
# ATevo BATTERY CHARGER

# HINDLEPOWER

# ATevo SERIES BATTERY CHARGER


evo® EVOLVED

AT SERIES BATTERY CHARGER

HINDLE HEAL+H SYSTEM

PRODUCT

PATENT PENDING

# ATevo Series Battery Charger designed with YOU in mind.


**ATevo Series Battery Charger** is HindlePower's next generation SCR-based utility battery charger. The innovative design and operation enhancements were developed and tested to exceed your expectations. **ATevo Series Battery Charger** was conceived, designed, and manufactured with three uncompromising goals in mind:

## 3 GOALS DRIVING THE DESIGN

- **A battery charger that makes your job easier**
- **To retain the quality and integrity of the original AT series battery charger design**
- **To satisfy your NERC and utility industry requirements in an ever-changing world**


Driven by these goals and keeping in mind the simplicity and intuitive nature of the original AT series resulted in an intelligent design that is still the world's easiest to use.

The **ATevo Series Battery Charger's** open architecture design offers you flexible operation to meet your ever evolving DC power requirements. These new features are paired with the **Hindle Health® System** to make your job quicker and easier than ever before.

| | Why purchase ATevo? | |
|---|---|---|
| **Standard Feature** | AT10.1/ AT30 | evo EVOLVED |
| Single Phase | ✓ | ✓ |
| Three Phase | ✓ | **coming soon** |
| Indicator LEDs For Common Alarms | ✓ | ✓ |
| Soft Start Feature | ✓ | ✓ |
| Universal Main Control Board | ✓ | ✓ |
| 5 Year Product Warranty | ✓ | ✓ |
| High DC Voltage Shutdown | ✓ | ✓ |
| Data/Event Logging | - | ✓ |
| **HINDLE HEAL+H®SYSTEM** | - | ✓ |
| **Hindle Health Monitor** | - | ✓ |
| **Hindle Health Button** | - | ✓ |
| **Hindle Health Diagnostics** | - | ✓ |
| Interactive LCD Display | - | ✓ |
| DC Circuit Breaker Status Via LCD Display | - | ✓ |
| AC Ripple Alarm | - | ✓ |
| Field Upgradable Firmware | - | ✓ |
| User Configured Alarm Relays | - | ✓ |
| Adjustable Time-Delay On Alarm Contacts | - | ✓ |
| Generic Binary Inputs | - | ✓ |
| Generic Analog Inputs | - | ✓ |

HINDLE HEAL+H® SYSTEM

# HINDLE HEAL+H SYSTEM

The ***Hindle Health System*** offers you peace of mind via real-time status notification that your charger is "healthy" and operating properly. Continuous self-diagnostics ensure trouble-free operation. In the event an issue is detected, the ***Hindle Health System*** alerts you of the problem.

The ***Hindle Health Button*** initiates a systematic diagnosis of all parameters and internal components to confirm your charger is operating properly.

## PEACE OF MIND...

HINDLE HEAL+H® SYSTEM

## ... IN REAL TIME


### Hindle Health Status Lights:

An indicator light to let you know your charger is functioning correctly. See green? You know all is well.

### Hindle Health Button:

A simple, step by step system check that easily allows the user to verify the internal components are working and operating per the user's set points.

### Hindle Health Diagnostics:

A powerful diagnostic program alerting you of potential issues as they occur.

# ATevo SERIES
# FEATURES & OPTIONS

## ATevo SERIES STANDARD FEATURES:

- Universal main control board operates in any ATevo Series Battery Charger
- Standard alarm suite with LED indicators (AC failure, low DC voltage, high DC voltage, DC output failure, positive ground fault, negative ground fault)
- Common alarm LED indicator (for all alarms including: low AC voltage, high AC Voltage, end of discharge, low DC current)
- Programmable summary relay contact that can be configured to indicate any or all alarm conditions
- Redundant analog circuit for high DC voltage detection, independent of microprocessor control
- Microprocessor and analog high DC voltage detection methods can be enabled to shut down charger
- Float and multiple equalize charging modes with LCD display indication
- Manual equalize timer (0-999 hr.)
- AC line automatic failure equalize timer (0-255 hr.)
- AC on indicator
- 0.5% Digital metering for Vdc and Adc measurements
- Graphical LCD display with LED backlight
- AC input and DC output circuit breakers
- Password protection for security
- A redundant analog circuit for low level detect alarm, independent of the microprocessor
- Multiple processor design for exceptional reliability
- Local or remote voltage sense with redundancy in the event of remote sense failure
- Input & output MOV surge suppressors
- Battery open alarm
- Reverse polarity protection diode
- Switchboard wire, UL VW-1
- NEMA 1 enclosure pre-treated using a 5-stage iron phosphate process with baked epoxy powder coating in ANSI 61 gray
- Plug-in socket for removable memory card used for event logging and firmware upgrades
- Battery backed up real time clock for date and time stamping events
- Hindle Health System, intelligent self diagnostics
- Standard output filter per NEMA PE 5

