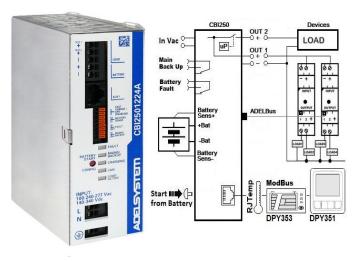
# CBI2501224A ALL In One



- Input: Single-phase 100 240 277 Vac / 140 340 Vdc
- Output Selectable Load: 12 Vdc 10A; 24 Vdc 10A
- Two utput: 1 Continuous, 1 Dynamic: On/Off by Modbus
- Output Battery charging: 12 Vdc 10A; 24 Vdc 10A
- Two load outputs: one static; one dynamic for: On/Off, Dimmer (LED, DC brush motors), Fuse Breaker, PC shutdown and more
- Modbus RTU for Monitoring, Configuration, History and Alarms.
- ADELBus: integrated monitoring and control of ADELSystem devices such as MRF10x e-Fuses and display.
- Suitable for the following battery types: Open Lead Acid, Sealed Lead Acid (AGM/VRLA), lead Gel, Li-Ion and NiCd/NiMH
- Battery Care: Automatic diagnostic of battery state-of-charge (SoC) and state-of-health (SoH).
- Charging curve IUoU, constant voltage and constant current.
- Five charging levels: Recovery, Boost, Absorption, Float (Forced trickle / Forced float / Auto float-trickle), and Refresh
- Battery purification for battery reinvigoration
- Protected against short circuit and reversed polarity
- Signal output (contact free) for: discharged or damaged battery,
   Mains or Back-up, rectifier failure
- Protection degree IP20 DIN rail; Space saving

#### Technical features

Thanks to the All-In-One units "DC-UPS" it is possible to optimize the power management, today implemented with two Outputs: one Dynamic and one Static. The available power is automatically shared between load and battery. Supplying power to the load is the top priority of the unit: it is not necessary to double the power of the device, because also the power going to the battery will be steered to the load if the load so requires. The maximum available current at the load output is twice the value of the device rated current In. We call "Battery Care" the concept based on algorithms that implement rapid and automatic charging, battery charging optimization during time, flat batteries recovery and real time diagnostic during installation and operation. Battery faults such as sulphated battery, battery cells in short circuit, accidental battery connection with reversed polarity, disconnection of the battery and more can easily be detected and removed with the aid of the blink code of the diagnosis LED both during the installation and normal operation. The continuous monitoring of the battery status reduces battery damage risk and allows a safe operation in a permanent and unattended system. The battery state-of-health is continuously monitored providing an early diagnostic of battery wear thus allowing a preventive maintenance to be undertaken. Each device is suited for all battery types: by means the user interface it is possible to set predefined charging profiles for Open Lead Acid, Sealed Lead Acid, Gel, NiCd/NiMH with five charging stages, Recovery, Bulk/Boost, Absorption, multimode Float and Refresh, that can be customized by the user using the Modbus RTU interface. Periodic purification can be configured to regularly exercise the battery thus helping prevent sulphation and wear. A rugged casing with bracket for DIN rail mounting provides IP20 protection degree. The CBI2501224A is a feature-rich and heavyduty unit which is extremely compact in size and very a costeffective power management solution.

## **Power Management and controls**

The new line CBIPlus provide two Outputs: the first is a normal output connected to the internal power supply, the second output is controlled by the internal device and it is configurable, we call "Dynamic Output". This Dynamic Output can be configured via Modbus RTU as Fuse Breaker, Soft Start, Fade-in and Fade-out, On/Off, PC shutdown and much more.

### Interconnections

The CBI2501224A is equipped with a CAN-based ADELBUS interface which allows the plug-and-play connection of Adelsystem devices

such as electronic fuses and displays enabling their control and monitoring. Moreover, an electrically-isolated RS485-based standard Modbus RTU interface allows a PC or RTU to monitor and control the CBI2501224A along with the Adelbus devices connected to it. Such integration with all the accessories provided by ADELSYSTEM allows the development of a truly independent system for electrical continuity. At the same time, it allows monitoring and control all parameters in the system by means of application tools. ADELSystem allows you to implement very simple but sophisticated monitoring and control for your energy system and opens your mind to new ways to approach your applications.

