



Battery Care the new Battery Charger Philosophy
Battery Charger and Battery Tester

Charge & Testing

ADELSYSTEM

Integrated Electronic Solutions

Connect

The new ADELSYSTEM platform communication ADELBus allows the connection of all components in a simple but very powerful way. A single communication protocol based on MODbus-RTU or CANbus technology depending on the application field. It allows to communicate with all devices provided by ADELSYSTEM and to develop an independent system for electrical continuity. Monitoring and control of all parameters in the system, even from the other side of the world, by means of application tools and Cloud.

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.

Everything and more!

- More efficiency for the battery thanks to continuous control over time.
- More monitoring features in the main connection nodes: input , output load, battery.
- Event logging: number of battery charging cycles, charge cycles completed, aborted charge cycles, Ah charged, charging time, total number of transitions stand-by /back-up etc...
- Event Management: checking the load output, shutdown management of PCs (UPS function), RESET management of a generic equipment.
- Flexibility of use: customization of the entire battery charging curve, battery type setting, setting boost voltage, absorption, float, etc... configuration as Batteries Charger, Enabling power supply function.

Multimediality

ADELVIEW SYSTEM

Comprehensive suite for remote monitoring and management of Adel System devices connected in an ADELBus network.

- ADELView System is a PC-based software developed to monitor in real time every important parameter of the Battery Chargers. A simple and intuitive user's interface allows monitoring of battery parameters, load output, temperature sensor, mains presence and all alarm and diagnostic flags. All features are displayed on a single screen.
- ADELView app, application for tablet, you can visualize in real time data stored on your own device.
- ADELView Cloud, a suite available to all customers. Main function as Data Logger for all parameters coming from the connected devices.
- ADELView Config: interface that allows application engineers to configure the system, customize battery charging curve, set alarm thresholds, configure parameters, Demo for customers.

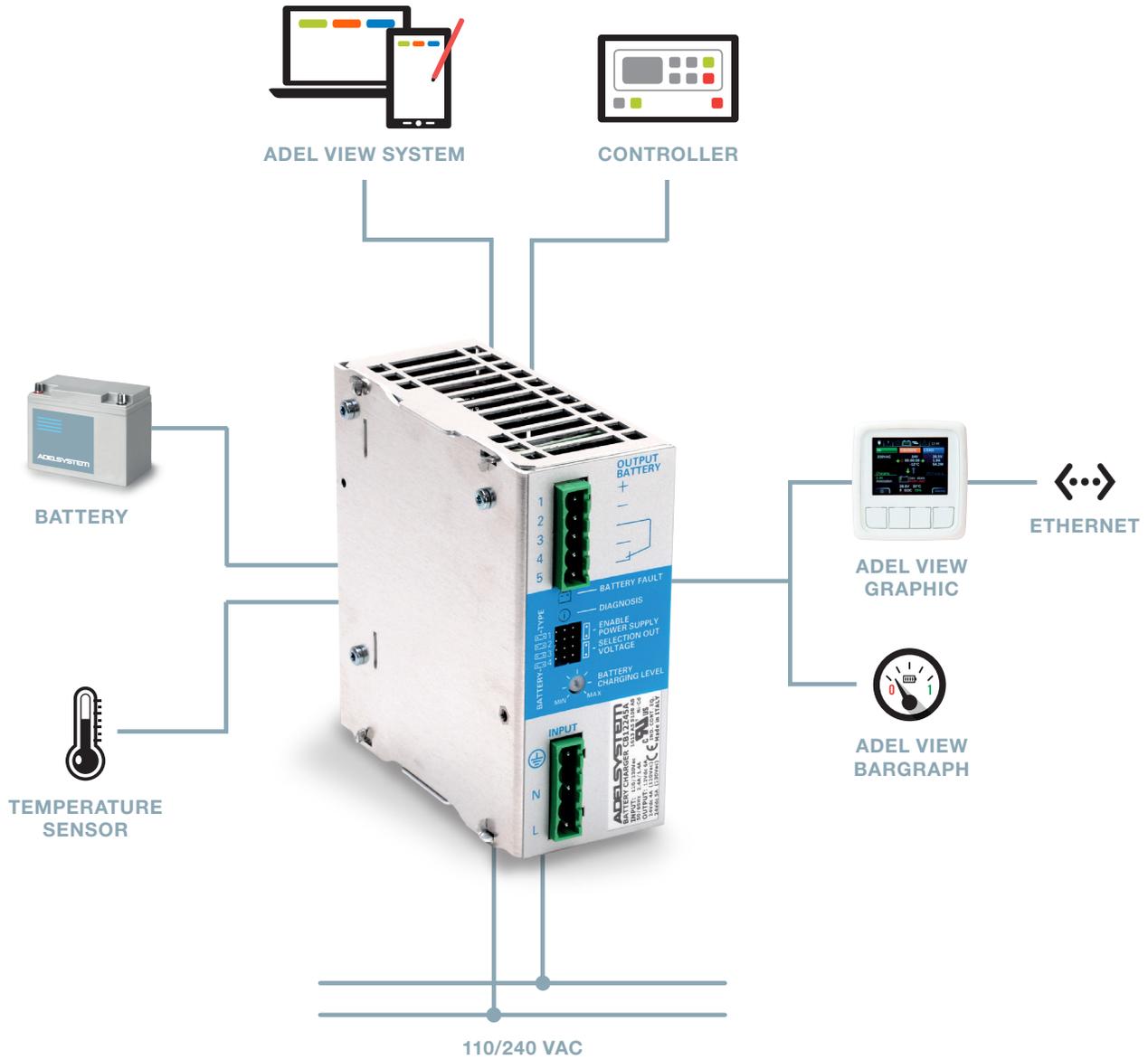
Everything is available in free download on the Web page.

