PDU – 34A

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 34 output channels with a max current capacity of 400A

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

Slave Link - enables Syvecs ECU units to directly claim access to the PDU 34A input and output channels in order to receive data from or else control those channels with ultra-low latency

Flexible outputs - 10x extremely flexible output drivers configurable to operate as high power High side power switching, as Half-bridge or paired into 5x Full-bridges, these 10 outputs can also be configured to operate as low-side PWM drivers.

The PDU 34A's combined flexibility allows racing vehicle system designers the fr edom to use these robust PDU output channels to perform high speed control tasks managed by our S7, S8 and S12 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 PDU 34A 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 PDU 34A 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 13 to 16.

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
- Low power state woken on physical input, CAN activity, or specific CAN frame

Outputs:

- 30 Main High Side Power Outputs, rated to 30A,
  - Outputs 1-10 are multifunction high side, low side, PWM, H-Bridge, soft start outputs
  - Outputs 10-30 are High Side outputs only
  - Output teaming to support very high current devices available
  - 4 Low Side Outputs - 8Amps
- 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:

- 16 physical switch inputs or, when slaved, general purpose analogue sensor inputs including:
  - 8x frequency measurement inputs (4 optionally bi-polar)
  - software selectable 3k ohm pull-up resistors
  - 4x inputs capable of programmable "wake up" functionality
- Dedicated wake pin which must be driven high (12v)
- Up to 64 soft inputs via CAN with configurable validation and debounce time

Interfaces:

- x2 100Mbit/s full duplex Ethernet (can be used as Ethernet switch)
- x3 CAN 2.0B
- RS232C serial interface
- LIN Bus

Physical

- 6.5V to 40V input voltage
- Dedicated 12V logic power input
- Regulated 5V sensor supply output with short circuit protection
- x2 Deutsch 16 way Power Connectors
- x1 Deutsch 32way Connector
- x1 M6 Power Stud
- Machined Aluminium enclosure
- 995g
- Operating Temperature -20 to +85C

Wiring Information:

Stud – ASH0014-1PN

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

Connector 1 – AS020-16SN

Pin	Gauge	Signal Name	Signal Notes
A	16AWG	Output 1	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
B	16AWG	Output 2	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
C	16AWG	Output 3	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
D	16AWG	Output 4	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
E	16AWG	Output 5	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
F	16AWG	Output 6	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
G	16AWG	Output 7	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
H	16AWG	Output 8	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
J	16AWG	Output 9	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
K	16AWG	Output 10	High Side, Low Side, Low Side PWM, Half Bridge, Full Bridge, Soft start[1][2]
L	16AWG	Output 11	High Side
M	16AWG	Output 12	High Side
N	16AWG	Output 13	High Side
P	16AWG	Output 14	High Side
R	16AWG	Output 15	High Side
S	16AWG	Power Ground	Negative battery supply

Connector 2 – AS020-16SA

Pin	Gauge	Signal Name	Signal Notes
A	16AWG	Output 16	High Side
B	16AWG	Output 17	High Side
C	16AWG	Output 18	High Side
D	16AWG	Output 19	High Side
E	16AWG	Output 20	High Side
F	16AWG	Output 21	High Side
G	16AWG	Output 22	High Side
H	16AWG	Output 23	High Side
J	16AWG	Output 24	High Side
K	16AWG	Output 25	High Side
L	16AWG	Output 26	High Side
M	16AWG	Output 27	High Side
N	16AWG	Output 28	High Side
P	16AWG	Output 29	High Side
R	16AWG	Output 30	High Side
S	16AWG	Power Ground	Negative battery supply

Logic Power In
Logic power in exists to allow the PDU electronics supply to be protected from voltage drops due to large current demand at the positive power connector. The idea is to run a small (~0.5A) wire back to the master or the battery separately from the main power connection. The logic will not see the voltage drop caused on the main power line by big current spikes and will therefore be less likely to be reset by them. This also allows the PDUX logic to be alive (for communications and programming) while the main power connection is disconnected, which can be useful in-car and also for bench power-up looms.

WakeUP Pin
Wake pin is active-high, will always turn the device on (unlike wake on inputs 13..16 which are optional wake). Does not need to be connected if 'always on' is set in the power config in Pdu Setup; should not be connected if other wake source is used like wake-on-can for example.