#### **Norms and Certifications**

In Conformity to: EN60950 / UL60950-1 and CSA C22.2 No. 60950-1-07 (Information Technology Equipment Safety Part1: Safety EN IEC 62368-1: 2014/AC:2015; EN54-4 Fire Detection and fire alarm systems; 89/336/EEC EMC Directive; 2014/35/UE (Low Voltage); DIN41773 (Charging cycle); Emission: IEC 61000-6-4; Immunity: IEC 61000-6-2. CE.

#### **Climatic Data**

Ambient temperature (operation)	-25 ÷ +80°C
De-rating T <sup>amb</sup> > 60°C	- 2.5% (In) /°C
Ambient temperature Storage	-40 ÷ +85°C
Humidity at 25 °C no condensation	95% to 25°C
Altitude: 0 - 6000m / 0 – 20000ft	No restrictions
Over voltage category IEC62103, EN50178	III Altitude < 2000m
Over voltage category IEC62103, EN50178	II Altitude > 2000m
Cooling	Auto convection
General Data	
Insulation voltage (IN/OUT)	4000 Vac
Insulation voltage (Input / Earth, PE)	2500 Vac
Insulation voltage (Out Load & Battery /	1000 Vac
Earth, PE)	
Insulation voltage (Out Load & Battery /	1000 Vac
Fault System & Main or Back Up terminal)	
Modbus RTU interface insulation	Functional only
Leakage Current	< 5mA
Protection Class (EN/IEC 60529)	IP20
Reliability: MTBF IEC 61709	> 300000 h
Pollution Degree Environment	2
Input and output Connections: terminal	2 mm
Blocks Push-in type	(24–12AWG)
Signal Connections: terminal Blocks Push-in	0.8 mm
type	(24-20AWG)

