

Altech Corp.®

Serving the Automation & Control Industry since 1984



ISO 9001
QMI-SAI Global



DC-UPS Ultra-Capacitor Back-up Systems

Altech Corp.®

Since 1984, Altech Corporation has grown to become a leading supplier of automation and industrial control components. Headquartered in Flemington, NJ, Altech has an experienced staff of engineering, manufacturing and sales personnel to provide the highest quality products with superior service. This is the Altech Commitment!

With experienced Product Engineers and Customer Service personnel, Altech provides solutions to your most pressing application challenges. All with one thought in mind - *to ensure that we solve your problem the first time!*



Altech's Commitment

Altech's Automation and Control components meet applicable national and international standards, such as UL, NEC, CSA, IEC and VDE. Altech provides these products with superior customer service and delivery through a ISO 9001 Quality Management system, which stresses continuous process improvement. We perform these services with honesty and integrity. All Altech employees are trained in this Quality Management System and are dedicated to achieve these goals. Altech's quality system has been ISO approved since 1999.



INTRODUCTION

Altech Corp.® has partnered with J.Scheider Elektrotechnik to bring you their state of the art DC-UPS back up systems. Working in conjunction with a complimentary power supply, ultra capacitor modules and battery back up modules reliably supply energy in peak power demand conditions as well as power outage scenarios. DC-UPS from Altech Corp.® help to ensure the safe and continued operation of critical and necessary functions and help to minimize operational loss in the event of a power failure. In line with Altech’s commitment to its customers, J. Schneider creates quality products whose service life and function is thoroughly superior to that of its counterparts in the DC-UPS field.



SOME OF THE MANY APPLICATIONS:

- Data Centers
- Industrial PC
- Textile Machinery
- Assembly Production
- Electronic Automation
- Molding Machines
- Automotive Industry
- Packaging
- Feeding Systems
- Steel Production
- Wind Turbines
- Disability Assistance
- Tunneling Machines
- Telecommunications and Control
- Ship Building
- Safety Engineering
- Building Technology
- Automation
- Rail Vehicles
- Water Supply
- Machinery Construction
- Power Supply
- Stations Control Technology
- Switchgear Production
- Photovoltaik

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C-TEC / AC-C-TEC / CTEC-P / CEM



Ultra Capacitor based technologies provide an attractive yet efficient platform for both simple and complex applications.

DC-UPS systems are an absolute must in a world of uncertainties. DC-UPS helps to prolong the operation of machinery and controlled processes in the event of power outages or in case of power dips and sags.

Altech Corporation offers a wide variety of products for DC-UPS systems starting at 2 A and up to 40 A along with monitoring / setup software, and comprehensive support



KEY FEATURES

- Works primarily in an online parallel configuration
- Controlled shut down functions
- Up to 40 A low discharge protection through load rejection
- Ultra Capacitors have 15 years of life
- Quick back up recharges due to the nature of Ultra Capacitors
- DIN rail mount

The DC Back-Ups from Altech Corp.® utilize Ultra Capacitors as an innovative way to store energy within a compact design. In the event of a main power supply interruption, the energy stored in the Ultra Capacitors is released. The load is energized from the buffer module, until it's depleted.

Back up times depend on the state of the charge of the Ultra Capacitors and the load in which they are supplying. Compared with standard buffer modules, Ultra Capacitor units are capable of prolonged back-up times (up to 55 minutes) and fast discharges.

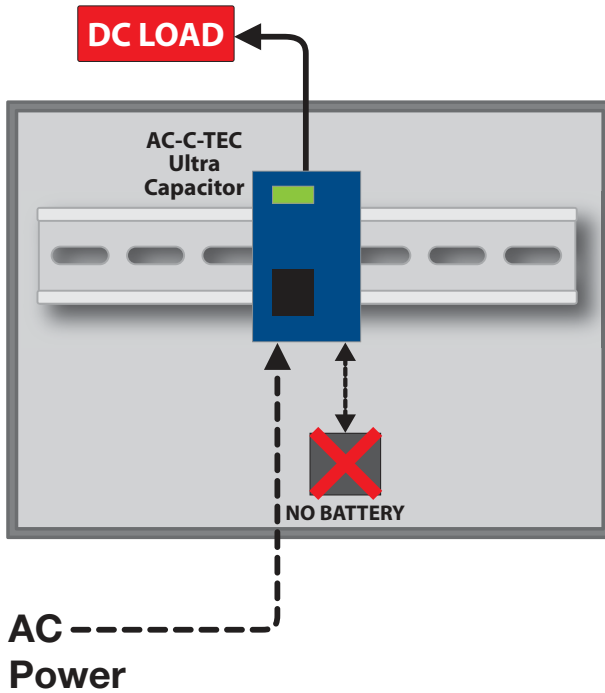
Capacitors excel at controlled shutdown functions and allowing for the protection of computer systems. Back-up times are dependent on the load and amount of Capacitors within the unit. Back up times can be calculated to better serve the requirements of required functions.



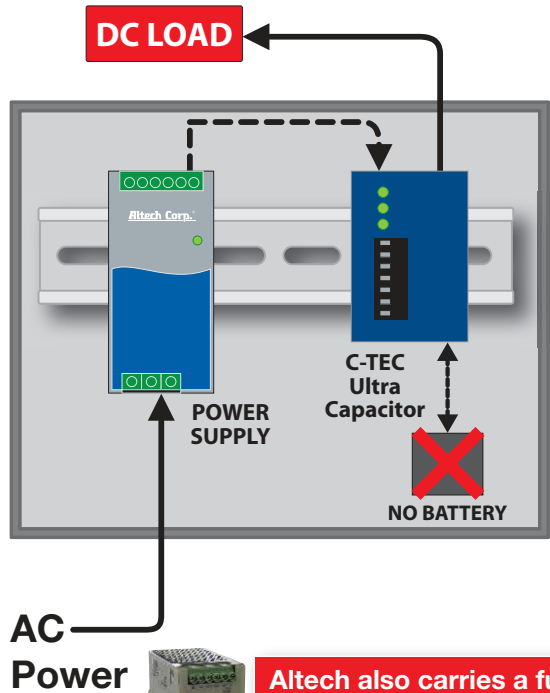
DC Power Solutions

12, 24 and 48V DC

DC BACK UP with AC Input
(Power Supply built in)



DC BACK UP with DC Input
(Power Supply required)



Altech also carries a full line of DIN Rail Power Supplies and Accessories. See Preview on pages 60-61.

BACK UP TIME CALCULATION

Back up time = energy/ (voltage x current)

A table of back up times has been added for your convenience (pg. 32)

BENEFITS OF CAPACITOR TECHNOLOGIES

- Environmentally safe
- Free of toxic chemicals
- Virtually maintenance free
- Wide operating temperatures
- Long operational life (15 years or longer!)
- Compact and convection cooled
- Seamless switch overs
- No need to replace or maintain batteries
- Cost effective over time
- Resists shock and vibrations
- Quick buffer times



Through the innovative use of Ultra-Capacitors, CTEC presents itself as an attractive backup option for a variety of applications. In the event of a power interruption, the energy of the enclosed Ultra-Capacitors is released and power is supplied for a determined amount of time. Capacitor based technology comes in variety of configurations all of which serve a broad spectrum of functions.

CTEC

Capacitor driven back up UPS.



	Part No.	Model No.	Input Voltage	Output Voltage	Output Current	Energy Content
12V DC	C-TEC1203-1	NCPA0727G10002	12 V DC	12 V DC	3 A	1 KJ
	C-TEC1205-5 ¹	NCPA0608G01001	12 V DC	12 V DC	5 A	5 KJ
	C-TEC1208-20 ²	NCPA0607G01001	12 V DC	12 V DC	8 A	20 KJ
	C-TEC1210-1 ³	NCPA0609G01002	12 V DC	12 V DC	10 A	1 KJ
	C-TEC1210-10 ⁴	NCPA0606G01001	12 V DC	12 V DC	10 A	10 KJ
24V DC	C-TEC2403-05	NCPA0727G01001	24 V DC	24 V DC	3 A	0.5 KJ
	C-TEC2403-1	NCPA0727G01002	24 V DC	24 V DC	3 A	1 KJ
	C-TEC2405-5 ¹	NCPA0608G01001	24 V DC	24 V DC	5 A	5 KJ
	C-TEC2408-20 ²	NCPA0607G01001	24 V DC	24 V DC	8 A	20 KJ
	C-TEC2410-1 ³	NCPA0609G01002	24 V DC	24 V DC	10 A	1 KJ
	C-TEC2410-10 ⁴	NCPA0606G01001	24 V DC	24 V DC	10 A	10 KJ
	C-TEC2420-8	NCPA0747G01003	24 V DC	24 V DC	20 A	8 KJ

Used in conjunction with a separate power supply (reference the Altech power supply catalog).
Part numbers with note 1, 2, 3, or 4 each use the same module consecutively.

C-TEC P

Unlike its C-TEC counterpart, C-TEC P's are capable producing an output spike for applications requiring a temporary surge of power.



	Part No.	Model No.	Input Voltage	Output Voltage	Output Current	Energy Content
12V DC	C-TEC1225 P	NCPA1301G30001	12 V DC	12 V DC	25 A	0.5 KJ
24V DC	C-TEC2425 P	NCPA1301G10001	24 V DC	24 V DC	25 A	1.2 KJ
	C-TEC2440 P	NCPA1034G01001	24 V DC	24 V DC	40 A	4 KJ
48V DC	C-TEC4815 P	NCPA1301G20001	48 V DC	48 V DC	15 A	1 KJ

Used in conjunction with a separate power supply (reference the Altech power supply catalog).

AC-C-TEC, AC-C-TE

AC-C-TEC modules improve on C-TEC design by incorporating a built in power supply (AC input) for maximum convenience and ease.



	Part No.	Model No.	Input Voltage	Output Voltage	Output Current	Energy Content
12V DC	AC-C-TEC1203-1	NCPA0724G10002	115-230 V AC	12 V DC	3 A	1 KJ
	AC-C-TEC2403-05	NCPA0724G01001	115-230 V AC	24 V DC	3 A	0.5 KJ
24V DC	AC-C-TEC2403-1	NCPA0724G01017	115-230 V AC	24 V DC	3 A	1 KJ
	AC-C-TEC2403-1-400	NCPA0724G01020	3 X 400 V AC	24 V DC	3 A	1 KJ
	AC-C-TEC2410-10	NCPA1430G01001	100-240 V AC	24 V DC	10 A	10 KJ
	AC-C-TEC2420-8	NCPA0746G01003	3 X 400 V AC	24 V DC	20 A	8 KJ

CEM (Capacitor Extension Module)

Designed to give existing capacitor modules extended buffer times allowing for applications with increased power demands.



	Part No.	Model No.	Input Voltage	Output Voltage	Output Current	Energy Content
24V DC	CEM-1	NCBA0739G01001	24 V DC	0 V...26.4 V DC	3 A	1
	CEM-2	NCBA0739G01002	24 V DC	0 V...26.4 V DC	3 A	2 KJ
	CEM-8	NCBA0748G10003	24 V DC	0 V...26.4 V DC	20 A	8 KJ
	CEM-16	NCBA0748G10001	24 V DC	0 V...26.4 V DC	20 A	16 KJ
12V DC	CEM-12-1	NCBA0739G10003	12 V DC	0 V...13.2 V DC	3 A	0.6 KJ
	CEM-12-2	NCBA0739G1004	12 V DC	0 V...13.2 V DC	3 A	1.23 KJ

Unusable by itself, designed to increase back up times of capacitor modules.

