ZRM SERIES OF AC/DC POWER SUPPLIES

- **Superior efficiency**
- **High output power**
- **Passive cooling**
- **Silent operation**
- **High stability**
- **Connecting outputs in parallel**

Power supplies units (PSU) from ZRM series are sophisticated devices characterised by their high efficiency. This parameter is especially important in all those situations where dissipated power is a considerable problem for air-conditioning or ventilation systems. High efficiency also allows the use of passive cooling instead of using a fan. It makes the whole device a lot more reliable, especially in a harsh environment. The noise level is also greatly reduced. Power ratings of ZRM meet almost everyone`s specifications and the enhanced ability of connecting outputs in parallel further improves the flexibility of the whole system. At the same time, the application of continuous operation has been made to be overload and short-circuit proof. These features make ZRM devices very valuable.

	ZRM01	ZRM02
AC input voltage	One-phase 230V +10% -20%	Three-phase 400V ± 10%
DC output voltage	28V	
Nominal output power	4000W	6500W
Maximum output current	170A	310A
Efficiency	93%	95%
Weight	44kg	
Temperature range of operation	-30°C ÷ +50°C	
Output voltage temperature stability (-30°C ÷ +50°C)	≤ 0.3%	≤ 0.3%
Output voltage ripple	≤ 0.5%	≤ 0.9%
PF	0.98	-
Cooling	Passive	
Paralleling outputs	Yes	
Enviroment, shock and vibration	MIL-STD-810	
EMC specification	MIL-STD-461	
Maximum AC leakage current	< 30 mA	

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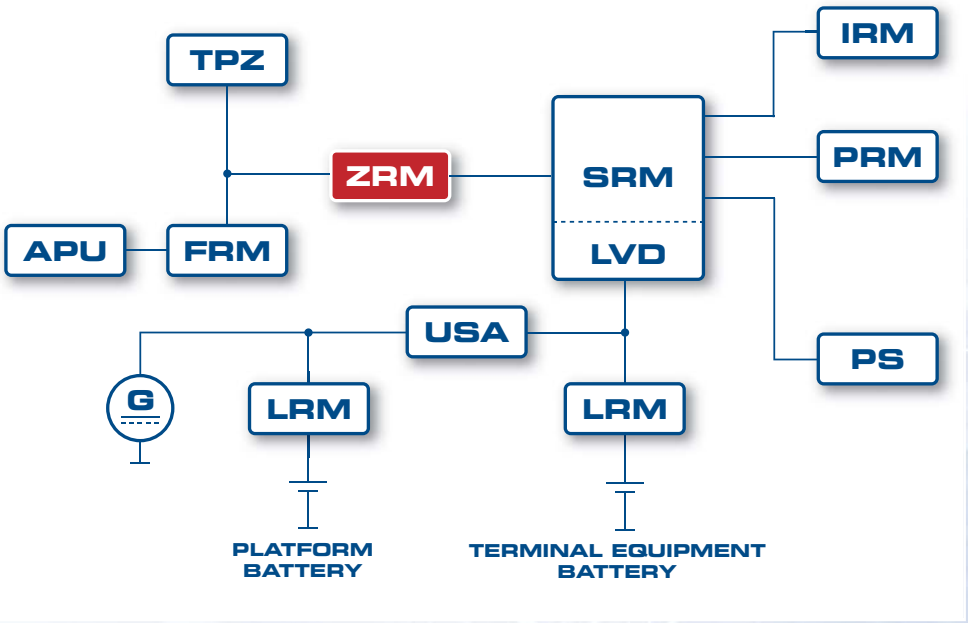
Main application of ZRM series PSU are on-board battery power supply systems (24V DC) for military vehicles. They supply energy for all on-board electronic devices when the main engine (and the alternator) is not running and the energy comes from external source (APU, stationary AC mains, etc.). They are used to charge terminal equipment batteries and when battery coupling unit (USA) is used, charging platform batteries is also possible.

Location of the ZRM 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.