Dimensions (w-h-d) 50x Weight 0.99 Input Data  Nominal Input Voltage Vac 100 Input Current at 115 – 240 – 277 Vac (A) 2.4 Voltage range Vac 85 – Voltage range Vdc 110 Input Current at 110 – 340 Vdc (A) 2.3 Inrush Current (Vn – In nom. Load) I²t ≤ 99 Power Factor, typ. at full load > 0. Frequency 47 - Input Current (115 – 240 – 277 Vac) 5.5 Internal fuse (not replaceable) 8.0 External Fuse (recommended) MCB 10 A Output Data (internal power supply) Select Output Voltage 12 or 24 Vdc. By C Continuous current (With battery) Iload = In+ Ibatt Max. current Output Load (Main + Battery) Iload (4 sec.) Max. current Output Load (Back Up) Iload (4 sec.) Start From Battery Without Mains (Remote Input Control) Time Buffering; min (switch output off without main input) 20; Efficiency 240 Vac 24Vdc (rated current) 29; Residual Ripple 580 Turn-On delay after applying mains voltage 1 service Start up with Strong Load (capacitive load) 7es, Dissipation power load max (W) < 20 Short-circuit protection 7es Over Load protection 7es Over Voltage Output protection 7es Over Voltage (at In) 10 A Threshold alarm Battery almost flat 10	ith PE 135x135 mm		
Nominal Input Voltage Vac   100	135x135 mm		
Input Data   Nominal Input Voltage Vac   100   Input Current at 115 – 240 – 277 Vac (A)   2.4   Voltage range Vac   110   Input Current at 110 – 340 Vdc (A)   2.3   Inrush Current (Vn – In nom. Load) I²t   ≤ 90   Power Factor, typ. at full load   > 0.   Frequency   47 - 5   Internal fuse (not replaceable)   8.0   External Fuse (recommended) MCB   10			
Nominal Input Voltage Vac Input Current at 115 – 240 – 277 Vac (A)  Voltage range Vac Voltage range Vdc Input Current at 110 – 340 Vdc (A) Inrush Current (Vn – In nom. Load) I²t Power Factor, typ. at full load Frequency Input Current (115 – 240 – 277 Vac) Internal fuse (not replaceable) External Fuse (recommended) MCB Output Data (internal power supply) Select Output Voltage 12 or 24 Vdc. Continuous current (without battery) Iload In+ Ibatt Max. current Output Load (Main + Battery) Ilload (4 sec.) Max. current Output Load (Back Up) Ilload (4 sec.) Start From Battery Without Mains (Remote Input Control) Time Buffering; min (switch output off without main input) Extern Power Supply Turn-On delay after applying mains voltage Start up with Strong Load (capacitive load) Dissipation power load max (W) Short-circuit protection Over Load protection Over Load protection Over Load protection Output voltage (at In) Nominal current In = Iload Threshold alarm Battery almost flat Protections against total discharge  Battery Output Boost-Fast charge Switch Configuration 20°C Lear (V/cell) Float Charge Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start Start Start Start Start Start Switch Configuration 20°C Lear (V/cell): Ni-Centrol Start Start St	0.95 kg		
Input Current at 115 – 240 – 277 Vac (A)  Voltage range Vac  Voltage range Vdc  Input Current at 110 – 340 Vdc (A)  Inrush Current (Vn – In nom. Load) I²t  Power Factor, typ. at full load  Frequency  Input Current (115 – 240 – 277 Vac)  Internal fuse (not replaceable)  External Fuse (recommended) MCB  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc.  Continuous current (without battery)  Iload= In+ Ibatt  Max. current Output Load (Main + Battery)  Iload (4 sec.)  Max. current Output Load (Back Up)  Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Load protection  Over Voltage Output protection  Over Load protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Lead Coutput 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Lead Coutput 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  Lead Coutput 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Bottery Output  Boost-Fast charge Switch Configuration 20°C  Lead Coutput 12 Vdc (Deep Switch selection)			
Voltage range Vac  Voltage range Vdc  Input Current at 110 – 340 Vdc (A)  Inrush Current (Vn – In nom. Load) I²t  Power Factor, typ. at full load  Frequency  Input Current (115 – 240 – 277 Vac)  Internal fuse (not replaceable)  External Fuse (recommended) MCB  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc.  Continuous current (without battery)  Iload = In+ Ibatt  Max. current Output Load (Main + Battery)  Iload (4 sec.)  Max. current Output Load (Back Up)  Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Over Voltage Output protection  Overheating Thermal protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Lead (V/cell)  Float Charge Switch Configuration 20°C  Lead (V/cell):  Ni-Control Canado Capacition 20°C  Lead (V/cell):  Ni-Control Canado Capacition 20°C  Lead (V/cell):  Ni-Control Canado Capacition 20°C  Lead Cutput 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Pattery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-Control Canado Capacition 20°C  Lead (V/cell):  Ni-Control Capacition 20°C  Lead (V/cell):  Ni-Cont	<b>– 240 – 277</b>		
