Intelligent Power Module

PMG perpetuum

GENERAL DESCRIPTION

The Perpetuum IPM is a combination of Perpetuum proprietary hardware integrated into an OEM's wireless transmitter standard battery module that enables the use of a variety of external power sources to supplement battery power.

With a suitable external energy source, battery life may be extended to the effective shelf life of the battery, eliminating battery changes during the life of the installation, even at high data collection and transmission rates.

While designed primarily for Perpetuum's Vibration Energy Harvester, the IPM it will also work with suitable thermal or solar energy harvesters as well as intrinsic safety barrier protected 24V DC power.

The external energy source supplies a low, constant current. Short term energy storage residing on the IPM circuit board stores sufficient harvested energy to supply the intermittent high current drain required by WSN data transmissions.

FEATURES

- Same form fit and function as the standard OEM wireless transmitter battery pack module.
- Capacitor capacity sufficient to supply the power required for a typical transmission without drawing power from the battery.
- ATEX Zone 0, FM, CFM, IECEx hazardous area certified.
- Intrinsically safe and field replaceable.
- Exceptional value for prioritized assets where fast burst rates are desired.
- Extended value for wireless transmitters installed in remote, safety restricted or hazardous areas.

Table 1. Ordering Information

Model	Part Number	Deployment Environment	Electrical Mains Frequency
IPM	71008	Industrial	

Perpetuum IPM for Emerson Rosemount 3051S Wireless transmitter.

Table 2. Circuit Specifications

Parameter	Minimum	Typical	Maximum	Notes
Input voltage	8.0		20V	
Output voltage with harvester	7.3	7.6	7.8	-40˚C to +85˚C
Output current			70mA	
Output voltage, no harvester, 10mA	5.2	6.1	6.6	(Battery output at -30˚C and 10mA is 3V. 85˚C and 1mA is 3.7V.)
Output voltage, no harvester, 1mA	5.6	6.4	7.0	
Storage capacitance	3.5mF	4.4mF	5.28mF	
Capacitor energy storage	12.4mJ	27.92mJ	94.62mJ	Available energy without drawing battery current. Worst case at maximum temperature and minimum GEHAM regulator voltage.
Power consumption of GEHAM regulator circuit			25µA	
Output Entity Parameters	Po = 0.77W	Uo = 7.8V	Io = 1.84A	
Input entity Parameters	Ui = 20V	Pi = 0.165W	Ii = 20mA	

To order: Please contact your Perpetuum sales representative. See Resources section of website.

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