

# CRS-120

## 100...140W SINGLE OUTPUT DC/DC CONVERTERS

### GENERAL FEATURES:

- High input-output isolation
- Standard size Eurocard 3U
- Adjustable output voltage
- Remote sensing
- Input voltage OK LED
- Output voltage presence LED
- Remote inhibit
- Efficiency up to 89%



|        | 12Vin<br>9V ... 15V          | 24Vin<br>18V ... 30V         | 48Vin<br>36V ... 72V        | 72Vin<br>50,4V ... 90V       | 110Vin<br>77V ... 144V      | 220Vin<br>165V ... 275V      |
|--------|------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|------------------------------|
| 5Vout  | <b>CRS-120-6761*</b><br>100W | <b>CRS-120-6765*</b><br>100W | <b>CRS-120-6769</b><br>100W | <b>CRS-120-6773*</b><br>100W | <b>CRS-120-6777</b><br>100W | <b>CRS-120-6781*</b><br>100W |
| 12Vout | <b>CRS-120-6762</b><br>100W  | <b>CRS-120-6766</b><br>120W  | <b>CRS-120-6770</b><br>120W | <b>CRS-120-6774</b><br>120W  | <b>CRS-120-6778</b><br>120W | <b>CRS-120-6782*</b><br>120W |
| 24Vout | <b>CRS-120-6763</b><br>120W  | <b>CRS-120-6767</b><br>120W  | <b>CRS-120-6771</b><br>140W | <b>CRS-120-6775</b><br>140W  | <b>CRS-120-6779</b><br>140W | <b>CRS-120-6783</b><br>140W  |
| 48Vout | <b>CRS-120-6764</b><br>120W  | <b>CRS-120-6768</b><br>120W  | <b>CRS-120-6772</b><br>140W | <b>CRS-120-6776*</b><br>140W | <b>CRS-120-6780</b><br>140W | <b>CRS-120-6784*</b><br>140W |

\*References subject to special MOQs and lead times



| <b>INPUT</b>                                 |  |
|--|--|
| Input voltage range                          | See table  |
| Input undervoltage shutdown                  | 55% to 60% $V_i$ nom   |
| Maximum allowed input ripple                 | 5% $V_{in}$ nom ( $V_{rms}$ at 100Hz)                                    |
| <b>OUTPUT</b>                                |  |
| Output voltage                               | See table  |
| Output voltage adjustment                    | -10% ... +15% $V_o$ nom<br>-10% ... +25% $V_o$ nom for 12V output models |
| Line regulation ( $I_o = \text{nom}$ )       | < 0,2 % ( $I_o = \text{nom}$ )   |
| Load regulation ( $V_{in} = \text{nom}$ )    | < 0,2 % ( $V_{in} = \text{nom}$ ; $I_o: 0...100\%$ )                     |
| Ripple                                       | < 50 mVpp  |
| Noise (BW = 20MHz)                           | < 100 mVpp   |
| <b>ENVIRONMENTAL</b>                         |  |
| Storage temperature                          | -40°C ... 85°C   |
| Operating temperature range at $I_o = 100\%$ | -25°C ... 60°C (-40°C ... 60°C, see note-1)                              |
| Operating temperature range at $I_o = 50\%$  | -25°C ... 80°C (-40°C ... 80°C, see note-1)                              |
| Maximum Relative humidity                    | 95% with no condensation   |
| MTBF   | 500.000h @ 40°C according to IEC61709                                    |
| <b>EMC</b>                                   |  |
| Emission                                     | EN61000-6-3  |
| Immunity                                     | EN61000-6-2  |
| <b>SAFETY</b>                                |  |
| Safety                                       | EN60950-1, EN62368-1   |
| Dielectric strength Input / Output           | 3000Vac, 4200Vdc 1min.   |
| Dielectric strength Input / Earth            | 1500Vac, 2100Vdc 1min.   |
| Dielectric strength Output / Earth           | 1500Vac, 2100Vdc 1min.   |
| <b>MECHANICAL</b>                            |  |
| Approximate weight                           | 430g   |
| Dimensions                                   | 100 x 160 x 38.5mm   |
| <b>CONTROL</b>                               |  |
| Remote inhibit range                         | 5V ... 24V   |
| Remote sense                                 | < 0.3V per pole  |
| <b>PROTECTIONS</b>                           |  |
| Against overloads and short-circuits         | Current limiting   |
| Against reverse input voltage.               | Input fuse   |
| Against input under-voltage.                 | Under-voltage lock-out   |
| Against Input over-currents                  | Input fuse   |

