



# 60W JLSP SERIES

DC/DC CONVERTER



## Description

The JLSP series is designed specifically for use on railway rolling stock. These units are available in single or dual output versions with input ranges to cover all of those typically found in rail applications.

The JLSP range is fully compliant with the current national and international railway standards and norms.

## Input Specifications

The following input voltage versions are available as standard:

|      |                   |            |
|------|-------------------|------------|
| 110V | (66.0 - 137V) dc  | (suffix A) |
| 72V  | (43.2 - 90.0V) dc | (suffix D) |
| 52V  | (31.2 - 65.0V) dc | (suffix C) |
| 36V  | (21 - 50.4V) dc   | (suffix F) |
| 24V  | (16,8 - 33.6V) dc | (suffix B) |

Other ranges are available to order

| Product reference | All references   |
|-------------------|--|
| Input Ripple      | To RIA 13 and EN50155  |
| Input Protection  | Reverse polarity protection via a series diode; surges and transients to BRB/RIA 12, EN50155 |
| Inrush Current    | Limited to typically 5 x nominal current (after 0.1ms)                                       |
| Efficiency        | 75% to 90% dependent on input / output voltage   |
| Input Fuse        | Factory replacement only   |

## Output Specifications

| Product reference    | All references   |                 |            |               |            |                      |            |
|----------------------|--|-----------------|------------|---------------|------------|----------------------|------------|
| Output Power         | 60W  |                 |            |               |            |                      |            |
| Output Voltage       | Fixed output can be specified between 5V and 30Vdc   |                 |            |               |            |                      |            |
| Minimum Load         | Zero for all outputs   |                 |            |               |            |                      |            |
| Setting Accuracy     | ±0.5% at 50% load, 15°C to 25°C  |                 |            |               |            |                      |            |
| Line Regulation      | ±0.2% all outputs  |                 |            |               |            |                      |            |
| Load Regulation      | ±0.5% all outputs  |                 |            |               |            |                      |            |
| Temperature Coeff.   | <0.02% / °C  |                 |            |               |            |                      |            |
| Output Ripple        | <1% Pk-Pk of output voltage  |                 |            |               |            |                      |            |
| Output Noise         | <1% Pk-Pk super-imposed (up to 20 MHz)   |                 |            |               |            |                      |            |
| Response Time        | 0.5ms to within 2% (for a 20% - 90% load change)   |                 |            |               |            |                      |            |
| Inhibit              | PL1 Pin 1 & 5, short to inhibit  |                 |            |               |            |                      |            |
| Protection           | Output and signal lines protected against indirect transients to BRB/RIA 12, EN50155   |                 |            |               |            |                      |            |
| Current Limit        | Operates at a minimum of 110% of nominal load. Auto recovery.  |                 |            |               |            |                      |            |
| Primary Protection   | Operates at approximately 65W  |                 |            |               |            |                      |            |
| Thermal Protection   | Shuts down PSU if safe internal temperature is exceeded. Auto recovery.  |                 |            |               |            |                      |            |
| Isolation            | <table border="0"> <tr> <td>Input to Output</td> <td>3.0 kV dc.</td> </tr> <tr> <td>Input to Case</td> <td>1.5 kV dc.</td> </tr> <tr> <td>Output to base plate</td> <td>1.5 kV dc.</td> </tr> </table> | Input to Output | 3.0 kV dc. | Input to Case | 1.5 kV dc. | Output to base plate | 1.5 kV dc. |
| Input to Output      | 3.0 kV dc.   |                 |            |               |            |                      |            |
| Input to Case        | 1.5 kV dc.   |                 |            |               |            |                      |            |
| Output to base plate | 1.5 kV dc.   |                 |            |               |            |                      |            |

## Environmental Details

| Product reference     | All references  |
|-----------------------|---|
| Operating Temperature | -25°C to +71°C  |
| Storage Temperature   | -40°C to +71°C (option T)                                   |
| Cooling               | Convection  |
| Relative Humidity     | 95% max   |
| Shock and Vibration   | BRB/RIA 13 - Para 10.5.11, BRB/RIA 20, EN50155 para 10.2.11 |



