

Transformer Rectifiers for Cathodic Protection of: pipelines, tank bottoms, tank internals, buried vessels, offshore structures, concrete reinforcement, submerge metallic structures



- Single phase or 3 phase (wye) input: 90 to 480VAC, 50 / 60 Hz cycles
- Output current ranges: 3A / 6A / 9A / 12A / 24A DC
- Output voltage range: 0V - 12 / 24 V DC
- Power factor correction to 0.99 minimum
- Standard enclosure: 2 mm minimum thick carbon steel housing. Options include hot dipped galvanized, stainless steel, aluminium, GRP
- IP Rating: conforming to IP55 up to IP65
- Operating ambient: -20°C to 50°C
- Remote monitoring ready via RS485 interface (see PCM datasheet) and ARMS interface (see ARMS datasheet)

PML Transformer Rectifiers are custom built to meet the diverse standards and specifications of the cathodic protection industry across the globe. PML can provide different types of Transformer Rectifiers such as tap set, variac, phase control and switch mode.

Each type of Transformer Rectifier can be provided with different types of cooling, enclosure etc.

**This data sheet covers the specific details for switch mode air cooled units (SMPS).**

Enclosures can be constructed in a variety of materials and finishes. Standard enclosures are constructed using steel sheet with rating conforming to IP55. Our standard enclosure is coated with a metallic zinc flame spray, epoxy seal coat, polyurethane top coat in colour RAL 7032 gloss. However, almost any specification of material, coating or IP rating can be accommodated. Transformer Rectifiers are suitable for indoor/outdoor plinth mounting. Smaller units can be post or wall mounted.

**Enclosure** - Air cooled Transformer Rectifier enclosure comprises of single housing which accommodates a.c. and d.c. terminals, instruments and breaker.

**Operation** - Switch mode Transformer Rectifiers convert utility supply to the required d.c. output in the following stages:

- Input voltage is supplied to a digital switch mode power converter (DSM).
- A power control module (PCM) is used to control the voltage output for a channel.
- A control signal is sent from a PCM to the DSM.
- Output voltage from the DSM is varied depending on the signal from the PCM.
- Rectification is achieved using full wave diode bridge assembly inside the DSM.
- DC output voltage filtering (smoothing) is achieved via component inside the DSM.

**Safety/Protection** – AC input breaker is provided for over load and short circuit protection. Lightning arrestor is provided on the input side and surge arrestor is provided on the output side. High speed fuses are provided on the transformer secondary.

**Instrument panel** – The front instrument panel houses the user interface for the PCM. The interface enables the user to manually adjust the output from the DSM to the system as well as view the current and voltage output from the DSM.

**Control**– Constant voltage, constant current and auto-potential control is obtainable through the PCM.

**Output ripple** - Ripple is less than 1mV below 200Hz

**Number of Channels** - Switch Mode transformer rectifiers can have a maximum of 16 channels per unit.

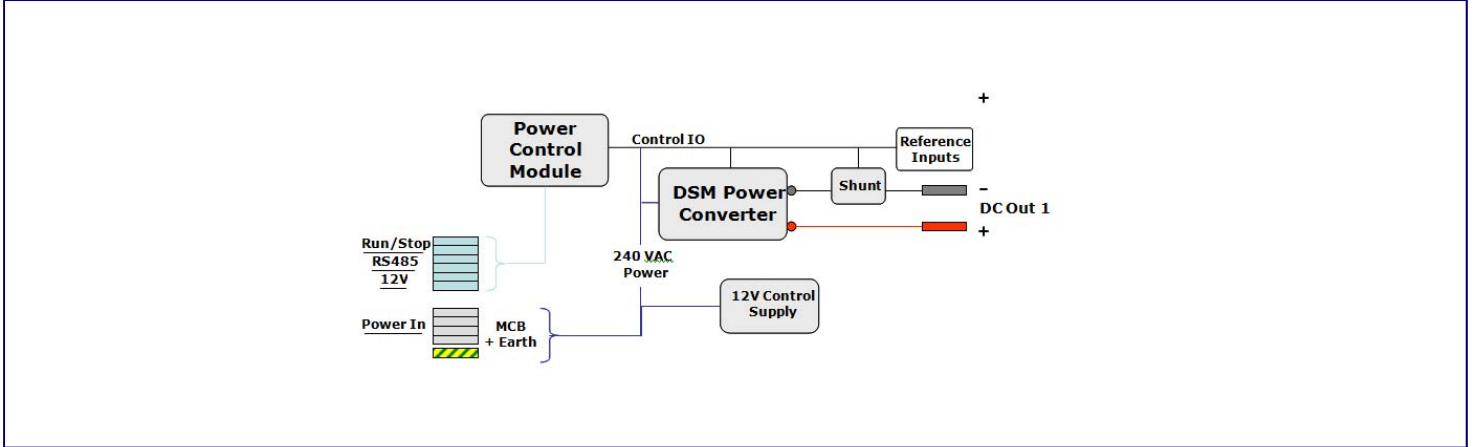
**Efficiency** - Efficiency is between 78% and 86% at an input voltage 200VAC or higher.

