



Measurably better value

Up to 120V or 24A or 120W

CC, CR, CV and CP modes

Pulse - High and low pulse with variable width (down to 100µs)

Sweep - Linear/ logarithmic with single or dual slope



# ALD1120

120W DC Electronic Load

[aimtti.com](http://aimtti.com)

# A SERIES

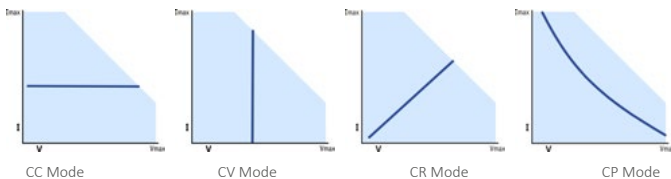
## ALD1120



The ALD1120 Electronic load is the latest release from Aim-TTi's new A Series line, developed to meet the requirements of design, test and education customers. The versatile 120W load, designed to handle up to 120V or 24A at a breakthrough price.

### VERSATILE FEATURES

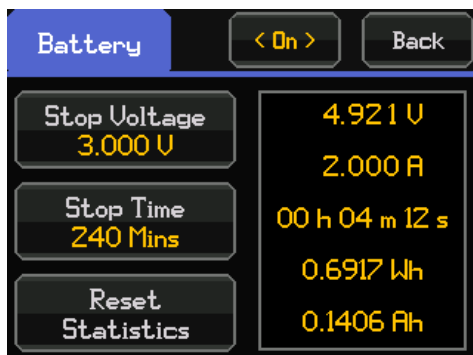
The ALD1120 provides multiple operating modes, including CC (Constant Current), CV (Constant Voltage), CR (Constant Resistance) and CP (Constant Power), providing flexibility for various testing scenarios.



### BATTERY EVALUATION

For battery testing, the electronic load includes a battery discharge feature with cut-off voltage and time settings, as well as battery capacity measurement. This feature allows the characterisation of battery cell discharges and can be used in all load modes except constant voltage mode.

Whilst discharging a battery cell, the live battery cell capacity in both Watt hours and Amp hours are simultaneously shown on the battery setup display.



Battery evaluation

### LIMITS AND TRIPS

The ALD1120 has multiple trip protection limits including over voltage protection (OVP), over current protection (OCP), over power protection (OPP), over temperature protection (OTP), reverse polarity detection and external sense trip.

- ▶ Up to 120V or 24A or 120W
- ▶ CC, CR, CV and CP modes
- ▶ Pulse - High and low pulse with variable width (down to 100µs)
- ▶ Sweep - Linear/ logarithmic with single or dual slope
- ▶ Battery discharge and capacity with cut off voltage/ time
- ▶ External Voltage Sense
- ▶ Variable slew rate options (Fast/ Medium/ Slow)
- ▶ High meter resolution: 100uA, 1mV
- ▶ Compact footprint, aluminium case (213 x 228 x 98 mm (WxDxH))
- ▶ Kensington lock
- ▶ USB remote interface, SCPI compatible
- ▶ Free Test Bridge control software



### REMOTE CONNECTIVITY

The A Series comes equipped with SCPI compliant commands and plug and play USB connectivity. Full access to the Aim-TTi Test Bridge software is provided free with no additional hidden costs.

Aim-TTi's Test Bridge PC software is available as free download from the Aim-TTi website, which can be used to control up to 4 instruments simultaneously.

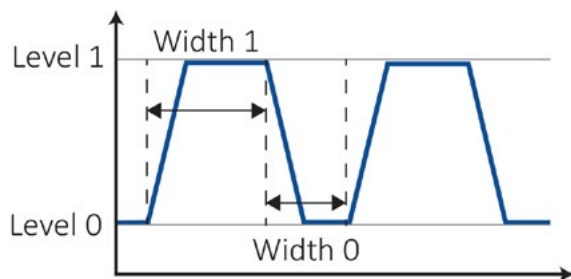
[www.aimtti.com/support](http://www.aimtti.com/support)



ALD1120 Rear

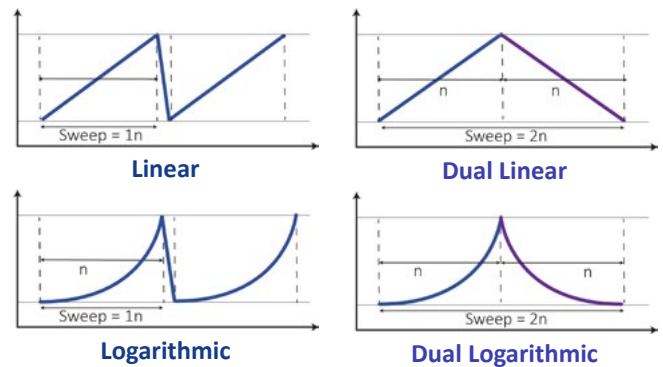
## ► PULSE

Pulse operation is available in all load modes, allowing the output to alternate between two user-defined levels and pulse widths.