DC UPS APPLICATIONS



Textile Machinery



Industrial PC



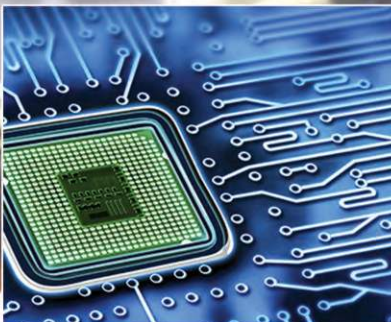
Data Centers



Molding Machinery



Automotive Industry



Electronic Automation



Feeding Systems



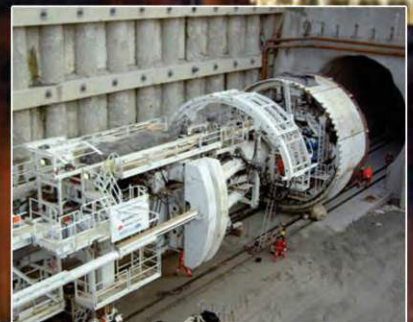
Packaging



Steel Production



Wind Turbines



Tunneling Machines



- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Microcontroller based charging and discharging of the Ultra Capacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Pending



Part No.	C-TEC1203-1
Model Number	NCPA0727G10002

INPUT

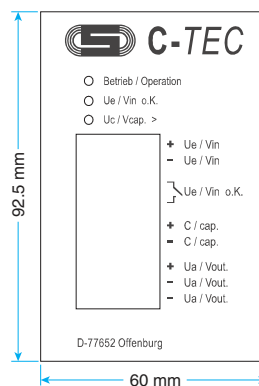
NOMINAL INPUT VOLTAGE	12 V DC -15% + 25%
NOMINAL FREQUENCY	47-63 Hz
MAX NOMINAL INPUT CURRENT	3.1 A

OUTPUT

NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	12.3 V DC +2 % -4 %
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	11.5 V DC ± 2 %
NOMINAL OUTPUT CURRENT	2 A DC (with nominal capacity); 3 A DC (with reduced capacity)
EFFICIENCY	88%

GENERAL DATA

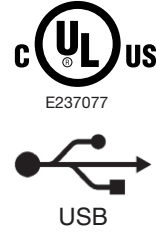
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	1 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.56in.)
WEIGHT	.4 Kg. (0.88lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	Pending



Mounting depth:
116mm



- 12V DC and 24V DC outputs in one module
- Maintenance-free due to durable ultra capacitors
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- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- UL Listed
- USB Interface



Part No.	C-TEC1210-1	C-TEC2410-1
Model Number	NCPA0609G01002	NCPA0609G01002

INPUT

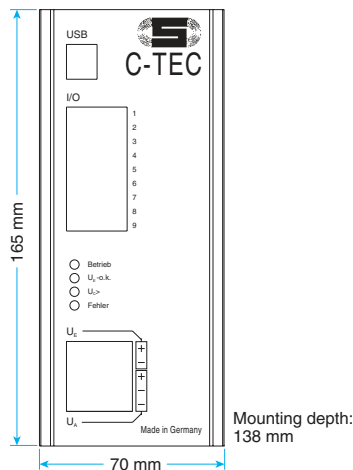
NOMINAL INPUT VOLTAGE	12 V DC ± 12.5%	24 V DC ± 12.5 %
NOMINAL FREQUENCY	—	—
MAX NOMINAL INPUT CURRENT	10 A	10 A

OUTPUT

NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	12 V	24 V
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	11.7 V ± 4%	22.6 V ± 2%
NOMINAL OUTPUT CURRENT	10 A DC	10 A DC
EFFICIENCY	>90%	>90%

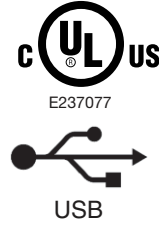
GENERAL DATA

BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	1 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	165 mm x 70 mm x 138 mm (6.49in. x 2.75in. x 5.43in.)
WEIGHT	1.2 Kg. (2.65lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	UL 508; C22.2 No. 107.1-01





- 12V DC and 24V DC outputs in one module
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- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed
- USB Interface



Part No.	C-TEC1210-10	C-TEC2410-10
Model Number	NCPA0606G01001	NCPA0606G01001

INPUT

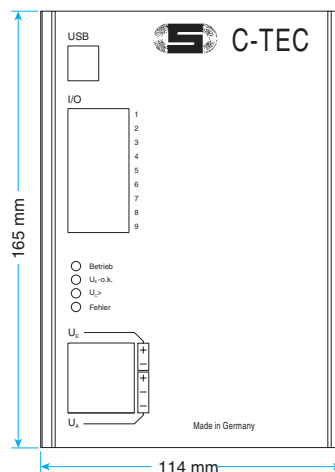
NOMINAL INPUT VOLTAGE	12 V DC \pm 12.5%	24 V DC \pm 12.5 %
MIN. NOMINAL INPUT VOLTAGE FOR LOADING OPERATION	–	–
MAX NOMINAL INPUT CURRENT	10 A DC	10 A

OUTPUT

NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	12 V	24 V
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	11.7 V \pm 4%	23.5 V \pm 2%
NOMINAL OUTPUT CURRENT	10 A DC	10 A DC
EFFICIENCY	>90%	>90%

GENERAL DATA

BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	10 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	165 mm x 114 mm x 145 mm (6.5in. x 4.49in. x 5.7in.)
WEIGHT	2.7 Kg. (5.95lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	UL 508; C22.2 No. 107.1-01.



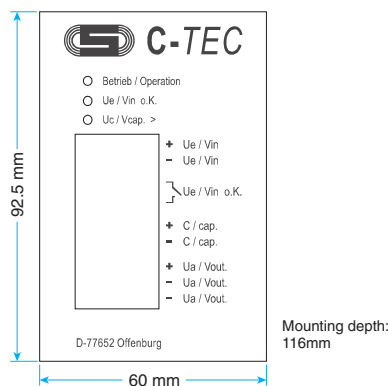
Mounting depth:
145 mm



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- Short overload possible
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- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed



Part No.	C-TEC2403-05
Model Number	C-TEC2403-05
INPUT	NCPA0727G01001
NOMINAL INPUT VOLTAGE	24 V DC ± 12.5%
MIN. NOMINAL INPUT VOLTAGE FOR LOADING OPERATION	23.4 V DC
MAX NOMINAL INPUT CURRENT	3 A
OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24 V
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	23.5 V DC 2 %
NOMINAL OUTPUT CURRENT	3 A DC
EFFICIENCY	>90%
GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	.5 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	92.5 x 60 x 116 mm (3.64in. x 2.36in. x 4.57in.)
WEIGHT	.5 Kg. (1.1lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	UL 508; C22.2 No. 107.1-01.





- Maintenance-free due to durable ultra capacitors
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- Short overload possible
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- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed

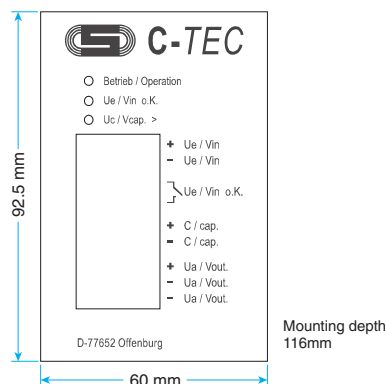


Part No.	C-TEC2403-1
Model Number	NCPA0727G01002

INPUT	
NOMINAL INPUT VOLTAGE	24 V DC \pm 12.5%
MIN. NOMINAL INPUT VOLTAGE FOR LOADING OPERATION	23.5 V
MAX NOMINAL INPUT CURRENT	3 A

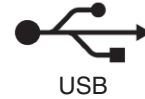
OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24 V
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	23 V DC \pm 2%
NOMINAL OUTPUT CURRENT	3 A DC
EFFICIENCY	>90%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	1 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	95 mm x 60 mm x 116mm (3.74in. x 2.36in. x 4.57in.)
WEIGHT	.58 Kg. (1.28lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178, EN 60950
UL LISTING	UL 508; C22.2 No. 107.1-01





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- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed
- USB Interface

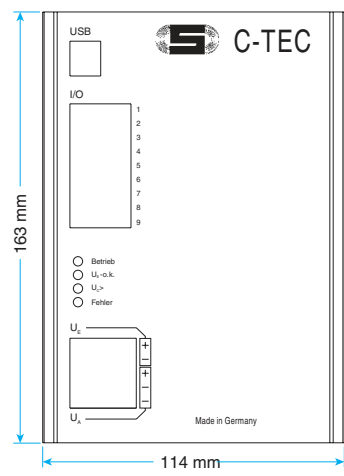


Part No.	C-TEC1205-5	C-TEC2405-5
Model Number	NCPA0608G01001	NCPA0608G01001

INPUT		
NOMINAL INPUT VOLTAGE	12 V DC \pm 12.5%	24 V DC \pm 12.5 %
MIN. NOMINAL INPUT VOLTAGE FOR LOADING OPERATION	–	–
MAX NOMINAL INPUT CURRENT	5 A	5 A

OUTPUT		
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	12 V	24 V
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	11.7 V \pm 4%	23.5 V \pm 2%
NOMINAL OUTPUT CURRENT	5 A DC	5 A DC
EFFICIENCY	>90%	>90%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	5 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	163 mm x 114 mm x 145mm (6.4in. x 4.48in. x 5.7in.)
WEIGHT	1.7 Kg (3.74lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	UL 508; C22.2 No. 107.1-01.



Mounting depth: 145 mm



- 12V DC and 24V DC outputs in one module
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- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
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- USB Interface



Part No.	C-TEC1208-20	C-TEC2408-20
Model Number	NCPA0607G01001	NCPA0607G01001

INPUT

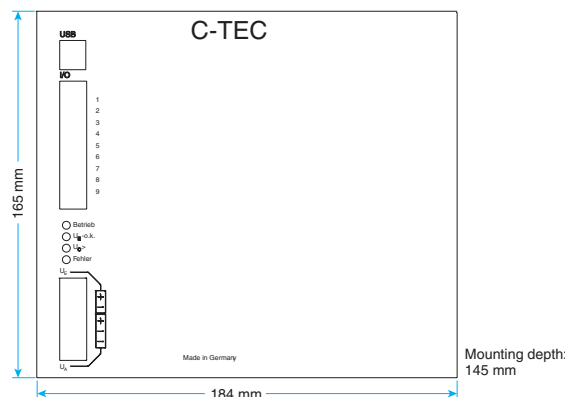
NOMINAL INPUT VOLTAGE	24 V DC \pm 12.5 %	24 V DC \pm 12.5 %
MAX NOMINAL INPUT CURRENT	8 A	8 A

OUTPUT

NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	12 V	24 V
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	11.7 V \pm 4%	23.5 V \pm 2%
NOMINAL OUTPUT CURRENT	8 A DC	8 A DC
EFFICIENCY	>90%	>90%

GENERAL DATA

BUFFER TIME	DEPENDENT ON THE LOAD	
ENERGY CONTENT	20 KJ	
DEGREE OF PROTECTION	IP20	
OPERATING TEMP.	-40 to 60 °C	
STORAGE TEMP.	-40 to 60 °C	
RELATIVE HUMIDITY	95 % non-condensing	
MAX ALTITUDE (without derating)	2000 m. above sea-level	
DIMENSIONS	165 mm x 184 mm x 145 mm (6.5in. x 7.24in. x 5.7in)	
WEIGHT	3.4 Kg. (7.49lbs.)	
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)	
NORMS AND REGULATIONS	EN 50178; EN 60950	
UL LISTING	UL 508; C22.2 No. 107.1-01	





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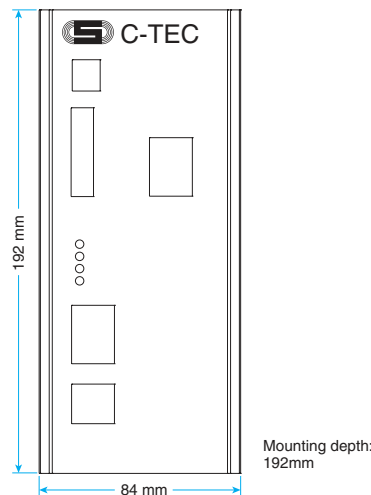


Part No.	C-TEC2420-8
Model Number	NCPA0747G01003

INPUT	
NOMINAL INPUT VOLTAGE	24 V DC - 2.5 % + 20%
MAX NOMINAL INPUT CURRENT	20 A

OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24 V - 0.5%
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	23.2 V DC
NOMINAL OUTPUT CURRENT	20 A DC
EFFICIENCY	>90%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	8 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	192 mm x 84 mm x 192 mm (7.55in. x3.3in. x 7.55in.)
WEIGHT	2.2 Kg. (4.85lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	UL 508; C22.2 No. 107.1-01





- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Microcontroller based charging and discharging of the Ultra Capacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time

Part No. C-TEC1225 P
Model Number NCPA1301G30001

INPUT

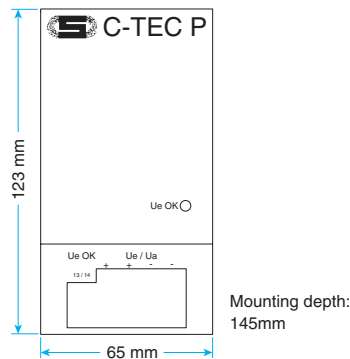
NOMINAL INPUT VOLTAGE	12 V DC $\pm 10\%$
MIN NOMINAL INPUT VOLTAGE FOR CHARGING MODE	11.3 V DC
MAX NOMINAL INPUT CURRENT	28.5 A DC
MAX CHARGING CURRENT	3.5 A DC

OUTPUT

NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	12 V DC $\pm 10\%$
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	12 V-10 V DC $\pm 2\%$
NOMINAL OUTPUT CURRENT	25 A DC
EFFICIENCY	>90%

GENERAL DATA

BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	.5 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	123 mm x 65 mm x 145 mm (4.84in. x 2.55in. x 5.7in.)
WEIGHT	.7Kg. (1.54lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	NA





- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Microcontroller based charging and discharging of the Ultra Capacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed

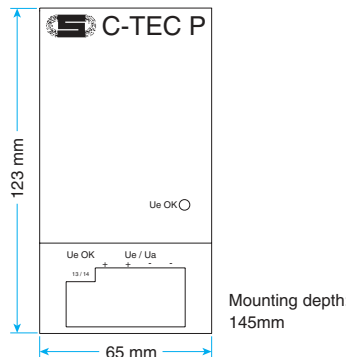


Part No.	C-TEC2425 P
Model Number	NCPA1301G10001

INPUT	
NOMINAL INPUT VOLTAGE	24 V DC $\pm 10\%$
MIN NOMINAL INPUT VOLTAGE FOR CHARGING MODE	22 V DC
MAX NOMINAL INPUT CURRENT	28 A DC
MAX CHARGING CURRENT	3 A DC

OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24 V DC $\pm 10\%$
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	24.5 V-19 V DC $\pm 2\%$
NOMINAL OUTPUT CURRENT	25 A DC
EFFICIENCY	>90%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	1.2 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	123 mm x 65 mm x 145 mm (4.84in. x 2.55in. x 5.7in.)
WEIGHT	.8Kg. (1.76lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950; EN 61000-6-4 EN 61000-6-2; EN 60068-2-6; EN 600068-2-27
UL LISTING	UL 508; C22.2 No. 107.1-01





- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Microcontroller based charging and discharging of the Ultra Capacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed

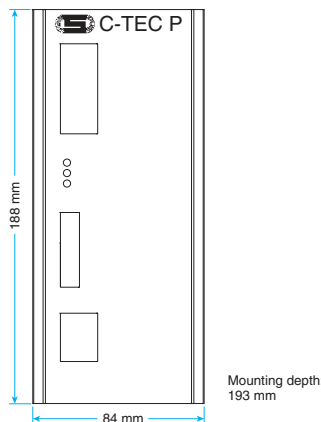


Part No.	C-TEC2440 P
Model Number	NCPA1034G01001

INPUT	
NOMINAL INPUT VOLTAGE	24 V DC \pm 10 %
MIN NOMINAL INPUT VOLTAGE FOR CHARGING MODE	23 V DC
MAX NOMINAL INPUT CURRENT	40 A DC
MAX CHARGING CURRENT	6.8 A DC

OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24 V DC \pm 10 %
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	19-25.5 V DC
NOMINAL OUTPUT CURRENT	40 A DC
EFFICIENCY	>90%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	4KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	188 mm x 84 mm x 194mm (7.4in. x 3.3in. x 7.64in.)
WEIGHT	2Kg. (4.4lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	UL 508; C22.2 No. 107.1-01.





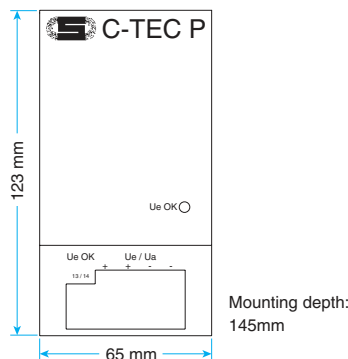
- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Microcontroller based charging and discharging of the Ultra Capacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time

Part No.	C-TEC4815 P
Model Number	NCPA1301G20001

INPUT	
NOMINAL INPUT VOLTAGE	48 V DC $\pm 10\%$
MIN NOMINAL INPUT VOLTAGE FOR CHARGING MODE	44 V DC
MAX NOMINAL INPUT CURRENT	18 A DC
MAX CHARGING CURRENT	3 A DC

OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	48 V DC $\pm 10\%$
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	49 V-38 V DC $\pm 2\%$
NOMINAL OUTPUT CURRENT	15 A DC
EFFICIENCY	>90%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	1.2 KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	123 mm x 65 mm x 145 mm (4.84in. x 2.55in. x 5.7in.)
WEIGHT	.8Kg. (1.76lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950; EN 61000-6-4; EN 61000-6-2; EN 60068-2-6; EN 600068-2-27
UL LISTING	N/A





- Integrated power supply
- Maintenance-free due to durable ultra capacitors
- Long operational lifetime
- Reduced wiring time due to integrated energy storage and power supply
- Microcontroller based charging and discharging of the ultracapacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Pending

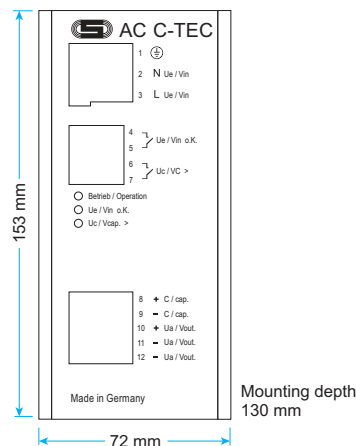


Part No.	AC-C-TEC1203-1
Model Number	NCPA0724G10002

INPUT	
NOMINAL INPUT VOLTAGE	115-230 V AC \pm 15%
NOMINAL FREQUENCY	47-63 Hz
MAX NOMINAL INPUT CURRENT	0.84 A - 115 V AC; 0.42 A - 230 V AC

OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	12.3 V DC \pm 2 % - 4 %
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	11.5 V DC \pm 2 % - 4 %
NOMINAL OUTPUT CURRENT	2 A DC (with nominal capacity); 3 A DC (with reduced capacity)
EFFICIENCY	88%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	1KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	152.5 mm x 72 mm x 130mm (6in. x 2.83in. x 5.11in.)
WEIGHT	.85 Kg (1.87lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	Pending





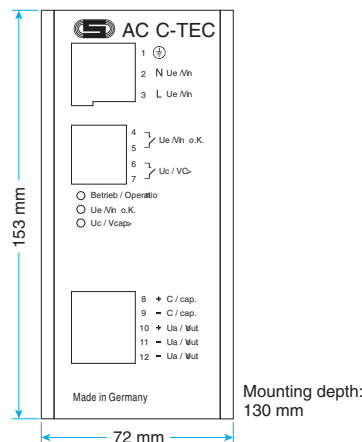
- Integrated power supply
- Maintenance-free due to durable ultra capacitors
- Long operational lifetime
- Reduced wiring time due to integrated energy storage and power supply
- Microcontroller based charging and discharging of the ultracapacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Pending



Part No.	AC-C-TEC2403-05
Model Number	NCPA0724G01001

INPUT	
NOMINAL INPUT VOLTAGE	115-230 V AC \pm 15%
NOMINAL FREQUENCY	47-63 Hz
MAX NOMINAL INPUT CURRENT	0.84 A - 115 V AC; 0.42 A - 230 V AC
OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24.3 V DC \pm 2 %
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	23.5 V DC \pm 2 %
NOMINAL OUTPUT CURRENT	2 A DC (with nominal capacity); 3 A DC (with reduced capacity)
EFFICIENCY	88%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	.5KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	152.5 mm x 72 mm x 130mm (6in. x 2.83in. x 5.11in.)
WEIGHT	.85 Kg (1.87lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	Pending

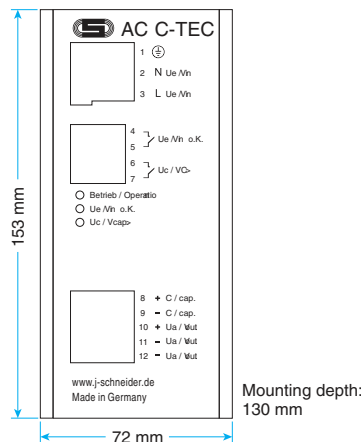




- Integrated power supply
- Maintenance-free due to durable ultra capacitors
- Long operational lifetime
- Reduced wiring time due to integrated energy storage and power supply
- Microcontroller based charging and discharging of the ultracapacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Pending



Part No.	AC-C-TEC2403-1
Model Number	NCPA0724G01017
INPUT	
NOMINAL INPUT VOLTAGE	115-230 V AC \pm 15%
NOMINAL FREQUENCY	47-63 Hz
MAX NOMINAL INPUT CURRENT	0.84 A - 115 V AC; 0.42 A - 230 V AC
OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24.3 V DC \pm 2 %
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	23.5 V DC \pm 2 %
NOMINAL OUTPUT CURRENT	2 A DC (with nominal capacity); 3 A DC (with reduced capacity)
EFFICIENCY	88%
GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	1KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	152.5 mm x 72 mm x 130mm (6in. x 2.83in. x 5.11in.)
WEIGHT	.85 Kg (1.87lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178, EN 60950
UL LISTING	UL Pending





- Integrated power supply
- Maintenance-free due to durable ultra capacitors
- Long operational lifetime
- Reduced wiring time due to integrated energy storage and power supply
- Microcontroller based charging and discharging of the ultracapacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Pending

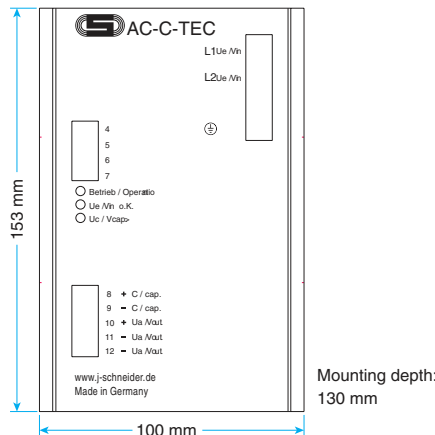


Part No.	AC-C-TEC2403-1-400
Model Number	NCPA0724G01020

INPUT	
NOMINAL INPUT VOLTAGE	400 V ± 15 %
NOMINAL FREQUENCY	
MAX NOMINAL INPUT CURRENT	0.84 A – 115 V AC; 0.42 A – 230 V AC

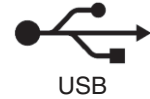
OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24.3 V DC ±2 %
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	23.5 V DC ±2 %
NOMINAL OUTPUT CURRENT	2 A DC (with nominal capacity); 3 A DC (with reduced capacity)
EFFICIENCY	88%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON THE LOAD
ENERGY CONTENT	1KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	152.5 mm x 100 mm x 130 mm (6in. x 2.83in. x 5.11in.)
WEIGHT	1.2 Kg (2.64lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950
UL LISTING	UL Pending

