circuit protection.

Sleep State:

- Low power standby state with configurable wake options:
 - Wake by voltage signal (1.6mA).
 - Wake by any CAN activity (CAN-1 only) (2mA).
 - Wake by specific CAN frame or content (two frames required, CAN-1 only) (2mA).
 - Wake by specific CAN frame or content with low latency (one frame required, CAN-1 only) (10mA).

ECU Slaving:

- Allows a Life Racing ECU to "claim" unused pins across a dedicated CAN bus utilising the following PDU I/O:
 - Outputs 1-10 with additional functionality including full-bridge pairing and configurable PWM frequencies.
 - Low outputs 11-14 with configurable PWM frequencies and internal pull up resistors.
 - All 16 inputs, including eight frequency capable (four optionally bipolar), and all with software selectable 3k Ohm pull-up resistors.

Physical:

- Two LEAVYSEAL connectors with a total of 113 pins.
- Amphenol SurLok power stud.
- Machined Aluminium enclosure.
- 210x130x57mm (including connectors).
- 1090 grams.
- Operating Temperature -40°C to +85°C.
- M4 mounting threads.

Ordering Information:

Description	Part number
PDUX4B 350A (10mm main power stud)	PDU-C02
PDUX4B 200A (8mm main power stud)	PDU-C05
PDUX4B 350A 24V (10mm main power stud)	PDU-E02
PDUX4B 200A 24V (8mm main power stud)	PDU-E05
PDUX4B 350A 48V (10mm main power stud)	PDU-F02
PDUX4B 200A 48V (8mm main power stud)	PDU-F05
PDUX 350A Connector Kit	CON-B10
PDUX 200A Connector Kit	CON-B11
3-axis accelerometer and 3-axis gyroscope	PDU-FEAT-IMU
Two pin wheel speed sensor inputs	PDU-BTC-WS



Wiring Information:

Power Stud

Mating connector (350A): Surlok SLPPCxxBSR Mating connector (200A): Surlok SLPPBxxBSR (xx=size: 35 150A, 50 200A, 70 300A, 85 350A)

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

Connector 1

Mating connector: 1-1534127-1, Hood: 9-1394050-1

Pin	Gauge	Signal Name	Signal Notes
1	20-12AWG	Power Ground	Negative battery supply. Must be connected
2	20-12AWG	Output 20	High Side 40A
3	20-12AWG	Output 19	High Side 40A
4	20-12AWG	Output 18	High Side 40A
5	20-12AWG	Output 17	High Side 40A
6	20-12AWG	Output 16	High Side 40A
7	20-12AWG	Output 15	High Side 40A
8	20-12AWG	Output 14	High Side 40A
9	20-12AWG	Output 13	High Side 40A
10	20-12AWG	Output 12	High Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
11	20-12AWG	Output 11	High Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
12	20 424446	Output 10	High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
12	20-12AWG	Output 10	SLAVED: Half Bridge, Full Bridge paired with Output 9, Low Side, PWM
13	20-12AWG	2AWG Output 9	High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
	20 12/11/0		SLAVED: Half Bridge, Full Bridge paired with Output 10, Low Side, PWM
14	20-12AWG	20-12AWG Output 8	High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
			SLAVED: Half Bridge, Full Bridge paired with Output 7, Low Side, PWM
15	20-12AWG	G Output 7	High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
		·	SLAVED: Half Bridge, Full Bridge paired with Output 8, Low Side, PWM
16	20-12AWG	Output 6	High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
			SLAVED: Half Bridge, Full Bridge paired with Output 5, Low Side, PWM
17	20-12AWG	20-12AWG Output 5	High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
			SLAVED: Half Bridge, Full Bridge paired with Output 6, Low Side, PWM
18	20-12AWG	Output 4	High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾ SLAVED: Half Bridge, Full Bridge paired with Output 3, Low Side, PWM
			High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
19	20-12AWG	Output 3	SLAVED: Half Bridge, Full Bridge paired with Output 4, Low Side, PWM
	20-12AWG		High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
20		Output 2	SLAVED: Half Bridge, Full Bridge paired with Output 1, Low Side, PWM
	20-12AWG		High Side/Low Side/High Side PWM (configurable Hz), Soft start, 40A ⁽¹⁾
21		Output 1	SLAVED: Half Bridge, Full Bridge paired with Output 2, Low Side, PWM



