ELECTRONIC TEST & POWER SYSTEMS

BC-900-K2

DC-DC CONVERTER FOR ULTRA CAPACITOR CHARGING

POSITIVE PROBLEM SOLVING

This wall mounting DC-DC converter operates from a 24Vdc or 110Vdc input and provides an isolated and floating output, at a nominal 29½Vdc.

The unit has been designed to recharge and maintain ultra capacitors used in critical applications, where uncontrolled loss of output is not an option. The integrated management system ensures that the ultra capacitor is maintained at its optimum levels thus providing the best life span possible.

- Built in Ultra Capacitor Management System
- Extended Operating Temperature Range
- Monitoring & Control Software
- Volt Free Alarm Contacts
- Rugged Construction
- Convection Cooled

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FURTHER DETAILS

The unit monitors the converter temperature, DC_{OUT} UVP, DC_{OUT} OVP, temperature and system output. If any of theses parameters are outside of the set values it will be signaled via the volt free relay contact. A windows based monitoring program is also available. This provides details of actual output values along with the preset thresholds. It also allows for the adjustment of the maximum output voltage and current limit along with the setting of thresholds. The units are protected to IP 54 and can operate in ambient temperatures of -40°C to + 70°C. The converters can be further ruggedised with the addition of conformal coating and the securing of the larger components. The units are suitable for many applications including rail, industrial and telecom.

SELECTION TABLE

Part Number	Input Voltage	Output Voltage	Output Current	Output Power
BC-900-24-30-K2	24Vdc ± 30%	29.5Vdc (10-30Vdc)	$30A_{MAX}$ (10-30A)	$900W_{MAX}$
BC-900-110-30-K2	110Vdc ± 30%	29.5Vdc (10-30Vdc)	$50A_{MAX}$ (16-30A)	$1450W_{MAX}$

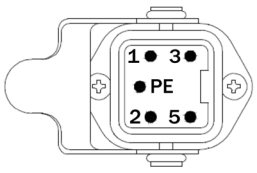
CONNECTION DATA

INPUT -X1	
1	Input voltage reference 0V
2	Input voltage reference 0V
3	Input voltage positive + V_{IN}
4	N.C.
5	Input voltage positive + V_{IN}
PE	Protective earth

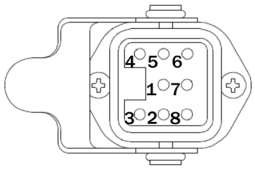
SIGNAL -X2	
1	Alarm common (C)
2	Output V_{MESS} 0V (1/3 V_{OUT})
3	Output V_{MESS} +V (1/3 V_{OUT})
4	Optional: Remote ON/OFF (24VDC / <20mA) +V
5	Optional: Remote ON/OFF reference reference (24VDC / 20mA) 0V
6	Alarm normal open (NO)
7	Alarm normal close (NC)
8	N.C.

OUTPUT -X3	
1	Output voltage reference $0V_{OUT}$
2	Output voltage reference $+V_{OUT}$
PE	Protective earth

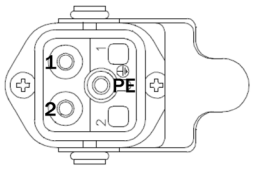
SIGNAL -X4	
1	N.C
2	RD (RX) receive data
3	TD (TX) transmit data
4	N.C.
5	GND logical ground
6	N.C.
7	N.C.
8	N.C.
9	N.C.



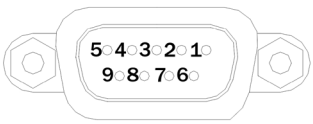
Input -X1
Harting HANQ5, male
Ag 4mm²



Signal 1 -X2
Harting HAN8U, female
Au 0.75mm²



Output -X3
HANQ2, female
Ag 4-6mm²



Signal 2 -X4
D-SUB, female
9-pin

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TECHNICAL DATA

OUTPUT (ULTRA CAPACITOR CHARGING)	
Nominal Voltage 29½VDC	29.5V (10-30Vdc programmable), recharge voltage 27.5Vdc (17.5Vdc-29.5Vdc programmable)
Stability	± 1%
Efficiency	>85% (24Vdc), >88% (110Vdc)
Maximum Output Power	900W (24Vdc), 1450W (110Vdc)
Output Current	30A (24Vdc), 50A (110Vdc)
Current Limitation	Constant current, without disconnection, but temperature limited
Ultra Capacitor Protection	Two stage, redundant and diverse DC_{OUT} OVP 31.8V (software) DC_{OUT} OVP 31.6V (hardware)

ENVIRONMENTAL CONDITIONS	
Ambient Temperature	-40°C to +70°C, according to EN 50155
Relative Humidity	<75% average per year
Shock & Vibration	According to EN 50155
EMC	According to EN 50121-3-2

ISOLATION	
Input	500V (24Vdc), 1500V (110Vdc)
Output	500V
Input to Output	1500V

SIGNALS	
Alarm Contact	Potential free
Remote ON/OFF (optional)	Bridge between pins 4 & 5 (external relay)
Interface	RS-232

MECHANICAL DATA	
Case Material	Stainless steel
Dimensions	270 x 115 x 255mm (W x H x D)
Weight	Approx. 6.5kg
Classification	IP54
Cooling	Convection via heat sink on wall side (cooling fins must run vertically for optimal air flow)
Connector Height	The extent of the connector plugs is 90mm + bending radius of the connecting cables
Grounding	An M6 x 25 ground bolt is provided on the case. A cable diameter of at least $4mm^2$ is recommended for the ground connection. The ground bolt is not connected to the -ve pole of this device. The input & output are isolated to chassis.

PROTECTION	
Input Undervoltage	24VDC in :16V disconnect, 17V restart; 110VDC in 75V disconnect, 77V restart
Input Overvoltage	24VDC in: 33V disconnect, 32V restart; 110VDC in: 145V disconnect, 143 restart
Output Undervoltage	14V factory set, 10-35V adjustable
Output Overvoltage	30.5V factory set, 10-35V adjustable
Current Limit	24Vdc in: 30A factory set, 10-30A adjustable; 110Vdc in: 50A factory set, 16-50A adjustable
Hardware DC_{OUT} Over. Protection	31V factory set, not adjustable
Input and Signal Protection	Reverse connection and short-circuit protected

OTHER	
Electrical Safety	EN 60950, VDE 0805 (Overload & shortcircuit protected)
Warranty	24 Months

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.

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ETPS engineer electronic power supply and testing systems. Our problem solving skills provide the spark of innovation to some of the world’s leading technology brands.

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