Flexible and intelligent Micro System solutions
for rural Africa!
Content

1. Phocos, the company
2. Current situation and requirements of the African market
3. Solution: Pico Systems
4. Reference project in Africa
5. Conclusion
Phocos

The Company
Phocos at a Glance

**Foundation:**
Phocos emerged from a co-operative venture at the Ulm University (2000) Germany (Engineering and Marketing)

**Phocos worldwide:**
approx. 200 employees, 13 subsidiaries and representation offices

**Product portfolio:**
Charge controllers, DC appliances, Inverters and **Pico Systems**
Phocos is Present in 13 Offices Worldwide
Rural Electrification
2. Current situation and requirements of the African market
African Market Situation

Current situation

• 580 million people are still without any grid connection and those connected suffer from many power outages regularly
• Poverty and lack of education inhibit the chances of a better life in the future

Solutions until now

• For most of rural Africa, there is no quick solution & definitely not grid connections
• Diesel generators
• Wind systems
• Solar solutions (e.g. solar home systems, etc.)
Requirements

There is a huge demand for electrical power solutions e.g. solar home systems.

What do the users want?

• to be more mobile and flexible
• further cost reductions (in investment, operation & maintenance, etc.)
• simple solutions without the need of technical support
• reliable products and long system lifespan for tough environments
• multifunctional products (more practicable features in one system)
3. The Solution:

Pico Systems
Innovation

Phocos used the longtime expertise in the off-grid market and the knowledge about charge controller solutions to develop the multifunctional Pico System for the rural electrification market!
Applications

Ideal for rural electrification

• Solar Home Systems (SHS)
• Farms
• Schools and health centers
• Safari tented camps
• Boats (fishing, etc.)
• Back-up systems (lighting)
System Idea of the Phocos Pico System

System Design Example
Specifications for the Pico System

- High-power LED with three light levels
- Three charge possibilities: from a solar panel (7 V to 25 V), car battery (12 V) or AC adapter
- Innovative capacitive switch: no moving parts, no corrosion
- USB output to charge mobile phones, listen to a small radio, etc.
- Automatic lighting level reduction when batteries are running low
- High environmental protection (IP65) against soil and climate influences
- Phosphorescent ring
Pico System – What Users Get

Pico Premium Set
Pico Lamp
Pico 3 Wp PV panel
Pico USB Hub
Pico Remote Switch
Pico Phone Charging Set
Overview Pico System Sets

The Phocos Pico System is expandable by the simple plug and play function according individual power needs!
Benefits of Pico Systems

• More mobility and flexibility: Energy and light are available where needed
• Cost effective solutions: lower investment & no technical support necessary
• Longer working hours and more business opportunities
• Increased income
• Longer hours of study and school work completion for children
• More hygiene and health – no harmful fumes
• Better communication to relatives and friends (energy for mobile phones)
• Increased safety – risk of fire is minimal
4. Reference Project in Africa
Reference Project in Africa

Location: Chitipa in northern Malawi

Facility: Catholic mission (Kaseye Girls Secondary School, educational facilities, accommodation for teachers and students, including a hospital)

Challenge: grid power not available
How did Phocos Meet the Challenge?

The school implemented five modules and 90 Pico Systems, suggested by Water Mission International, who implemented a purification system.

They were especially impressed by:

1. The simple plug & play function with charge controller and battery included
2. Multifunctional (teachers also use the Pico system at their homes)
3. Long lifespan thanks to robust housing
They Implemented the Phocos Pico Solution

Pico Systems are used in several classrooms, laboratory and for teachers as well as pupils accommodation

• Dormitory (housing for 120 pupils in 10 rooms):
  30 Picos + 2 x 80 W modules
• Three accommodation buildings for teachers:
  30 Picos (10 Picos for each) + 3 x 80 W module
• School building and the laboratory:
  30 Picos + 2 x 80 W modules
What does the School Director say?

School director John Benjamin Mayo is very happy:

“Thanks to the new integrated Pico Systems, the living conditions and the future of the people have improved greatly! Renewable energy has replaced the dangerous and unhealthy kerosene. We use all the advantages of the mobile and flexible Pico Systems. It was absolutely the right decision for our needs!

Our pupils are very happy about the new systems. Now, they have light in the evening and more time flexibility to do their homework.”
5. Conclusion
Conclusion

Thanks to solar Pico Systems, people benefit from:

- long lasting light and energy available where ever and whenever it is needed!
- more health and safety
- simple installations and cost reductions
- the possibility to work and read in the evenings
- children are able to learn in the evening

Life conditions can be improved tremendously!
Thank you for your attention!