## ATevo SERIES SUMMARY OF OPTIONS:

- Battery eliminator DC output filtering: per NEMA PE 5
- Medium & high AIC breakers
- Auxiliary alarm relay board
- Copper ground bus
- AC lightning arrestor
- Fungus proofing (tropicalization)
- Static proofing
- Serial communications modules (RS-232/RS-485)
- Ethernet communications module
- Modbus and DNP3.0 communication protocols
- Battery temperature compensation
- Fan control contactor
- Custom paint
- NEMA 4/12 type enclosure w/fan
- Rack mounting
- Floor mounting stand
- NEMA type 2 drip shield
- Barrier type alarm terminal block
- Forced load share
- Zero-center ground detection meter
- AC voltmeter
- AC ammeter
- Cabinet heater assembly
- ABS certification upon request
- Custom drawing package w/ optional CAD and PDF files
- Remote shutdown
- Remote battery shunt
- Generic binary inputs
- Generic analog inputs
- Battery discharge alarm

# ATevo Specifications

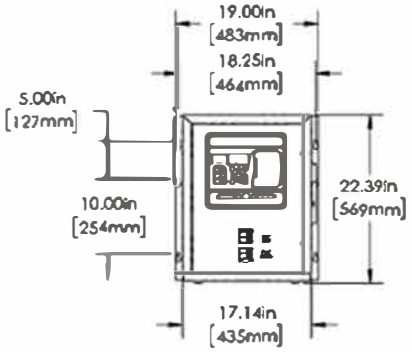
| | DC Output Rating | | AC Input Ampere Rating<br>Based on maximum rms value of the input current delivered to the charger | | | | | | | | Battery Charger AC Circuit Breaker Ampere Rating<br>(standard AIC breakers) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Volts | Amps | 120 Vac | 208 Vac | 230 Vac | 380 Vac | 400 Vac | 415 Vac | 480 Vac | 600 Vac | 120 Vac | 208 Vac | 230 Vac | 380 Vac | 400 Vac | 415 Vac | 480 Vac | 600 Vac |
| Float 22.0- 29.5Vdc | 24Vdc | 6 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 12 | 7 | 5 | 5 | 4 | 4 | 4 | 3 | 3 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 16 | 9 | 5 | 6 | 5 | 4 | 4 | 4 | 4 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 20 | 11 | 6 | 6 | 6 | 5 | 4 | 4 | 4 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Equalize 23.4-31Vdc | | 25 | 13 | 7 | 7 | 7 | 5 | 5 | 4 | 4 | 20 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 30 | 15 | 9 | 9 | 8 | 6 | 5 | 5 | 4 | 20 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 40 | 20 | 12 | 11 | 10 | 7 | 7 | 6 | 5 | 25 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Ext. Equalize to 32Vdc | | 50 | 25 | 15 | 14 | 13 | 9 | 8 | 7 | 5 | 40 | 20 | 20 | 20 | 15 | 15 | 15 | 15 |
| | | 75 | 39 | 21 | 22 | 18 | 13 | 12 | 10 | 9 | 50 | 30 | 30 | 30 | 20 | 20 | 15 | 15 |
| | | 100 | 53 | 31 | 30 | 27 | 18 | 16 | 14 | 11 | 70 | 40 | 40 | 40 | 25 | 25 | 20 | 20 |