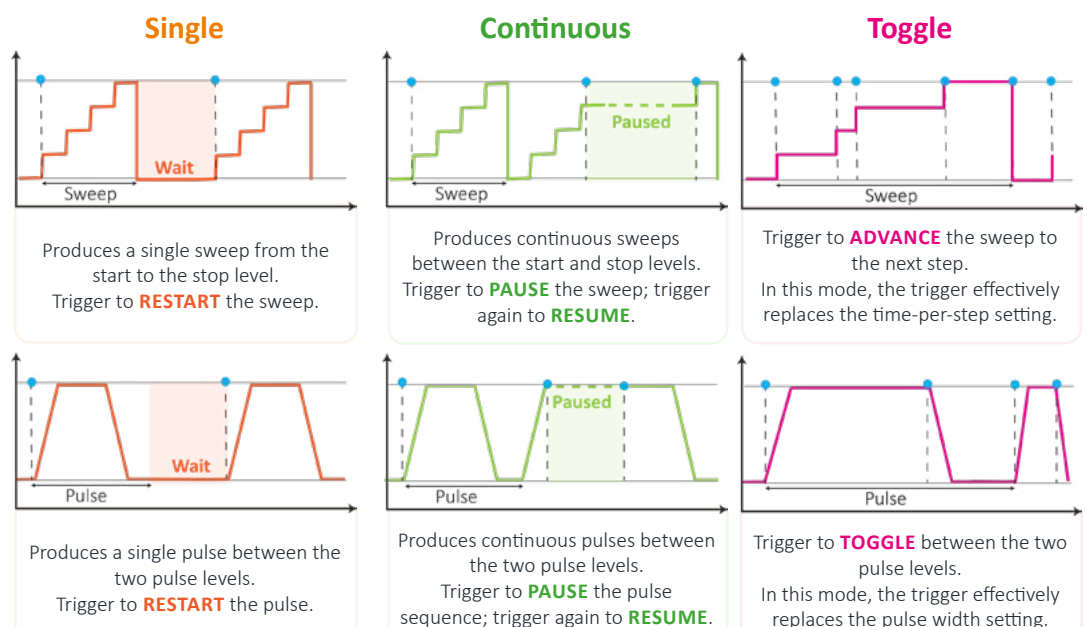
## ► SWEEP

The sweep function offers both linear and logarithmic options with single or dual slope.



## ► TRIGGERING

Flexible triggering supports both Pulse and Sweep functions with Single, Continuous and Toggle operating modes. Triggering can be initiated locally from the front panel or remotely via the remote trigger command.



## COMPACT FOOTPRINT

The A Series is designed with your workspace in mind. The compact footprint (213 x 228 x 98 mm (WxDxH)) ensures they won't take up unnecessary space on your bench or shelf.

## CUSTOMISABLE COLOUR DISPLAY

With 6 different colour themes, the A Series can be set to simulate different channels with a visual cue or group together specific instruments, and for different working environments, light and dark themes are provided.

## PREMIUM ALUMINUM CASE

The premium aluminum case not only provides robust protection but also adds a touch of sophistication, elevating your testing capabilities with equipment that combines functionality, durability, and style.



Accuracies apply for 1 year 19°C to 25°C after 30 minutes warm-up. General specifications apply for the temperature range 5°C to 40°C. Typical specifications are determined by design and are not guaranteed. Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without prior notice.

MAXIMUM INPUT RATINGS

|                          |                           |
|--------------------------|---------------------------|
| Current                  | 24A                       |
| Voltage                  | 120V                      |
| Power                    | 120W                      |
| Min operating voltage    | <= 700mV @ 24A            |
| Min effective resistance | 30mΩ (typical)            |
| Off state leakage        | <60μA (typical)           |
| Reverse Polarity         | 24A (diode will conduct)  |
| Isolation Voltage        | ±300Vdc to chassis ground |

