

## X10 IO Expander Datasheet



The X10 provides cost effective input and output expansion to any Life Racing ECU. Its 10 analogue inputs, 10 PWM outputs and 2 full bridge outputs all appear simply as extra general-use pins within the ECU configuration. A dedicated low-latency protocol is used to allow functions such as drive by wire throttle control, wheel speed frequency inputs for traction control or paddle shift gearbox control to be placed on X10 pins.

All of this hardware is packaged within a lightweight CNC billet aluminium case. Designed to be installed in harsh Motorsport environments.

### Outputs:

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- 10 user configurable general purpose low side PWM outputs
- 2 full bridges also configurable as 4 half bridges or 4 PWMs

### Inputs:

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- 10 user configurable general purpose analogue sensor inputs including 6 bipolar and frequency capable inputs

### Interfaces:

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- 100MHz full duplex Ethernet for firmware upgrades
- 1 CAN 2.0B interface for dedicated slave link to master ECU

### Physical:

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- 35 way AMP sealed connector
- CNC machined, O ring sealed, black anodised aluminium case
- Maximum dimensions including connector are 130x121x43mm
- Operating temperature up to 85°C
- Total mass ~360g

### Ordering Information:

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Description	Part number
X10	ANC-A01
35way connector kit	CON-B07

## Wiring Information:

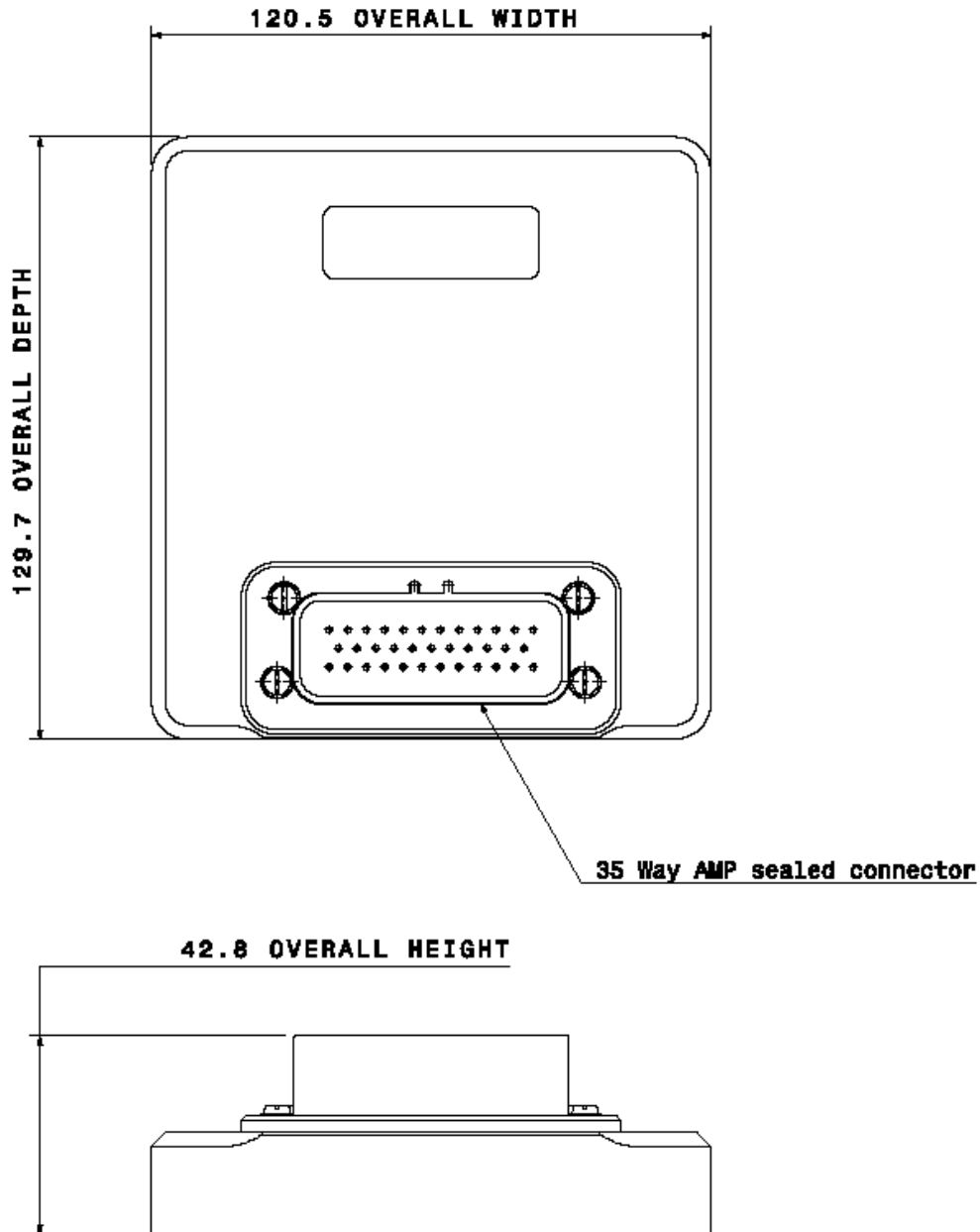
### Connector 1

*Mating connector: 35way Connector Kit (black)*

Pin	Gauge	Signal Name	Signal Notes
1	-	DO NOT CONNECT	Internally connected to pin 2
2	16-20AWG	PWM #01	Low-side PWM 10A peak
3	16-20AWG	PWM #02	Low-side PWM 10A peak
4	16-20AWG	H-Bridge #01	Half bridge, low-side PWM or full bridge, 20A peak
5	16-20AWG	PWM #03	Low-side PWM 10A peak
6	16-20AWG	PWM #04	Low-side PWM 10A peak
7	16-20AWG	PWM #05	Low-side PWM 10A peak
8	16-20AWG	PWM #06	Low-side PWM 10A peak