**Zone classification** - Transformer Rectifiers can be manufactured to hazardous area classification. SIRA certification can also be provided.

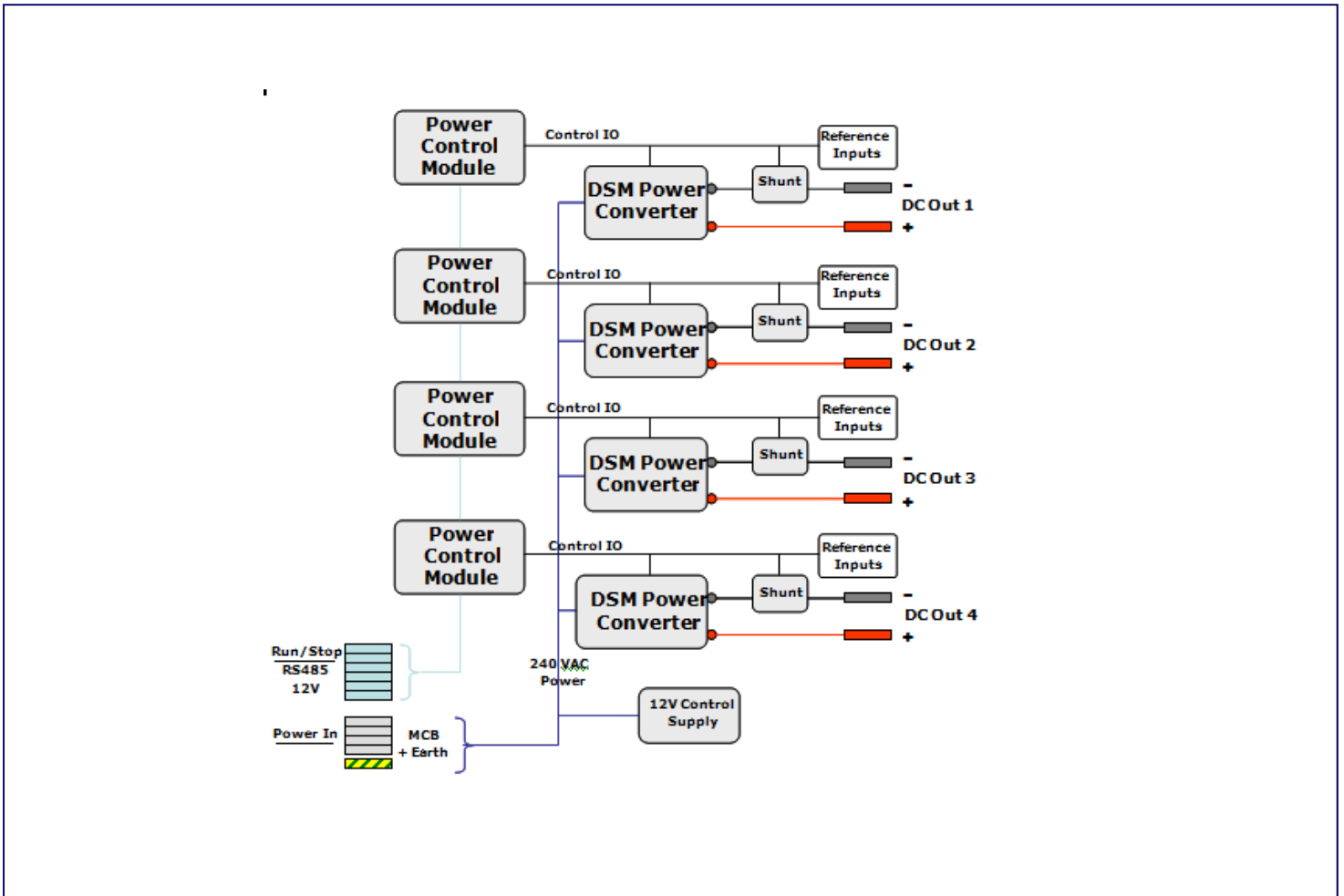
**Remote Monitoring** - Remote monitoring can be offered and is carried out through the PCM. Digital monitoring using RS485 network can be offered and requires a master control unit.

Power Supplies & Remote Monitoring

Single Channel Arrangement



Multi Channel Arrangement



Power Supplies & Remote Monitoring

Detailed design and GA drawings will be provided for approval after order is placed