

# *Installation and Operation Manual*

**Powerwave**<sup>®</sup>  
technologies

**THE POWER IN WIRELESS**<sup>™</sup>

*Power Amplifier Radio Module (PARM),  
869-894 MHz, 40/30-Watt*



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# Chapter 1 General Description

## 1-1 Introduction

This manual contains general information, installation procedures, and specifications for the operation and use of the Power Amplifier Radio Module (PARM). The manual is organized as follows:

- Chapter 1 General Description with Specifications
- Chapter 2 Installation and Operation

## 1-2 General Description

The PARM is designed as an integrated subassembly unit mounted in a Radio Module (RM) closed metal housing fitted with a heat sink and connected by RF coaxial and DC connectors. The PARM use a common DC/DC converter for operating power. Up to three PARM can be mounted in one RM.

The PARM's basic function is amplifying 25 MHz band modulated RF input signals (869-894 MHz) from the TX driver subassembly, up to the level of the whole transmitter, as defined in GSM 05.05, class 1 (20 watts minimum and 40 watts maximum). The main characteristics of the PARM are:

- GSMK compliant
- 8-PSK compliant

The PARM is rated for an average output power of 40/30 watts with an EDGE signal and 40/30 watts with a GSMK signal. The electrical specifications are also designed to be in compliance with the requirements of GSM 05.05.

## 1-3 Specifications

Specifications for the PARM are listed and described in table 1-1.

**Table 1-1 PARM Operating Specifications**

Frequency Range	869 - 894 MHz (25 MHz Bandwidth)
Total Typical / Maximum Input Power	-15.7 - +4.8 / +5.8 dBm
Average Output Power	40/30 Watts (46.02/44.8 dBm)
RF Gain	39 - 48 dB
Duty Cycle	Continuous
DC Operating Voltage	27 ±2% VDC (26.46 to 27.54 VDC)
DC Operating Voltage Range	25 to 29.5 VDC
Operating Temperature	-5 °C to +60 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5 % to 95 % Relative Humidity (noncondensing)
Storage Humidity	0 % to 100 % Relative Humidity (noncondensing)
Alarms	See Chapter 2
RF Input Connector	MCX female, gold plated body and core
RF Output Connector	QN-type female (50 Ohm Nominal Impedence)
DC Input Connector	Samtec FHP-04-01-T-S, 8-pin (50 Ohm Nominal Impedence)
Power Consumption	94.5 Watts
Dimensions	3.75" High, .75" Wide, 6.75" Deep

# Chapter 2 Installation and Operation

## 2-1 Introduction

This section contains operating instructions for the Power Amplifier Radio Module (PARM).

## 2-2 Installation

The PARM module is designed to be directly installed into the radio module.

### 2-2.1 Alarms Interface Connector

Pin Number	Signal	Comment
1	PA_VER_RADO	From PARM TO LRM
2	PA_VER_RAD1	From PARM TO LRM
3	PA_VER_RAD2	From PARM TO LRM
4	PA_VER_RAD3	From PARM TO LRM
5	PA_VER_RAD4	From PARM TO LRM
6	GND	
7	GND	
8	PA_ID_LDMOS0	From PARM TO LRM
9	PA_VG_LDMOS0	From LRM TO PARM
10	GND	
11	GND	
12	PA_ID_DRIVER	From PARM TO LRM
13	PA_ALA_TPTR_OUT	From PARM TO LRM
14	GND	
15	GND	
16	PA_OFF	From LRM TO PARM
17	PA_VG_LDMOS1	From LRM TO PARM
18	GND	
19	PA_ID_LDMOS1	From PARM TO LRM
20	PA_P_OUT	From PARM TO LRM

### 2-2.2 Alarm Descriptions

- **High Temperature** – A temperature monitor located inside the PARM indicates the alarm status if the temperature exceeds the defined threshold.
- **High Current** - This alarm indicates when a high current is pending that could damage the PARM if the system continues to operate.