Note-1: The unit can start up and work at an ambient temperature of -40°C with the following restrictions:

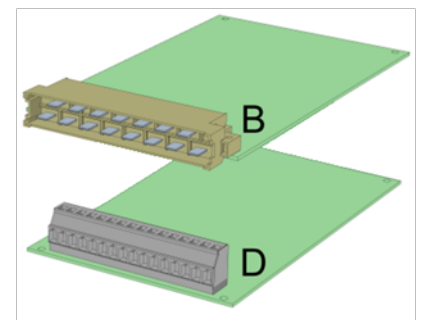
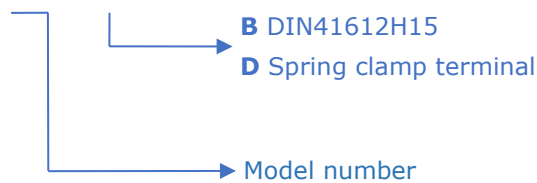
- Do not handle the connection terminals below -25°C.
- The output ripple can rise up to 150mVpp at -40°C

## ORDERING CODES

| Part Number          | Power [W] | Input [V] | Input range [V] | Output [V] | Output current [A] | Efficiency [%] |
|----------------------|-----------|-----------|-----------------|------------|--------------------|----------------|
| <b>CRS-120-6761*</b> | 100       | 12        | 9 - 15          | 5          | 20                 | 78             |
| <b>CRS-120-6762</b>  | 100       | 12        | 9 - 15          | 12         | 8,3                | 83             |
| <b>CRS-120-6763</b>  | 120       | 12        | 9 - 15          | 24         | 5                  | 84             |
| <b>CRS-120-6764</b>  | 120       | 12        | 9 - 15          | 48         | 2,5                | 85             |
| <b>CRS-120-6765*</b> | 100       | 24        | 18 - 30         | 5          | 20                 | 78             |
| <b>CRS-120-6766</b>  | 120       | 24        | 18 - 30         | 12         | 10                 | 83             |
| <b>CRS-120-6767</b>  | 120       | 24        | 18 - 30         | 24         | 5                  | 84             |
| <b>CRS-120-6768</b>  | 120       | 24        | 18 - 30         | 48         | 2.5                | 85             |
| <b>CRS-120-6769</b>  | 100       | 48        | 36 - 72         | 5          | 20                 | 79             |
| <b>CRS-120-6770</b>  | 120       | 48        | 36 - 72         | 12         | 10                 | 84             |
| <b>CRS-120-6771</b>  | 140       | 48        | 36 - 72         | 24         | 5,83               | 86             |
| <b>CRS-120-6772</b>  | 140       | 48        | 36 - 72         | 48         | 2,92               | 88             |
| <b>CRS-120-6773*</b> | 100       | 72        | 50,4 - 90       | 5          | 20                 | 79             |
| <b>CRS-120-6774</b>  | 120       | 72        | 50,4 - 90       | 12         | 10                 | 84             |
| <b>CRS-120-6775</b>  | 140       | 72        | 50,4 - 90       | 24         | 5,83               | 86             |
| <b>CRS-120-6776</b>  | 140       | 72        | 50,4 - 90       | 48         | 2,92               | 88             |
| <b>CRS-120-6777</b>  | 100       | 110       | 77 - 144        | 5          | 36                 | 80             |
| <b>CRS-120-6778</b>  | 120       | 110       | 77 - 144        | 12         | 20                 | 85             |
| <b>CRS-120-6779</b>  | 140       | 110       | 77 - 144        | 24         | 5,83               | 87             |
| <b>CRS-120-6780</b>  | 140       | 110       | 77 - 144        | 48         | 2,92               | 89             |
| <b>CRS-120-6781*</b> | 100       | 220       | 156 - 275       | 5          | 20                 | 80             |
| <b>CRS-120-6782*</b> | 120       | 220       | 156 - 275       | 12         | 10                 | 85             |
| <b>CRS-120-6783</b>  | 140       | 220       | 156 - 275       | 24         | 5,83               | 87             |
| <b>CRS-120-6784*</b> | 140       | 220       | 156 - 275       | 48         | 2,92               | 89             |