ADELVIEW GRAPHIC

The Device is a robust multifunction display. It allows to monitor, configure and manage the Adel System's devices connected in an ADELBus network. It has a high-brightness and wide viewing-angle 3.5" TFT-LCD screen which guarantees an optimum visibility in any operating condition. The user interface is clear, intuitive and allows configuring and managing the connected devices in a quick and straightforward way. Moreover, using the on-board Ethernet interface it is possible to remotely manages the ADELBus network through Internet with a PC or a mobile device. At the same time, the Device can act as a gateway that implements standard protocols such as Modbus TCP/IP and SNMP.

From the Display you can manages all the connected devices allowing:

- Monitoring
- Configuration
- Alarms management
- Events program, i.e. programmed actions that are coordinated among the devices



CONTROLLER

You can connect the Device directly to the GenSet Controller by protocol Can J1939.

ADELBUS

ADELSYSTEM network, interconnect all Devices in Canbus and Modbus.

BATTERY

You can recharge and Test all Battery types: Open Lead Acid, Sealed Lead Acid, AGM Sealed Lead Acid, Gel, Ni/ Cd. Any Size is taken in Care.

BATTERY TEMPERATURE

By installing the battery temperature probe “RJ Temp”, the charging voltage is automatically adapted to battery temperatures.

When battery temperature is low, the charging voltage increases. Conversely, when battery temperature is high, charge voltage is decreased. Over charging and gassing are thus prevented. This will extend battery life, it is a part of Battery Care Philosophy.

ADELVIEW BAR GRAPH

“ADELView Bar Graph” is a circular LED display device for panel mount. Simple and sturdy, it displays the current charge mode, state of charge and system diagnostics at a glance.

Charging & Testing

CHARGING

One device for all battery types

All devices are suitable to charge most battery types thank to user selectable charging curves. They can charge open lead acid, sealed lead acid, Gel, Ni-Cd, Ni-MH, Li Ion batteries. It is possible to change or add other charging curves connecting the device to a portable PC. Charging mode is then completely automatic.