Connector 2

Mating Connector: 1703998-1, Hood 1703997-1

Pin	Gauge	Signal Name	Signal Notes
1	-	DO NOT CONNECT	LR Internal use only
2	-	DO NOT CONNECT	LR Internal use only
3	-	DO NOT CONNECT	LR Internal use only
4	-	DO NOT CONNECT	LR Internal use only
5	-	DO NOT CONNECT	LR Internal use only
6	-	DO NOT CONNECT	LR Internal use only
7	-	DO NOT CONNECT	LR Internal use only
8	-	DO NOT CONNECT	LR Internal use only
9	24-16AWG	Output 48	High Side 15A
10	24-16AWG	Output 46	High Side 15A
11	24-16AWG	Output 44	High Side 15A
12	24-16AWG	Output 42	High Side 15A
13	24-16AWG	Output 40	High Side 15A
14	24-16AWG	Output 38	High Side 15A
15	24-16AWG	Output 36	High Side 15A
16	24-16AWG	Output 34	High Side 15A
17	24-16AWG	Output 32	High Side 15A
18	24-16AWG	Output 30	High Side 15A
19	24-16AWG	Output 28	High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾
20	24-16AWG	Output 26	High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾
21	24-16AWG	Output 24	High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾
22	24-16AWG	Output 22	High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾
23	24-16AWG	Low Output 11	Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾
		2011 Gutput 11	SLAVED: Low Side PWM configurable frequency
24	-	DO NOT CONNECT	LR Internal use only
25	-	DO NOT CONNECT	LR Internal use only
26	-	DO NOT CONNECT	LR Internal use only
27	-	DO NOT CONNECT	LR Internal use only
28	-	DO NOT CONNECT	LR Internal use only
29	-	DO NOT CONNECT	LR Internal use only
30	-	DO NOT CONNECT	LR Internal use only
31	-	DO NOT CONNECT	LR Internal use only
32	24-16AWG	Output 47	High Side 15A
33	24-16AWG	Output 45	High Side 15A
34	24-16AWG	Output 43	High Side 15A
35	24-16AWG	Output 41	High Side 15A
36	24-16AWG	Output 39	High Side 15A
37	24-16AWG	Output 37	High Side 15A
38	24-16AWG	Output 35	High Side 15A
39	24-16AWG	Output 33	High Side 15A
40	24-16AWG	Output 31	High Side 15A



Connector 2

Continued...

