ATevo Series Battery Charger
DYNAMIC CURRENT LIMIT FEATURE

OVERVIEW

ATevo Series battery chargers are designed to operate at 110% current rating (Adc) at 50 °C (122 °F) ambient temperature. The Dynamic Current Limit feature prevents rectifier components from failing in a high temperature environment. The ATevo *continuously* monitors rectifier temperature. When Dynamic Current Limit is enabled, the ATevo will *de-rate* output current to maintain rectifier junction temperature to within the rated maximum.

The Dynamic Current Limit feature was introduced in ATevo firmware version **2.7.0**, for single-phase models, rated **25 Adc** or less.
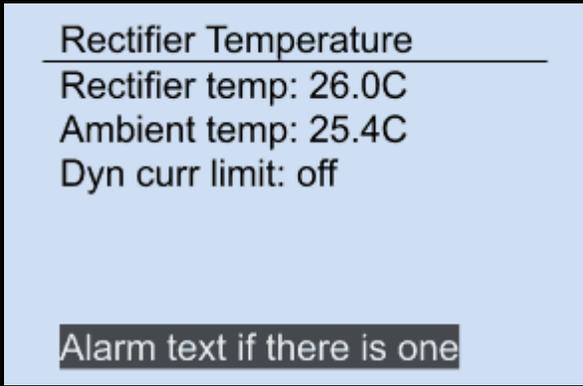
DYNAMIC CURRENT LIMIT…

- is disabled by default. It can be enabled/disabled via the following buttons and screens:

  MENU / **Advanced Settings** / **Dyn Cur Limit Enable [on/off]**

- de-rates output based on rectifier temperature only. Ambient temperature greater than 50 °C does not in itself activate Dynamic Current Limit. ATevo chargers are designed to withstand full load at 50 °C ambient. An ATevo in an environment with ambient temperature greater than 50 °C, supplying a light load, may *not* activate Dynamic Current Limit.

- becomes active when the rectifier temperature is greater than 90% of maximum rated rectifier junction temperature. *****
  - o It begins at this lower level to prevent temperature overshoot.
  - o The rate and amount of derating depends on the rate of rectifier temperature rise.
  - o The ATevo will regulate current output to maintain safe rectifier temperature for as long as the high temperature condition exists, and there is current demand by the load.

    * **NOTICE** The maximum rated junction temperature varies, depending on the device in each ATevo model. The lowest rating of any device used is 120 °C.

- is recorded in the ATevo **data log**, when it becomes active and when it is cleared.
- turns the *HindleHealth* **red** LED *on*.
- when active, is featured on the ATevo front panel display, as well as in the GUI alarms list.
- does not activate the common alarm by default. However, it *can* be set to activate the common alarm via the following buttons and screens:

  MENU / **Common Alarm** / **Dyn Cur Limit**

- on/off control, active/inactive status, as well as rectifier temperature are all available over DNP3 and Modbus ATevo communications.
- status is displayed in the Rectifier Temperature status display. Status includes:
  - o rectifier temperature
  - o ambient temperature
  - o Dynamic Current Limit enabled (*on*), or disabled (*off*)
  - o Dynamic Current Limit active (output *is* de-rated), or inactive (output is *not* de-rated)
  - o de-rated output current (Adc) of the ATevo (if Dynamic Current Limit is active)
  - o percent of maximum output current is de-rated (if Dynamic Current Limit is active)
- maximum derating applied is 100%. That is, output could be *entirely* disabled if the rectifier temperature is higher than maximum rating.
- will *never* activate if rectifier temperature sensor failure is detected.
- is *not* the same as "rectifier over temp alarm". Rectifier overtemp is independent of dynamic current limit, and becomes active when temperature rises above 90% of rectifier junction maximum rating.

RECTIFIER TEMPERATURE STATUS DISPLAY

1) Access the Rectifier Temperature status display, via the following buttons and screens:

   `DISPLAY MODE` / **Rectifier Temperature** / **Dyn Cur Limit**

2) Otherwise, cycle through the status screens using the ◀ (left) or ▶ (right) arrow keys, from the top display, until you reach Rectifier Temperature .

Rectifier temperature display indicates rectifier and ambient temperature reading as well as dynamic current limit on/off status.

```
Rectifier Temperature
Rectifier temp: 26.0C
Ambient temp: 25.4C
Dyn curr limit: off



Alarm text if there is one
```

Status of whether it is inactive/active is also shown when it is on.

```
Rectifier Temperature
Rectifier temp: 26.0C
Ambient temp: 25.4C
Dyn curr limit: on, inactive



Alarm text if there is one
```
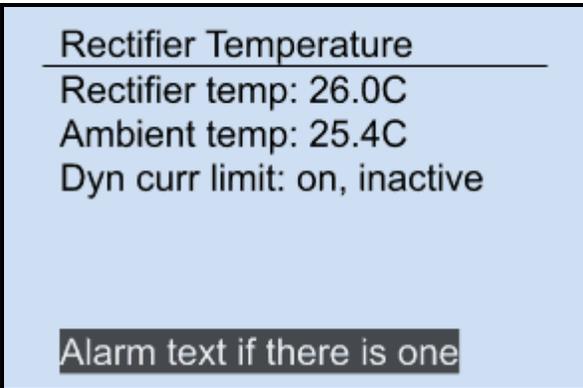
The current output in Amperes (Adc), as well as the amount that current is de-rated, is displayed when dynamic current limit is active.

```
Rectifier Temperature
Rectifier temp: 115.0C
Ambient temp: 65.4C
Dyn curr limit: on, active
Current output: 24.0A
Derated: -3.5A (12.7%)

Dynamic current limit
```