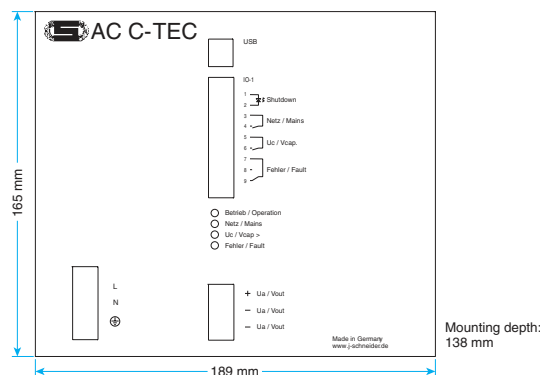




- Integrated power supply
- Maintenance-free due to durable ultra capacitors
- Long operational lifetime
- Reduced wiring time due to integrated energy storage and power supply
- Microcontroller based charging and discharging of the ultra-capacitors
- Control of operation and status of charge with potential-free contacts and LED
- Wide temperature range
- Seamless switch over
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- USB interface

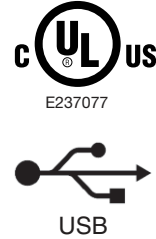


Part No.	AC-C-TEC2410-10
Model Number	NCPA1430G01001
INPUT	
NOMINAL INPUT VOLTAGE	85 V - 265 V AC; 90 V - 250 V DC
NOMINAL FREQUENCY	50 Hz - 60 Hz ± 6 %
MAX INRUSH CURRENT	1.76 A; 1.11 A @ 230 V AC; 2.35 @ 110 V AC
MAX NOMINAL INPUT CURRENT	1.11 A @ 230 V AC; 2.35 A @ 110 V AC
OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24.1 V DC ± 2 %
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	23.5 V DC ± 5 %
NOMINAL OUTPUT CURRENT	10 A DC
CURRENT LIMITATION	10.3 A DC ± 0.1 A; switch off after 1.5 sec.
EFFICIENCY	>90%
GENERAL DATA	
ENERGY CONTENT	10KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-25 to 60 °C
RELATIVE HUMIDITY	95 % non condensating
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	163 mm x 189 mm x 138mm (6.41in. x 7.44in x 5.43in.)
WEIGHT	3 Kg (6.61lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178
UL LISTING	N/A





- Integrated power supply
- Maintenance-free due to durable ultra capacitors
- Long operational lifetime
- reduced wiring time due to integrated energy storage and power supply
- Microcontroller based charging and discharging of the ultracapacitors
- Input voltage-signal via potential-free contact and LED
- Short overload possible
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL listed
- USB interface

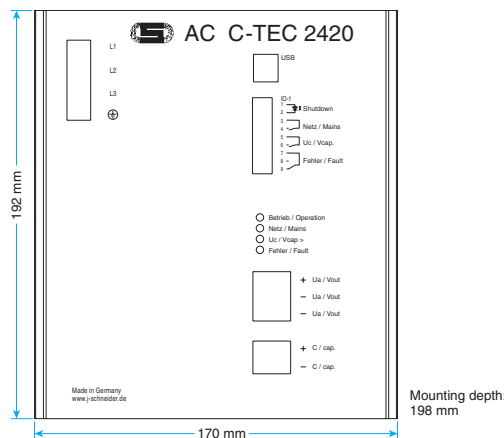


Part No.	AC-C-TEC2420-8
Model Number	NCPA0746G01003

INPUT	
NOMINAL INPUT VOLTAGE	3 x 340 – 550 V AC ± 15 %
NOMINAL FREQUENCY	45-66 Hz
MAX INRUSH CURRENT	32 A for 10.5 ms
MAX NOMINAL INPUT CURRENT	0.95 A – (Ue 400 V AC)

OUTPUT	
NOMINAL OUTPUT VOLTAGE IN MAINS OPERATION	24.8 V DC ± .5V
NOMINAL OUTPUT VOLTAGE IN BUFFER OPERATION	23.2 V DC
NOMINAL OUTPUT CURRENT	20 A DC
CURRENT LIMITATION	
EFFICIENCY	90%

GENERAL DATA	
ENERGY CONTENT	8KJ
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-40 to 60 °C
STORAGE TEMP.	-25 to 70 °C
RELATIVE HUMIDITY	95 % non condensating
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	192.5 mm x 170 mm x 198 mm (7.58in. x 6.64in. x 7.8in.)
WEIGHT	3.5 Kg (7.71lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178
UL LISTING	UL 508 C22.2 No. 107.1-01

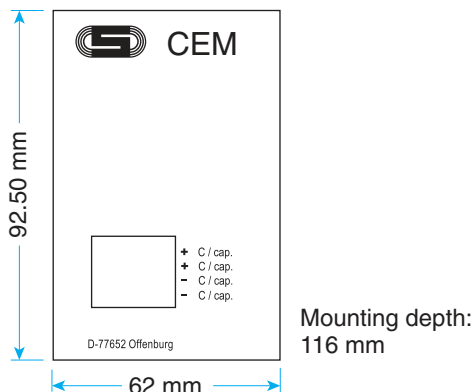




- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed



Part No.	CEM-1
Model Number	NCBA0739G01001
INPUT	
NOMINAL INPUT VOLTAGE	24 V DC
VOLTAGE RANGE	0-26.4 V DC
GENERAL DATA	
ENERGY CONTENT	1 KJ
BUFFER TIME	DEPENDENT ON THE LOAD
DEGREE OF PROTECTION	IP20; 3 AT; (PTC internal)
OPERATING TEMP.	- 40 to 60 °C
STORAGE TEMP.	- 40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.56in.)
WEIGHT	.85 Kg. (1.87lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
UL LISTING	UL 508; C22.2 No. 107.1-01

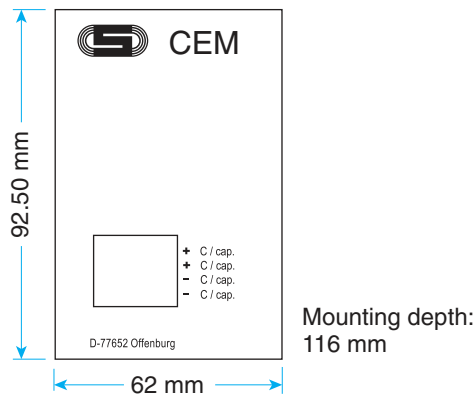




- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed



Part No.	CEM-2
Model Number	NCBA0739G01002
INPUT	
NOMINAL INPUT VOLTAGE	24 V DC
VOLTAGE RANGE	0-26.4 V DC
GENERAL DATA	
ENERGY CONTENT	2 KJ
BUFFER TIME	DEPENDENT ON THE LOAD
DEGREE OF PROTECTION	IP20; 3 AT; (PTC internal)
OPERATING TEMP.	- 40 to 60 °C
STORAGE TEMP.	- 40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.56in.)
WEIGHT	1 Kg. (2.2lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
UL LISTING	UL 508; C22.2 No. 107.1-01

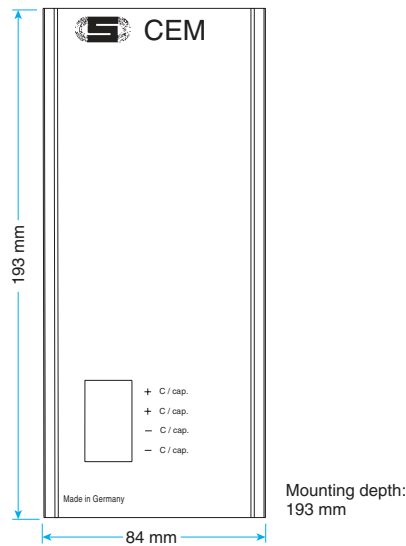




- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed



Part No.	CEM-8
Model Number	NCBA0748G10003
INPUT	
NOMINAL INPUT VOLTAGE	24 V DC
VOLTAGE RANGE	0-26.4 V DC
GENERAL DATA	
ENERGY CONTENT	8 KJ
BUFFER TIME	DEPENDENT ON THE LOAD
DEGREE OF PROTECTION	IP20; internal
OPERATING TEMP.	- 40 to 60 °C
STORAGE TEMP.	- 40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	193 mm x 82 mm x 193 mm (7.59in. x 3.22in. x 7.59in.)
WEIGHT	2.1 Kg. (4.62lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
UL LISTING	UL 508; C22.2 No. 107.1-01.





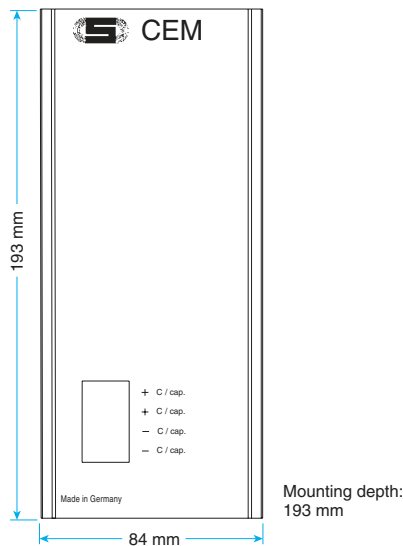
- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed



Part No.	CEM-16
Model Number	NCBA0748G10001

INPUT	
NOMINAL INPUT VOLTAGE	24 V DC
VOLTAGE RANGE	0-26.4 V DC

GENERAL DATA	
ENERGY CONTENT	16 KJ
BUFFER TIME	DEPENDENT ON THE LOAD
DEGREE OF PROTECTION	IP20; internal
OPERATING TEMP.	- 40 to 60 °C
STORAGE TEMP.	- 40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	193 mm x 84 mm x 193 mm (7.59in. x 3.30in. x 7.59in.)
WEIGHT	2.1 Kg. (4.62lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
UL LISTING	UL 508; C22.2 No. 107.1-01.

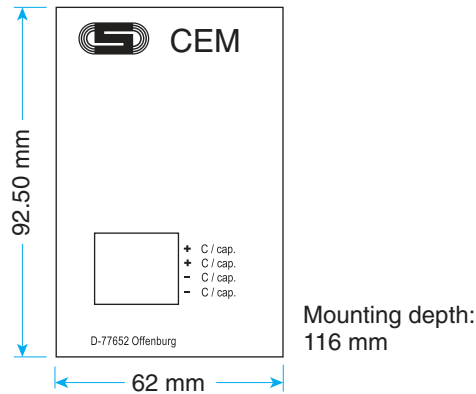




- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed



Part No.	CEM-12-1
Model Number	NCBA0739G10003
INPUT	
NOMINAL INPUT VOLTAGE	12 V DC
VOLTAGE RANGE	0-13.2 VDC
GENERAL DATA	
ENERGY CONTENT	.6 KJ
BUFFER TIME	DEPENDENT ON THE LOAD
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	- 40 to 60 °C
STORAGE TEMP.	- 40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.53in.)
WEIGHT	.7 Kg. (1.54lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
UL LISTING	UL 508; C22.2 No. 107.1-01

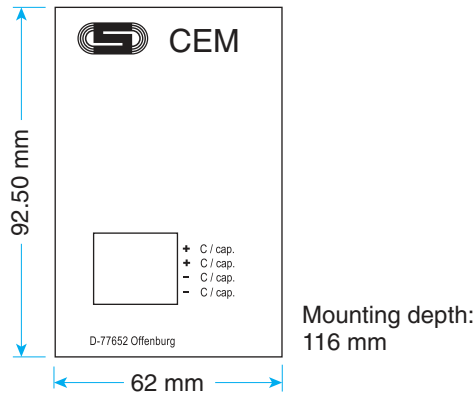




- Maintenance-free due to durable ultra capacitors
- Reduces wiring time due to integrated energy storage
- Vibration secured wiring via spring loaded plugs
- Wide working temperature range
- Seamless switch over
- Long operational life
- Compact and convection cooled
- Environmentally safe and free of toxic chemicals
- Cost effective over time
- UL Listed



Part No.	CEM-12-2
Model Number	NCBA0739G1004
INPUT	
NOMINAL INPUT VOLTAGE	12 V DC
VOLTAGE RANGE	0-13.2 VDC
GENERAL DATA	
ENERGY CONTENT	1.2 KJ
BUFFER TIME	DEPENDENT ON THE LOAD
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	- 40 to 60 °C
STORAGE TEMP.	- 40 to 60 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.53in.)
WEIGHT	.95 Kg. (2.09lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
UL LISTING	UL 508; C22.2 No. 107.1-01



How to Pick a Capacitor Module

1. Choose your output voltage (12, 24 or 48V DC)
2. Pick you required back up current. All suitable modules are listed below the Amperage in the form of back up time in seconds. Altech suggests a time 50% larger than your required back up time.