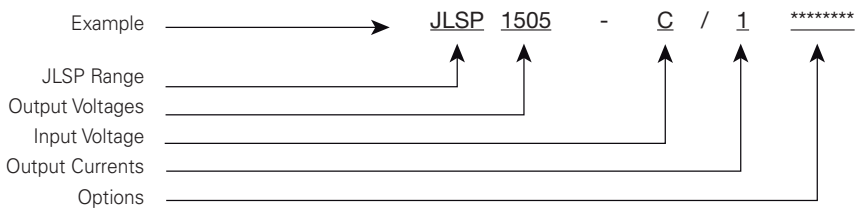
### Applicable Norms

| Item  | Reference                            |
|-------|--------------------------------------|
| EMC   | BRB/RIA 12, 18; EN50155, EN50121-3-2 |
| Other | BRB/RIA 13, 18, 20; EN50155          |

### Mechanical Characteristics

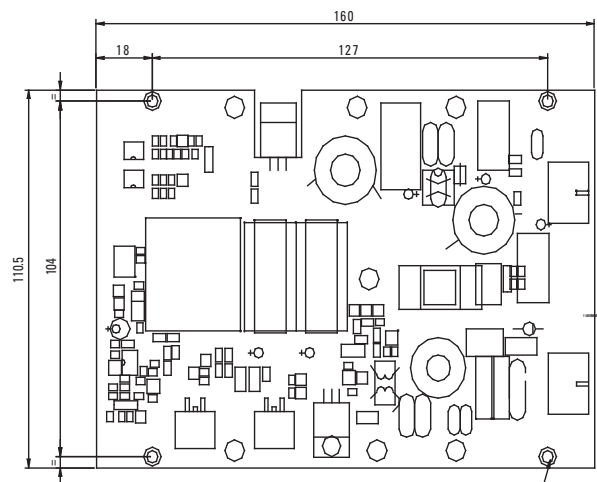
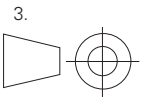
| Product reference | All references                                       |
|-------------------|--|
| Construction      | Open frame   |
| Dimensions        | Depth = 160 mm<br>Width = 110.5 mm<br>Height = 20 mm |
| Weight            | <0.5kg   |
| Mounting          | Four Mounting holes                                  |
| Connections       | 2 X 8 way Molex Mini-Fit Jnr.                        |

### Ordering Information

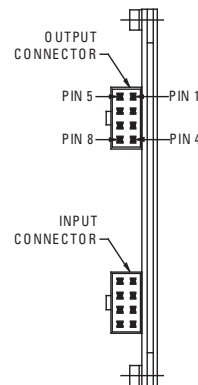
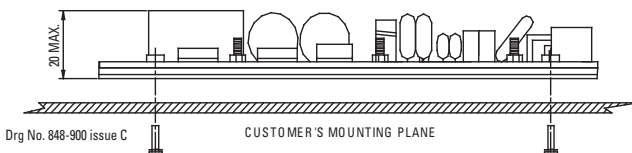


### Technical Drawing

- NOTES**
- All dimensions in mm
  - Specifications subject to change without notification



4 OFF CUSTOMER MOUNTING HOLES (#4-40 THREADED PCB INSERTS)



OUTPUT CONNECTOR: 8 WAY MOLEX MINI-FIT JR

PINS 1 & 5: U1  
PINS 2,3,6 & 7: 0V (COMMON)  
PINS 4 & 8: U2

INPUT CONNECTOR: 8 WAY MOLEX MINI-FIT JR

PINS 1 & 5: INHIBIT  
PIN 3: EARTH (CHASSIS)  
PIN 6: +Ve IN  
PIN 8: -Ve IN  
PINS 2,4 & 7 UNUSED

WEIGHT OF UNIT: <0.5Kg