

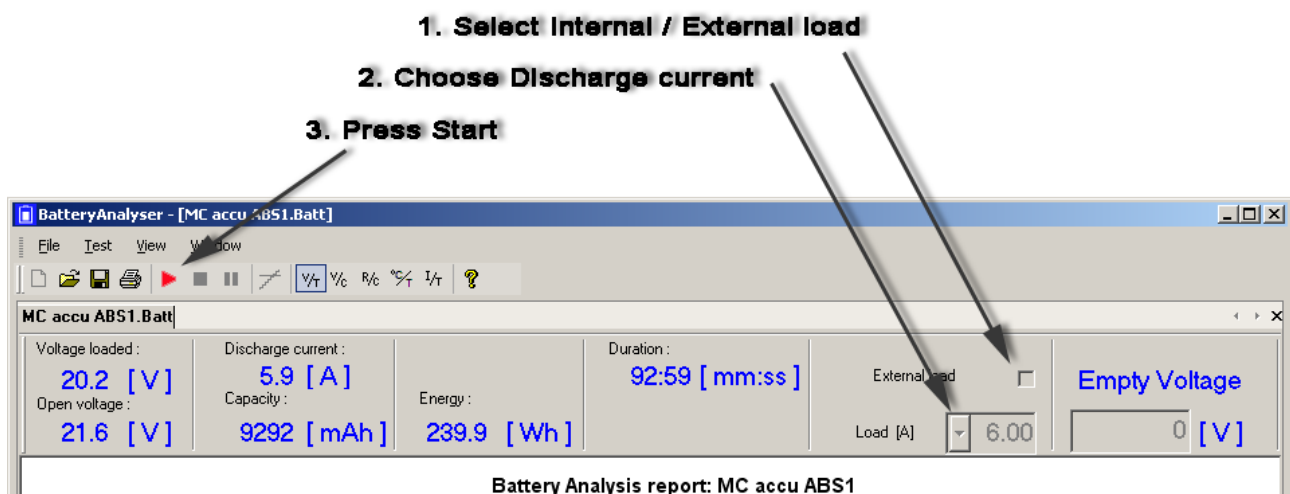
# Quick start BA16-300 / BA16-300Li

The BA16 battery analyzer is a multi-voltage, constant current discharge analyzer. It is used to measure the capacity of rechargeable batteries for Electrical Bikes or power tools. It can be operated under computer control (USB) as well as in stand alone mode.

## PC mode

Before connecting the Battery-analyzer for the first time to the PC, install the application software (can be found on : <http://battery.engineering-spirit.nl>). After installation, reboot the computer.

Connect the Battery-analyzer to PC, and start the program. Fill in Measurement Identification number. Then follow the 1-2-3 sequence as shown below.



## Display modes

V/T Shows Voltage in time. This is the normal display.

V/C Shows Voltage versus discharged capacity.

R/C Shows the battery's internal resistance versus discharged capacity.