1	Pin	Gauge	Signal Name	Signal Notes
43 24-164/WG Output 25 High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾ 44 24-164/WG Output 23 High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾ 45 24-164/WG Output 21 High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾ 46 24-164/WG Ucuput 12 Low Side, Dough Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾ 47 24-164/WG Input 03 Low Output 12 Low Side, Dough Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾ 48 24-164/WG Input 03 Analogue 0-5V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 5V to 5V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 5V to 5V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 5V to 5V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 5V to 5V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 3RQ programmable pullup to 5V SIA/PED Analogue 0-5V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 3RQ programmable pullup to 5V SIA/PED Analogue or frequency, 0-3V, 3RQ programmable pullup to 5V SIA/PED Analogue 0-5V, 3RQ programmable pullup to 5V SIA/PED Analogu	41	24-16AWG	Output 29	High Side 15A
44 24-164WG Output 23 High Side PWM (configurable Hz), Soft Start, 15A ⁽¹⁾ 45 24-164WG Output 21 High Side PWM (configurable Hz), Soft Start, 15A ⁽¹⁾ 46 24-164WG Input 01 Low Side, Low Side PWM (configurable Hz), Soft Start, 15A ⁽¹⁾ 47 24-164WG Input 01 Analogue 0-5V, 3AD programmable pullup to 5V SIAVED Low Side PWM (configurable Programmable pullup to 5V SIAVED Low Side PWM (configurable Programmable pullup to 5V SIAVED Low Side PWM (configurable Programmable pullup to 5V SIAVED Analogue of Programmable pu	42	24-16AWG	Output 27	High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾
45 24-16AWG Output 21 High Side, High Side PWM (configurable Hz), Soft Start, 15A ^[2] 46 24-16AWG Low Output 12 Low Side PWM (configurable Hz), Soft Start, 15A ^[2] 47 24-16AWG Input 01 Analogue O-SV, 3KD programmable pullup to SV SIAVED. National programmable pullup to SV SIAVED. Analogue of requency O-SV, 5V to -5V, 3KD programmable pullup to SV SIAVED. Analogue O-SV, 3KD programmable pullup to SV Fixed frequency voltage thresholds. 49 24-16AWG Input 07 Analogue O-SV, 3KD programmable pullup to SV Fixed frequency voltage thresholds of 1.12s and 3.75V Analogue O-SV, 3KD programmable pullup to SV Fixed frequency overlage thresholds of 1.12s and 3.75V Analogue O-SV, 3KD programmable pullup to SV Fixed frequency overlage thresholds of 1.12s and 3.75V Analogue O-SV, 3KD programmable pullup to SV Fixed frequency overlage thresholds of 1.12s and 3.75V Analogue O-SV, 3KD programmable pullup to SV Fixed frequency overlage thresholds of 1.12s and 3.75V Analogue O-SV, 3KD programmable pullup to SV SIAVED SIAVED Analogue O-SV, 3KD programmable pullup to SV SIAVED SIAVED Analogue O-SV, 3KD programmable pullup to SV SIAVED SIAVE	43	24-16AWG	Output 25	High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾
Low Output 12 Low Side, Low Side PWM (configurable Hz, SA maximum) ⁽³⁾ SLAVED. Low Side PWM (configurable Hz, SA maximum) ⁽³⁾ SLAVED. Low Side PWM (configurable Hz, SA maximum) ⁽³⁾ Analogue O-SV, 3RO programmable pullup to SV SLAVED. Analogue or frequency, O-SV, -SV to +SV, 3RD programmable pullup to SV, configurable frequency voltage thresholds Analogue O-SV, 3RO programmable pullup to SV SLAVED. Analogue or frequency, O-SV, -SV to +SV, 3RD programmable pullup to SV, configurable frequency voltage thresholds at 12 and 32 stop stop stop stop stop stop stop stop	44	24-16AWG	Output 23	High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾
46 24-16AWG Low Output 12 SLAVED. Low Side PVM configurable frequency Analogue O-SV, 3KD programmable pullup to SV	45	24-16AWG	Output 21	High Side, High Side PWM (configurable Hz), Soft Start, 15A ⁽²⁾
Analogue O-5V, 3RD programmable pullup to SV	16	24.160000	Low Output 12	Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾
April Apri	40	24-10AWG	Low Output 12	SLAVED: Low Side PWM configurable frequency
Analogue 0-5V, 3kD programmable pullup to 5V, configurable frequency or stage thresholds. Analogue 0-5V, 3kD programmable pullup to 5V SLAVED: Analogue of requency, 0-5V, 5V to +5V, 3kD programmable pullup to 5V SLAVED: Analogue of requency, 0-5V, 3kD programmable pullup to 5V SLAVED: Analogue of requency, 0-5V, 3kD programmable pullup to 5V SLAVED: Analogue of requency, 0-5V, 3kD programmable pullup to 5V SLAVED: Analogue of requency, 0-5V, 3kD programmable pullup to 5V SLAVED: Analogue of requency, 0-5V, 3kD programmable pullup to 5V SLAVED: Analogue 0-5V, 5kD programmable pullup to 5V SLAVED: Analogue 0-5V, 5kD programmable pullup to 5V SLAVED: Analogue 0-5V, 3kD programmable pullup to 5V Analogue 0-5V, 3kD programmable pullup to 5V	47	24 16 AWG	Input 01	Analogue 0-5V, 3kΩ programmable pullup to 5V
SLAVED: Analogue or frequency; 0-SV, -SV to +SV, 3kO programmable pullup to SV, configurable frequency voltage thresholds at 12-84.	47	24-10AWG	input 01	
SULVED - Hardington of Trequency of Treatment of Trequency of Treatment of Treatm				Analogue 0-5V, 3kΩ programmable pullup to 5V
24-16AWG Input 05 SLAVED: Analogue or frequency; 0-5V, 3kQ programmable pullup to 5V Fixed frequency voltage thresholds at 1.25 and 3.75V	48	24-16AWG	Input 03	
Survey Notage thresholds at 1.25 and 3.75V				Analogue 0-5V, 3kΩ programmable pullup to 5V
Analogue 0-5V, 3kQ programmable pullup to 5V SLAVED. Analogue or Frequency, 0-5V, 3kQ programmable pullup to 5V Fixed frequency voltage thresholds at 1125 and 3.75V 51 24-16AWG Input 09 Analogue 0-5V, 3kQ programmable pullup to 5V 52 24-16AWG Input 11 Analogue 0-5V, 3kQ programmable pullup to 5V 53 24-16AWG Input 13 Analogue 0-5V, 3kQ programmable pullup to 5V 54 24-16AWG Input 15 Analogue 0-5V, 3kQ programmable pullup to 5V, Wake ⁽⁴⁾ 55 24-16AWG Input 15 Analogue 0-5V, 3kQ programmable pullup to 5V, Wake ⁽⁴⁾ 55 24-16AWG SENSOR GND Protected sensor ground 56 24-16AWG SENSOR GND Protected sensor ground 56 24-16AWG WARNING AND RESET SW Warning output for an LED to ground. Short to ground for manual reset. 59 24-16AWG WARNING AND RESET SW Warning output for an LED to ground. Short to ground for manual reset. 59 24-16AWG CAN #03 HI CAN communication port 120Q software selectable termination 61 24-16AWG CAN #02 HI CAN communication port 120Q software selectable termination 62 24-16AWG ETHERNET2 TX+ Ethernet communication port 2 64 24-16AWG ETHERNET2 TX+ Ethernet communication port 2 65 24-16AWG ETHERNET1 TX+ Ethernet communication port 1 66 24-16AWG ETHERNET1 TX+ Ethernet communication port 1 67 24-16AWG ETHERNET1 TX+ Ethernet communication port 1 68 24-16AWG Low Output 13 Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ 51 SLAVED. Can Side PWM (configurable Hz, 5A maximum) ⁽³⁾ 51 SLAVED. Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ 51 SLAVED. Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ 51 SLAVED. Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ 51 SLAVED. Low Side PWM (configurable Ptquency 51 Analogue 0-5V, 3kQ programmable pullup to 5V 51 ALAED. Analogue 0-5V, 3kQ programmable pullup to 5V 51 ALAED. Analogue 0-5V, 3kQ programmable pullup to 5V 51 Alaed. Analogue 0-5V, 3kQ programmable pullup to 5V 51 Alaed. Analogue 0-5V, 3kQ programmable pullup to 5V	49	24-16AWG	Input 05	
