

Chapter 1

General Description

1-1 Introduction

This manual contains information and procedures for installation and servicing of Powerwave's G3H-851-80 Amplifier. The manual is organized into two chapters as follows:

Chapter 1	General Description	Chapter 4	Principles of Operation
Chapter 2	Installation	Chapter 5	Maintenance
Chapter 3	Operating Instruction	Appendix A	Glossary of Terms

1-2 General Description

The G3H-851-80 Power Amplifier, shown in Figure 1-1 through Figure 1-4, operates in the 18 MHz frequency band from 851 MHz to 869 MHz with an instantaneous bandwidth of not more than 18 MHz. The instantaneous bandwidth is the maximum frequency band in which any two or more signals can occupy. The amplifier's instantaneous bandwidth is set automatically and does not require any manual setup.

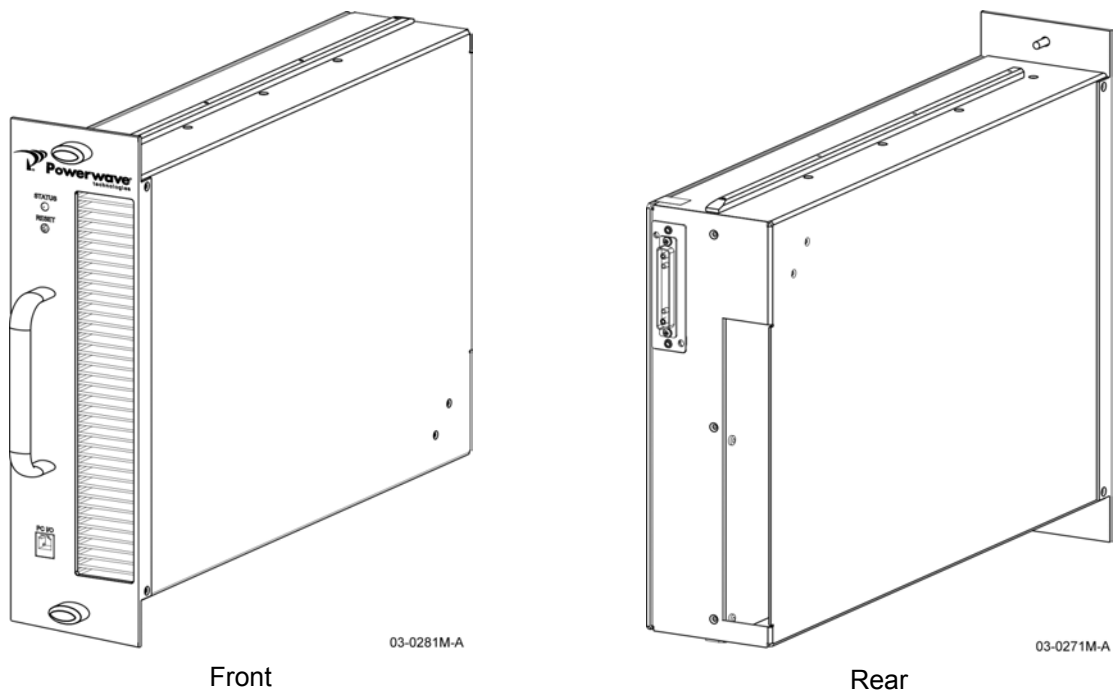


Figure 1-1. Model G3H-851-80 Amplifier Front and Rear Isometric View

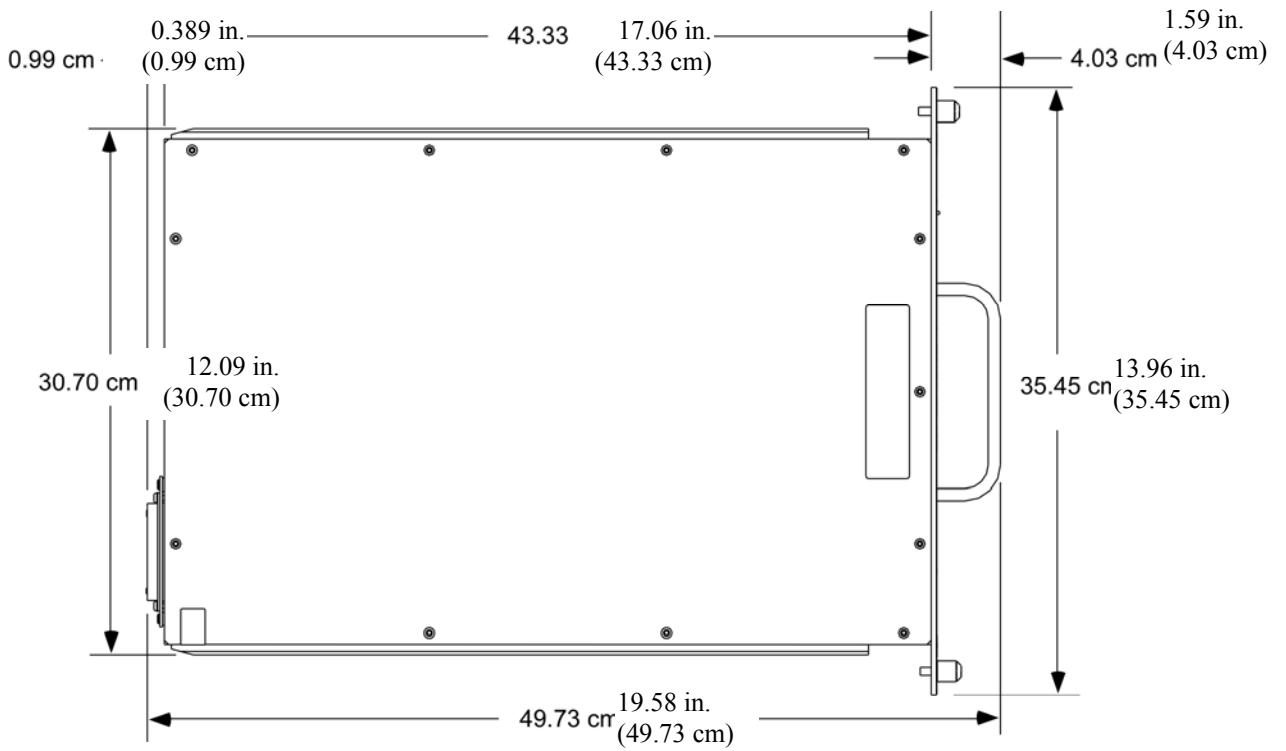


Figure 1-2. Model G3H-851-80 Amplifier Side View

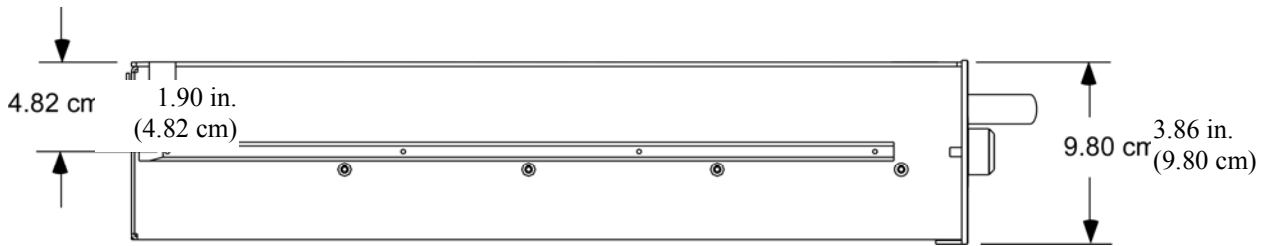
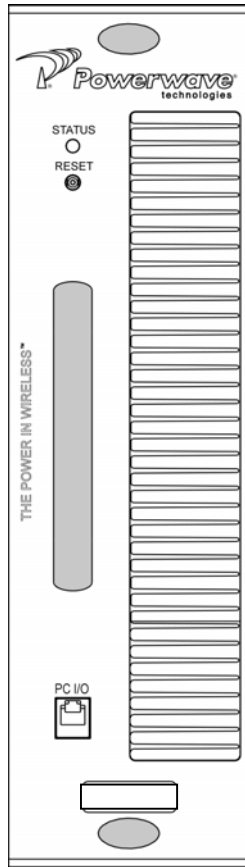
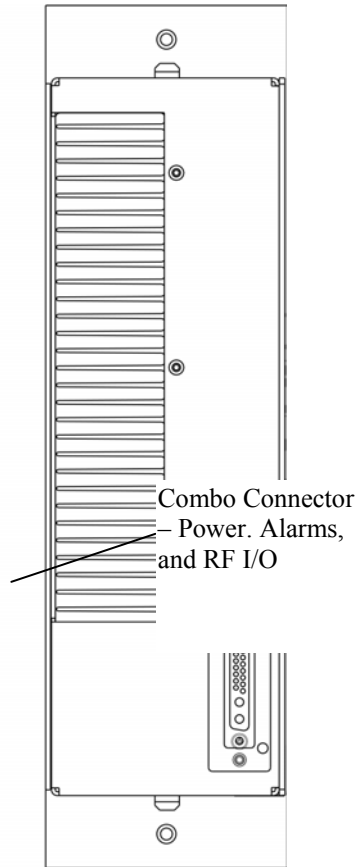


