PRM SERIES OF DC/DC CONVERTERS

- **Superior efficiency**
- **High output power**
- **Passive cooling**
- **Silent operation**
- **Compact size**
- **Supply low-voltage tolerance**

Power supplies from PRM are advanced and highly efficient DC/DC converters used to stabilize the on-board electrical systems voltage in railway and military vehicles. Due to their high efficiency it is possible to use a passive cooling method instead of a fan. This makes all PRM devices operate noiselessly. In addition, they can work uninterruptedly even in a harsh environment, because of the great dust resistance.

PRM02 and PRM05 units tolerate very low input supply voltage. Thanks to that, they protect all sensitive electronic devices from voltage transients in electrical installations. Those transients can happen for example during the starting of the main engine or during the work of the on-board radio, especially VHF type. PRM04 unit is used whenever a 12V supply system is needed. PRM04 and PRM05 have galvanic isolation between input and output, which prevents the supply system from unwanted ground loops occurring and enhances its immunity to interference. On the other hand, PRM02 is very light and has a compact size. All of the PRM converters are short-circuit proof and have over temperature and overload protection.

	PRM05	PRM04	PRM02
DC input voltage	18 ÷ 40V	18 ÷ 40V	18 ÷ 36V
DC input low-voltage tolerance	10V @ 1000W	17,5V @ 800W	10V @ 200W
DC output voltage	24V	12V	24V
Nominal output power	1000W	800W	500W
Maximum output current	50A @ Vin = 24V	80A @ Vin = 24V	22A @ Vin = 24V
Efficiency	93%	90%	90%
Weight	11kg	11kg	3kg
Temperature range of operation	-30°C ÷ +50°C		
Cooling	Passive		
Galvanic isolation	Yes	Yes	No
Enviroment, shock and vibration	MIL-STD-810		
EMC specification	MIL-STD-461		

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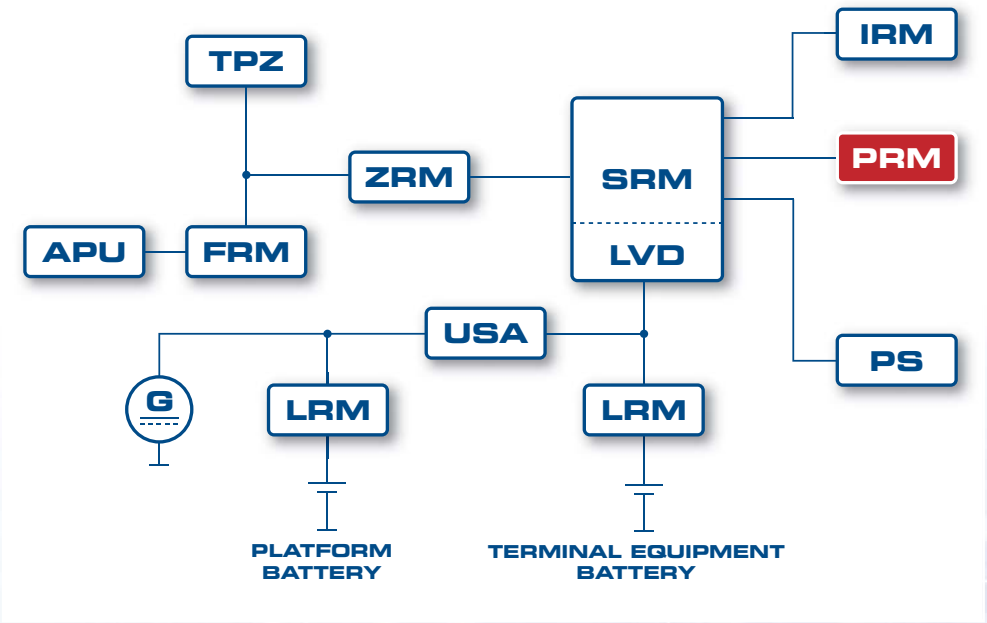
Location of the PRM in vehicle`s on-board electrical system



The presented solution is a complete and highly flexible on-board power supply and distribution system, dedicated for military vehicles. It consists of various devices like: AC/DC power supplies (ZRM), DC/DC power converters (PRM), DC/AC inverters (IRM), power distribution units (SRM), EMC/EMI filters (FRM), specialized wiring harnesses and many more. It also consists of devices which play a significant role in maintaining sets of batteries in a good condition. Batteries charging unit (LRM) and low voltage detector unit (LVD) belongs to this group. Their main tasks are: the limiting of the charging current, making the charging voltage variable as a function of ambient temperature and protecting batteries from full discharge. Those problems are common and they lead to a reduction in the lifetime of almost all types of batteries. The system also consists of: external power source connection units (TPZ), playing a role of an interface with external power sources; batteries coupling units (USA), which prevents the consequences of starting up the main engine in vehicles, where there are two sets of batteries (platform and terminal equipment batteries) and management units which allow the monitoring and management of the whole system.

The distinguishing feature common to the system`s elements is a specialized technology of energy conversion. It allows the main modules that are responsible for energy conversion to achieve efficiencies of 98%. This means that final efficiency of a complete device, equipped with advanced EMI/EMC filters and protection systems is very high. It opens the way for the use of a passive cooling method instead of using a fan. This means for the user, that the device will operate noiselessly and will have a great dust resistance. All of the system`s devices complies with relevant, military standards, including EMC/EMI, vibration and environmental.