

b+w Electronic Systems

SolarCube

Advanced Outdoor Cabinet Passive Cooling

Features / Benefits

- IP55 Aluminium outdoor cabinet
- Double wall construction with insulation material designed for minimal operating cost
- Adaptive heat management concept
- Increased surface area for better heat dissipation
- Supplement solar energy source to reduce operational cost
- LINEAGE POWER 93% high efficiency rectifiers
- LINEAGE POWER Galaxy Pulsar system controller with internet communication.
- Flexible 19" rack mounting for customer load equipments
- Li-Ion Battery - high temp resistance
- Front accessible for installation and maintenance.
- Vandalism protected.
- Isolation transformer
- Integrated lightning protection

SolarCube - Advanced Outdoor Cabinet



Introduction

Based on the company's broad experience in the field of power system solutions b+w Electronic Systems developed an innovative energy efficient solution - the Advanced Outdoor SolcarCube Cabinet - to meet the requirements for reliable telecommunications systems under challenging operational conditions.

Basic Operation

The basic function of the Advanced Outdoor Cabinet is to rectify the AC mains applied at its input, in order to supply a DC power for the operation of the base station and other embedded equipment. In the event of AC mains interruption or total loss of AC mains, the Advanced Outdoor Cabinet provides a backup to keep the base station running for a specified period of time.

Main Innovation

Advanced Outdoor Cabinet reduces power consumption up to 85%

The main innovation of b+w Electronic Systems' Advanced Outdoor Cabinet include: The utilization of a solar panel as a power generation device; the use of Li-Ion batteries allowing higher operating temperatures; carefully selected thermal isolation material; an unique combination of air flow design and increased surface area as well as a sophisticated adaptive power management.

These innovations and the fact that no active cooling equipment like air conditioning or heat exchanger is required result in up to 85% lower power consumption compared to a conventional container solution.

To optimise the efficiency of the total power system solution, the temperature of the solar panels must be considered, as this determines their efficiency. Therefore the solar panels are cooled utilising the cabinet cooling system air outlets in the roof. To improve this cooling effect the bottom support structure of the panels are designed with maximum air circulation. As a secondary effect the solar panels help cabinet cooling by protecting it from direct solar radiation.

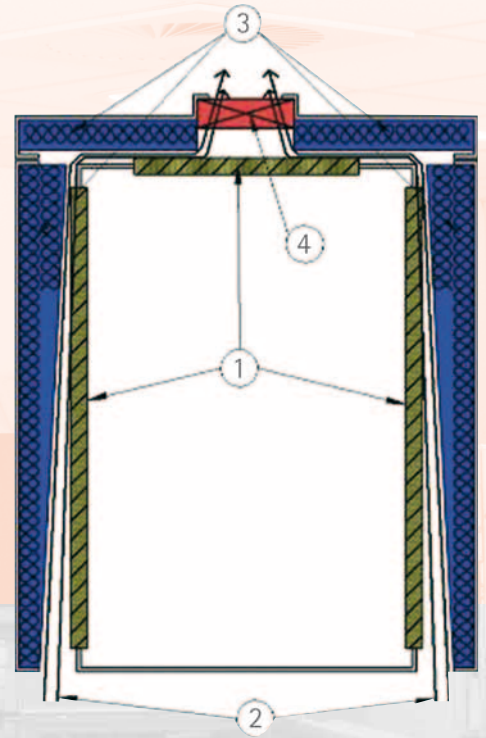
All units of the Advanced Outdoor Cabinet are integrated into the telecommunications system alarm management system. Any faults, failures or alarms can be reported directly to a network operations centre.

Adaptive heat management is realized by using temperature controlled fans.