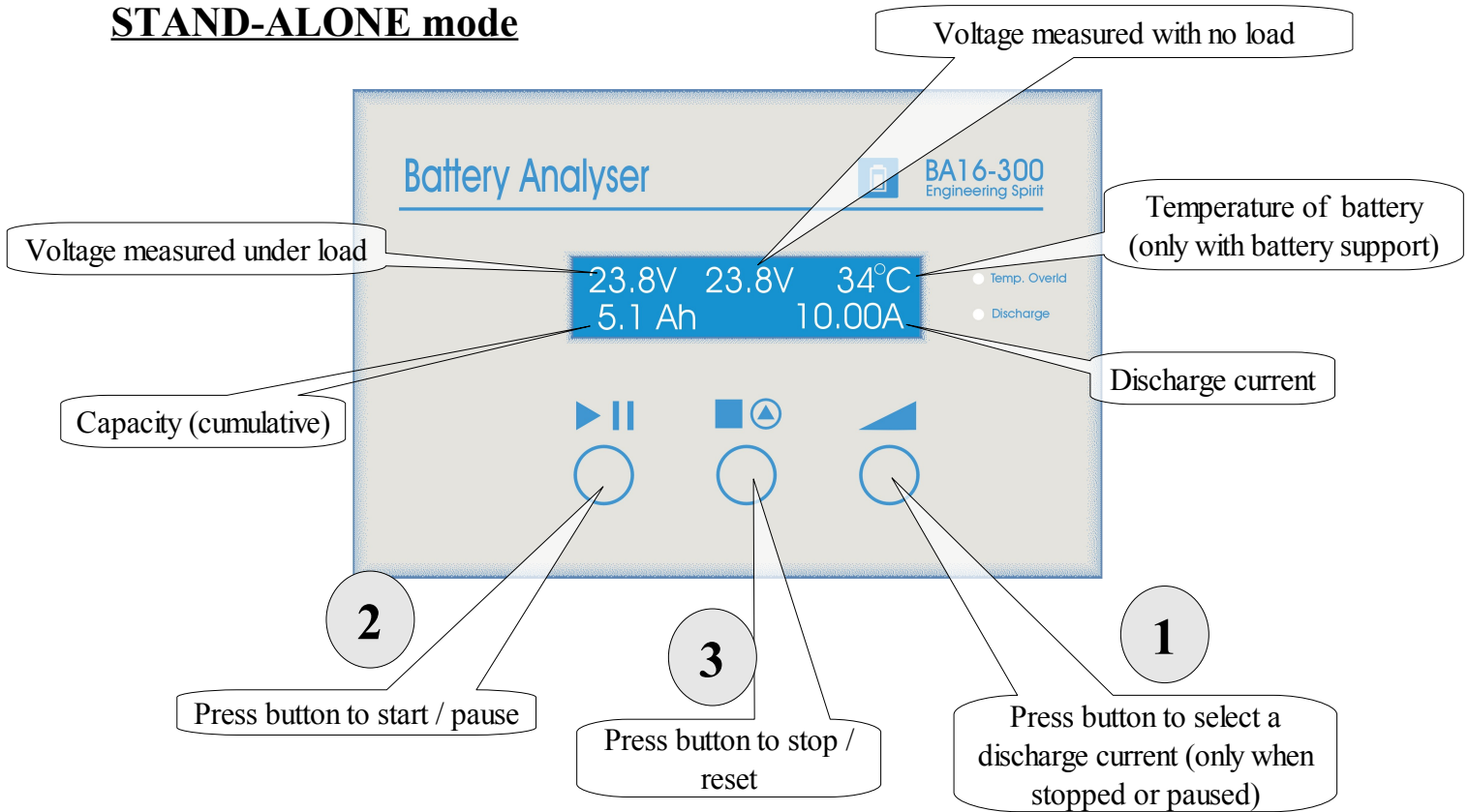
°C/T Shows cell temperature over time (depends on battery support).

I/T Shows the discharge current over time.

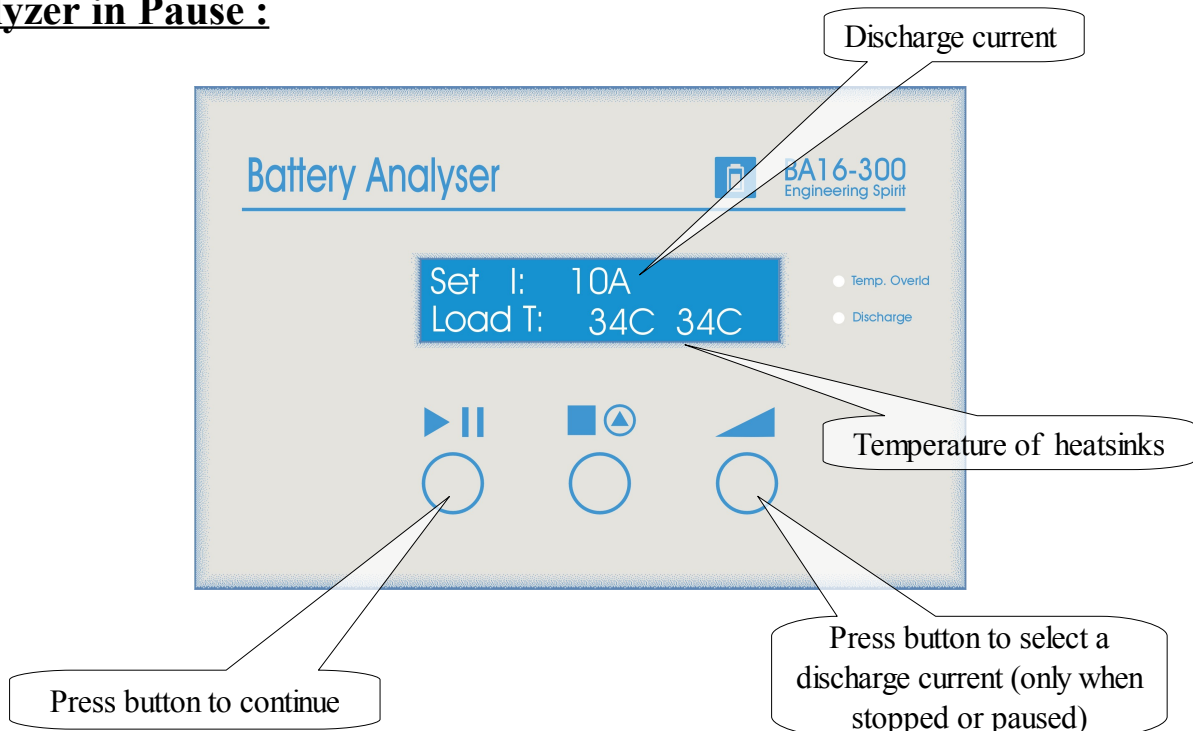
*Battery temperature measurement is supported from batteries for Hitachi Power tools, with the use of a special adapter.*