SLAVED: Analogue or frequency; 0-5V, 3kΩ programmable pullup to 5V				
State	50	24-16AWG	Input 07	SLAVED: Analogue or frequency; 0-5V, 3kΩ programmable pullup to 5V
See	E1	24-16AWG	Input 00	
Sample Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake ⁽⁴⁾				
24-16AWG Input 15 Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake ⁽⁴⁾				
SENSOR GND Protected sensor ground				
Section				
24-16AWG LOGIC POWER IN +12V Battery supply; recommended independent logic supply <0.5A				
S8 24-16AWG WARNING AND RESET SW Warning output for an LED to ground. Short to ground for manual reset.				
Section				
CAN #03 HI CAN communication port 120Ω software selectable termination CAN #02 HI CAN communication port 120Ω software selectable termination CAN #01 HI CAN communication port 120Ω software selectable termination CAN #01 HI CAN communication port 120Ω software selectable termination CAN #01 HI CAN communication port 120Ω software selectable termination ETHERNET RX+ Ethernet communication port 2 Ethernet communication port 1 Ethernet communication port 2 Ethernet communication port 1 Ethernet communication port 1 Ethernet communication port 1 Ethernet communication port 1 Ethernet communication port 2 Ethernet communication port 1				
CAN communication port 120Ω software selectable termination ETHERNET2 RX+ Ethernet communication port 2 ETHERNET2 TX+ Ethernet communication port 2 ETHERNET1 RX+ Ethernet communication port 1 ETHERNET1 TX+ Ethernet communication port 1 ETHERNET2 TX+ Ethernet communication port 1 E				
62 24-16AWG CAN #01 HI CAN communication port 120Ω software selectable termination 63 24-16AWG ETHERNET2 RX+ Ethernet communication port 2 64 24-16AWG ETHERNET2 TX+ Ethernet communication port 1 65 24-16AWG ETHERNET1 RX+ Ethernet communication port 1 66 24-16AWG ETHERNET1 TX+ Ethernet communication port 1 67 24-16AWG Power Ground Negative battery supply. Must be connected 68 24-16AWG Low Output 13 69 24-16AWG Low Output 14 69 24-16AWG Low Output 14 69 24-16AWG Input 02 69 24-16AWG Input 02 69 24-16AWG Input 02 60 24-16AWG Input 02 60 24-16AWG Input 02 60 24-16AWG Input 04 60 24-16AWG Input 05 SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V 60 SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V 61 SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V 62 SLAVED: Analogue 0-5V, 3kΩ programmable pullup to 5V 63 SLAVED: Analogue 0-5V, 3kΩ programmable pullup to 5V 64 SLAVED: Analogue 0-5V, 3kΩ programmable pullup to 5V 65 SLAVED: Analogue 0-5V, 3kΩ programmable pullup to 5V 66 SLAVED: Analogue 0-5V, 3kΩ programmable pullup to 5V			<u> </u>	
63 24-16AWG ETHERNET2 RX+ Ethernet communication port 2 64 24-16AWG ETHERNET2 TX+ Ethernet communication port 2 65 24-16AWG ETHERNET1 RX+ Ethernet communication port 1 66 24-16AWG ETHERNET1 TX+ Ethernet communication port 1 67 24-16AWG Power Ground Negative battery supply. Must be connected 68 24-16AWG Low Output 13 69 24-16AWG Low Output 14 69 24-16AWG Low Output 15 60 24-16AWG Low Output 16 60 24-16AWG Low Output 17 60 24-16AWG Low Output 18 60 24-16AWG Low Output 19 60 24-16AWG			CAN #UZ HI	CAN communication port 12002 software selectable termination
