

K-LINE Intelligent Battery Charger



K-LINE BC4-24/30 is a microcontroller unit (MCU) based battery charger with limiting charging voltage and limiting charging current characteristics, designed for charging 24V or 30V, 2.2-10Ah, nickel-metal hydrid (NiMH) or nickel-cadmium (NiCd) rechargeable battery pack.

The charger is a self-contained flush mounting unit, ideal for use in a switchboard together with a battery pack for circuit breaker tripping. It can also be used together with a battery pack and a K-Line DP4-24/30 DC power supply unit to provide a 24V or 30V DC uninterrupted power supply system for essential standing load such as for electronic protection relays.

Special Features

- Digital meters to provide accurate display of charging voltage and charging current.
- Fully automatic changeover between boost charge and trickle charge.
- Battery temperature detecting by means of a negative temperature coefficient (NTC) thermistor if it is fitted in the battery pack.
- Continuously voltage and current monitoring to control the charging voltage and charging current at the required level.
- Override timer provided to prevent overcharge and possible damage of the battery.
- Built-in control for short circuit, battery overheating, battery loose connection and battery reverse polarity protections.
- Dry changeover contacts provided for charge failure and low battery voltage external alarms.

Standard Compliance

The battery charger is designed to meet the following international standards:

IEC 61000-3-2:2006+A1:2009+A2:2009

IEC 61000-3-3:2008

IEC 61000-6-2:2005

IEC 61000-6-4:2006+A1:2010

IEC 61204:2001

IEC 60950-1:2009

BSEN 61204:1995

BS 7430:1998

Specifications

Model No.	BC4-24/30			
Input voltage	160-280V, 47-63Hz, single phase			
Input current	0.5A			
Output voltage ripple P-P	< $\pm 0.1\%$			
Output fuse protection	2.5A			
Maximum output power	70W			
No. of cells (1.2V/cell)	20 (24V battery pack), 25 (30V battery pack)			
Nominal charging voltage (1.41V/cell)	28.2V (24V battery pack), 35.25V (30V battery pack)			
Charging voltage adjustable range (1.35–1.5V/cell)	27 - 30V (24V), 33.75 - 37.5V (30V)			
For battery capacity (selectable)	2.2Ah	4/4.5Ah	7Ah	10Ah
Nominal boost charge current	275mA (0.125C)	563mA (0.14C/0.125C)	875mA (0.125C)	1250mA (0.125C)
Boost charge current adjustable range	220 - 440mA	225 - 900mA	350 - 1400mA	500 - 2000mA
Nominal trickle charge current (20% of boost charge current)	55mA (0.025C)	113mA (0.028C/0.025C)	175mA (0.025C)	250mA (0.025C)
Changeover from boost charge to trickle charge	110mA	225mA	350mA	500mA
	Boost charge current dropped to the above changeover values; or battery temperature reached 48°C; or after a boost charge of 8 hours			
Intermittent charge	When battery is fully charged and that the charge current dropped to 20mA, intermittent charge starts When battery voltage dropped to 1.36V/cell due to self discharge, continuous charge resumes			
Time required to fully charge the battery	Less than 8 hours			
Changeover from trickle charge to boost charge	When battery voltage dropped to 1.25V/cell or by operating the manual boost charge push button			
Charging voltage and charging current meters (back light default setting is "manual")	Digital LCD with back light (permanently 'on' or manually 'on' for 1 minute)			
LED Indications	Mains on, charge failure, high battery voltage (>1.47V/cell), low battery voltage (<1.15V/cell), boost charge (red) / trickle charge (green)			
Control buttons	Manual boost charge push button, charge failure test button, back light push button			
Alarm relays (default setting is "disabled")	Charge failure (1C/O), low battery voltage (1C/O) Contact rating: 10A, 220VAC/30VDC			
Degree of protection	IP 41 for front panel, IP 20 for back casing			

DC Power Supply Unit

K-LINE DP4-24/30 DC power supply unit is intended for use together with BC4-24/30 or BC4-24/30-S charger and a battery pack to provide a 24V or 30V uninterrupted DC power supply for standing load.