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## STAND-ALONE mode



## analyzer in Pause :



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## Warnings :

- The heatsinks inside the battery analyzer can get around 80°C. So **DO NOT** touch the heatsinks.
- Due to the large amount of heat generated in the battery analyzer, it is necessary that the airflow is not obstruct. Do not cover the ventilation holes on bottom and back side of the analyzer!
- Discharging batteries at too high currents may damage these batteries permanently !
- Short circuiting the external connections will permanently damage the battery analyzer.

## External Load

An external load can be connected at the back side of the analyzer, on the lowest pins (+ and – External Load). The load may be a motor or load resistors. The external load is limited to 20Amp.

The “Ext. Load +” connection is the positive terminal, and is directly connected to the battery + connection (through the fuse), the black one is the negative, which is switched to ground if external load is on.

## Battery connections

The connections to the battery are like this (back view of the analyzer):

	<b>Function</b>	<b>Cable color</b>
+	Battery +	Red
-	Battery -	Black
T	Discriminating Resistor	Brown
B	Thermal protector	Green
S	Thermistor	Yellow
+	Ext. Load +	
-	Ext. Load -	

For measurement of other battery packs, only the *Battery+* and *Battery-* must be connected.

**Fuse rating:** 20A / 250V (slow blow type, i<sup>2</sup>t approx. 3000)

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## Specifications BA16-300 and BA16-300Li

Item	Limit	Unit
Maximum input voltage	43	VDC
Minimum input voltage	4	VDC
Voltage Measurement range	0....44	VDC
Voltage measurement accuracy	< $\pm 1\%$ of Reading, $\pm 0.1V$	
Voltage measurement resolution	0.1	V
Maximum discharge current (internal) <sup>1</sup>	16	A
Max current for Lilon pack protection test (BA16-300Li)	20	A
Maximum external current, depends on duration (I <sup>2</sup> t)	3057	A <sup>2</sup> S
Current measurement range	0....30	A
Current measurement accuracy	< $\pm 2.5\%$ of Reading, $\pm 0.01A$	
Current measurement resolution	0.01	A
Fuse (Slow acting type) (5 x 20 mm)	20	A
Capacity measurement range	0....65	Ah
Capacity measurement resolution	~ 0.001	Ah
Capacity measurement accuracy	< 5.0	%
Maximum allowable power	300	W
Temperature measurement accuracy (excl. external sensors)	$\pm 5$	°C
Temperature measurement accuracy heatsinks	$\pm 7$	°C
Operating ambient temperature	10 ... 40	°C
	50 ... 105	°F
Heatsink temperature limit	80	°C
	176	°F
Battery temperature limit (excl. external temp sensor)	95	°C
	203	°F
Battery empty level	Initial voltage / 1.35	V
Alarms	Audiable buzzer	
IP rating	IP 20	
Weight	5.5 / 12.2	Kg / lbs

The product is CE marked and complies with the EN55022 Class B and EN550224 for use in residential, commercial and light-industrial areas.

<sup>1</sup> Discharge current depends on the battery voltage. If this voltage is too low, the requested current can't be reached due to internal resistances. This can lead to the battery analyzer to reset !!