Voltage range Vdc  Input Current at 110 – 340 Vdc (A)  Inrush Current (Vn – In nom. Load) I²t  Power Factor, typ. at full load  Frequency  Input Current (115 – 240 – 277 Vac)  Internal fuse (not replaceable)  External Fuse (recommended) MCB  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc.  Continuous current (without battery)  Iload In+ Ibatt  Max. current Output Load (Main + Battery)  Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Yes  Over Load protection  Yes  Over Load protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  19 -  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Lead  (V/cell)  Float Charge	- 1.2 - 1.3		
Input Current at 110 – 340 Vdc (A)  Inrush Current (Vn – In nom. Load) I²t ≤ 90  Power Factor, typ. at full load > 0.  Frequency 47-8  Input Current (115 – 240 – 277 Vac) 5.5  Internal fuse (not replaceable) 8.0  External Fuse (recommended) MCB 10 A  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc. By C  Continuous current (without battery) Iload In+ Ibatt  Max. current Output Load (Main + Battery) Iload (4 sec.)  Max. current Output Load (Back Up) Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input) 20;  Efficiency 240 Vac 24Vdc (rated current) 29;  Residual Ripple ≤ 86;  Turn-On delay after applying mains voltage 1 se Start up with Strong Load (capacitive load) Yes, Dissipation power load max (W) < 20;  Short-circuit protection Yes  Over Load protection Yes  Load Output 24 Vdc (Deep Switch selection)  Output voltage (at In) 10 -  Nominal current In = Iload 10 A  Threshold alarm Battery almost flat 20 -  Protections against total discharge 19 -  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In) 10 -  Nominal current In = Iload 10 A  Threshold alarm Battery almost flat 10 -  Protection against total discharge 9 -  Battery Output  Boost-Fast charge Switch Configuration 20°C Leac (V/cell)  Float Charge Switch Configuration 20°C Leac (V/cell)	- 305		
Inrush Current (Vn – In nom. Load) I²t ≤ 90 Power Factor, typ. at full load > 0. Frequency 47 = Input Current (115 – 240 – 277 Vac) 5.5 Internal fuse (not replaceable) 8.0 External Fuse (recommended) MCB 10 A Output Data (internal power supply) Select Output Voltage 12 or 24 Vdc. By C Continuous current (without battery) Iload In+ Ibatt Max. current Output Load (Main + Battery) Iload (4 sec.) Max. current Output Load (Back Up) Iload (4 sec.) Start From Battery Without Mains (Remote Input Control) Time Buffering; min (switch output off without main input) 20; Efficiency 240 Vac 24Vdc (rated current) 29; Kart up with Strong Load (capacitive load) Yes, Dissipation power load max (W) < 20; Short-circuit protection Yes Over Load protection Yes Over Voltage Output protection Yes Over Voltage Output protection Yes Over Voltage (at In) 22 - Nominal current In = Iload 10 A Threshold alarm Battery almost flat 20 - Protections against total discharge 19 - Load Output 12 Vdc (Deep Switch selection) Output voltage (at In) 10 - Nominal current In = Iload 10 A Threshold alarm Battery almost flat 10 - Protection against total discharge 9 - Battery Output Boost-Fast charge Switch Configuration 20°C Lead (V/cell) 10 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge Switch Configuration 20°C Lead (V/cell) 11 - Float Charge S	<b>- 340</b>		
Power Factor, typ. at full load Frequency Input Current (115 – 240 – 277 Vac) Internal fuse (not replaceable) External Fuse (recommended) MCB  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc. Continuous current (without battery) Iload= In+ Ibatt  Max. current Output Load (Main + Battery) Iload (4 sec.)  Max. current Output Load (Back Up) Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Over Voltage Output protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Ni-Courrent In = Capacitive Load C	- 0.8		
Power Factor, typ. at full load Frequency Input Current (115 – 240 – 277 Vac) Internal fuse (not replaceable) External Fuse (recommended) MCB  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc. Continuous current (without battery) Iload= In+ Ibatt  Max. current Output Load (Main + Battery) Iload (4 sec.)  Max. current Output Load (Back Up) Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Over Voltage Output protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Ni-Courrent In = Capacitive Load C	A ≤ 5 msec		
Frequency	95		