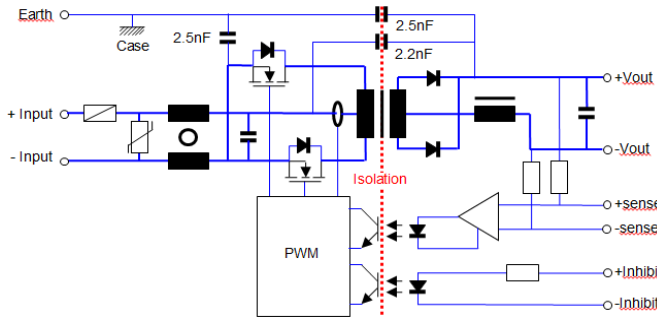
\*References subject to special MOQs and lead times

CRS-120-67 \_ \_ - \_



Accessories must be ordered in a separated order line

## BLOCKS DIAGRAM

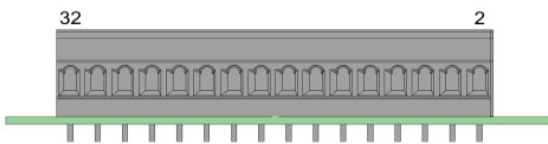


## CONNECTIONS

Connector DIN41612H15 (Max. 12A / terminal)

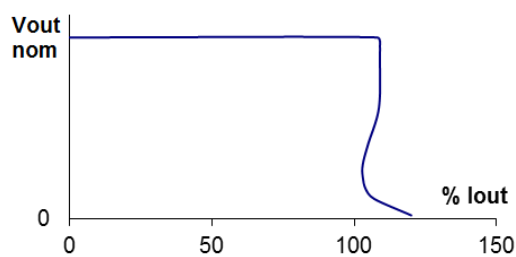


Spring clamp terminals (Max. 12A / terminal)

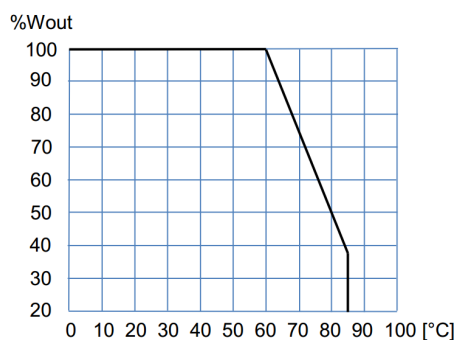


| Pinout   |          |
|----------|----------|
| +Input   | 8,10     |
| -Input   | 4,6, (2) |
| Earth    | 16       |
| +Output  | 26,28,30 |
| -Output  | 20,22,24 |
| +Sense   | 32       |
| -Sense   | 18       |
| +Inhibit | 14       |
| -Inhibit | 12       |

## TYPICAL OUTPUT CHARACTERISTIC



## POWER DERATING vs AMBIENT TEMP.



## DESCRIPTION

The CRS-120 series consists of DC-DC converters, with a galvanic isolation between input and output. The converters operate at a fixed switching frequency and use push-pull converter topology.

For maximum regulation, the remote sensing terminals can be connected to the load. This will allow a power cable voltage drop of up to 0.3 V on each cable to be offset.

The device is protected against overload and short-circuits by means of a current limiting circuit.

The device is also protected against reverse polarity input voltage, and the input fuse blows if an improper connection is made.