Estimated Back Up Times

			Required Back Up Current (A)												
			0.5	1	1.5	2	3	5	8	10	15	20	30	40	
			Time (seconds)												
	DC-UPS Part No.	Output Voltage													
DC Input	12V DC	C-TEC1203-1	12	150	75	50	37	25							
		C-TEC1205-5	12	750	375	250	187	125	75						
		C-TEC1208-20	12	3300	1650	1100	830	550	330	200					
		C-TEC1210-1	12	150	75	50	37	25	16	10					
		C-TEC1210-10	12	1650	825	550	415	275	165	100	80				
		C-TEC1225P	12	110	55	35	27	18	10	6	5	3	2	1.5	
DC Input	24V DC	C-TEC2403-05	24	40	20	12	10	6							
		C-TEC2403-1	24	75	37	25	19	12							
		C-TEC2403-1-400	24	75	37	25	19	12							
		C-TEC2405-5	24	375	187	125	94	62	37						
		C-TEC2408-20	24	1500	750	500	375	250	150	94					
		C-TEC2410-1	24	75	37	25	18	12	7	4	3				
		C-TEC2410-10	24	750	375	250	187	125	75	45	37				
		C-TEC2420-8	24	600	300	200	150	100	60	37	30	20	15		
		C-TEC2425P	24	115	60	40	30	19	10	6	5	3	2		
		C-TEC2440P	24	333	167	111	83	55	33	21	17	11	8	5	4
48V DC	C-TEC4815P		50	25	17	12	8	4.5	3	2	1.5				
AC Input	12V DC	AC-C-TECH1203-1		150	75	50	37	25							
		24V DC	AC-C-TEC2403-05		37	18	12	10	6						
			AC-C-TEC2403-1-400		75	37	25	19	12						
			AC-C-TECH2403-1		75	37	25	19	12						
			AC-C-TEC2410-10		750	375	250	187	125	75	45	37			
			AC-C-TEC2420-8		600	300	200	150	100	60	37	30	20	15	
Part No.															
Extension Modules	*CEM12-1		100	50	30	25	15								
	*CEM12-2		200	100	60	50	30	5							
	*CEM1		75	37	25	19	12	8							
	*CEM2		150	75	50	40	24	16							
	*CEM8		600	300	200	150	100	60	37	30	20	15			
	*CEM16		1200	600	400	300	200	120	75	60	40	30			

* Please add CEM back up times for extended calculations.
 For example C-TEC2403-1 @ 0.5A + CEM1 @ 0.5A = 150 sec. total back up time.

Backup Time can be calculated by the following formula:
 $WS(KJ) / W = \text{Back Up Time}$

C-TECxx = DC UPS with ultra-capacitors (V DC input)
AC-TECxx = DC UPS with ultra capacitors (V AC input)
CEM = capacitor extension module for C-TEC and AC-TEC

Part Number Structure: C-TECxx

Example C-TEC 1203-1
 C-TEC: capacitor back up, DC input
 12: input and output 12 V DC
 3: 3A output current
 1: kJ energy

Part Number Structure: AC-C-TECxx

Example AC-TEC 2420-8
 AC-TEC: capacitor back up unit, AC input
 24: output 24 V DC
 20: 20A output current
 8: 8 kJ energy

Part Number Structure: CEMxx

Example CEM16
 CEM - capacitor extension unit
 16 - 16 kJ energy

Estimated Charging Time

	DC-UPS Part No.	Extension Part No,	Charging Current (A)					
			3	5	8	10	15	20
			Time (seconds)					
DC Input	12V DC	C-TEC1203-1	23					
		C-TEC1205-5	120	70				
		C-TEC1208-20	450	270	170			
		C-TEC1210-1		16	10	8		
		C-TEC1210-10		140	85	70		
		C-TEC1225P		130	80	65	45	35
	24V DC	C-TEC2403-05	6					
		C-TEC2403-1-400	12					
		C-TEC2403-1	12					
		C-TEC2405-5	58	35				
		C-TEC2408-20	226	136	85			
		C-TEC2410-1		8	5	4		
C-TEC2410-10			68	42	34			
C-TEC2420-8			60	37	30	20	15	
C-TEC2425P		68	42	34	23	18		
C-TEC2440P		110	68	55	36	28		
48V DC	C-TEC4815P	40	25	20	14			
AC Input	12V DC	AC-TECH1203-1	23					
		AC-TECH2403-05	6					
	24V DC	AC-TECH2403-1	12					
		AC-TECH2403-1-400		12				
		AC-TEC2410-10		68	42	34		
		AC-TEC2420-8		60	37	30	20	15
Extension Modules	Part No.	CEM12-1	7					
		CEM12-2	14					
		CEM1	12					
		CEM2	25					
		CEM8		60	37	30	20	
		CEM16		120	75	60	40	30

Recharging time

The ultra-capacitor devices can be charged extremely fast. The table above shows the charging time which are necessary for the recharging of the capacitor units. "Charging current" means the current which is free and available.

Example: A power supply with 10 A max current connected to the C-TEC 2410-10. 3A would supply the load and 7A will be available to charge the unit.

AKKUTEC / AKKUTEC VdS



Battery back-up modules are an absolute must in many modern industrial applications. **However, an AKKUTEC paired with a battery module is the best back up solution for large power loads over extended periods of time.** An AKKUTEC will ensure the prolonged operation of machinery and controlled processes.

Altech Corporation offers a wide variety of products for DC-UPS systems starting 2 A and up to 40 A along with monitoring / setup software, and comprehensive support.



KEY FEATURES

- Works primarily in an online parallel configuration
- Controlled shut down functions
- Micro-controller battery management
- Several operating modes
- Protection against wrong battery polarization
- Battery monitoring and testing
- Deep discharge protection
- DIN rail mount and panel mount.*

The AKKUTEC back-up system from J.Schneider utilizes a separate battery module in such a way that power is always available. In the event of a main power interruption, the AKKUTEC system seamlessly taps into the stored power of the battery. The load is energized by the AKKUTEC until the battery dips below a certain voltage. This feature ensures the battery remains undamaged and effective for future use.

Back up times with the AKKUTEC module are largely dependent on the size of a battery and the load in which they are powering. However, through AKKUTEC's battery management systems and charging techniques, long back up times are achievable and buffer charge times are relatively small. The back-up time for an AKKUTEC and a battery ranges all the way to 96 hours depending on the load and is recommended for applications with larger power demands.

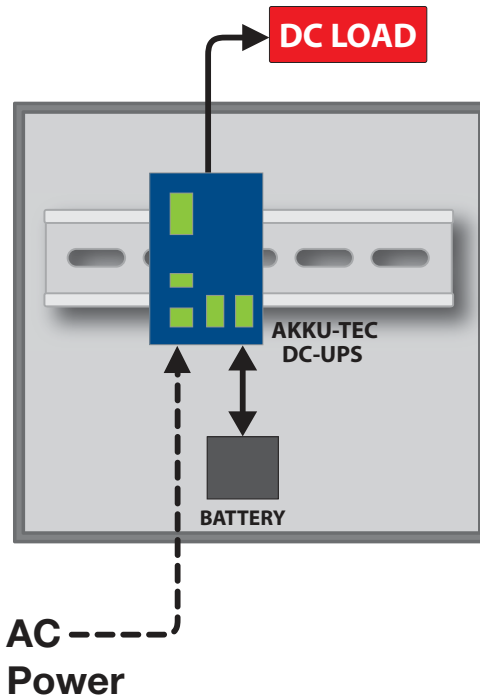


*Panel mount standard on only four modules.

DC Power Solutions

12, 24 and 48V DC

DC BACK UP with **AC** Input
(Power Supply with battery built in)



BACK UP TIME CALCULATION

Back up times can be determined by pairing certain AKKUTEC modules with a variety of battery sizes. A table of back up times and battery sizes have been added for your convenience (pg. 53)

BENEFITS OF AKKUTEC

- All in one Battery maintenance
- Extended battery life
- Internal Battery testing
- Virtually maintenance free
- Wide operating temperatures
- Compact and convection cooled
- Resists shock and vibrations
- Superior battery and power management
- Seamless switch overs
- Simple installation
- Cost effective over time

AKKUTEC

The AKKUTEC is a battery buffered DC power supply that works in a stand-by parallel mode with lead-acid batteries. A load is maintained through the AKKUTEC with a safe and continuous DC power supply in the event of main power failure through the attached battery.



	Part No.	Model No.	Input Voltage	Output Voltage	Output Current	Max Charging Current
12V DC	AKKUTEC1203	NBPAQ33G1M13	115/230 V AC +/- 15%	12 V DC	3 A	2.85 A
	AKKUTEC1208	NBPA0616G01006	115-230 V AC -0.05	12 V DC	8 A	8 A
24V DC	AKKUTEC2402	NBPAQ33G1M01	97-264 V AC	24 V DC	2 A	2.1 A
	AKKUTEC2403	NBPAQ33G1M10	230 V AC 0.05	24 V DC	3 A	2.86 A
	AKKUTEC2403DC	NBUA0523G01003	24 V DC	24 V DC	3 A	2.1 A
	AKKUTEC2405	NBPA0616G01101	184-264 V AC	24 V DC	5 A	5.5 A
	AKKUTEC2410	NBPAN33G1M01	230 V AC	24 V DC	10 A	11.5 A
	AKKUTEC2420-1	NBPA0347G01001	230 V AC -0.05	24 V DC	20 A	22 A
	AKKUTEC2420-3	NBPA0313G01002	3 X 400 V AC, 500 V AC -0.05	24 V DC	20 A	22 A
48V DC	AKKUTEC2440	NBPAP33G1M01	3 X 400 V AC, 500 V AC -0.05	24 V DC	40 A	44 A
	AKKUTEC4801	NBPAQ33G1M19	115-230 V AC +/- 15%	48 V DC	1 A	1.1 A
	AKKUTEC4803	NBPA0616G01005	115-230 V AC +/- 15%	48 V DC	3 A	3.3 A
	AKKUTEC4810	NBPA0347G01007	230 V AC +/- 15%	48 V DC	10 A	11 A

AKKUTEC VdS

VdS certified AKKUTEC modules. VdS certifications have an excellent reputation with manufacturers, service providers and correspond with the highest testing standards.



	Part No.	Model No.	Input Voltage	Output Voltage	Output Current	Max Charging Current
24V DC	AKKUTEC2403 VdS	NBPA0844G01002	115-230 V AC (95 V...265 V AC)	24 V DC	3A	3A
	AKKUTEC2412 VdS	NBPA0812G01002	230 V DC -0.05	24 V DC	12A	12A



DC UPS APPLICATIONS



Ship Building



Safety Engineering



Rail Vehicles



Water Supply



Building Technology



Automation



Machinery Construction



Switchgear Production



Power Supply



Stations Control Technology



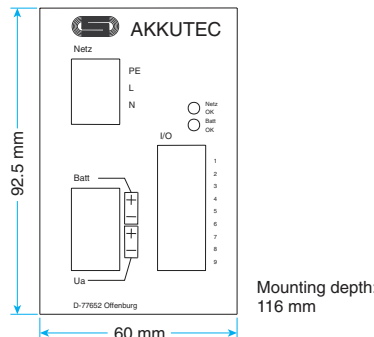
Photovoltaics



- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- UL Pending

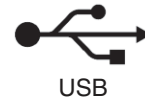


Part No.	AKKUTEC1203
Model Number	NBPAQ33G1M13
INPUT	
NOMINAL INPUT VOLTAGE	115-230 V AC +/- 15 %
NOMINAL FREQUENCY	47-63 Hz
SYSTEM VOLTAGE	12 V DC
OUTPUT	
MAX CHARGING CURRENT	2.85 A
NOMINAL OUTPUT VOLTAGE	12 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	9.9 V DC-13.5 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	9.9 V DC-13.2 V DC
MAX NOMINAL OUTPUT CURRENT	2.85 A DC
EFFICIENCY	83%
GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	Max. 95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.56in.)
WEIGHT	.55Kg. (1.21lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950; EN 50082-1; EN 55011; EN 61000-4-2
UL LISTING	UL PENDING





- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- USB Interface



Part No.	AKKUTEC1208
Model Number	NBPA0616G01006

INPUT

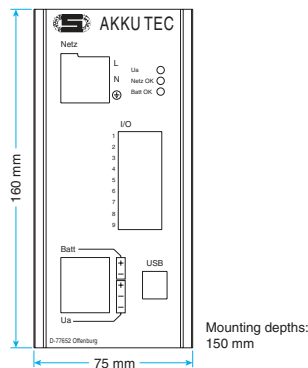
NOMINAL INPUT VOLTAGE	115-230 V AC +/- 15 %
NOMINAL FREQUENCY	47-63 Hz
SYSTEM VOLTAGE	12 V DC

OUTPUT

MAX CHARGING CURRENT	8 A
NOMINAL OUTPUT VOLTAGE	12 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	NA
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	NA
MAX NOMINAL OUTPUT CURRENT	8 A DC
EFFICIENCY	88%

GENERAL DATA

BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	Max. 95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	160 mm x 75 mm x 150mm (6.29in. x 2.95in. x 5.9in.)
WEIGHT	1Kg. (2.2lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 61558 2-17; EN 61000-3-2,3; EN 55011 EN 61000-6-2; EN61000-4-2,3,4,5,6,11; EN 50178 / EN 60950
UL LISTING	N/A.