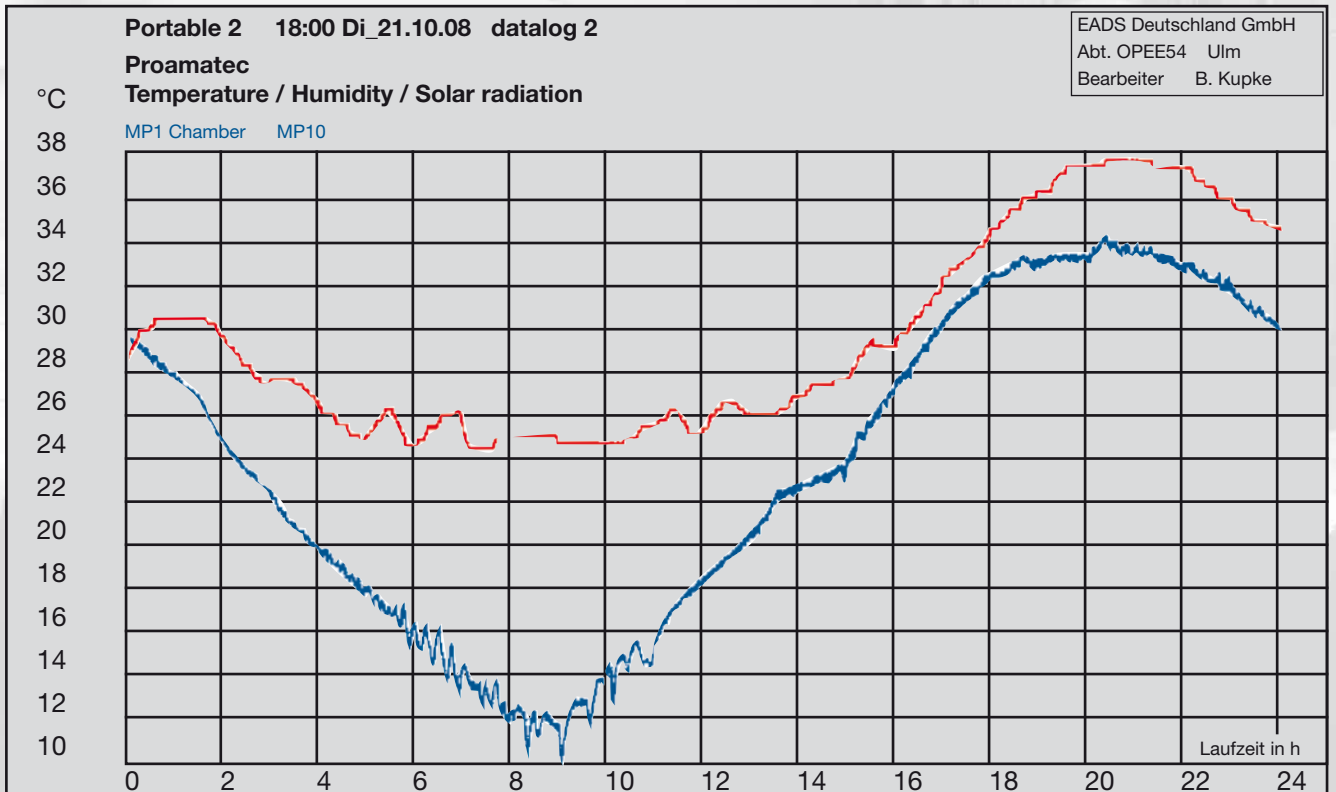
The increased surface area and optimized air channels lead to a better heat dissipation of the internal electronics. The insulation material reduces the impact of the changing ambient temperatures.

Cooling Concept

- 1 heat sink
- 2 air flow
- 3 insulation material to base
- 4 fan



Blue: ambient temperature
 Red: internal cabinet temperature



Mechanical		
Cabinet Height without Solar Panel	2420 mm	During transportation solar panel not installed
Cabinet Height with Solar Panel	2857 mm	
Cabinet Width (with panels)	1822 mm (2011 mm)	Depending on configuration including customer equipment
Cabinet Depth (external)	1071 mm	
Cabinet Depth with solar panel	1617 mm	
Integrity	IP 55	
Free 19-inch HU	20HU	
Weight of complete system	870 kg	
Cable entry bottom, transport with forklift, Material Aluminium AlMg1 / W5005, stainless steel, Powder coated NCS4502 R and NCS1502 R		
Environmental		
Ambient Temperature range from 0°C - +40°C plus solar load 1120W/m ² Internal Temperature range from +10°C - 45°C (with 1000W heat dissipation) Humidity 10% - 100% (not condensing)		
Electrical		
AC Supply	1 x 230 V, 2 x 110V	Depending on Power Distribution and Rectifier
Wide range input	85V - 275V (47-63 Hz)	
DC Output	- 48 V nom.	Current depending on Power Distribution and Rectifier (n+1) with adaptive rectifier management, 93% efficiency
Li-Ion Battery	45Ah	Extension possible
Solar Panels	235 Wp	2 Panels, 1,66m ² , monocrystalline

For additional information please contact b+w Electronic Systems bwd@b-w.com

Front view of the system



Power
Compartment

Base Station
Compartment

Solar Panels



Roof

Ordering Information

Please contact your b+w sales representative for pricing, availability and optional features.



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