JUMPER POSITIONS / VPC:

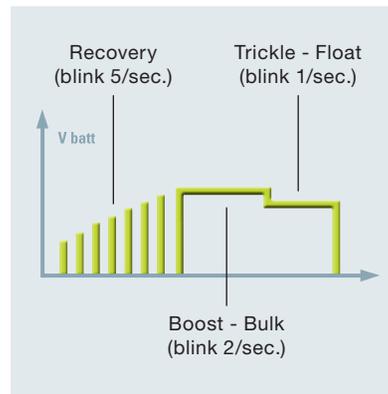
	Open Lead Acid: Trickle 2.23V Boost 2.40V (factory preset)
	Sealed Lead Acid (1): Trickle 2.25 Boost 2.40V
	AGM Sealed Lead Acid (2): Trickle 2.27 Boost 2.40V
	Gel: Trickle 2.30V Boost 2.40V Ni/Cd LI-Ion

Jumper for Battery Type Selection

Multi-Stage charging Four charging modes

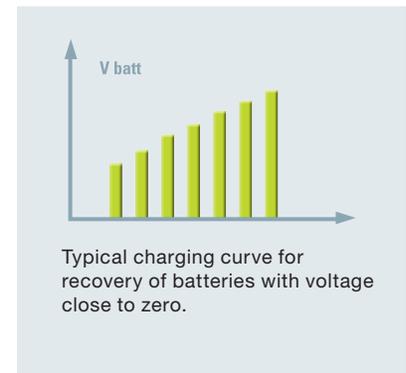
Automatic multi-stage operation and real time diagnostic allow fast recharge and recovery of deeply discharged batteries, adding value and reliability to the system hosting the Battery Charger device. The type of charging is Voltages stabilized and Current stabilized IUoU. Battery Charger feature four charging modes, identified by a flashing code on a LED.

- Recovery (5 Blinks / sec) able to recharge batteries even when their voltage is close to zero
- Boost - Bulk (2 Blinks / sec)
- Absorption (1 Blinks / sec)
- Trickle - Float (1 Blink / 2 sec)



Recovery charging

Automatic multi-stage operation optimizes and adapt to battery status, even when the battery voltage is very low. CB can recharge batteries even when their voltage is close to zero. It allows recharge and complete recovery of flat batteries.



Adjustable charging current

The maximum battery charging current can be set from 10% to 100% of the device rated value.



TESTING

Battery and Device Diagnosis

All CB devices support the user during installation and operation. A LED flashing sequence code allows to discriminate among various possible faults.

ERROR CONDITIONS, LED FAULT ON AND LED DIAGNOSIS FLASHING WITH SEQUENCE OF:

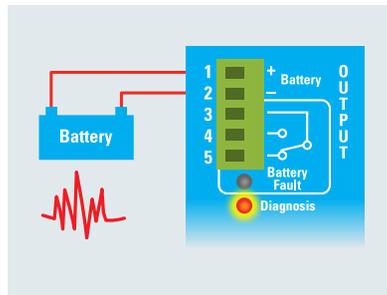
- 1 flash = Reverse polarity, wrong battery voltage
- 2 flashes = Disconnected battery
- 3 flashes = Battery element in short circuit
- 4 flashes = Overload
- 5 flashes = Battery to be replaced (Internal impedance Bad or Bad battery wire connection)

 Battery Fault

 Diagnosis

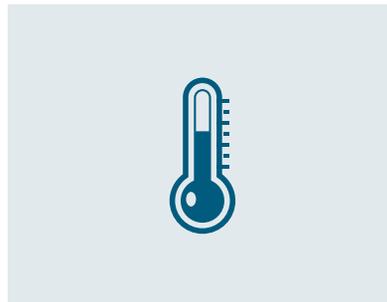
Battery Life Test

For battery reliability during time. The device detects each two hours the internal Battery impedance, to avoid any possible risk of damages and grant a permanent and reliable battery connection on the device. The device, through inside battery detection circuit recognizes sulphated batteries or batteries with a short-circuited or open cell.



Temperature Compensation

In special application like Fire prevention System, you can recharge the battery also with temperature compensation charging function, for the best condition of your battery in high temperature environment.



Diagnostic checks “during operation”

ACCIDENTAL DISCONNECTION CABLES

Detect accidental disconnection and immediately switches off output power.

BATTERY NOT CONNECTED

If the battery is not connected the battery output is disabled.

TEST OF WIRE CONNECTION IMPEDANCE

During trickle charge the resistance on the battery connection is checked every 20 sec. This to detect if the cable connection has been properly made.

BATTERY IN OPEN CIRCUIT OR SULPHATED

Every Two hours detect the internal impedance, while in trickle charging mode.