64 24-16AWG ETHERNET2 TX+ Ethernet communication port 2 65 24-16AWG ETHERNET1 RX+ Ethernet communication port 1 66 24-16AWG ETHERNET1 TX+ Ethernet communication port 1 67 24-16AWG Power Ground Negative battery supply. Must be connected 68 24-16AWG Low Output 13 69 24-16AWG Low Output 14 Cow Output 14 Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM configurable frequency Low Side, Low Side PWM configurable pollup to 5V SLAVED: Low Side PWM configurable pullup to 5V SLAVED: Analogue 0-5V, 3kΩ programmable pullup to 5V SLAVED: Analogue o-5V, -5V to +5V, 3kΩ programmable pullup to 5V Analogue 0-5V, 3kΩ programmable pullup to 5V Analogue 0-5V, 3kΩ programmable pullup to 5V	62	24-16AWG	CAN #01 HI	CAN communication port 120Ω software selectable termination
65 24-16AWG ETHERNET1 RX+ Ethernet communication port 1 66 24-16AWG ETHERNET1 TX+ Ethernet communication port 1 67 24-16AWG Power Ground Negative battery supply. Must be connected 68 24-16AWG Low Output 13 69 24-16AWG Low Output 14 Cow Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM configurable frequency Analogue 0-5V, 3kΩ programmable pullup to 5V SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V Analogue 0-5V, 3kΩ programmable pullup to 5V	63	24-16AWG	ETHERNET2 RX+	Ethernet communication port 2
66 24-16AWG ETHERNET1 TX+ Ethernet communication port 1 67 24-16AWG Power Ground Negative battery supply. Must be connected 68 24-16AWG Low Output 13 Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ 5LAVED: Low Side PWM configurable frequency Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ 5LAVED: Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ 5LAVED: Low Side PWM configurable frequency Analogue 0-5V, 3kΩ programmable pullup to 5V 5LAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V	64	24-16AWG	ETHERNET2 TX+	Ethernet communication port 2
Regative battery supply. Must be connected Low Side, Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM configurable frequency Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM configurable frequency Analogue 0-5V, 3kΩ programmable pullup to 5V SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V Analogue 0-5V Analogue	65	24-16AWG	ETHERNET1 RX+	Ethernet communication port 1
Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM configurable frequency Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ Low Output 14 Low Output 14 Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM configurable frequency Analogue 0-5V, 3kΩ programmable pullup to 5V SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V	66	24-16AWG	ETHERNET1 TX+	Ethernet communication port 1
68 24-16AWG Low Output 13 SLAVED: Low Side PWM configurable frequency Low Side, Low Side PWM (configurable Hz, 5A maximum)(3) SLAVED: Low Side PWM configurable frequency Analogue 0-5V, 3kΩ programmable pullup to 5V SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V	67	24-16AWG	Power Ground	Negative battery supply. Must be connected
Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾ SLAVED: Low Side PWM configurable frequency Analogue 0-5V, 3kΩ programmable pullup to 5V SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V	68		Low Output 13	Low Side, Low Side PWM (configurable Hz, 5A maximum) ⁽³⁾
69 24-16AWG Low Output 14 SLAVED: Low Side PWM configurable frequency Analogue 0-5V, 3kΩ programmable pullup to 5V SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V			·	
Analogue 0-5V, 3kΩ programmable pullup to 5V SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V	69		Low Output 14	i i i i i i i i i i i i i i i i i i i
70 24-16AWG Input 02 SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V				
frequency voltage thresholds Analogue 0-5V, 3kΩ programmable pullup to 5V	70	24-16AWG	24-16AWG Input 02	
71 34 16AMC Input 04				
	71	24-16AWG	24-16AWG Input 04	
71 24-16AWG Input 04 SLAVED: Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V, configurable frequency voltage thresholds	'1			