OPERATING MODES

CC MODE

|                                                   |                                                    |
|---------------------------------------------------|----------------------------------------------------|
| Ranges                                            | 0 to 2A (limited to 40W). 0 to 24A                 |
| Accuracy                                          | ±(0.1% + 0.05% Range)                              |
| Resolution                                        | 2A range: 100uA. 24A range: 1mA                    |
| Regulation                                        | Same as accuracy specification (auto-compensating) |
| Minimum Transition time at full current (typical) | 2A range: 4μs. 24A range: 12μs                     |

CP MODE

|                                                   |                                                    |
|---------------------------------------------------|----------------------------------------------------|
| Range                                             | 0 to 40W (limited to 2A). 0 to 120W                |
| Accuracy                                          | ± (0.2% + 2mW + 0.05% I Range)                     |
| Resolution                                        | 1mW                                                |
| Regulation                                        | Same as accuracy specification (auto-compensating) |
| Minimum Transition time at full current (typical) | 40W range: 4μs. 120W range: 12μs                   |

CR MODE

|                                                   |                                                    |
|---------------------------------------------------|----------------------------------------------------|
| Range                                             | 100mΩ to 10kΩ                                      |
| Accuracy                                          | ± (0.2% + 2mΩ + 0.05% I Range)                     |
| Resolution                                        | 4 digits (minimum 1mΩ)                             |
| Regulation                                        | Same as accuracy specification (auto-compensating) |
| Minimum Transition time at full current (typical) | 2A range: 4μs. 24A range: 12μs                     |

CV MODE

|            |                                                    |
|------------|----------------------------------------------------|
| Range      | 0 to 120V                                          |
| Accuracy   | ±(0.05% + 0.01% FS)                                |
| Resolution | 1mV                                                |
| Regulation | Same as accuracy specification (auto-compensating) |

FUNCTIONS

PULSE

|                        |                                     |
|------------------------|-------------------------------------|
| Available Modes        | CC, CP, CR, CV                      |
| Pulse Level 0/1        | Same as range for each mode         |
| Pulse Width 0/1        | 100μs to 1000s. 100ms to 1000s (CV) |
| Pulse Width Resolution | 100μs                               |

BATTERY DISCHARGE

|                  |                                               |
|------------------|-----------------------------------------------|
| Available Modes  | CC, CP, CR                                    |
| Capacity Reading | Watt Hours and Amp hours. Updated each second |
| Stop Time        | 1 min to 99.99 Hours (1 min resolution)       |
| Voltage Dropout  | 0 to 120V (1mV resolution)                    |

| SWEEP               |                                                    |
|---------------------|----------------------------------------------------|
| Available Modes     | CC, CP, CR, CV                                     |
| Start / Stop levels | Same as range for each mode                        |
| Time per Step       | 1ms to 1000s (1ms resolution). 100ms to 1000s (CV) |
| Slope               | Single / Dual                                      |
| Type                | Linear / Logarithmic                               |
| Number of Steps     | 2 to 1000                                          |

| SLEW RATE |                                                                                                                               |
|-----------|-------------------------------------------------------------------------------------------------------------------------------|
| Fast      | No slew rate limiting, fastest possible response.                                                                             |
| Medium    | Slew rate limiting applied to help reduce risk of overshoot or ringing.                                                       |
| Slow      | Significant slew rate limiting applied to help overcome potential instability in unstable source/load combinations or setups. |

| PROTECTION       |                                                                                                                                    |
|------------------|------------------------------------------------------------------------------------------------------------------------------------|
| OPP              | The input is disabled if the power exceeds a user set limit of 0 to 125W                                                           |
| OCP              | The input is disabled if the current exceeds a user set limit of 0 to 25A                                                          |
| OVP              | The input is disabled if the voltage exceeds a user set limit 0 to 125V                                                            |
| Excess Voltage   | Surge suppressors will start to conduct above 140V                                                                                 |
| Temperature      | The input will trip if the heatsink temperature exceeds safe levels.                                                               |
| Reverse Polarity | The unit will trip if a reverse current is detected. The unit will continue to show a popup until the reverse polarity is removed. |
| External Sense   | The unit will trip if the input voltage exceeds that of the external sense voltage by more than 4.5V. (External sense enabled).    |

| METER SPECIFICATIONS |                                                                       |
|----------------------|-----------------------------------------------------------------------|
| Volts and Amps       | Measured values of current through and voltage across the load        |
| Watt & Ohms          | Power and equivalent load resistance, calculated from Volts and Amps. |
| Voltage Accuracy     | $\pm(0.05\% + 0.01\% \text{ FS})$                                     |
| Voltage Resolution   | 1mV                                                                   |
| Current Accuracy     | $\pm(0.1\% + 0.05\% \text{ Range})$                                   |
| Current Resolution   | 2A range: 100 $\mu$ A. 24A range: 1mA                                 |

| EXTERNAL VOLTAGE SENSE |                                                               |
|------------------------|---------------------------------------------------------------|
| Terminals              | 4mm Banana sockets on 19mm spacing.                           |
| Input Impedance        | Nominally 2.2M $\Omega$ each input to load negative           |
| Maximum sense offset   | 4V (allowance for backing-off supply for zero-volt operation) |