9	16-20AWG	PWM #07	Low-side PWM 10A peak
10	16-20AWG	PWM #08	Low-side PWM 10A peak
11	16-20AWG	PWM #09	Low-side PWM 10A peak
12	16-20AWG	PWM #10	Low-side PWM 10A peak
13	16-20AWG	Input #01	Generic input; analogue or frequency; 0-5V, -5V to +5V, 3kΩ (software pullup)
14	16-20AWG	Input #02	Generic input; analogue or frequency; 0-5V, -5V to +5V, 3kΩ (software pullup)
15	16-20AWG	Input #03	Generic input; analogue or frequency; 0-5V, -5V to +5V, 3kΩ (software pullup)
16	16-20AWG	Input #04	Generic input; analogue or frequency; 0-5V, -5V to +5V, 3kΩ (software pullup)
17	16-20AWG	Input #05	Generic input; analogue or frequency; 0-5V, -5V to +5V, 3kΩ (software pullup)
18	16-20AWG	Input #06	Generic input; analogue or frequency; 0-5V, -5V to +5V, 3kΩ (software pullup)
19	16-20AWG	Input #07	Analogue input 0-5V, 3kΩ software pullup to 5V
20	16-20AWG	Input #08	Analogue input 0-5V, 3kΩ software pullup to 5V
21	16-20AWG	Input #09 / H-Bridge #03	Half Bridge, full Bridge, PWM or Analogue input 0-5V, 3kΩ (software pullup)
22	16-20AWG	Input #10 / H-Bridge #04	Half Bridge, full Bridge, PWM or Analogue input 0-5V, 3kΩ (software pullup)
23	16-20AWG	LAN RX+	Ethernet PC communication port
24	16-20AWG	Sensor Ground	Protected sensor ground
25	16-20AWG	5V out	Regulated 5V sensor supply rail
26	16-20AWG	CAN HI #01	CAN communication port 120Ω terminated
27	16-20AWG	CAN LO #01	CAN communication port 120Ω terminated
28	16-20AWG	CAN HI #02	NOT IN USE
29	16-20AWG	CAN LO #02	NOT IN USE
30	16-20AWG	H-Bridge #02	Half bridge, low-side PWM or full bridge, 20A peak
31	16-20AWG	LAN TX-	Ethernet PC communication port
32	16-20AWG	LAN TX+	Ethernet PC communication port
33	16-20AWG	LAN RX-	Ethernet PC communication port
34	16-20AWG	Battery Supply	Positive battery supply
35	16-20AWG	Power Ground	Negative battery supply

**Dimensions:**

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**Warranty and Servicing:**

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- This equipment comes with a 1 year warranty against manufacturing defects and failures however misuse or damage will not be covered under warranty.