| Float 44-58Vdc | 48Vdc | 6 | 9 | 6 | 6 | 5 | 4 | 4 | 4 | 5 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 12 | 16 | 10 | 10 | 8 | 6 | 6 | 5 | 5 | 20 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 16 | 20 | 12 | 12 | 10 | 8 | 7 | 6 | 6 | 25 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 20 | 23 | 14 | 13 | 12 | 9 | 8 | 7 | 7 | 30 | 20 | 20 | 20 | 15 | 15 | 15 | 15 |
| Equalize 46.8 - 59Vdc | | 25 | 27 | 16 | 15 | 14 | 10 | 9 | 8 | 7 | 40 | 20 | 20 | 20 | 15 | 15 | 15 | 15 |
| | | 30 | 27 | 16 | 15 | 14 | 10 | 9 | 8 | 7 | 40 | 20 | 20 | 20 | 15 | 15 | 15 | 15 |
| | | 40 | 36 | 21 | 20 | 18 | 12 | 11 | 10 | 8 | 50 | 30 | 25 | 30 | 15 | 15 | 15 | 15 |
| Ext. Equalize to 61Vdc | | 50 | 45 | 26 | 25 | 23 | 15 | 14 | 12 | 10 | 60 | 35 | 35 | 35 | 20 | 20 | 15 | 15 |
| | | 75 | 66 | 38 | 37 | 36 | 22 | 20 | 17 | 14 | 90 | 50 | 50 | 50 | 30 | 30 | 25 | 20 |
| | | 100 | 91 | 54 | 52 | 47 | 30 | 28 | 24 | 19 | 125 | 70 | 70 | 70 | 40 | 40 | 30 | 30 |
| Float 110 - 140Vdc | 130Vdc | 6 | 14 | 8 | 8 | 7 | 6 | 5 | 5 | 6 | 20 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | | 12 | 33 | 20 | 20 | 17 | 12 | 11 | 10 | 8 | 50 | 25 | 30 | 25 | 15 | 15 | 15 | 15 |
| | | 16 | 39 | 23 | 23 | 20 | 14 | 13 | 11 | 10 | 50 | 30 | 30 | 30 | 20 | 20 | 15 | 15 |
| | | 20 | 45 | 27 | 27 | 23 | 15 | 15 | 12 | 10 | 63 | 40 | 40 | 40 | 20 | 20 | 15 | 15 |
| Equalize 117 - 143Vdc | | 25 | 50 | 32 | 32 | 28 | 17 | 17 | 14 | 12 | 63 | 40 | 40 | 40 | 25 | 25 | 20 | 20 |
| | | 30 | 62 | 36 | 35 | 31 | 21 | 19 | 16 | 15 | 80 | 50 | 45 | 50 | 30 | 30 | 20 | 20 |
| | | 40 | 86 | 47 | 44 | 41 | 26 | 24 | 21 | 17 | N/A | 60 | 60 | 60 | 35 | 35 | 30 | 25 |
| Ext. Equalize to 149Vdc | | 50 | N/A | 58 | 52 | 51 | 32 | 30 | 26 | 21 | N/A | 80 | 70 | 80 | 40 | 40 | 35 | 30 |
| | | 75 | N/A | 89 | 84 | 78 | 50 | 45 | 39 | 31 | N/A | 125 | 125 | 125 | 65 | 65 | 50 | 50 |
| Float 248.4 - 282Vdc | 260Vdc | 6 | 28 | 18 | 19 | 15 | 12 | 11 | 9 | 8 | 40 | 25 | 25 | 25 | 15 | 15 | 15 | 15 |
| | | 12 | 63 | 36 | 33 | 32 | 20 | 19 | 17 | 14 | 80 | 50 | 50 | 50 | 25 | 25 | 25 | 20 |
| Equalize 264 - 287.6Vdc | | | All specifications subject to change | | | | | | | | | | | | | | | |

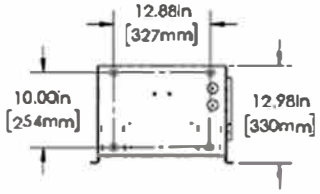
*Regulation at max. equalize voltages may not meet ±0.25%

