Smart VHT module

Super Long Life Ni-MH battery system

ARTS Energy's smart VHT module offers an ideal solution in extreme temperature environments for reliable, long-life and high-performance applications with cutting-edge Ni-MH technology available in multi-level of capacities.

Smart VHT module integrates smart electronics, all in a robust plug-n-play battery design. It is well suited for small off-grid photovoltaic (PV) applications, back-up power systems and professional electronics requiring unsurpassed long life energy storage.

Features

Basic configuration: 12V, 24V, 36V battery systems including:

- Advanced Ni-MH chemistry providing very long calendar life, high charge efficiency, and excellent cycling capability in an extreme range of temperatures (- 40°C to + 70°C)
- Built-in BMS (Battery Management System) managing charge, discharge, SOC (State Of Charge) and SOH (State Of Health) based on proprietary algorithm
- Communication and remote control possible through the BPCI® (Battery Protection and Communication Interface) RS232 compatible serial bus
- Eco-designed product and RoHS compliant
- Designed for ease of parallel assembly
- Discharge current up to 10A continuous

Benefits

- Very long service life, even in hot countries and with high daily DOD (Depth Of Discharge)
- Low total cost of ownership (TCO) especially for applications having high maintenance costs.
- Innovative design for the customer device (slimmer battery)
- No sudden end of discharge nor sudden death thanks to the communication interface
- Reduction of energy consumption thanks to electronic management between the solar panel, the battery and the application
- Recyclability and respect for the environment

Configuration	10S	20S	20S	30S	30S	10S2P	20S2P
Voltage (V)	12	24	24	36	36	12	24
Capacity (Ah)	10	6	10	6	10	20	20
Energy (Wh)	120	144	240	216	360	240	480
Mechanical characteristics							
Height (mm)	129	158	219	217	309	219	395
Length (mm)	178	178	178	178	178	178	178
Width (mm)	73,5	73,5	73,5	73,5	73,5	73,5	73,5
Weight (kg)	2,7	2,7	4,8	4,1	6,9	4,8	9,2
volume (liter)	1,7	2,1	2,9	2,8	4,0	2,9	5,2
Specific energy							
Specific energy (Wh/kg)	44	53	50	53	52	50	52
Energy density (Wh/liter)	71	69	84	77	89	84	93
Range of temperature							
Operating temperature range for charge and discharge (°C)	- 40°C to + 70°C						
Maximum temperature (reversible): thermostat	+ 75°C (+/- 5°C)						
Maximum temperature (non-reversible): thermofuse	+ 93°C (+ 0°C / - 5°C)						
Transport and storage	+ 5°C to + 25°C						
Maximum charge current							
That can be delivered to the module	15 A						
That is accepted by the module (regulation)	4 A						
Maximum discharge current							
continuous to termination	10 A						
during 1 minute	15 A						
Life time performance							
Hot country	7-8 years						
other countries	10-15 years						
Standards							
CEM compliance	EN 55014-1 / EN 55014-2 EN 61000-6-2 / EN 61000-6-3						
Safety compliance	IEC 61951-2 / EN 60950						

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Advanced Rechargeable Technology and Solutions

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Applications

- Standalone, small off-grid PV applications like street lighting, road signalling, buoys, water supply and irrigation, weather stations and environmental sensors, wireless local area networks and navigation aids, M2M networks
- Urban signalling as bus stops, billboards, lighting connected to the off-peak grid
- Professional applications such as portable measurement equipment, medical carts, cinematography and others
- Back-up and small stationary systems

Components

- Connector HIROSE 547-0085-8- MDF6-8DP 3,5DSA
- Main fuse: 15A ATO
- ABS plastic