Input Current (115 – 240 – 277 Vac)  Internal fuse (not replaceable)  External Fuse (recommended) MCB  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc.  Continuous current (without battery)  Iload= In+ Ibatt  Max. current Output Load (Main + Battery)  Iload (4 sec.)  Max. current Output Load (Back Up)  Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Start up with Strong Load (capacitive load)  Start up with Strong Load (capacitive load)  Pover Load protection  Over Load protection  Over Voltage Output protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-Continuous (internal power load)  Start up with Strong Load (capacitive load)  Threshold alarm Battery almost flat  10 - Protections against total discharge  9 - Settery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-Continuous current load 10 A	· 63 Hz		
Internal fuse (not replaceable)  External Fuse (recommended) MCB  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc.  Continuous current (without battery)  Iload	- 3.0 - 2.0A		
External Fuse (recommended) MCB  Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc.  Continuous current (without battery)  Iload Continuous current (With battery)  Iload In+ Ibatt  Max. current Output Load (Main + Battery)  Iload (4 sec.)  Max. current Output Load (Back Up)  Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Yes  Overheating Thermal protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-Center Supply			
Output Data (internal power supply)  Select Output Voltage 12 or 24 Vdc. By of Continuous current (without battery)  Iload	Curve C		
Select Output Voltage 12 or 24 Vdc.  Continuous current (without battery)  Iload  Continuous current ( With battery)  Iload= In+ Ibatt  Max. current Output Load (Main + Battery)  Iload (4 sec.)  Max. current Output Load (Back Up)  Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Yes  Over Voltage Output protection  Yes  Load Output 24 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-Company Sax Max May Sax M	cuive C		
Continuous current (without battery)  Continuous current ( With battery)  Iload= In+ Ibatt  Max. current Output Load (Main + Battery)  Iload (4 sec.)  Max. current Output Load (Back Up)  Iload (4 sec.)  Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Yes  Over Voltage Output protection  Yes  Load Output 24 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-Continuous current In 2 2x 1 2			
Continuous current ( With battery)   Iload= In+ Ibatt    Max. current Output Load (Main + Battery)   Iload (4 sec.)    Max. current Output Load (Back Up)   Iload (4 sec.)    Start From Battery Without Mains (Remote Input Control)   Pusition    Time Buffering; min (switch output off without main input)   20;    Efficiency 240 Vac 24Vdc (rated current)   ≥ 93;    Residual Ripple   ≤ 80;    Turn-On delay after applying mains voltage   1 sec.    Start up with Strong Load (capacitive load)   Yes,    Dissipation power load max (W)   < 20;    Short-circuit protection   Yes    Over Load protection   Yes    Over Voltage Output protection   Yes    Over Voltage Output protection   Yes    Load Output 24 Vdc (Deep Switch selection)    Output voltage (at In)   22 -    Nominal current In = Iload   10 A    Threshold alarm Battery almost flat   20 -    Protections against total discharge   19 -    Load Output 12 Vdc (Deep Switch selection)    Output voltage (at In)   10 -    Nominal current In = Iload   10 A    Threshold alarm Battery almost flat   10 -    Protection against total discharge   9 -    Battery Output    Boost-Fast charge Switch Configuration 20°C    (V/cell)   Ni-Ce    Float Charge Switch Configuration 20°C    (V/cell):   Ni-Ce    Float Charge Switch Configuration 20°C    (V/cell):   Ni-Ce    Ni-Ce	lipswitch		
Ilload= In+ Ibatt	d=In		
Max. current Output Load (Main + Battery)   Iload (4 sec.)	n		
Ilload (4 sec.)   Max. current Output Load (Back Up)   Iload (4 sec.)   Start From Battery Without Mains (Remote Input Control)   Pusi Time Buffering; min (switch output off without main input)   20;   Efficiency 240 Vac 24Vdc (rated current)   ≥ 93   Residual Ripple   ≤ 80   Turn-On delay after applying mains voltage   1 sec   Start up with Strong Load (capacitive load)   Yes, Dissipation power load max (W)   < 20   Short-circuit protection   Yes   Over Load protection   Yes   Over Voltage Output protection   Yes   Over Voltage Output protection   Yes   Over Voltage (at In)   22 - Nominal current In = Iload   10			
Max. current Output Load (Back Up)   Iload (4 sec.)   Start From Battery Without Mains (Remote Input Control)   Pusitive Input Control I	n max.		
Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Overheating Thermal protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C			
Start From Battery Without Mains (Remote Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Yes  Overheating Thermal protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C	n max.		
Input Control)  Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Sagrand Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Over Voltage Output protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C	a		