AC Input : 200-240V 50-60Hz 1.5A

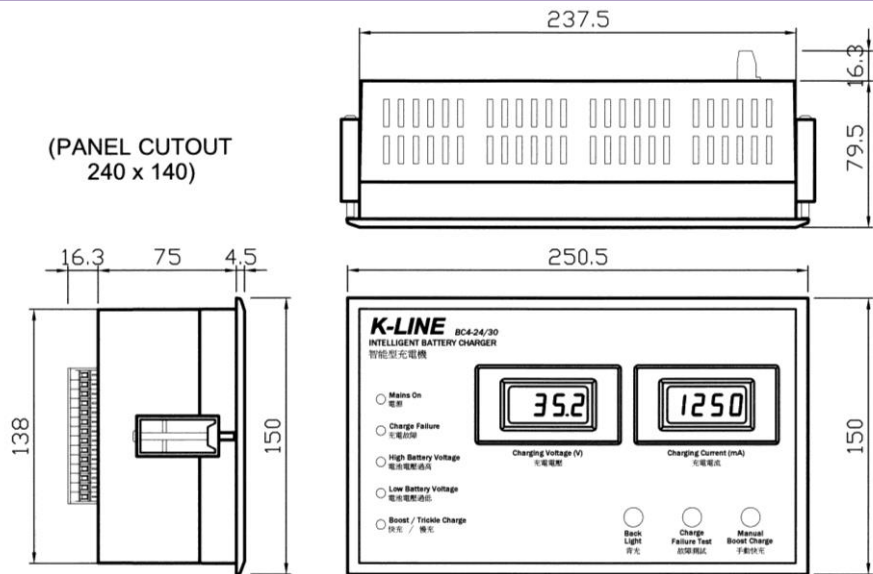
DC Output : 24V/6.2A or 30V/5A selectable

Back-up Battery Voltage : 24V or 30V

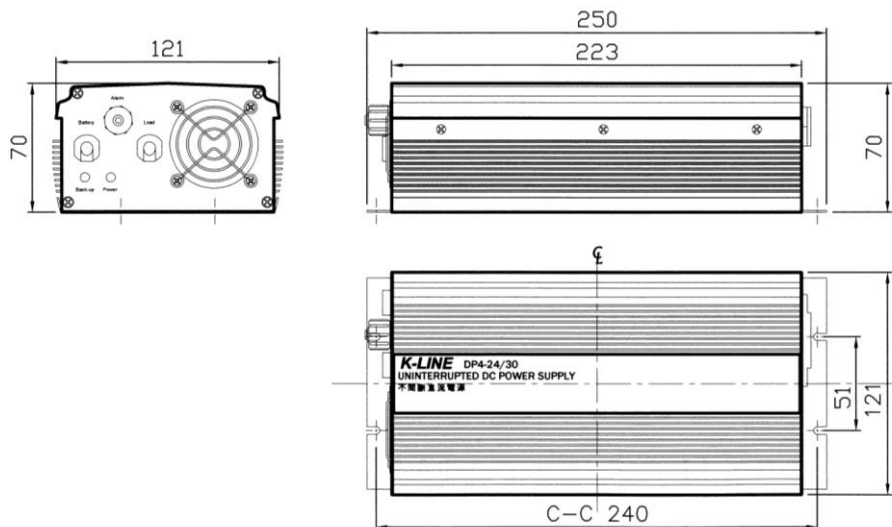


Battery Back-up Time at 120W DC Output				
Battery Voltage	24V		30V	
Battery Capacity	4/4.5Ah	10Ah	4/4.5Ah	10Ah
App. Back-up Time	45min	100min	55min	120min