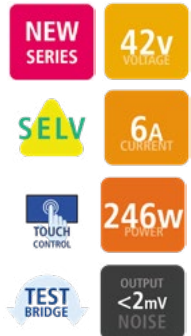
| INTERFACES                     |                                                                                                                                                                        |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| USB                            | Full digital remote control facilities are available through the USB interface. Standard USB 2.0 hardware connection. Implemented as virtual-COM port. SCPI compatible |
| Remote Command Processing Time | Typically < 100ms                                                                                                                                                      |

| GENERAL         |                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------|
| Terminals       | 4mm Banana sockets on 19mm spacing.                                                                      |
| Display         | 2.8" IPS TFT (320x240) Backlit, 4W resistive touch.                                                      |
| Data Entry      | Menu navigation via touchscreen or rotary knob, value entry direct by numeric keys or by rotary control. |
| Stored Settings | Up to 6 complete instrument set-ups may be stored in non-volatile memory.                                |
| Size and Weight | 213.3 x 227.6 x 98.2 mm (WxDxH) 1.7kg                                                                    |
| Power           | 100 V to 240 VAC $\pm$ 10% 50/60 Hz; 30 VA max. Installation Category II.                                |
| Operating Range | +5°C to 40°C, 20-80% RH.                                                                                 |
| Storage Range   | -20°C to + 60°C.                                                                                         |
| Cooling         | Variable Speed fan. Air exit at rear.                                                                    |
| Environmental   | Indoor use at altitudes up to 2000m, Pollution Degree 2.                                                 |
| Safety & EMC    | Complies with EN61010-1 & EN61326-1. All inputs 300Vpk max to ground.                                    |
| Security        | Kensington Lock                                                                                          |

## POWER SUPPLY

### FX Series DC Power supply

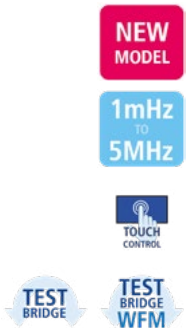
- ▶ Dual or triple output.
- ▶ Digital control.
- ▶ Tracking.
- ▶ Multi on/off.



## WAVEFORM GENERATOR

### ATG1005 Function Generator

- ▶ Single output.
- ▶ Dedicated sync output.
- ▶ Linear/logarithmic sweep with single or dual slope.
- ▶ FSK and PSK modulation.



## PRECISION MEASUREMENT

### ADM1055 Digital multimeter

- ▶ Ax+B, limits, % deviation and power.
- ▶ 0.02% basic accuracy.
- ▶ Analogue style bar chart, histogram and statistics.



## PRECISION MEASUREMENT

### ALD1120 Electronic Load

- ▶ Variable slew rate.
- ▶ High and low pulse.
- ▶ Linear/logarithmic sweep.
- ▶ Battery discharge and capacity measurements.



## EXCELLENCE THROUGH EXPERIENCE

Aim-TTi is the trading name of Thurlby Thandar Instruments Ltd. (TTi), one of Europe's leading manufacturers of test and measurement instruments. The company has wide experience in the design and manufacture of advanced test instruments and power supplies built up over more than thirty years. The company is based in the United Kingdom, and all products are built at the main facility in Huntingdon, close to the famous university city of Cambridge.

## TRACEABLE QUALITY SYSTEMS

TTi is an ISO9001 registered company operating fully traceable quality systems for all processes from design through to final calibration.



ISO9001:2015

Certificate number FM 20695

## WHERE TO BUY AIM-TTI PRODUCTS

Aim-TTi products are widely available from a network of distributors and agents in more than sixty countries across the world.

To find your local distributor, please visit our website which provides full contact details.

[www.aimtti.com](http://www.aimtti.com)



Designed and built in Europe by:



**Thurlby Thandar Instruments Ltd.**

Glebe Road, Huntingdon, Cambridgeshire.

PE29 7DR United Kingdom

Tel: +44 (0)1480 412451 Fax: +44 (0)1480 450409

Email: [sales@aimtti.com](mailto:sales@aimtti.com) Web: [www.aimtti.com](http://www.aimtti.com)

**82100-1650 D**