Time Buffering; min (switch output off without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Sactive Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Load protection  Over Voltage Output protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C	ONN (cable)		
without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Over Voltage Output protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C	h Button		
without main input)  Efficiency 240 Vac 24Vdc (rated current)  Residual Ripple  Turn-On delay after applying mains voltage  Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Over Voltage Output protection  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C	2.5; 10; 15;		
Efficiency 240 Vac 24Vdc (rated current) ≥ 93 Residual Ripple ≤ 86 Turn-On delay after applying mains voltage 1 set Start up with Strong Load (capacitive load) Yes, Dissipation power load max (W) < 20 Short-circuit protection Yes Over Load protection Yes Over Voltage Output protection Yes Overheating Thermal protection Yes Overheating Thermal protection Yes Output voltage (at In) 22 - Nominal current In = Iload 10 A Threshold alarm Battery almost flat 20 - Protections against total discharge 19 - Load Output 12 Vdc (Deep Switch selection) Output voltage (at In) 10 - Nominal current In = Iload 10 A Threshold alarm Battery almost flat 10 - Protection against total discharge 9 - i Battery Output Boost-Fast charge Switch Configuration 20°C (V/cell) Float Charge Switch Configuration 20°C Lead (V/cell): 2.25 Ni-Company Not Set Set Set Set Set Set Set Set Set Se	30; 45; 60; ∞		
Residual Ripple  Turn-On delay after applying mains voltage Start up with Strong Load (capacitive load) Pissipation power load max (W)  Short-circuit protection Over Load protection Over Voltage Output protection Overheating Thermal protection  Output voltage (at In)  Nominal current In = Iload Threshold alarm Battery almost flat Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload Threshold alarm Battery almost flat Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload Threshold alarm Battery almost flat Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C  1 Set Strong Stro			
Turn-On delay after applying mains voltage Start up with Strong Load (capacitive load) Pessipation power load max (W) Short-circuit protection Over Load protection Over Voltage Output protection Overheating Thermal protection Output voltage (at In) Nominal current In = Iload Threshold alarm Battery almost flat Protections against total discharge Load Output 12 Vdc (Deep Switch selection) Output voltage (at In) Output voltage (at In) Protections against total discharge 19 - Load Output 12 Vdc (Deep Switch selection) Output voltage (at In) Nominal current In = Iload Threshold alarm Battery almost flat Protection against total discharge 9 - Seattery Output Boost-Fast charge Switch Configuration 20°C (V/cell) Float Charge Switch Configuration 20°C (V/cell): Start up with Strong Load (Capacitive load) Vession Vession Over Load (Vession) Vession Vession Output voltage (at In) Nominal current In = Iload Threshold alarm Battery almost flat 10 - Protection against total discharge 9 - Seattery Output Boost-Fast charge Switch Configuration 20°C (V/cell) Float Charge Switch Configuration 20°C (V/cell): Ni-Configuration 20°C (V/cell):			
Start up with Strong Load (capacitive load)  Dissipation power load max (W)  Short-circuit protection  Over Load protection  Over Voltage Output protection  Overheating Thermal protection  Output 24 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C  Eacl  CV/cell):  Ni-C  Short-circuit protection  Yes  22-  Shi-C	с. (max)		
Dissipation power load max (W) < 20 Short-circuit protection Yes Over Load protection Yes Over Voltage Output protection Yes Overheating Thermal protection Yes Load Output 24 Vdc (Deep Switch selection) Output voltage (at In) 22 - Nominal current In = Iload 10 A Threshold alarm Battery almost flat 20 - Protections against total discharge 19 - Load Output 12 Vdc (Deep Switch selection) Output voltage (at In) 10 - Nominal current In = Iload 10 A Threshold alarm Battery almost flat 10 - Protection against total discharge 9 - 3 Battery Output Boost-Fast charge Switch Configuration 20°C Lead (V/cell) Float Charge Switch Configuration 20°C Lead (V/cell):  Float Charge Switch Configuration 20°C Lead (V/cell):			
Short-circuit protection  Over Load protection  Over Voltage Output protection  Overheating Thermal protection  Output 24 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  10 -  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  9 - :  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	Unlimited		
