In 1970 Juan Bornay starts his project: Produce energy with the wind.
48 years producing Small Wind Turbines
8000 installations Worldwide
USA

Wind 25.2 + Rural Electrification

USA

Wind 25.3 + Farm
the energy coming

Our Team
100 % produced by Bornay in Europe

Raw materials
Composites

Mechanics

Electrics

Assembly

Quality

Delivery

R&D
Our History

1970
FIRST BORNAY

1978
FIBERGLASS PARTS

1982
INDUCTION ALTERNATOR

1984
INJECTED NYLON BLADES

1988
PERMANENT MAGNET ALTERNATORS
ADJUSTABLE BLADE PITCH

1993
FIBERGLASS/CARBON FIBER BLADES.
TILTING BRAKE.

1997
NEODYMIUM MAGNETS

2000
FIBERGLASS/CARBON FIBER BLADES.
BY RTM

2008
GRID CONNECTION SYSTEMS

2017
Bornay WIND+
Main differences

battery charge
grid connection
MPPT charger
interface

Bornay 600
Bornay 1500
Bornay 3000
Bornay 6000

12 V
24 V
48 V
120 V
220 V

Wind 13 +
Wind 25.2 +
Wind 25.3 +

Battery charge
Grid connection
Water pumping
Telecom

16 models
7 controls
2 applications

3 models
2 controls
Multiple applications
Lineup of products

Wind 13 +
Wind 25.2 +
Wind 25.3 +

MPPT Charge Controller
Interface
Telecom
MPPT Charge Controller

- Unique model for all turbine
- 12 to 48 Vdc battery range, all types and sizes of batteries
- Limited output power depending of the battery voltage
- Self powered operation.
- MPPT tracking with self-learning algorithm.
- “Quiet” mode
- Overspeed, voltage and current protection.
- Touch color display
- ModBUS
- PC Software PC for monitor / program
- Communications accessories: USB, radio, bluetooth, umts
- Windspeed anemometer input (optional)
- Auxiliar relay (2)
- No external connections as dump loads.
The energy company

Developments / Improvements

Interface Wind +

- Optimization of the power curve for different grid connection inverters thanks to the MODBUS communication (Ask for compatible inverters)
- Wind turbine functionalities optimization.
- MODBUS communication to interact with external equipments.
- Operationally under power curve control without any consumption connected.
- AC and DC loads
- No external connections as dump loads
- Load detection into the logic control

Interface Wind + Telecom

- Allow us to connect the wind turbine directly to the telecom rack
- Keep the wind turbine under control at any condition
- Direct DC output to the DC Bus
- MODBUS communication with the telecom system
- Operationally without batteries connection
- No external connections as dump loads
Bornay WIND+  
A step ahead on small wind turbines
Placement

Previous to the installation of the wind turbine:

· Windspeed data logger
· Selection of the ideal wind turbine
· Possible wind turbine improvements
  · blade diameter modifications
  · control setpoints definition

Maximum Efficiency

· Power production at low windspeed up to 20% more than previous models, ensuring that always work on $C_{p_{max}}$ under non nominal winds if power needs are greater or equal than the power of the wind
Security X 3

- Three control systems improve the security of Wind + wind turbines
  - Electronic break
  - Wind + Speed Control
  - Vertical furlling

Modularity

- Options to integrate the wind turbine into many applications
  - ModBus Communication
  - AC / DC applications
  - Direct uses
Monitoring

- Monitor your wind turbine thru B visual platform
- Monitor your Renewable Energy system: solar / wind production, battery, status, inverter status

(Victron Energy Remote Monitoring)

Remote control

- Control your wind turbine remotely
  - On-site parametrization
  - Change power curve parameters
  - Reduce power peak production
  - Update firmware
- Protection mode in case of natural disasters
Wind + Speed Control

Control strategies curves

Voltage vs Power curve

Optimal rpm power curve
Wind + Speed Control

Intelligent speed control system over $C_p$ Lambda cuver in a fixed step wind turbine

- Wind sensorless estimation.
- Extracts the power needs, no more.
Spanish Antarctic Expeditions

Gabriel de Castilla
Juan Carlos I
Bornay

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Extreme conditions

Cape Horn - Chile

Wind 25.3 +

Chile Army
Nautical Control
Bornay WIND+ Applications
Direct Water Pumping Interface Wind +
Grid Connection
Interface Wind +
Direct Telecom – AC / DC Systems
Interface Wind + Telecom
Bornay

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Institutional Relations