REVERSE POLARITY CHECK

If the battery is connected with inverted polarity, the device is automatically protected.

TEST OF BATTERY VOLTAGE CONNECTIONS

Appropriate voltage check, to prevent connection of wrong battery types.

END OF CHARGE CHECK

When the battery is completely full, the device automatically switches to trickle charging mode.

CHECK FOR BATTERY CELLS IN SHORT CIRCUIT

Thanks to specific testing algorithms, the CB recognize batteries with cells in internal short circuit.

General Data

Maximum safety and protection

All Battery Charger ADELSYSTEM are designed to provide safe operation and long power supply and battery life. The following protections are standard features:

- Outputs protected against short circuit and overload
 - Outputs in conformity to SELV and PELV conditions
 - High insulation between primary and secondary
 - Protection against deep battery discharge
 - Protection against reverse polarity connection
 - Detection of batteries with wrong rated voltage
- All protections have automatic reset. No thermal fuse to be replaced.

Technology

The Battery Charger range is based on two strategic know-how elements

SWITCHING TECHNOLOGY

ADELSYSTEM has a 25 year experience in design of advanced stabilized switching technology power supplies. A power supply/battery charger unit based on this technology is much more efficient.

BATTERY CARE

Unlike most other state-of-the-art battery chargers, the Battery Charger ADELSYSTEM are equipped with complex algorithms which controls the charging process and enable several monitoring functions. The firmware implements the extended Adel battery care know-how, result of many years of experience in this field

Robust construction and easy installation

All the units in the range have aluminium casing, DIN rail fastening clip and are light and compact. IP20 protection degree.

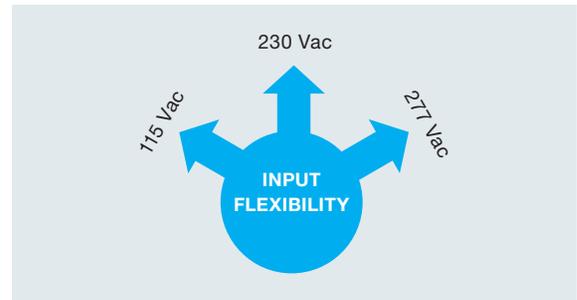
Norms

In Conformity to: IEC/EN 60335-2-29 Battery chargers; EN60950 / UL1950; Electrical safety EN54-4 Fire Detection and fire alarm systems; EMC Directive; DIN41773 (Charging cycle). UL1236

Input - Output

Wide input voltage range

Flexibility is given also by the wide range input voltage. All devices accept input voltage 115 / 230 / 277 Vac.



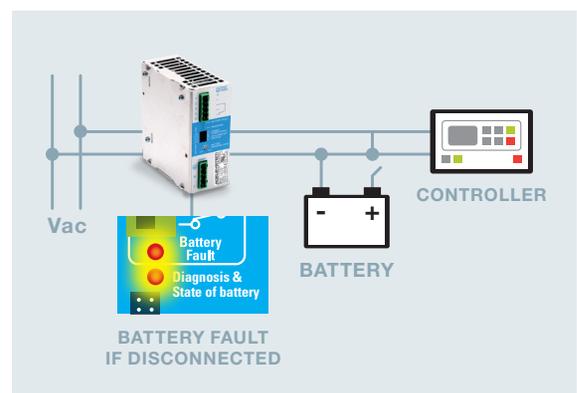
One device for Output 12 or 24 Vdc

You can select the voltage between 12 or 24 Vdc just before installing the device in your panel (available on some products in the ADELSYSTEM range).