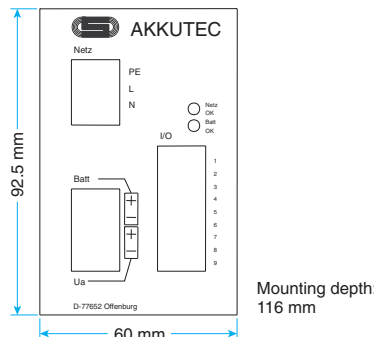




- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- UL Listed



Part No.	AKKUTEC2402
Model Number	NBPAQ33G1M01
INPUT	
NOMINAL INPUT VOLTAGE	115-230 V AC +/- 15 %
NOMINAL FREQUENCY	47-63 Hz
SYSTEM VOLTAGE	24 V DC
OUTPUT	
MAX CHARGING CURRENT	2.1 A
NOMINAL OUTPUT VOLTAGE	24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	19.8 V DC-27.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	19.8 V DC-26.8 V DC
MAX NOMINAL OUTPUT CURRENT	2 A at 100% ED
EFFICIENCY	N/A
GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 45 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	Max. 95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.56in.)
WEIGHT	.55Kg. (1.21lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950; EN 61000-6-4; EN 61000-6-2; EN 50082-1; EN 55011
UL LISTING	UL 508; C22.2 No. 107.1-01





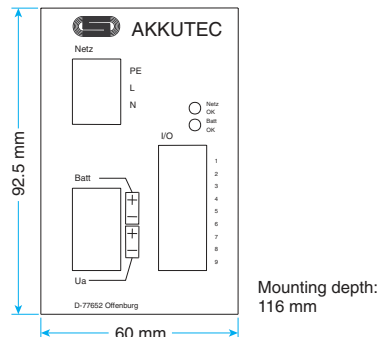
- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time

Part No.	AKKUTEC2403
Model Number	NBPAQ33G1M10

INPUT	
NOMINAL INPUT VOLTAGE	230 V AC +15% -10%
NOMINAL FREQUENCY	47-63 Hz
SYSTEM VOLTAGE	24 V DC

OUTPUT	
MAX CHARGING CURRENT	2.85 A
NOMINAL OUTPUT VOLTAGE	24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	19.8 V DC-27.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	19.8 V DC-26.8 V DC
MAX NOMINAL OUTPUT CURRENT	2.85 A DC
EFFICIENCY	87%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 45 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	Max. 95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.56in.)
WEIGHT	.55Kg. (1.21lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950; EN 55011; EN 50082-1; EN 61000-4-2
UL LISTING	N/A





- DC Input
- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- UL Pending

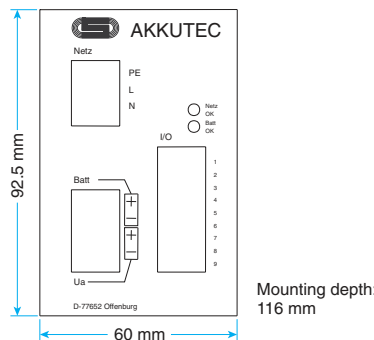


Part No.	AKKUTEC2403DC
Model Number	NBUA0523G01003

INPUT	
NOMINAL INPUT VOLTAGE	24 V DC
SYSTEM VOLTAGE	24 V
NOMINAL INPUT CURRENT	3.7 A

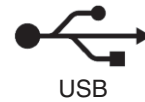
OUTPUT	
MAX CHARGING CURRENT	2.1 A
NOMINAL OUTPUT VOLTAGE	24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	19.8 V DC - 27.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP SENSOR	19.8 V DC - 26.8 V DC
MAX NOMINAL OUTPUT CURRENT	2.85 A DC
EFFICIENCY	85%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	Max. 95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.56in.)
WEIGHT	.55Kg. (1.21lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 55011; 1998 Class B; EN 61000-3-2; EN 61000-3-3 Class A EN 50082-2 1995; EN 50178; EN 60950
UL LISTING	Pending





- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- USB Interface
- UL Listed



Part No.	AKKUTEC2405
Model Number	NBPA0616G01101

INPUT

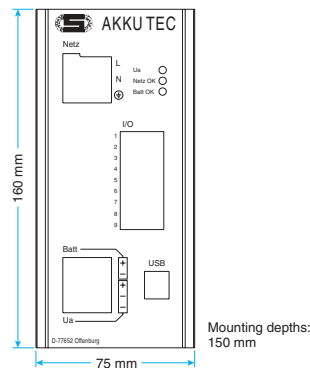
NOMINAL INPUT VOLTAGE	115 - 230 V AC -15% +10%
NOMINAL FREQUENCY	47-63 Hz
SYSTEM VOLTAGE	24 V DC
NOMINAL INPUT CURRENT	

OUTPUT

MAX CHARGING CURRENT	5.5 A
NOMINAL OUTPUT VOLTAGE	24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	19.8 V DC - 27.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP SENSOR	19.8 V DC - 26.8 V DC
MAX NOMINAL OUTPUT CURRENT	5 A DC
EFFICIENCY	88%

GENERAL DATA

BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	N/A
MAX ALTITUDE (without derating)	N/A
DIMENSIONS	160 mm x 75 mm x 150 mm (6.29in. x 2.95in. x 5.9in.)
WEIGHT	1.6Kg. (3.52lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178 EN60950; EN 55011; EN 50082-1; EN 61000-4-2
UL LISTING	UL 508; C22.2 No. 107.1-01

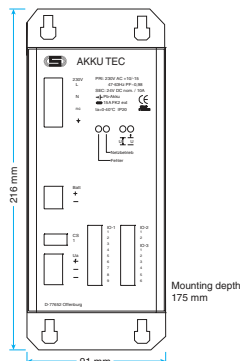




- Battery charger with I/U-charging characteristics
- Active power factor correction (PFC)
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- UL Listed



Part No.	AKKUTEC2410
Model Number	NBPAN33G1M01
INPUT	
NOMINAL INPUT VOLTAGE	230 V AC -15 % +10 %
NOMINAL FREQUENCY	50/60 Hz
SYSTEM VOLTAGE	24 V DC
NOMINAL INPUT CURRENT	1.4 A AC
OUTPUT	
MAX CHARGING CURRENT	11.5 A
NOMINAL OUTPUT VOLTAGE	24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	19.8 V DC - 27.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP SENSOR	19.8 V DC - 26.8 V DC
MAX NOMINAL OUTPUT CURRENT	10 A DC
EFFICIENCY	
GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	N/A
MAX ALTITUDE (without derating)	N/A
DIMENSIONS	216 mm x 91 mm x 175 mm (8.5in. x 3.58in. x 6.88in.)
WEIGHT	1.6Kg. (3.52lbs.)
MOUNTING	Panel Mount
NORMS AND REGULATIONS	EN 50178; EN60950; EN 55011; EN 50082-1
UL LISTING	UL 508; C22.2 No. 107.1-01.





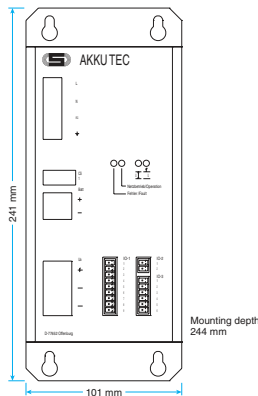
- Battery charger with I/U-charging characteristics
- Active power factor correction (PFC)
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time

Part No.	AKKUTEC2420
Model Number	NBPA0347G01001

INPUT	
NOMINAL INPUT VOLTAGE	230 V AC -15 % +10 %
NOMINAL FREQUENCY	50/60 Hz
SYSTEM VOLTAGE	24 V DC
NOMINAL INPUT CURRENT	2.7 A

OUTPUT	
MAX CHARGING CURRENT	22 A
NOMINAL OUTPUT VOLTAGE	24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	19.8 V DC - 27.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP SENSOR	19.8 V DC - 26.8 V DC
MAX NOMINAL OUTPUT CURRENT	20 A DC
EFFICIENCY	88.80%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	Max. 95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	241mm x 101mm x 244 mm (9.48in. x 3.97in. x 9.6in.)
WEIGHT	2.4Kg. (5.29lbs.)
MOUNTING	Panel Mount
NORMS AND REGULATIONS	EN 50178; EN 55011; EN 50082-1
UL LISTING	N/A





- Battery charger with I/U-charging characteristics
- Active power factor correction (PFC)
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- UL Pending



Part No. AKKUTEC2420-3
Model Number NBPA0313G01002

INPUT

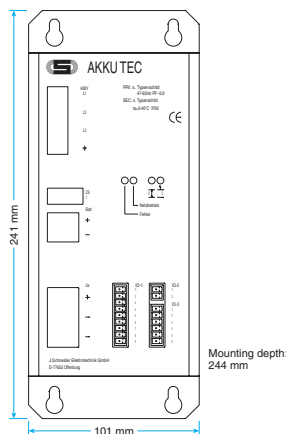
NOMINAL INPUT VOLTAGE 3 x 400 V -500 V AC -15 % / + 10 %
NOMINAL FREQUENCY 45-65 Hz
SYSTEM VOLTAGE 24 V DC

OUTPUT

MAX CHARGING CURRENT 22 A
NOMINAL OUTPUT VOLTAGE 24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR 19.8 V DC - 27.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR 19.8 V DC - 26.8 V DC
MAX NOMINAL OUTPUT CURRENT 20 A DC
EFFICIENCY N/A

GENERAL DATA

BUFFER TIME DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE Pb-Akku
DEGREE OF PROTECTION IP20
OPERATING TEMP. 0 to 40 °C
STORAGE TEMP. 0 to 50 °C
RELATIVE HUMIDITY N/A
MAX ALTITUDE (without derating) N/A
DIMENSIONS 241 mm x 101 mm x 244 mm (9.48in. x 3.97in. x 9.6in.)
WEIGHT 2.6Kg. (5.73lbs.)
MOUNTING Panel Mount
NORMS AND REGULATIONS EN 50178; EN 55011; EN 50082-2; EN 61000-3-2
UL LISTING Pending





- Primary switched power supply with I/U-charging characteristics
- Active power factor correction (PFC)
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Cost effective over time
- UL Listed



