
# AVL CELL TESTER™ ECO

## Datasheet

March 2025

## AVL CELL TESTER ECO Portfolio

The AVL CELL TESTER ECO (AVL CT ECO) are air-cooled, multi-channel battery cell test systems with bi-directional, 2-quadrant DC test channels that can be used independently to test battery cells.

The AVL CELL TESTER ECO Portfolio consists of cyclers with output currents ranging from 12 A to 600 A with various channel count options to cover all application needs.

| | 72 Ch. | 48 Ch. | 32 Ch. | 24 Ch. | 16 Ch. | 12 Ch. | 8 Ch. |
|---|---|---|---|---|---|---|---|
| AVL CT ECO 12 A | | X | | | | | |
| AVL CT ECO 50 A | X | X | | | | | |
| AVL CT ECO 100 A | | | X | X | | | |
| AVL CT ECO 300 A | | | | | X | X | X |
| AVL CT ECO 600 A | | | | | | | X |

## AC input parameters

| | |
|---|---|
| Input power | EU-Grid: 3x 400 V AC (±10 %) / 50 Hz (±5 %)<br>US-Grid: 3x 480 V AC (±10 %) / 60 Hz (±5 %) |
| Power factor | ≥0.99 |
| Efficiency (charge) | 75 % |
| Efficiency (discharge) | 65 % |

## Power and current rating

| Cycler variant | AVL CT ECO 12 A | AVL CT ECO 50 A | | AVL CT ECO 100 A | | AVL CT ECO 300 A | | | AVL CT ECO 600 A |
|---|---|---|---|---|---|---|---|---|---|
| Max. charge / discharge current per channel [A] | 12 | 50 | | 100 | | 300 | | | 600 |
| Channels | 48 | 48 | 72 | 32 | 24 | 16 | 12 | 8 | 8 |
| Max. charge / discharge power per channel [W] | 60 | 250 | 250 | 500 | 500 | 1.500 | 1.500 | 1.500 | 3.000 |
| Max. grid connected power [kW] | 2.9 | 18.5 | 27.7 | 24.6 | 18.5 | 36.9 | 27.7 | 18.5 | 36.9 |
| Max. AC current (EU-Grid) [A] | 6.5 | 26.6 | 40.0 | 35.5 | 26.6 | 53.3 | 40.0 | 26.6 | 53.3 |
| Max. AC current (US-Grid) [A] | 5.4 | 22.2 | 33.3 | 29.6 | 22.2 | 44.4 | 33.3 | 22.2 | 44.4 |

## Technical specifications

| | | |
|---|---|---|
| **Voltage** | DC output | Charge: 0.5 V to 5 V<br>Discharge: 1.5 V to 5 V |
| | Resolution | 0.1 mV (24 bit) |
| | Voltage accuracy[*1] | ±0.05 % F.S.<br>for AVL CT ECO 12 A |
| | | ±0.02 % F.S.<br>for AVL CT ECO 50 A / 100 A / 300 A / 600 A |
| **Current** | Current accuracy[*1] | ±0.05 % F.S.<br>for AVL CT ECO 12 A / 50 A |
| | | ±0.02 % F.S.<br>for AVL CT ECO 100 A / 300 A / 600 A |
| | Resolution | 0.1 mA (24 bit) |
| | Parallel operation | Up to 4 channels |
| | Ripple | 0.02 % AC RMS |
| | Min. current | ±1 mA<br>for AVL CT ECO 12 A |
| | | ±25 mA<br>for AVL CT ECO 50 A |
| | | ±20 mA<br>for AVL CT ECO 100 A / 300 A / 600 A |
| **Current ranges** | AVL CT ECO 12 A | Range 1: 1 mA to 300 mA<br>Range 2: 300 mA to 6 A<br>Range 3: 6 A to 12 A |
| | AVL CT ECO 50 A | Range 1: 50 mA to 20 A<br>Range 2: 20 A to 50 A |
| | AVL CT ECO 100 A | Range 1: 20 mA to100 A |
| | AVL CT ECO 300 A | Range 1: 20 mA to 100 A<br>Range 2: 100 A to 300 A |
| | AVL CT ECO 600 A | Range 1: 20 mA to 100 A<br>Range 2: 100 A to 300 A<br>Range 3: 300 A to 600 A |

| | | |
|---|---|---|
| **Dynamic performance**[*2] | Rise time (T10-90 %) | ≤10 ms[*3]<br>for AVL CT ECO 12 A |
| | | ≤5 ms[*3]<br>for AVL CT ECO 50 A / 100 A / 300 A / 600 A |
| | Rise time (T-90-90 %) | ≤20 ms[*3]<br>for AVL CT ECO 12 A |
| | | ≤10 ms[*3]<br>for AVL CT ECO 50 A / 100 A / 300 A / 600 A |
| **Automation interface** | Sampling rate | 100 Hz |
| | Interface protocol | CAN-FD |
| **Built-in safety features** | - | Over-/under voltage protection<br>Over current protection<br>Reverse polarity protection<br>Cabinet stop button<br>External stop interface<br>External undervoltage release (option) |

## Maximum heat dissipation into air

| **Cycler** | **AVL CT ECO 12A** | **AVL CT ECO 50A** | | **AVL CT ECO 100A** | | **AVL CT ECO 300A** | | | **AVL CT ECO 600A** |
|---|---|---|---|---|---|---|---|---|---|
| **Max. charge / discharge current per channel [A]** | **12** | **50** | | **100** | | **300** | | | **600** |
| **Channels** | *48* | *48* | *72* | *32* | *24* | *16* | *12* | *8* | *8* |
| **Max. heat dissipation into air [W]**[*4] | *1,600* | *6,500* | *9,700* | *8,700* | *6,500* | *13,000* | *9,700* | *6,500* | *13,000* |

## Ambient requirements, dimensions and weight

| | |
|---|---|
| **Ambient temperature range** | *15 °C to +40 °C* |
| **Ambient transportation temperature range** | *-10 °C to +55 °C* |
| **Max. relative humidity** | *≤90 % RH* |
| **IP rating** | *IP 20* |
| **Overvoltage rating** | *CAT II* |
| **Pollution degree** | *PD2* |
| **Max. altitude above sea level** | *≤2000 m* |
| **Cooling method** | *Forced air cooling*<br>*In an area of 1 m in the front and the back of the device the area must be free of any obstacles blocking the air flow* |
| **Noise** | *≤75 dB* |
| **Dimension (W*D*H)** | *800 mm * 600 mm * 1800 mm* |
| **Weight** | *≤350 kg* |

*1 Valid for ambient temperature 25 °C (± 5 °C)
*2 Dynamic behavior strongly depending on cable layout and contacting system
*3 Valid for single DC output channel operation
*4 Considering all channels running at full output power

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