Outline Dimensions

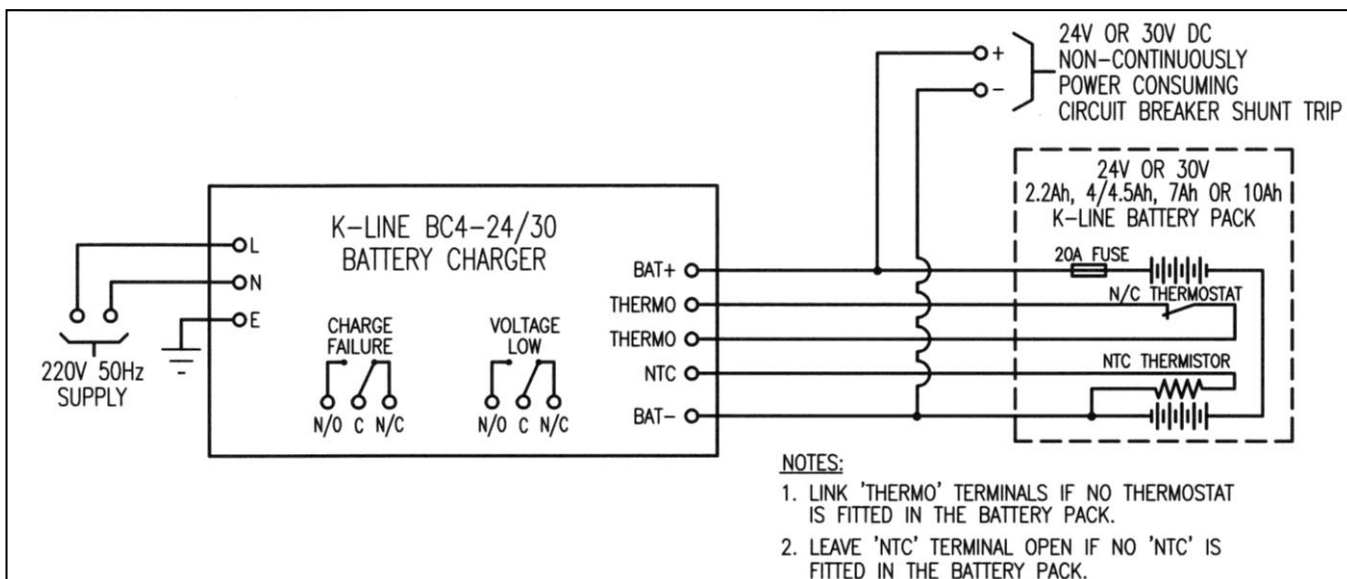


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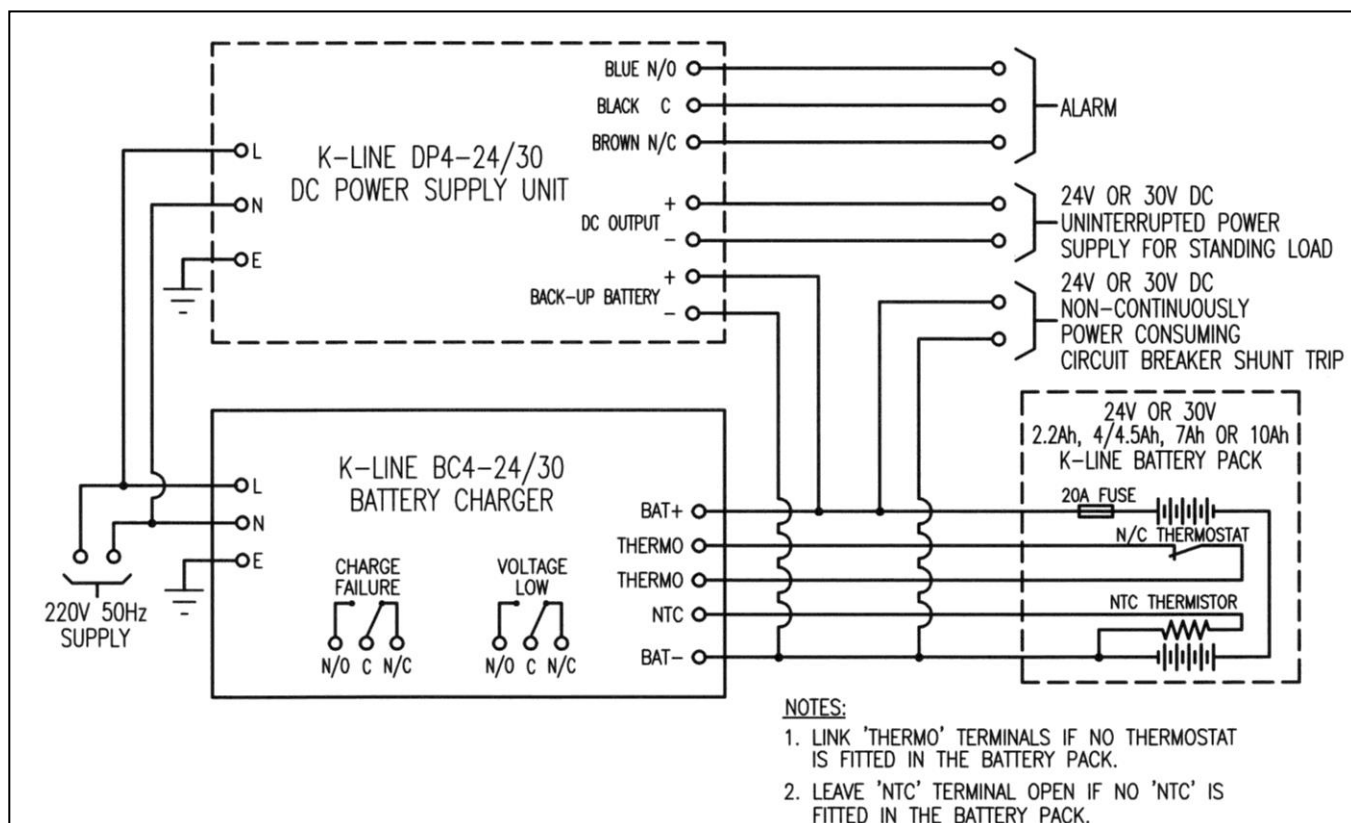


DP4-24/30 Power Supply Unit

Wiring Connection



FOR CIRCUIT BREAKER TRIPPING



UNINTERRUPTED POWER SUPPLY FOR STANDING LOAD

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