Over Load protection  Over Voltage Output protection  Overheating Thermal protection  Output 24 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  10 -  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  9 - :  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  10 - Configuration 20°C  Leac  (V/cell):  Ni-Configuration 20°C  Leac  (V/cell):	)		
Over Voltage Output protection  Ves Overheating Thermal protection  Ves Load Output 24 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Calculate Automatic Automati			
Overheating Thermal protection  Load Output 24 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Float Charge Switch Configuration 20°C  (V/cell):  Ni-C			
Load Output 24 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Lead  (V/cell):  Since	(typ. 35 Vdc)		
Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Leac  (V/cell):  2.25  Ni-C			
Nominal current In = Iload  Threshold alarm Battery almost flat Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Lead (V/cell):  2.25  Ni-C			
Threshold alarm Battery almost flat Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Leac (V/cell):  Current In = Iload  10 A  Ni-Current In = Iload  Threshold alarm Battery almost flat In - Iload  Protection against total discharge  9 - Iload  Float Charge Switch Configuration 20°C  Leac (V/cell):  Ni-Current In = Iload  10 A  Threshold alarm Battery almost flat  10 - Iload  Ni-Current In = Iload  10 A  Threshold alarm Battery almost flat  10 - Iload  Float Charge Switch Configuration 20°C  Leac (V/cell):	28.8 Vdc		
Protections against total discharge  Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Lead (V/cell):  Protection against total discharge  9 - :  Lead (V/cell)  Li-ic  Float Charge Switch Configuration 20°C  Lead (V/cell):  Ni-C	\ ± 5% In		
Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Leac  (V/cell):  Li-ic  Float Charge Switch Configuration 20°C  Leac  (V/cell):  Ni-C	· 21 Vdc batt		
Load Output 12 Vdc (Deep Switch selection)  Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  Leac  (V/cell):  Li-ic  Float Charge Switch Configuration 20°C  Leac  (V/cell):  Ni-C	- 20 Vdc batt		
Output voltage (at In)  Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C (V/cell)  Float Charge Switch Configuration 20°C (V/cell):  Current Switch Configuration 20°C  Lead (V/cell):  Ni-Current Switch Configuration 20°C  Lead (V/cell):  Ni-Current Switch Configuration 20°C  Lead (V/cell):  Ni-Current Switch Configuration 20°C			
Nominal current In = Iload  Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Lead  (V/cell):  Configuration 20°C  Lead  (V/cell):  Li-ic	14.4 Vdc		
Threshold alarm Battery almost flat  Protection against total discharge  Battery Output  Boost-Fast charge Switch Configuration 20°C  (V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Lead  (V/cell):  Ni-C	1 ± 5% In		
Protection against total discharge 9 – 3  Battery Output  Boost-Fast charge Switch Configuration 20°C Lead (V/cell) Li-ic  Float Charge Switch Configuration 20°C Lead (V/cell): 2.25  Ni-C	· 11 Vdc batt		
Battery Output  Boost-Fast charge Switch Configuration 20°C Lead (V/cell) Li-ic  Float Charge Switch Configuration 20°C Lead (V/cell): 2.25 Ni-C	10 Vdc batt		
Boost-Fast charge Switch Configuration 20°C (V/cell)  Float Charge Switch Configuration 20°C Lear (V/cell):  2.25  Ni-C	>utt		
(V/cell)  Float Charge Switch Configuration 20°C  (V/cell):  Lead  (V/cell):  Ni-C	d Acid: 2.40		
Float Charge Switch Configuration 20°C Lead (V/cell): 2.25 Ni-C	d: 1.45		
Float Charge Switch Configuration 20°C Lead (V/cell): 2.25 Ni-C	n: 3.65		
(V/cell): 2.25 Ni-C	d Acid: 2.23;		
Ni-C			
	5;2.27;2.30 :d: 1.4		
NI-N	d: 1.4		
	/lh:1.5		
	n: 3.45		
Max.Time Boost–Bulk charge (Typ. at IN)			
Min.Time Boost–Bulk charge (Typ. at IN) 1 m			
	5%		
	÷ 100 % / Ibat		
Recovery Charge 12V / 24Vdc 2 - :	11.2V / 2 –		
22.5	5 <b>V</b>		
Reverse battery protection Yes			

Battery sulphation check		Yes				
Detection of shorted cells		Yes				
Battery sense input for 4-wire cor	nection	Yes				
Quiescent current on battery		≤ 5 mA				
Charging Curve automatic: IUoU		5 stages				
Remote Input Control (RTCONN ca	able)	Boost /Float				
Signal Output (free switch contacts)						
Mains or Backup Input Power		Yes				
Fault		Yes				
(The Outputs can be reconfigured on the project Needs)						
Type of Signal Output Contact						
Dry Contact. Current can be switched (EN60947.4.1): Max: DC1:						
30 Vdc 1 A; AC1: 60 Vac 1A (Resistive load ) Min: 1mA at 5 Vdc						
(Min permissive load)						
Main or Backup Input Power		С	/	NO		
Fault		С	/	NO		
Signal Input / Output (RJ45)						
Temp. Comp. Battery (with	RJ Temp (cable) Aux 1					
external probe)						
Remote monitoring data:	RJ45: RJ Temp (cable)					
Protocol:	Modbus RTU, DPY351,					
	DPY353					