Figure 1-3. Model G3H-851-80 Amplifier Bottom View

Power Switch:
Power/RESET



RS-232
Port



Combo Connector
- Power, Alarms,
and RF I/O

Figure 1-4. Model G3H-851-80 Amplifier Front Panel

1-3 Specifications

Electrical, mechanical, and environmental specifications for the G3H-851-80 amplifier are listed in Table 1-1.

Table 1-1. G3H-851-80 Amplifier Specifications

Frequency Range	851-869 MHz;
Maximum Instantaneous Bandwidth	18 MHz bandwidth (lowest to highest transmitted frequency)
Carrier Types	IDEN, 1X-EVDO/IS-95
Minimum Channel Spacing	1.25 MHz for 1X-EVDO/IS-95, 30 kHz for iDEN
Total Maximum Input Power	-11.69 dBm @ 80 Watts (to achieve rated power); -11.01 dBm max. -5.7 dBm or greater causes input overdrive shutdown.
Total Average Output Power	80 Watts @27Vdc, @+25 °C
DC/RF Conversion Efficiency	> 16%
Intermodulation Distortion and In-Band Spurious:	-63 dBc (Min) @ +26 to +28 Vdc @ 80 Watts; 600 KHz channel spacing within 25 MHz bandwidth*
RF Gain at 869 to 894 MHz	63 dB \pm 1 dB
Gain Flatness:	+0.5 dB @ 26 – 28 Vdc
Gain Variation Over Temperature:	+0.5 dB from 26 Vdc to 28 Vdc over -20 to +50 °C
Output Protection:	Mismatch protected
Input Port Return Loss:	11 dB
Out of Band Spurious:	Better than -60 dBc, +26 Vdc to +28 Vdc
Spurious Performance	ITU-R SM329-9, Category A, non-carrier related
Duty Cycle:	Continuous
DC Input Voltage:	+27 Vdc \pm 1 Vdc, operational range +21.0 Vdc to 30 Vdc amplifier will disable at < 20.5 Vdc or > +30.5 Vdc.
DC Input Current:	26.5 Amps typical @ 80 W out, 28 A max @ 80 Watts (over temperature or over voltage);
Operating Temperature:	-33 °C. to +50 °C.
Storage Temperature:	-40 °C. to +85 °C.
Operating Humidity:	5 % to 95 % relative humidity (non-condensing)
Storage Humidity:	5 % to 95 % relative humidity (non-condensing)
Altitude	-50 to +4000 M (-164 to 13,125 ft.)
RF Input / Output / Status / Alarm / Control / DC Input Connectors:	21-Pin D-Subminiature combo connector
Maintenance Port	RJ-11, RS-232 (for factory use only)

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Switches	Reset/On/Off Switch
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Indicators: STATUS	LED; Green (normal), Yellow (minor alarm), Red (critical alarm)
Dimensions:	35.46 cm wide, 9.56 cm high, 45.0 cm deep (including handles)
Weight:	13 kg (28.6 lb.)



Note

This Powerwave product is designed to operate within the normal operating (typical operating) ranges or conditions specified in this document. Operation of this equipment beyond the specified ranges may cause (1) spurious emissions that violate regulatory requirements; (2) the equipment to be automatically removed from service when maximum thresholds are exceeded; or (3) the equipment to not perform in accordance with its specifications. It is the operator's responsibility to ensure this equipment is properly installed and operated within Powerwave operating specifications to obtain proper performance from the equipment and to comply with regulatory requirements. **Industry Canada: The Manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5 dB, especially where the output signal is re-radiated and can cause interference to adjacent band users. This power reduction is to be by means of input power or gain reduction and not by an attenuator at the output of the device.**

1-4 Ordering Information

Table 1-2 lists major system component numbers and descriptions for use in ordering.

Table 1-2. Major System Components

Model Number	Description
G3H-851-80	80-Watt Amplifier, +27 Vdc

*Amplifier sub-racks sold and described separately