Connector 2

Continued...

Pin	Gauge	Signal Name	Signal Notes
		Input 06	Analogue 0-5V, 3kΩ programmable pullup to 5V
72	24-16AWG		SLAVED: Analogue or frequency; 0-5V, 3k Ω programmable pullup to 5V Fixed frequency voltage thresholds at 1.25 and 3.75V
		AWG Input 08	Analogue 0-5V, 3kΩ programmable pullup to 5V
73	24-16AWG		SLAVED: Analogue or frequency; 0-5V, $3k\Omega$ programmable pullup to 5V Fixed frequency voltage thresholds at 1.25 and 3.75V
74	24-16AWG	Input 10	Analogue 0-5V, 3kΩ programmable pullup to 5V
75	24-16AWG	Input 12	Analogue 0-5V, 3kΩ programmable pullup to 5V
76	24-16AWG	Input 14	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake ⁽⁴⁾
77	24-16AWG	Input 16	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake ⁽⁴⁾
78	24-16AWG	SENSOR GND	Protected sensor ground
79	24-16AWG	Power Ground	Negative battery supply. Must be connected
80	24-16AWG	WAKEUP	Dedicated wake ⁽⁴⁾
81	24-16AWG	LIN	NOT CURRENTLY IN USE
82	24-16AWG	RS232 TX	RS232 transmit
83	24-16AWG	CAN #03 LO	CAN communication port 120Ω software selectable termination
84	24-16AWG	CAN #02 LO	CAN communication port 120Ω software selectable termination
85	24-16AWG	CAN #01 LO	CAN communication port 120Ω software selectable termination
86	24-16AWG	ETHERNET2 RX-	Ethernet communication port 2
87	24-16AWG	ETHERNET2 TX-	Ethernet communication port 2
88	24-16AWG	ETHERNET1 RX-	Ethernet communication port 1
89	24-16AWG	ETHERNET1 TX-	Ethernet communication port 1
90	24-16AWG	Power Ground	Negative battery supply. Must be connected
91	24-16AWG	Power Ground	Negative battery supply. Must be connected
92	24-16AWG	Output 21D	Duplicate of output 21 with Diode - intended for wiper operation 15A

Footnotes:

⁽¹⁾Default PWM frequency for Outputs 1-12 is 10kHz.

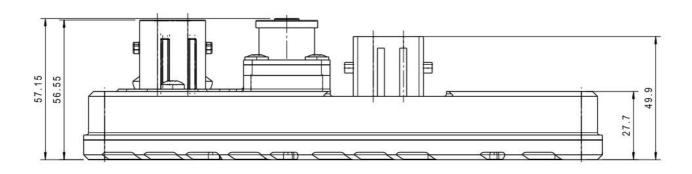
⁽²⁾Default PWM frequency for Outputs 21-28 is 10kHz.

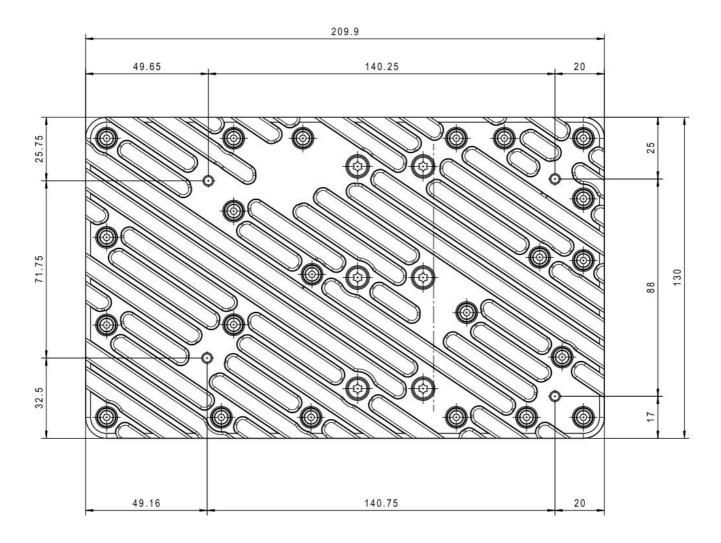
⁽³⁾Default PWM frequency for Low Side Outputs 11-14 is 125Hz.

 $[\]ensuremath{^{(4)}\text{Can}}$ be calibrated to bring unit out of sleep mode.



Dimensions:





Warranty and Servicing:

• One year limited warranty when used within supplied specification.