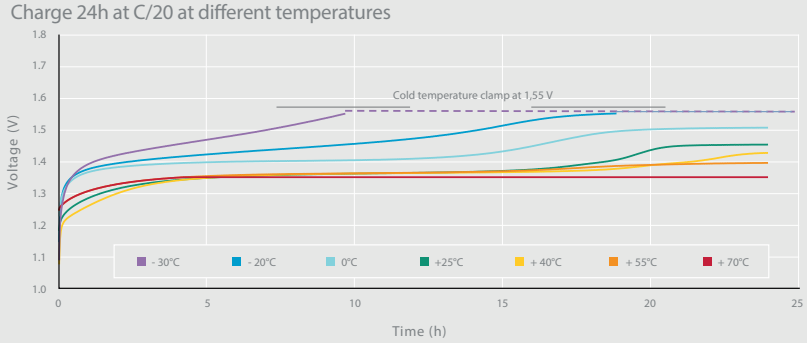
Options available

- Serial communication kit for PC access (with ARTS Energy's software)
- Cables and accessories available for system integration

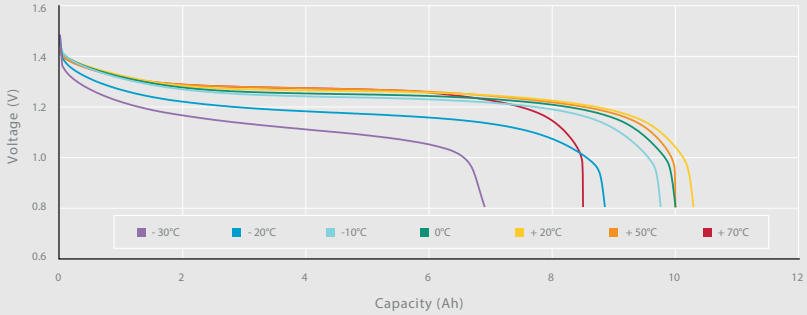
Recommendations

- Recharge up to 12 months after a full charge.
- Store at temperature from + 5 to + 25°C.
- Do not immerse into water
- Do not expose to water projection

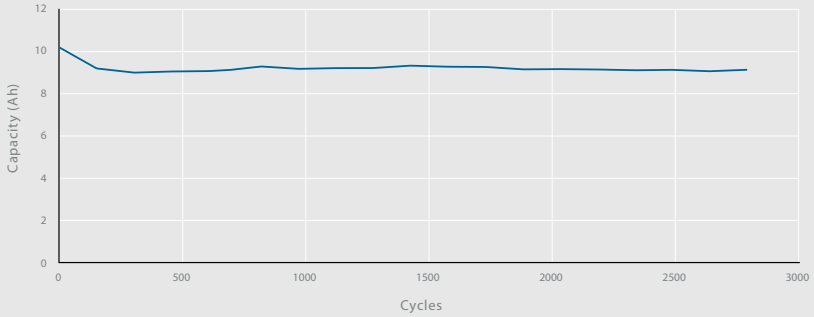
Charge 24h at C/20 at different temperatures



Discharge at C/10 at different temperatures after charge at C/10 at different temperatures

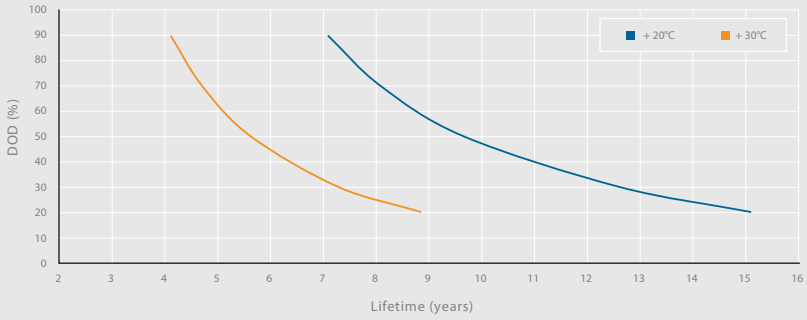


Photovoltaic cycling according IEC 61427 temperature + 40°C permanent



Life duration vs. depth of discharge at different battery temperatures

Life model prediction based on one cycle per day with an average battery temperature over life time



Data are given for single cells. Please consult ARTS Energy for utilization of cell outside this specification.

Data in this document are subject to change without notice and become contractual only after written confirmation by ARTS Energy.

10, rue Ampère
Zone Industrielle
16440 Nersac, France
Tél. +33(0)5 45 90 35 50
www.arts-energy.com

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ARTS Energy SAS. Stock capital 971.002
RCS Angoulême 792 635 013
Conception in FR by Verrazano