Connector 3 – AS216-35PN

Pin	Gauge	Signal Name	Signal Notes
1	22AWG	INPUT #01 - Bipolar	Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V [4]
2	22AWG	INPUT #02 – Bipolar	Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V [4]
3	22AWG	INPUT #03 – Bipolar	Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V [4]
4	22AWG	INPUT #04 – Bipolar	Analogue or frequency; 0-5V, -5V to +5V, 3kΩ programmable pullup to 5V [4]
5	22AWG	INPUT #05 - Unipolar	Analogue or frequency; 0-5V, 3kΩ programmable pullup to 5V[4]
6	22AWG	INPUT #06 – Unipolar	Analogue or frequency; 0-5V, 3kΩ programmable pullup to 5V[4]
7	22AWG	INPUT #07 – Unipolar	Analogue or frequency; 0-5V, 3kΩ programmable pullup to 5V[4]
8	22AWG	INPUT #08 – Unipolar	Analogue or frequency; 0-5V, 3kΩ programmable pullup to 5V[4]
9	22AWG	INPUT #09	Analogue 0-5V, 3kΩ programmable pullup to 5V
10	22AWG	INPUT #10	Analogue 0-5V, 3kΩ programmable pullup to 5V
11	22AWG	INPUT #11	Analogue 0-5V, 3kΩ programmable pullup to 5V
12	22AWG	INPUT #12	Analogue 0-5V, 3kΩ programmable pullup to 5V
13	22AWG	INPUT #13	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake[5]
14	22AWG	INPUT #14	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake[5]
15	22AWG	INPUT #15	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake[5]
16	22AWG	INPUT #16	Analogue 0-5V, 3kΩ programmable pullup to 5V, Wake[5]
17	22AWG	SENSOR GND	Protected sensor ground
18	22AWG	SENSOR GND	Protected sensor ground
19	22AWG	WAKEUP	Dedicated Wake, See page 3
20	22AWG	5V OUT	Regulated 5V sensor supply rail
21	22AWG	CAN #03 HI	NOT CURRENTLY IN USE
22	22AWG	CAN #03 LO	NOT CURRENTLY IN USE
23	22AWG	POWER GROUND	Negative battery supply
24	22AWG	12V OUT	Power stud voltage out
25	22AWG	LOGIC POWER IN	+12V Battery supply; must be connected – See page 3
26	22AWG	Output 31a	High Side (pin share 37)
27	22AWG	Output 32a	High Side (pin share 38)
28	22AWG	Output 33a	High Side (pin share 39)
29	22AWG	Output 34a	High Side (pin share 40)
30	22AWG	LIN	NOT CURRENTLY IN USE
31	22AWG	CAN #02 HI	ECU Slave (terminated)
32	22AWG	CAN #02 LO	ECU Slave (terminated)
33	24AWG	ETHERNET2 RX+	Ethernet communication port 2
34	24AWG	ETHERNET2 RX-	Ethernet communication port 2
35	24AWG	ETHERNET2 TX+	Ethernet communication port 2
36	24AWG	ETHERNET2 TX-	Ethernet communication port 2
37	22AWG	Output 31b	High Side (pin share 26)
38	22AWG	Output 32b	High Side (pin share 27)
39	22AWG	Output 33b	High Side (pin share 28)
40	22AWG	Output 34b	High Side (pin share 29)
41	22AWG	WARNING AND RESET SW	Warning output for an LED to ground. Short to ground for manual reset.
42	22AWG	RS232 TX	RS232 transmit
43	22AWG	RS232 RX	RS232 receive
44	22AWG	COMMS GROUND	Protected communication ground
45	22AWG	CAN #01 HI	CAN communication port 120Ω software selectable termination[3]
46	22AWG	CAN #01 LO	CAN communication port 120Ω software selectable termination[3]
47	24AWG	ETHERNET1 RX+	Ethernet communication port 1
48	24AWG	ETHERNET1 RX-	Ethernet communication port 1
49	24AWG	ETHERNET1 TX+	Ethernet communication port 1
50	24AWG	ETHERNET1 TX-	Ethernet communication port 1
51	22AWG	DIGITAL GROUND	
52	22AWG	POWER GROUND	Negative battery supply
53	22AWG	POWER GROUND	Negative battery supply
54	22AWG	POWER GROUND	Negative battery supply
55	22AWG	POWER GROUND	Negative battery supply

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]Only active when not in sleep mode. If waking on CAN external termination will be required.
[4]Bipolar and Frequency inputs via ECU slaving only.
[5]Can be calibrated to bring unit out of sleep mode when driven high. Dedicated wake pin always active.