# ATevo Specifications

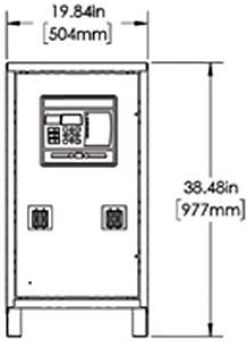
| DC Circuit Breaker Rating | Approx. Shipping Weight lbs.(kg) | Heat Loss Watts (BTU/hr) | Cabinet Styles |
|---|---|---|---|
| 10 | 121 | 33 (111) | 5054 |
| 20 | 121 | 60 (204) | |
| 25 | 132 | 78 (265) | |
| 30 | 138 | 96 (327) | |
| 40 | 138 | 118 (404) | |
| 50 | 147 | 141 (481) | |
| 63 | 149 | 186 (635) | |
| 80 | 177 | 231 (789) | |
| 125 | 282 | 344 (1174) | 5070 |
| 150 | 317 | 457 (1558) | |
| | | | |
| 10 | 121 | 42 (144) | 5054 |
| 20 | 135 | 79 (269) | |
| 25 | 175 | 103 (352) | |
| 30 | 175 | 128 (436) | |
| 40 | 175 | 158 (548) | |
| 50 | 181 | 189 (644) | |
| 63 | 198 | 250 (852) | |
| 80 | 204 | 311 (1061) | |
| 125 | 321 | 463 (1582) | 5070 |
| 150 | 393 | 616 (2103) | |
| | | | |
| 10 | 146 | 71 (243) | 5054 |
| 20 | 186 | 137 (467) | |
| 25 | 211 | 181 (617) | |
| 30 | 235 | 224 (766) | |
| 40 | 235 | 279 (953) | |
| 50 | 241 | 334 (1140) | |
| 60 | 341 | 443 (1513) | 5070 |
| 80 | 384 | 553 (1887) | |
| 125 | 422 | 826 (2821) | |
| 10 | 200 | 120 (411) | 5054 |
| 20 | 237 | 235 (803) | |

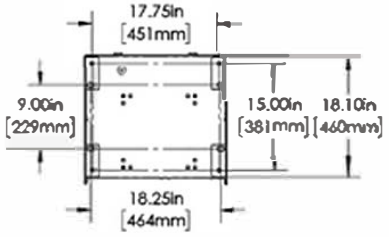
## 5054




## 5070




## HOW TO SIZE YOUR BATTERY CHARGER

*(SIMPLIFIED FORMULA)*

$$\left(\frac{Ah \times 1.R}{t}\right) + L = \text{Continuous Charger Output Rating}$$

*Ah=Ampere hours removed*
*R= Recharge factor (1 = Pb) or (3 = NiCd)*
*L= Additional standing load*
*t= Recharge time in hours*

# ATevo ORDERING CODE

| SAMPLE | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATEV | 1 | 130 | 025 | E | 240 | S | S | I | I | X | X | X | X | G | I |
| A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R |
| | | | | | | | | | | | | | | | |

CODE

| | Description | Code | Feature |
|---|---|---|---|
| A | | ATEV | ATevo series |
| B | | 1 | Single Phase |
| C | Nominal DC Output Voltage | 024 | 24 Vdc |
| | | 048 | 48 Vdc |
| | | 130 | 130 Vdc |
| | | 260 | 260 Vdc * |
| D | Nominal DC Output Current | 006 | 6 Adc |
| | | 012 | 12 Adc |
| | | 016 | 16 Adc |
| | | 020 | 20 Adc |
| | | 025 | 25 Adc |
| | | 030 | 30 Adc |
| | | 040 | 40 Adc |
| | | 050 | 50 Adc |
| | | 075 | 75 Adc |
| | | 100 | 100 Adc |
| E | DC Output Filtering | F | Standard Filter |
| | | E | Eliminator Filter |
| | | S | Super Eliminator |
| F | AC Input Supply Voltage | 120 | 120 V 60 Hz |
| | | 208 | 208V 60 Hz |
| | | 240 | 240V 60 Hz |
| | | 480 | 480V 60 Hz |
| | | 600 | 600V 60 Hz |
| | | 220 | 220V 50/60 Hz |
| | | 380 | 380V 50/60 Hz |
| | | 416 | 416V 50/60 Hz |
| | | MT1 | 120/208/240 60Hz** |
| | | MT2 | 120/220/240 50/60Hz ** |

* 260V output only available up to 12A DC
** Multi-tap input is only available on units 25A or less.