Power Supply Function

On some devices it is possible to enable the power supply function, to provide power also when the battery is disconnected from output battery output. Enabling by Jumper:



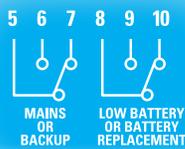
Connections & Monitoring

Monitor Signals

Clear definition of each system operation, via LED indications and Relay contacts:

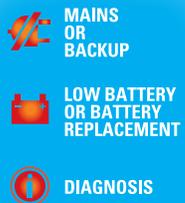
CONTACT PORT SIGNALS, GALVANIC INSULATED

Mains or back-up conditions
Battery or system fault
Flat battery



DISPLAY SIGNALS BY LED

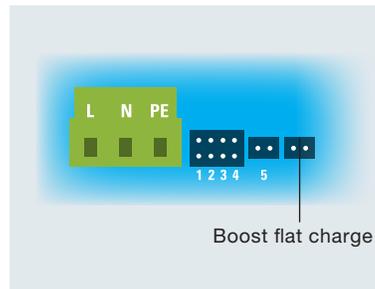
Input: Mains or Back Up
Battery or system Fault
Low battery (capacity less than 30%)
Type of Charging mode
Autodiagnosis true through "blinking code"



Driver Comand

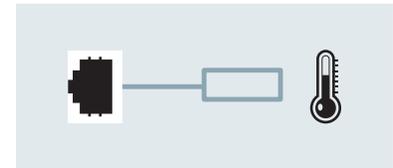
Remote link for selection of trickle/boost charging via RTCONN remote connections cable, it is possible to drive the devices from Boost to Trickle charge.

It is also possible to permanently put a jumper for Boost Charging.



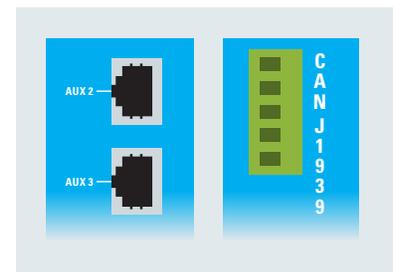
Accessories

Temperature sensor Probe, for ambient temperature compensation charging.



Auxiliary Output "Aux 2 and Aux 3"

ADELBUS network in Can J1939 or ModBus, for the connection to net ADELSYSTEM devices and connection to external Controller ex. GenSet.