Dimensions:

Connector 1   Connector 2   Connector 3
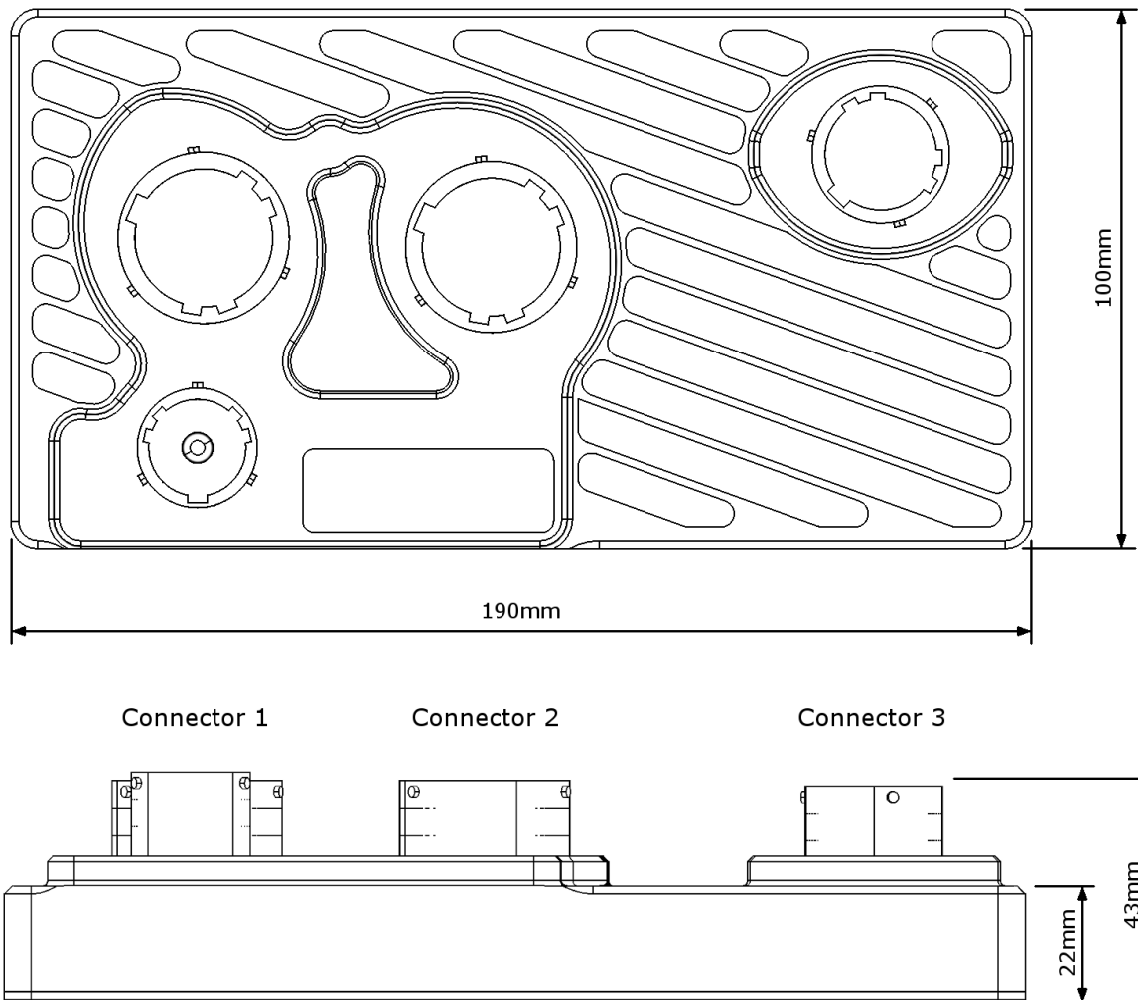
Warranty and Servicing:

- 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 Syvecs for a replacement, a charge may be made for this service.