When a converter input undervoltage condition occurs, the converter is disabled, thus preventing the battery from becoming totally discharged.

## INSTALLATION

There are two connecting options:

- DIN-41612-H15 connector
- Spring clamp terminals.

The product can be mounted in several ways:

- On a chassis by means of the 4 corner holes.
- In EUROCARD racks. For this application there is a standard 9Te front plate accessory reference **NP-9155**

With the base reference **NP-9124**. This accessory can be mounted on a chassis or in DIN rail adding the clip accessory **NP-9135**.

## START-UP

Perform connection as per the table. Use of remote sensing is not absolutely necessary, but if this is required, use of a coaxial or a twisted-pair cable is recommended.

**WARNING: If the load is connected to the tabs of remote sensing (+/-S) and the connection from the output to this load is missing the remote sensing function could make unusable due to the acting of the internal fuse of protection.**

If power levels close to the maximum output are required, make sure the assembly enhances cooling by natural convection and the card is placed in vertical position.

**If several converters need to be connected in parallel, do the following:**

Set the output voltage for all converters featuring a mutual difference as small as possible. Join the load outputs by using cables with a cross-section no greater than the one required and of equal length.

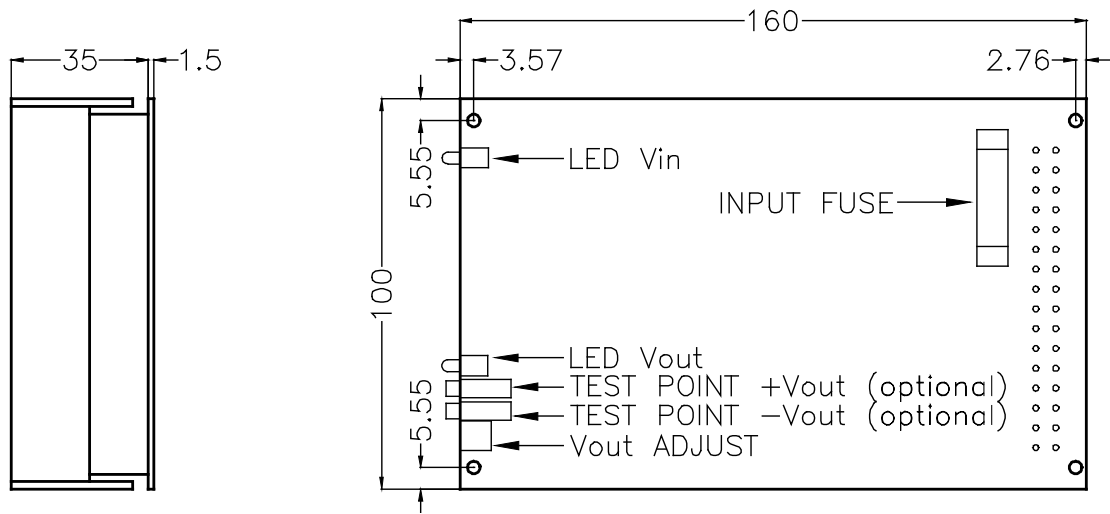
Do not use remote sensing.

**For safety reasons, the following requirements must be complied with:**

Provide the equipment with some kind of protective enclosure that complies with the electrical safety directives in effect within the country where the equipment is installed.

