

# ALM 12V35

**NEC**  
NEC ENERGY SOLUTIONS

High performance, long lasting, light weight, safe replacements for lead acid batteries

NEC Energy Solutions ALM line of lithium Nanophosphate® battery modules offer exceptional performance and long operating life. Compared to typical lead-acid batteries, the ALM 12V35 line delivers:

- > 50X longer cycle life
- 5X longer calendar / float life
- 10X faster recharge time
- 60% more usable capacity vs. nameplate at high current
- 50% lower weight

Integrated protection for short circuits and over-voltage, temperature, charge and discharge add to the inherent Nanophosphate® cell safety. Consistent energy capacity, even under high discharge and deep cycling, allows system right-sizing, while arrays up to 48V and 350Ah extend application flexibility.

Intelligent ALM 12V35i models offer integrated CAN or SMBus communications for access to critical battery status, usage tracking, SOC, SOH, run time to empty, and other parameters.



## ALM 12V35 Applications



### UPS SYSTEMS

- Data Center, Server, Desktop UPS
- High discharge and recharge rates allow energy right-sizing and flexibility



### MEDICAL

- Computer Carts, Beds, Equipment
- Long cycle life reduces maintenance, even lasting for life of equipment
- Fast recharge improves usability



### TELECOM BACKUP POWER

- Base stations, broadband nodes
- Long cycle and float life supports stable or unstable grid applications
- Low weight eases pole-top utilization



### ELECTRIC MOBILITY

- Wheelchairs, Scooters, E-bikes, Toys
- Long cycle life, deep cycling, fast recharge, and light weight dramatically improve user experience



### SECURITY SYSTEMS

- Panel Backup, Cameras, Lights
- Long float life reduces replacements
- High discharge rate enables right-sizing

## ALM 12V35 CHARACTERISTICS

Nominal Voltage	13.2V
Nominal Capacity (1C)	35Ah
Recharge time @ max rate	20 minutes @ 3C
Dimensions excl terminals <i>L x W x H</i>	197 x 132 x 179.5 mm (7.8 x 5.2 x 7.1in)
Weight ( <i>approx</i> )	6.3 Kg (13.8 lbs)
Available Energy ( <i>Beginning of Life</i> )	462Wh
Maximum Pulse Current	500A(0.3sec) / 250A(1sec)
Max. Continuous Charge Current	105A
Max. Continuous Discharge Current	105A
Maximum Charge Voltage	16.0V
Absolute Max. Voltage ( <i>w/o damage</i> )	60V
Recommended Float Voltage	13.8–14.4V
Operating Temperature	-20 to +60°C
Recommended Storage Temperature	-40 to +35°C
Smart Charger Compatible	Yes

## SAFETY AND COMPLIANCE

IEC62133; UL 1973 Pending; cUL Pending  
REACH, RoHS and Battery Directive (2006/66/EC)  
Meets FCC 47CFR 15 Class B  
CE Mark (IEC61000-6-2, IEC 61000-6-4)  
UN Manual of Tests and Criteria Part III 38.3





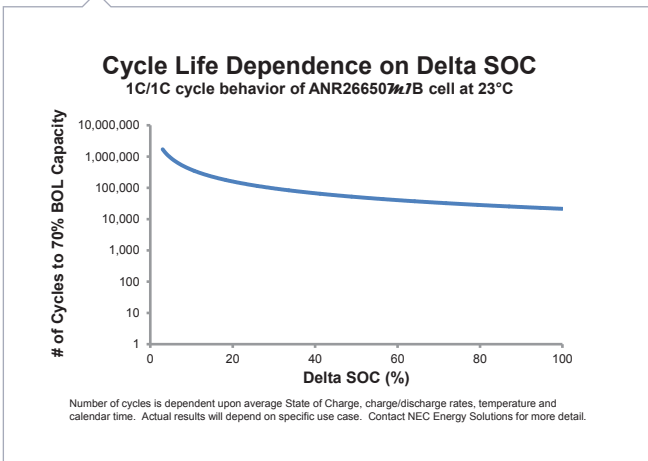
## High Power Capability

- Maintains high energy capacity even at rapid discharge rates, avoiding need to over-size lead-acid systems for high power
- Consistent power delivery across state-of-charge, temperature
- Scalable arrays up to 48V, 350Ah (4S10P) without external BMS



