

# MPF 330 & MPF 420 SERIES

## NON-ISOLATED DC/DC CONVERTERS

### Description

The MPF 330 W and MPF 420 W are non isolated DC/DC converters designed to power the headlights, windshield wipers or other equipments on board trains. They allow the adaptation of railway approved 72 V input products into a 110 V input. Inputs are available in 72 V and 110 VDC and outputs in 24 V, 27 V and 72 VDC.

Model 110 V/72 V is the ideal railway application adaptor to feed 72 VDC devices from a 110 VDC input. Both converters are compliant to railway standards EN 50155 and EN 50121-3-2.

### Input Specifications

| Product reference                | MPF330 1K02                   | MPF 420 1I02                  | MPF 420 1I03 |
|----------------------------------|-------------------------------|-------------------------------|--------------|
| Nominal input voltage            | 72 VDC                        | 110 VDC                       |              |
| Input voltage range              | 50 to 90 VDC                  | 77 to 137,5 VDC               |              |
| Input transients voltage         | 43 VDC, 101 VDC during 100 ms | 66 VDC, 154 VDC during 100 ms |              |
| Reverse input voltage protection | Yes, by reverse diode         |                               |              |
| Inrush current limitation        | Yes                           |                               |              |

### Output Specifications

| Product reference                                             | MPF330 1K02                              | MPF 420 1I02 | MPF 420 1I03 |
|---------------------------------------------------------------|------------------------------------------|--------------|--------------|
| Nominal output voltage                                        | 27 V                                     | 72 V         | 24 V         |
| Output voltage ripple p-p (WB 0 to 30 MHz)                    | 500 mV                                   |              |              |
| Nominal output current                                        | 12.5 A                                   | 4.6 A        | 13 A         |
| Crossed regulation (load + line)                              | ± 5%                                     |              |              |
| Nominal output power                                          | 338 W                                    | 331 W        | 312 W        |
| Efficiency                                                    | > 85%                                    |              |              |
| Long term stability during 8 hours (after 1/2 hour operating) | < 0.3%                                   |              |              |
| Switching frequency                                           | > 25 kHz, fixed                          |              |              |
| Output current limitation                                     | < 1,2 In                                 |              |              |
| Overload protection                                           | Yes, over current = red LED on           |              |              |
| Overvoltage protection                                        | Yes                                      |              |              |
| Permanent short circuit protection                            | Yes                                      |              |              |
| Power Good                                                    | By dry contact when Output voltage is ok |              | Green LED on |

### Environmental Details

| Product reference                   | All references                             |
|-------------------------------------|--------------------------------------------|
| Operating temperature range         | -20°C to +70°C                             |
| Derating                            | Without derating                           |
| Storage temperature range           | -40°C to +85°C                             |
| Temperature coefficient             | < 2.10 <sup>-4</sup> /°C                   |
| Relative humidity at 40°C           | Up to 95% non condensing                   |
| Cooling                             | Natural convection                         |
| Insulation resistance               | No insulation                              |
| Dielectric strength                 | 1500 VAC between Input + output and ground |
| MTBF (according to "MIL HDBK.217F") | GM 40°C: 200 000 h                         |
| Coating                             | PCB coated with varnish                    |
| Protection index                    | IP 20                                      |

Applicable Norms

| Item                   | Reference   | Level | Compliance |
|------------------------|-------------|-------|------------|
| Railway rolling stocks | EN 50 155   |       | X          |
| EMC                    | EN 50 121-3 |       | X          |
| Railway rolling stocks | NFF 67 001  |       | X          |
| Railway rolling stocks | NFF 01 510  |       | X          |

Mechanical Characteristics

| Product reference | All references    |
|-------------------|-------------------|
| Box material      | Metal             |
| Potting           | No                |
| Dimension         | 238 x 130 x 70 mm |
| Weight            | 1,25 kg           |
| Fixing            | 6 x Ø7 mm         |
| Input connector   | Screw terminal    |
| Output connector  | Screw terminal    |

Technical Drawing