Battery Care

12-24 Vdc

110 - 230 - 277 Vac

12 Vdc

110 - 230 - 277 Vac



	Model	CB12245A	CB122410A	CB123A	CB123A/48
	Output	12 Vdc - 6A - 120W 24 Vdc - 5A - 120W	12 Vdc - 15A - 270W 24 Vdc - 10A - 270W	12 Vdc - 3A - 36W	12 Vdc - 3A - 36W
INPUT DATA	Nominal Input Voltage	115 - 230 - 277	115 - 230 - 277	115 - 230 - 277	35 - 72
	Frequency (Hz)	47- 63 Hz ± 6%	47- 63 Hz ± 6%	47- 63 Hz ± 6%	47- 63 Hz ± 6%
OUTPUT DATA	Output Vdc / IN	12 Vdc - 6A 24 Vdc - 5A (230 Vac) 24 Vdc - 4A (120 Vac)	12 Vdc - 15A 24 Vdc - 10A	12 Vdc - 3A	12 Vdc - 3A
	Efficiency (50% of IN)	>90%	>91%	>81%	>81%
	Over Load and Short-circuit protection	■	■	■	■
	Overheating Thermal Protection	■	■	■	■
	Reverse polarity protection	■	■	■	■
	Power Supply Function	■	■	-	-
	BATTERY CHARGER OUTPUT	Boost - Bulk charge (Typ. at IN)	14.4 Vdc (12 Vdc) 28.8 Vdc (24 Vdc)	14.4 Vdc (12 Vdc) 28.8 Vdc (24 Vdc)	14.4 Vdc
Max. Time Boost-Bulk charge (Typ. at IN)		15 hr	15 hr	15 hr	15 hr
Min. Time Boost-Bulk charge (Typ. at IN)		4 min.	1 min.	70 min.	70 min.
Trickle-Float charge (Typ. at IN)		13.75 Vdc (12 Vdc) 27.50 Vdc (24 Vdc)	13.8 Vdc (12 Vdc) 27.6 Vdc (24 Vdc)	13.75 Vdc	13.75 Vdc
Recovery Charge		3-8 Vdc (12 Vdc) 6-18 Vdc (24 Vdc)	2-10 Vdc (12 Vdc) 2-20 Vdc (24 Vdc)	2 - 7 Vdc	2 - 7 Vdc
Charging current Limiting IN (Iadj)		20 ÷ 100% / Ibatt	20 ÷ 100% / Ibatt	20 ÷ 100% / Ibatt	20 ÷ 100% / Ibatt
Boost Charge Enabling		■	■	-	-
Output Voltage Selection		12 / 24	12 / 24	-	-
Charging Curve		IUoUo, Automatic, 3 stage			
SIGNAL OUTPUT (RELAY)	Main or Backup Power	■	■	■	■
	Low Battery and Fault Battery	■	■	■	■
CONNECTION & MONITORING	Temp. Compensation Charging probe	-	■	-	-
	Adel Bus	CB12245AJ: J1939	■	-	-
CLIMATIC DATA	Ambient Temperature (operation)	-25 - +70 °C	-25 - +70 °C	-25 - +70 °C	-25 - +70 °C
	Derating T ^a > (In)	>50°C 2.5%	>50°C 2.5%	>50°C 2.5%	>50°C 2.5%
	Automatic Derating	■	■	-	-
	Ambient Temperature Storage	-40 - +85 °C	-40 - +85 °C	-40 - +85 °C	-40 - +85 °C
	Humidity at 25 °C, no condensation	95% at 25°C	95% at 25°C	95% at 25°C	95% to 25°C
GENERAL DATA	Insulation Voltage (IN / OUT)	3000 Vac	3000 Vac	3000 Vac	3000 Vac
	Insulation Voltage (IN / PE)	1605 Vac	1605 Vac	1605 Vac	1605 Vac
	Insulation Voltage (OUT / PE)	500 Vac	500 Vac	500 Vac	500 Vac
	Protection Class (EN / IEC 60529)	IP 20	IP 20	IP 20	IP 20
	Reliability: MTBF IEC 61709	> 300 000 hr	> 300 000 hr	> 300 000 hr	> 300 000 hr
	Environment Pollution Degree	2	2	2	2
	Terminal Blocks Connection Screw Type	2,5 mm	6 mm (30-10 AWG) 2,5 mm (24-14 SWG)	2,5 mm	2,5 mm
	Dimensions (w-h-d) mm	45x110x105	115x115x135x	45x110x105	45x110x105
	Safety Standard Approval	CE  US	CE	CE	CE
	OPTIONAL	ADELView Graphic	■	■	-
ADELView System		■	■	-	-
ADELBus		■	■	-	-

24 Vdc

110 - 230 - 277 Vac



CB6012A

CB1210A

CB1235A

CB243A

CB6024A

CB2410AC

CB2420A

12 Vdc - 3A - 36W

12 Vdc - 10 A - 120W

12 Vdc - 35 A - 420W

24 Vdc - 3A - 72W

24 Vdc - 3A - 72W

24 Vdc - 10A - 240W

24 Vdc - 20A - 500W

115 - 230 - 277

115 - 230 - 277

115 - 230 - 277

115 - 230 - 277

115 - 230 - 277

115 - 230 - 277

115 - 230 - 277

47- 63 Hz ± 6%

12 Vdc - 3A

12 Vdc - 10A

12 Vdc - 35A

24 Vdc - 3A

24 Vdc - 2A

24 Vdc - 10A

24 Vdc - 20A

>81%

>89%

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14.4 Vdc

14.4 Vdc

14.4 Vdc

28.8 Vdc

28.8 Vdc

28.8 Vdc

28.8 Vdc

15 hr

70 min.

1 min.

1 min.

1 min.

1 min.

1 min.

1 min.