# ATevo ORDERING CODE

| | Description | Code | Feature |
|---|---|---|---|
| G | AC Input Protection | S | Standard AIC |
| | | M | Medium AIC |
| | | H | High AIC |
| | | F | High AIC Fuses w/ Standard Breaker * |
| H | DC Output Protection | S | Standard AIC |
| | | M | Medium AIC |
| | | H | High AIC |
| J | Auxiliary I/O PC Boards | X | No Aux I/O Board Supplied |
| | | 1 | One Aux I/O board |
| | | 2 | Two Aux I/O Board |
| | | 3 | Three Aux I/O Board |
| | | 4 | Four Aux I/O Board |
| | | A | One Aux I/O Board w/ Barrier Terminal Blocks |
| | | B | Two Aux I/O Board w Barrier Terminal Blocks |
| | | C | Three Aux I/O Board w/ Barrier Terminal Blocks |
| | | D | Four Aux I/O Board w/ Barrier Terminal Blocks |
| K | Remote Communications | X | No Remote Communications Supplied |
| | | 1 | One RS-232/RS-485 Serial Communications Module |
| | | 2 | Two RS-232/RS-485 Serial Communications Module |
| | | 3 | Three RS-232/RS-485 Serial Communications Module |
| | | 4 | Ethernet Communication Module |
| | | 5 | One Ethernet Comm. Module & One RS-232/RS-485 Serial Comm. Module |
| | | 6 | One Ethernet Comm. Module & Two RS-232/RS-485 Serial Comm. Module |
| | | 7 | One Ethernet Comm. Module & Three RS-232/RS-485 Serial Comm. Module |
| P | Battery Current Monitoring | X | No Remote Monitoring Supplied |
| | | S | Discharge Current Metering and Alarm |
| | | F | Remote Accessory for Float Current Battery Monitoring Supplied |
| | | B | Both Battery Shunt (S) and Float Current Accessory (F) Supplied |
| Q | Site Wiring Protection | X | Standard Internal CU-AL Compression Box Lug Supplied |
| | | G | Copper Ground Bus Bar Supplied |
| | | L | AC Input Lightning Arrestor Supplied |
| | | B | Both Ground Bus (G) and Lightning Arrestor (L) Supplied |
| R | Enclosure Type | 1 | NEMA Type 1 (Standard) |
| | | 2 | NEMA Type 2 Drip Shield Mounted to Standard NEMA Type 1 Enclosure |
| | | 4 | Special NEMA Type 4 (12) Water-Proof Cabinet (Vented & Fan Cooled) |

* AC Fuses not available in chargers in 5054 style cabinet

# ATevo SERIES SPECIFICATIONS

## AC INPUT

**Input Voltage:**
120, 208, 240, 480
120/208/240, 550/600 (multi-tap) @ 60Hz
220, 380/416 @ 50-60Hz
**Input Voltage Tolerance:**
+10%, -12%
**Input Frequency Tolerance:**
±5%
**Efficiency:**
85-90% typical for 130Vdc at 50-100% load

## Safety & Acceptance

- Meets NEMA PE 5
- Third party agency approvals:

Seismic qualified IEEE 693/IBC CBC
ABS or CE certification available upon request

## DC OUTPUT

**Voltage Ratings:**
24, 48, 130 or 260*Vdc nominal
**Current Ratings:**
6, 12, 16, 20, 25, 30, 40, 50, 75, 100Adc
*260Vdc - 6,12 Adc only
**Continuous Rating:**
110% rated current at maximum equalize voltage at -10 to +50ºC
**Transient Rating:**
Per NEMA PE 5
**Current Limit Adjustment Range:**
50% to 110% rated output
**Voltage Regulation:**
±0.25% for line, load and temp. variations
*Regulation at max. extended equalize voltages may not meet ±0.25%
**Electrical Noise:**
32dBrnc

**Ripple:**
24/48Vdc
- Filtered on battery 30mVrms
- Filtered off battery 1% Vrms
- Battery Eliminator 30mVrms

130Vdc
- Filtered on battery 100mVrms
- Filtered off battery 2% Vrms
- Battery Eliminator 100mVrms
- Super Eliminator 30mVrms

260Vdc
- Filtered on battery 200mVrms
- Filtered off battery 2% Vrms
- Battery Eliminator 200mVrms

**Surge Withstand Capability:**
Designed to meet IEEE-472, ANSI C37.90a

## Environmental

- Operating ambient temperature 5°F to 122°F (-10°C to 50°C) w/o derating
- Operating altitude 3300 feet (1000 meters) above sea level without derating
- Relative humidity 0% to 95% (without condensation)
- Audible noise less than 65 dBA at any point 5ft (1.5m) from any vertical surface of enclosure

PROUDLY ENGINEERED & BUILT BY HINDLEPOWER
MADE IN EASTON
EASTON, PA, USA

**For patent information visit:**
hindlepowerinc.com/ip

MADE IN THE U.S.A.