Part No.	AKKUTEC2440
Model Number	NBPAP33G1M01

INPUT

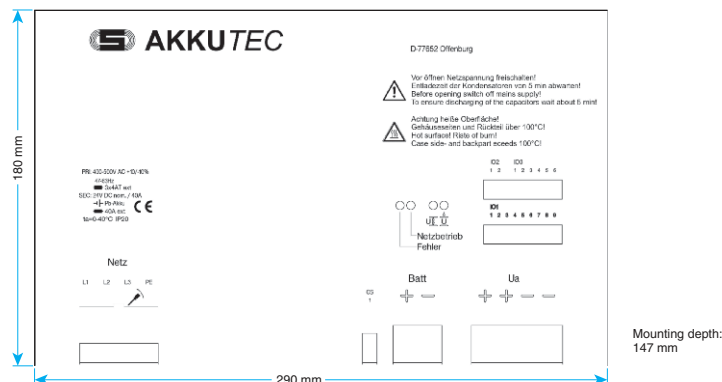
NOMINAL INPUT VOLTAGE	3 x 400 V -500 V AC -15 % / + 10 %
NOMINAL FREQUENCY	45- 65 Hz
SYSTEM VOLTAGE	24 V DC

OUTPUT

MAX CHARGING CURRENT	44 A
NOMINAL OUTPUT VOLTAGE	24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	19.8 V DC - 27.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	19.8 V DC - 26.8 V DC
MAX NOMINAL OUTPUT CURRENT	40 A DC
EFFICIENCY	91.50%

GENERAL DATA

BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	N/A
MAX ALTITUDE (without derating)	N/A
DIMENSIONS	180 mm x 290 mm x 147 mm (7.08in. x 11.41in. x 5.78in.)
WEIGHT	3.3Kg. (7.27lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 55011; EN 50082-2; EN 61000-6-2
UL LISTING	UL 508; C22.2 No. 107.1-01





- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- UL Listed

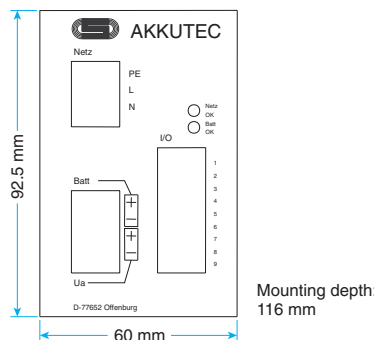


Part No.	AKKUTEC4801
Model Number	NBPAQ33G1M19

INPUT	
NOMINAL INPUT VOLTAGE	115- 230 V AC \pm 15 %
NOMINAL FREQUENCY	47- 63 Hz
SYSTEM VOLTAGE	48 V DC

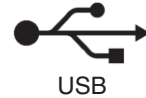
OUTPUT	
MAX CHARGING CURRENT	1.1 A
NOMINAL OUTPUT VOLTAGE	48 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	39.6 V DC-55.6 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	39.6 V DC-53.6 V DC
MAX NOMINAL OUTPUT CURRENT	1.1 A DC
EFFICIENCY	87%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	92.5 mm x 60 mm x 116 mm (3.64in. x 2.36in. x 4.56in.)
WEIGHT	.55Kg. (1.21lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178; EN 60950; EN 55011; EN 50082-2; EN 61000-6-2
UL LISTING	UL 508; C22.2 No. 107.1-01





- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- USB Interface
- UL Pending



Part No.	AKKUTEC4803
Model Number	NBPA0616G01005

INPUT

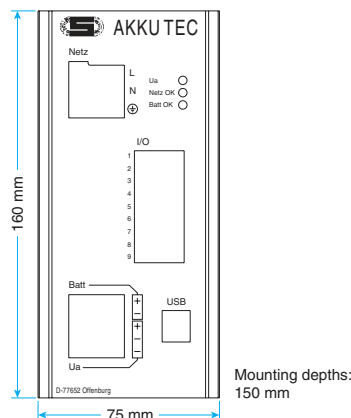
NOMINAL INPUT VOLTAGE	115 ... 230 V AC -15 % +10 %
NOMINAL FREQUENCY	47- 63 Hz
SYSTEM VOLTAGE	48 V DC

OUTPUT

MAX CHARGING CURRENT	3.3 A
NOMINAL OUTPUT VOLTAGE	48 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	39.6 V DC-55.6 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	39.6 V DC-53.6 V DC
MAX NOMINAL OUTPUT CURRENT	—
EFFICIENCY	—

GENERAL DATA

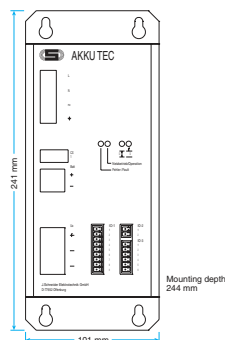
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 to 40 °C
STORAGE TEMP.	0 to 50 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	160 mm x 75 mm x 150 mm (6.29in. x 2.95in. x 5.9in.)
WEIGHT	1 Kg. (2.2lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 55011; EN 50082-1; EN 61000-4-2; EN 50178; EN 60950
UL LISTING	UL Pending





- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time

Part No.	AKKUTEC4810
Model Number	NBPA0347G01007
INPUT	
NOMINAL INPUT VOLTAGE	230 V AC -15%+10%
NOMINAL FREQUENCY	47-63 Hz
SYSTEM VOLTAGE	48 V DC
MAX NOMINAL INPUT CURRENT	—
OUTPUT	
MA X CHARGING CURRENT	11 A
NOMINAL OUTPUT VOLTAGE	48 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	39.6 V DC – 52.8 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	39.6 V DC- 57.2 V DC
MAX NOMINAL OUTPUT CURRENT	10 A
EFFICIENCY	—
GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	0 °C to 40 °C
STORAGE TEMP.	0 °C to 50 °C
RELATIVE HUMIDITY	95% non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	100.5mm x 240.5mm x 244mm 3.95in. x 9.46in. x 9.60in.
WEIGHT	2.4 Kg, (5.29lbs.)
MOUNTING	Panel Mount
NORMS AND REGULATIONS	EN61558 2-17; EN55011...1998; EN 61000-3-2 EN61000-3-3 EN50082-2/03.95; EN 60068-2-6; EN 50178
UL LISTING	N/A





- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- UL Listed
- VdS certified



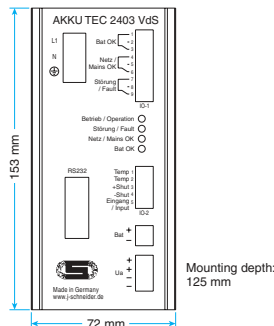
BATTERY BUFFER MODULES

Part No.	AKKUTEC2403 VdS
Model Number	NBPA0844G01002

INPUT	
NOMINAL INPUT VOLTAGE	110/230 V AC (95 V- 265 V AC)
NOMINAL FREQUENCY	47- 63 Hz
SYSTEM VOLTAGE	—
MAX NOMINAL INPUT CURRENT	.5 A

OUTPUT	
MAX CHARGING CURRENT	3 A
NOMINAL OUTPUT VOLTAGE	24 V DC (21.6-28.3 V ±0.4 %)
OUTPUT VOLTAGE WITH TEMP. SENSOR	26.4 V DC - 28.6 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	26.4 V DC
MAX NOMINAL OUTPUT CURRENT	3 A
EFFICIENCY	85%

GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-10 °C to 50 °C
STORAGE TEMP.	-10 °C to 50 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	153 mm x 72 mm x 125 mm (6in. x 2.83in. x 4.92in.)
WEIGHT	1 Kg. (2.2lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178:1998; EN 54-4:1997+A1:2002+A2:2006 EN 12101-10:2006+B1:2009; EN 61000-6-4; EN 61000-6-2
UL LISTING	UL 508; C22.2 No. 107.1-01
VdS APPROVALS	VdS 2541:1998; VdS-2344

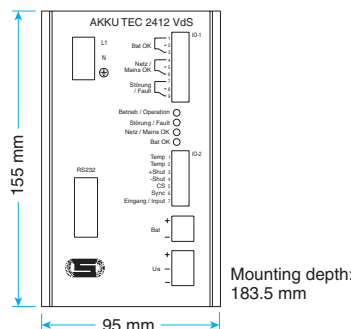




- Battery charger with I/U-charging characteristics
- Battery management by micro-controller
- Battery voltage tracking of the charging voltage by external sensor module (optional)
- The AKKUTEC is virtually maintenance free
- Internal battery testing and extended battery life
- Wide operating temperatures
- Compact and convection cooled
- Resists shocks and vibrations
- Seamless switch overs
- Simple installation
- Cost effective over time
- VdS certified
- UL Listed



Part No.	AKKUTEC2412 VdS
Model Number	NBPA0812G01002
INPUT	
NOMINAL INPUT VOLTAGE	230 V AC \pm 15 %
NOMINAL FREQUENCY	47- 63 Hz
SYSTEM VOLTAGE	24V DC
MAX NOMINAL INPUT CURRENT	1.8 A (at 12 A output)
OUTPUT	
MAX CHARGING CURRENT	—
NOMINAL OUTPUT VOLTAGE	24 V DC
OUTPUT VOLTAGE WITH TEMP. SENSOR	20.46 V DC -28.3 V DC
OUTPUT VOLTAGE WITHOUT TEMP. SENSOR	26.46 V DC
MAX NOMINAL OUTPUT CURRENT	12 A
EFFICIENCY	89%
GENERAL DATA	
BUFFER TIME	DEPENDENT ON BATTERY AND THE LOAD
BATTERY TYPE	Pb-Akku
DEGREE OF PROTECTION	IP20
OPERATING TEMP.	-10 °C to 50 °C
STORAGE TEMP.	-10 °C to 50 °C
RELATIVE HUMIDITY	95 % non-condensing
MAX ALTITUDE (without derating)	2000 m. above sea-level
DIMENSIONS	155 mm x 95 mm x 183.5 mm (8.98in. x 3.74in. x 7.22in.)
WEIGHT	2.5 Kg. (5.5lbs.)
MOUNTING	35 mm DIN Rail (panel mount available, contact Altech)
NORMS AND REGULATIONS	EN 50178:1998; EN 54-4:1997+A1:2002+A2:2006 EN 12101-10:2006+B1:2009; EN 61000-6-4; EN 61000-6-2
UL LISTING	UL 508; C22.2 No. 107.1-01.
VdS APPROVALS	VdS 2541:1998



Selection Guide

Examples of different AKKUTEC modules paired with different battery sizes.

Back Up Time: Available Current vs. Estimated Back Up Time in Minutes

DC-UPS Part No.	No. of 12V Batteries	Battery Size	Required Back Up Current (A)											
			0.5	1	2	3	5	8	10	12	15	20	40	
			Time (minutes)											
AKKUTEC 1203	1	7.2 AH	360	180	90	60								
AKKUTEC 1203	1	12 AH	600	300	150	100								
AKKUTEC 1208	1	12 AH	600	300	150	100	60	37						
AKKUTEC 1208	1	20 AH	1000	500	250	166	100	62						
AKKUTEC 1210	1	12 AH	600	300	150	100	60	37	36					
AKKUTEC 1210	1	20 AH	1000	500	250	166	100	62	50					
AKKUTEC 2402	2	1.2 AH	60	30	15									
AKKUTEC 2402	2	2.4 AH	120	60	30									
AKKUTEC 2402	2	7.2 AH	360	180	90									
AKKUTEC 2403	2	2.4 AH	120	60	30	20								
AKKUTEC 2403	2	7.2 AH	360	180	90	60								
AKKUTEC 2403	2	12 AH	600	300	150	100								
AKKUTEC 2405	2	2.4 AH	120	60	30	20	12							
AKKUTEC 2405	2	7.2 AH	360	180	90	60	36							
AKKUTEC 2405	2	12 AH	600	300	150	100	60							
AKKUTEC 2410	2	7.2 AH	360	180	90	60	36	22	18					
AKKUTEC 2410	2	12 AH	600	300	150	100	60	37	36					
AKKUTEC 2410	2	20 AH	1000	500	250	333	100	62	50					
AKKUTEC 2412 VdS	2	7.2 AH	360	180	90	60	36	22	18	15				
AKKUTEC 2412 VdS	2	12 AH	600	300	150	100	60	37	36	25				
AKKUTEC 2412 VdS	2	20 AH	1000	500	250	333	100	62	50	41				
AKKUTEC 2420	2	12AH	600	300	150	100	60	37	36	25	20	15		
AKKUTEC 2420	2	20AH	1000	500	250	166	100	62	50	41	33	25		
AKKUTEC 2420	2	40AH	2000	1000	500	333	200	125	100	83	65	50		
AKKUTEC 2440	2	12AH	600	300	150	100	60	37	36	25	20	15		
AKKUTEC 2440	2	20AH	1000	500	250	166	100	62	50	41	33	25	13	
AKKUTEC 2440	2	40AH	2000	1000	500	333	200	125	100	83	65	50	25	
AKKUTEC 2440	2	100AH	5000	2500	1250	833	500	312	250	208	200	150	75	
AKKUTEC 4801	4	2.4 AH	120	60										
AKKUTEC 4801	4	7.2 AH	360	180										
AKKUTEC 4803	4	7.2 AH	360	180	90	60								
AKKUTEC 4803	4	12 AH	600	300	150	100								
AKKUTEC 4810	4	12 AH	600	300	150	100	60	37	36					
AKKUTEC 4810	4	20 AH	1000	500	250	166	100	62	50					

* Battery performance may vary by battery, manufacturer and type.