13.75 Vdc

13.75 Vdc

13.75 Vdc

27.5 Vdc

27.5 Vdc

27.5 Vdc

27.5 Vdc

2 - 7 Vdc

2 - 9 Vdc

2 - 9 Vdc

2 - 16 Vdc

2 - 16 Vdc

2 - 18 Vdc

2 - 7 Vdc

20 ÷ 100% / Ibatt

20 ÷ 100% / Ibatt

10 ÷ 100% / Ibatt

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ModBus; CanJ1939

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ModBus; CanJ1939

-25-+70°C

-25 - +70 °C

>50°C 2.5%

>40°C 2.5%

>50°C 2.5%

>50°C 2.5%

>50°C 2.5%

>50°C 2.5%

>50°C 2.5%

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■ >40 °C

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-40-+85 °C

-40 - +85 °C

95% at 25°C

3000 Vac

1605 Vac

500 Vac

IP 20

> 300 000 hr

2

2

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2

2

2,5 mm

2,5 mm

4 mm

2,5 mm

2,5 mm

2,5 mm

4 mm

45x100x100

65x115x135

150x115x135

45x110x105

45x110x105

100x115x135

150x115x135

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Battery Care

30 Vdc

110 - 230 - 277 Vac



CB304A

36 Vdc - 3 A - 110W

36 Vdc

110 - 230 - 277 Vac

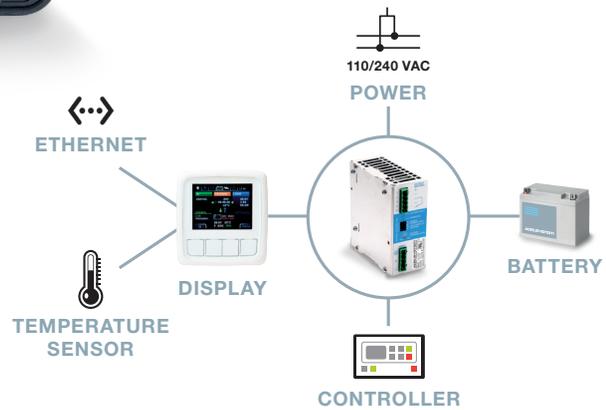


CB363A

36 Vdc - 3 A - 110W

	Model	CB304A	CB363A
	Output	36 Vdc - 3 A - 110W	36 Vdc - 3 A - 110W
INPUT DATA	Nominal Input Voltage	115 - 230 - 277	115 - 230 - 277
	Frequency	47- 63 Hz ± 6%	47- 63 Hz ± 6%
OUTPUT DATA	Output Vdc / IN	30 Vdc - 3A	36 Vdc - 3A
	Efficiency (50% of IN)	>81%	>81%
	Over Load and Short-circuit protection	■	■
	Overheating Thermal Protection	■	■
	Reverse polarity protection	■	■
	Power Supply Function	-	-
	BATTERY CHARGER OUTPUT	Boost - Bulk charge (Typ. at IN)	43.2 Vdc
Max. Time Boost-Bulk charge (Typ. at IN)		15 hr	15 hr
Min. Time Boost-Bulk charge (Typ. at IN)		1 min.	1 min.
Trickle-Float charge (Typ. at IN)		40.14 Vdc	33.45 Vdc
Recovery Charge		2 - 29 Vdc	2 - 29 Vdc
Charging current Limiting IN (Iadj)		20 ÷ 100% / Ibatt	20 ÷ 100% / Ibatt
Boost Charge Enabling		-	-
Output Voltage Selection		-	-
Charging Curve		-	-
SIGNAL OUTPUT (RELAY)	Main or Backup Power	■	■
	Low Battery and Fault Battery	■	■
CONNECTION & MONITORING	Temp. Compensation Charging probe	-	-
	Adel Bus	-	-
CLIMATIC DATA	Ambient Temperature (operation)	-25 - +70 °C	-25 - +70 °C
	Derating T ^a > (In)	>40°C 2.5%	>40°C 2.5%
	Automatic Derating	>40 °C	>40 °C
	Ambient Temperature Storage	-40 - +85 °C	-40 - +85 °C
	Humidity at 25 °C, no condensation	95% to 25°C	95% to 25°C
GENERAL DATA	Insulation Voltage (IN / OUT)	3000 Vac	3000 Vac
	Insulation Voltage (IN / PE)	1605 Vac	1605 Vac
	Insulation Voltage (OUT / PE)	500 Vac	500 Vac
	Protection Class (EN / IEC 60529)	IP 20	IP 20
	Reliability: MTBF IEC 61709	> 300 000 hr	> 300 000 hr
	Environment Pollution Degree	2	2
	Terminal Blocks Connection Screw Type	2,5 mm	2,5 mm
	Dimensions (w-h-d) mm	45x110x105	45x110x105
	Safety Standard Approval	CE	CE
OPTIONAL	ADELView Graphic	-	-
	ADELView System	-	-
	ADELBUS	-	-