## Long Life

- Superior Nanophosphate<sup>®</sup> cell technology delivers up to more than 50X longer cycle life than typical lead acid, and 5X longer than comparable lithium-based batteries
- Long float, calendar, and shelf life minimizes replacement and management costs



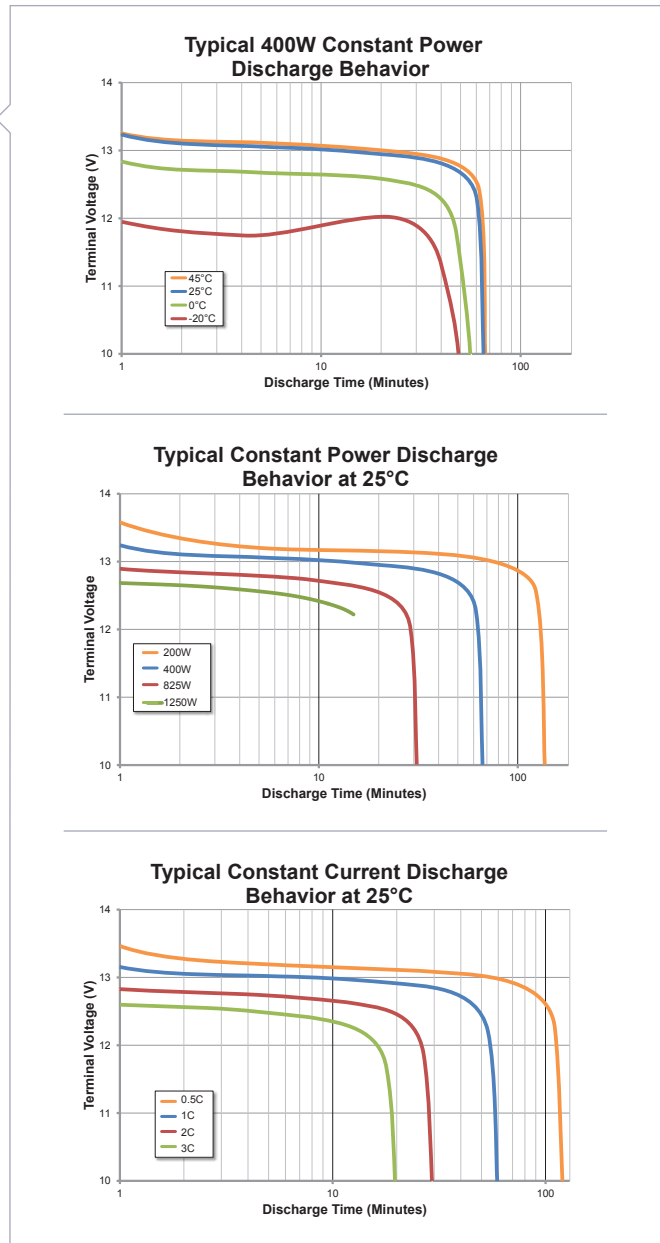
## Light Weight

The ALM 12V35 weighs less than half that of comparable lead acid batteries, enabling optimized product designs, easier installation, lower logistics costs, and better end user experiences.



## Robust Safety

- Integrated over-voltage, under-voltage and over temperature protection with redundancy
- Fast response short circuit protection
- Proven safety of Nanophosphate<sup>®</sup> based Lithium Iron Phosphate chemistry
- Sealed ABS plastic case (UL 94-5VA flame retardant)
- No explosive gasses during charge



## Increased Flexibility

- Compatible with most 12V lead acid chargers
- 2+ year shelf life before recharge required
- Terminals: M6x1 threaded studs
- Environmentally friendly; cells contain no lead or cadmium

Constant Power Discharge Characteristics in Watts @ 25°C	End Voltage	30 min	45 min	60 min	90 min	120 min	180 min	240 min
	10V	860	583	442	299	227	154	116
Constant Current Discharge Characteristics in Amps @ 25°C	End Voltage	20 min	30 min	45 min	60 min	90 min	120 min	240 min
	10V	105	69	46	35	23	18	9