Software

A multitude of DC-UPS and AKKUTEC systems come with a variety of online control software. These programs allow for increased adaptability making the UPS system tailored to its application. This customization ensures maximum efficiency and seamless operation.

TEC Control

Shut-Down Software- TECControl for DC-UPS and AKKUTEC systems.

The TEC Control software continuously monitors both a computer network and the status of the available UPS energy storage system.

In case of mains failure, the Industrial PC shuts itself down through the TECControl after a preset time. In this time, the UPS and the Industrial PC will then be switched off in a safe and controlled manner. The UPS system will provide the power for the controlled shutdown. This prevents damage to computer systems and the devices they may operate and prevents the loss of critical data or work. Once mains power is restored, the UPS releases the output voltage. The system will then restart automatically.

- Works with a variety of Windows operating systems.

Usable with:

- AC C-TEC 2403 • AC C-TEC 2420 • AKKUTEC 1208 • AKKUTEC 2403 • AKKUTEC 2405 • AKKUTEC 4803
- AKKUTEC 4810 • AKKUTEC 2410 • AKKUTEC 2420 • AKKUTEC 2420-3 • AKKUTEC 2440 • C-TEC 2403
- C-TEC 2405 • C-TEC 2408 • C-TEC 2410 • C-TEC 2420

paraTEC

Software that allows the user to customize specific functions in the C-TEC or AKKUTEC module to meet special requirements.

- ParaTEC software allows the user to make adjustments to their DC UPS system.
- Real time system monitoring (Voltage, Current, Errors, Etc.)
- Works with Windows XP and 7 Operating Systems

Usable with:

- AKKUTEC 1208 • AKKUTEC 2405 • AC C-TEC 2420 • AKKUTEC 4803
- CTEC 2405 • C-TEC 2410 • CTEC 2408 • C-TEC 2420

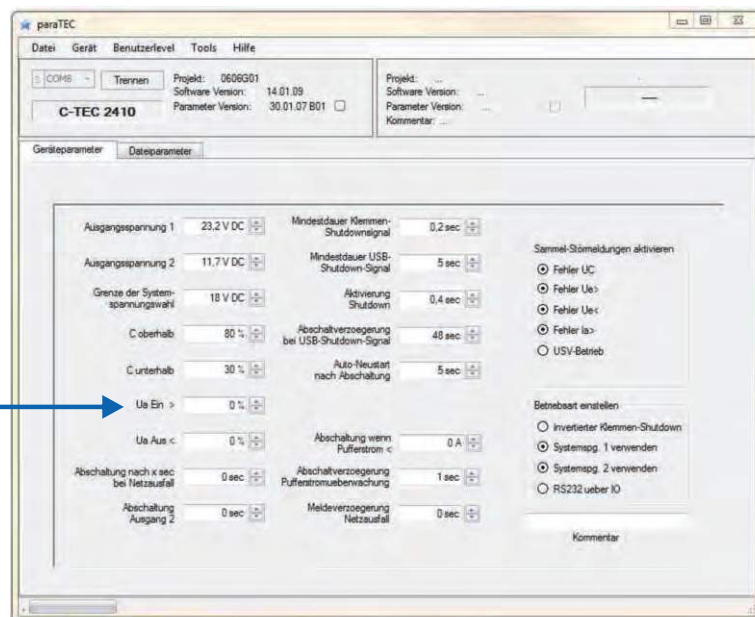
paraTEC VdS

- paraTEC software for the AKKUTEC 2412VdS.
- Works with a variety of Windows Operating Systems

ParaTEC Software

The software is used to set up or change the characteristics of the C-TEC units.

It is possible to adjust C-TEC devices in the way that the release of input and load is effected only if the total capacity is available.



(Part information and corresponding hardware on page 56)

Accessories

AKKUTEC Temperature Sensors

These sensors are for use in battery voltage tracking. The life span of batteries is indicated at a temperature of 20°C. Temperatures over 20°C lead to a drastic reduction of the working life of typical sealed lead acid batteries. Through the temperature-sensor, charging voltage is adjusted to ensure that battery isn't over charged or heated up.

- Battery measurement every minute
- Announcement via LED and potential free contacts at exceeding the limit temperature
- Possible to display the temperature on the control and indicator panel (optional)
- Connected at IO clamp 1 and 2

Part No.**MTIAL33G5M01**

Usable with:

- AKKUTEC 2410 • AKKUTEC 2420 • AKKUTEC 2440
- AKKUTEC 1210 • AKKUTEC 4810

**Part No.****MTIAQ33G3M01**

Usable with:

- AKKUTEC 2402 • AKKUTEC 2403 • AKKUTEC 2405 • AKKUTEC 2412
- AKKUTEC 1203 • AKKUTEC 1208 • AKKUTEC 4801 • AKKUTEC 4803
- AKKUTEC 4803 VdS

**AKKUTEC Display/Control Panel****Part No.****PBDEL33G4M01**

- Clear two-line, 20-digit, backlit alphanumeric LCD display
- Separate settings for contrast and brightness
- Power supply and data transmission by 2-wire bus cable to reduce wiring-up work to a minimum
- Parameters for charging and monitoring functions can be both displayed and entered
- Status messages shown in plain language
- Beeper to draw attention to warnings and faults (can be disabled)
- Operating parameters of redundant systems as well can be displayed on a single unit
- Easy-to-follow operator prompts
- 3-key setting processes
- Function levels protected by passwords
- Suitable for mounting in doors of electrical cabinets (IP54 protection)

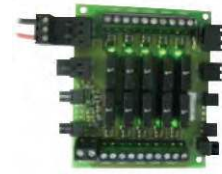
Usable with:

- AKKUTEC 2410-2440



Fuse Boards

Fuse boards designed for the distribution and protection of the 12/24V outputs of the AKKUTEK series or any other DC source.



Part No.	Type	Description
NBP20849G02003	FB 2405-5	fuse board designed for FKS-fuses with max. 6,3 A, equipped with 5 fuses à 1 A / extension for IP31 cabinet 3 A
NBP20848G02005	FB 2410-10	fuse board designed for FKS-fuses with max. 15 A, equipped with 10 fuses à 1 A / extension for IP31 cabinet 12 A
NBP20902G02004	FB 2405-5 P	fuse board designed for FKS-fuses with max. 6,3 A, equipped with 5 fuses à 1 A / base for IP54 cabinet, snap-on mounting for supporting rail
NBP20901G02003	FB 2410-10 P	fuse board designed for FKS-fuses with max. 15 A, equipped with 10 fuses à 1 A / base for IP54 cabinet, snap-on mounting for supporting rail

Accessories

PSXX-0441601003	paraTEC License	control software for a number of DC-UPS modules
PSXX-0441G01002	TEC-Control License	shutdown software for all AKKUTEK, C-TEC and AC C-TEC equipment as license
PSXX-0441G01001	TEC-Control CD	shutdown software for all AKKUTEK, C-TEC and AC C-TEC equipment as CD. Works with a number of modules and is compatible with several Windows operating systems.
PSDP-0324G01004	Module Cable A	Interface for AKKUTEK 2402/2403, AKKUTEK 2405 and all C-TEC devices*
n.n.	AKKUTEK Cable B	9 Pol Sub D 1 : 1 for AKKUTEK 2403 DC*
PSDP-0324G01002	AKKUTEK Cable C 1	Interface cable for AKKUTEK 2410 - 2440 1,2 M*
PSDP-0324G01003	AKKUTEK Cable C 2	Interface cable for AKKUTEK 2410 - 2440 5 M*
PSDP-0324G01005	AKKUTEK Cable C 3	Interface cable for AKKUTEK 2410- 2440 10 M*
3019.25	MODULE USB cable	for C-TEC, AC C-TEC, USB 5.0 cable, A to B with ferrite, 0,5 m length*
RBSM0429G01001	AKKUTEK IPC switch module	for AKKUTEK 2410/2420/2402/2403
PBDEL33G4M01	AKKUTEK Display/Control Panel	for AKKUTEK 2410-2440-monitor and control AKKUTEK functions
MTIAL33G5M01	AKKUTEK Temperature sensor	for AKKUTEK --helps to maintain optimal battery performance through temperature and battery monitoring
MTIAQ33G3M01	AKKUTEK Temperature sensor	for AKKUTEK --helps to maintain optimal battery performance through temperature and battery monitoring
59610.1	KGEK002S003M92	decoupling module 2 x 25 A 100 V
59610.2	KGEK006S001M92	decoupling module 2 x 50 A 45 V

* For use with TEC Control and paraTEC software.

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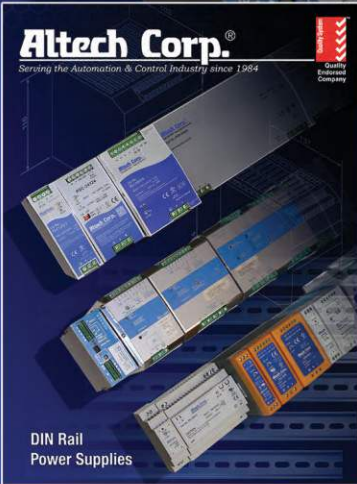


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Accessories

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- Ultra capacitor modules

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ALTECH SHALL NOT BE LIABLE FOR ANY DAMAGES CAUSED BY DELAY IN SHIPMENT, INSTALLATION OR FURNISHING OF EQUIPMENT OR SERVICES UNDER THIS AGREEMENT.

No action arising out of any claimed breach of this Agreement may be brought by either party more than two (2) years after the cause of action has accrued.

PATENT INDEMNITY - ALTECH shall defend or settle any suit or proceeding brought against Customer based on a claim that any equipment made to ALTECH design and furnished hereunder constitutes an infringement of any existing United States patent, provided (ALTECH) is notified promptly in writing and is given complete authorization and information required for the defense, and ALTECH shall pay all damages and costs awarded against Customer, but shall not be responsible for any costs, expense or compromise incurred or made by Customer without ALTECH's prior written consent. If any equipment is in ALTECH's opinion likely to or does become the subject of a claim for patent infringement, ALTECH may at its option and expense procure for Customer the right to continue using the device, modify it to become non-infringing, but in the event ALTECH is not reasonably able to modify, substitute, or otherwise procure for Customer the right to continue using it, ALTECH will remove such equipment and refund to Customer the amount paid in excess of a reasonable rental for past use.

ALTECH shall not be liable for any infringement or claim based upon use of the equipment in combination with other equipment not supplied by ALTECH or with modifications made by Customer.

The foregoing states the entire liability of ALTECH to Customer arising from patent infringement.

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GOVERNING LAW - This agreement will be governed by the Laws of the State of New Jersey.

GENERAL - This Agreement shall only become effective and binding when either (a) it has been accepted and executed by an authorized representative of ALTECH, or (b) the equipment has been shipped to Customer, with or without acceptance in writing hereon. Notice of acceptance is hereby waived by Customer. Customer hereby acknowledges receipt of a true and complete copy hereof.

No addition to or modification of any of the Terms and Conditions of Sale as they appear herein shall be binding upon ALTECH unless signed in writing by duly authorized representative of ALTECH in Flemington, N.J.

Typographical and clerical errors in quotations, orders and acknowledgments are subject to correction.

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