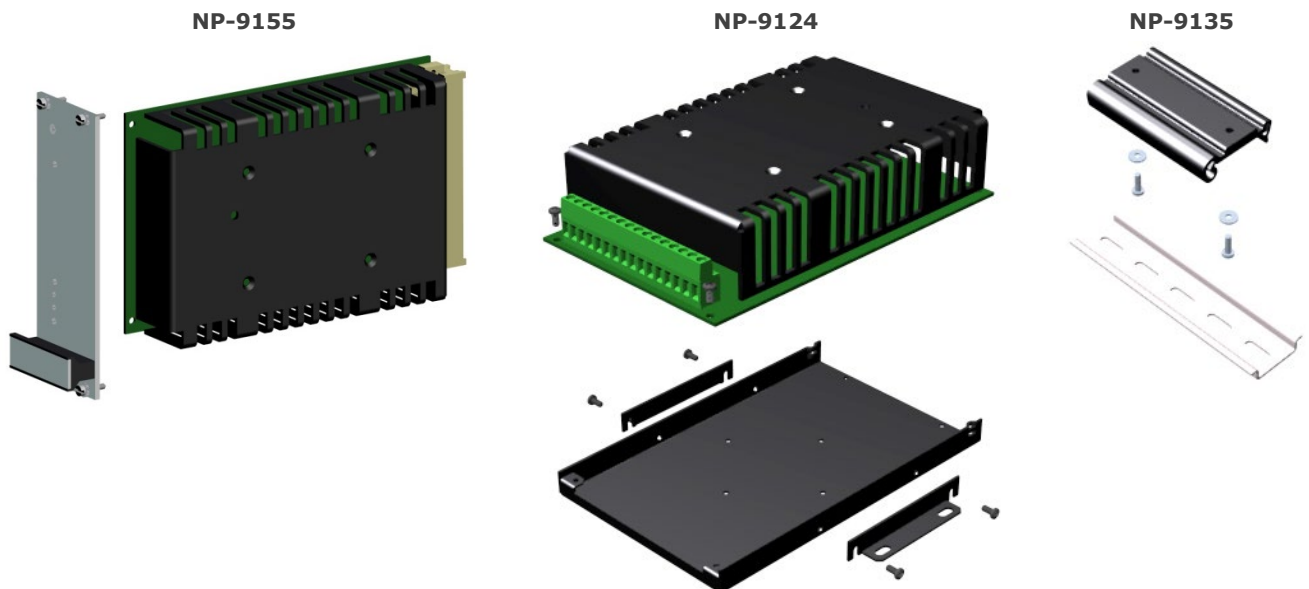
Only replace the fuse with another fuse of the same rating and type, and only after disconnecting the converter from DC power.

## DIMENSIONS



## ACCESSORIES

| ACCESSORIES   | CODE           |
|---|----------------|
| Rack 19" frontal panel (3U 9TE)                                     | NP-9155        |
| Mounting base   | NP-9124        |
| Din rail clip for mounting base                                     | NP-9135        |
| Redundant connection for two units (ORing diodes + alarms contacts) | ACD-15, ACD-25 |





## CE|UKCA EU, UKCA DECLARATION OF CONFORMITY

The undersigned, representing the following:

Manufacturer: PREMIUM, S. A.,  
Address: C/ Dolors Aleu 19-21, 08908 L'Hospitalet de Llobregat, SPAIN

herewith declares that the product:

Type: DC/DC converter  
Models: **CRS-120-6761... 6784**

is in conformity with the provisions of the following EU directive(s):

|                                |  |
|--------------------------------|--|
| 2014/35/EU<br>SI 2016 No 1101  | Low voltage / The electrical equipment (safety) regulations  |
| 2014/30/EU<br>SI 2016 No 1091  | EMC / Electromagnetic compatibility regulations  |
| 2011/65/EU<br>SI 2012 No. 3032 | RoHS / Restriction of the use of certain hazardous substances in electrical and electronic equipment |

and that standards and/or technical specifications referenced below have been applied:

|                    |   |
|--------------------|---|
| EN 60950-1: 2005   | Safety. Information technology equipment                                |
| EN 62368-1: 2014   | Safety. Audio/video, information and communication technology equipment |
| EN 61000-6-3: 2007 | Generic emission standard   |
| EN 61000-6-2: 2005 | Generic immunity standard   |

CE marking year: **2006**; UKCA marking year: **2021**

### Notes:

For the fulfillment of this declaration the product must be used only for the aim that has been conceived, considering the limitations established in the instructions manual or datasheet.

L'Hospitalet de Llobregat, 31-05-2021

Albert Sole  
Technical Director

**PREMIUM S.A.** is an ISO9001 and ISO14001  
certified company by **Bureau Veritas**