Adel View Graphic



The DPY351 is a robust and versatile multifunction display that allows monitoring, configuring and managing the ADELSystem devices connected in an ADELBus network. It is equipped with a high-brightness and wide viewing-angle 3.5" TFT screen which guarantees an optimum visibility in any operating condition. The user interface is clear, intuitive and allows configuring and managing the connected devices in a quick and straightforward way. Moreover, using the on-board Ethernet interface it is possible to remotely manage the ADELBus network through Internet with a PC or a mobile device. At the same time, the DPY351 can act as a gateway that implements standard protocols such as Modbus TCP/IP and SNMP.

What does it do?

From ADELBus network (ADELSystem network) manages all the connected devices allowing:

Monitoring

- Event logging: number of battery charging cycles, charge cycles completed, aborted charge cycles, Ah charged, charging time, total number of transitions stand-by / back-up etc.
- Status of Charging Battery

Configuration

- Charging curve,
- Battery type,
- Limitation charging Current
- Enabling power supply function
- Timer...

Alarms and Recorder management

- Setting Alarm threshold
- Receive Message from other devices
- Event Record

Events program, i.e. programmed actions

- Coordinated action among devices
- Program Event to other device to change the type of charging curve
- Checking the load output, shutdown management Reset.

PRODUCT RANGE



DC UPS "ALL IN ONE"

DC UPS "All In One" DC Power Back Up units. Multi-function devices: power supply, battery charger and back-up module in the same casing together with Adel Battery Care software.



FLEX

DIN rail Switching Power Supplies. Very compact in size, 150% power boost, wide input voltage range 110 - 230 - 400 - 500 Vac. Selectable output protection mode.



D-FLEX

High efficiency Power Supply in Mini Size Dimension, for all kind of small power request in a flat control panel. For Domestic, Domestic and Industrial field.



CB

The Best generation of Battery Charger with 4 level of charge, Auto Diagnosis system inside. One product for all battery types.



POWER SUPPLY LOW INPUT VOLTAGE

Switching power supply for direct connection to secondary transformer. In 24 Vac. Out 12 - 24 - 48 Vdc Watt: 25 - 460.



DC/DC CONVERTER

Dc / Dc Converter, step Up and Step down. Input - Output isolated, low voltage. With or without DIN Rail.



INTERFACES

Wide range of passive interfaces units for Input and Output connections, for PLC and CNC machine.



BATTERY BANK

Power Storage Devices, for connection to DC Ups Products. Battery size: 1.2; 3; 7.2; 12 Ah, 24 Vdc.



AUXILIARY MODULE

Decoupling Modules for redundancy applications. Electronic Fuses for Over Load output control, up to 4 channel.



SFP SAFETY POWER

Power continuity solutions for alarm systems and fire alarms. Available as a fully enclosed device conforming with EN54.4 or as a component to be integrated in other instrumentation.



POWER VIEW GRAPHIC

Robust Display wide viewing-angle 3.5" TFT. ADELBus network. Gateway for Ethernet in Modbus TCP and SNMP.



ADEL VIEW SYSTEM

Suite for remote monitoring and management devices connected in an ADELBus network. Features: PC software; iOS and Android; Cloud platform; Advanced features for installation and demonstration purposes.

INNOVATION AND MULTIMEDIAILITY

ADELSystem continues to implement its offering of innovative and functional products as a company specializing in the electrical continuity for the DIN Rail field. The wide range of available products is now involved in the Interconnection field through the ADELBus protocol implemented in the main devices of our products range. Every new device devel-

oped comes with ADELBus inside. The Power Continuity products ADELSystem are enhanced by Multimedia devices like Display and Software Applications for the new way towards Industry 4.0. These, are innovative solutions has been developed by the ADELSystem R&D team for the expert electrical designer and the user who need to change their point of

view in the search of innovation. ADELBus, the ADELViewsystem and the ADELViewgraphic are the connecting elements to DC Ups, Power Supply and Battery Charger for catching all of the parameters inside the device. All of this, to involve you into a new evolution of Actions both for today and next-future life.