The Model 90S4G8 is a portable, self-contained, air-cooled, broadband, completely solid-state amplifier designed for applications where instantaneous bandwidth, high gain and linearity are required. The Model 90S4G8, when used with a sweep generator, will provide a minimum of 90 watts of RF power instantaneously from 4 to 8 GHz.

The Model 90S4G8 is equipped with a Digital Control Panel (DCP) which provides both local and remote control of the amplifier. The DCP uses a graphic Liquid Crystal Display, menu assigned softkeys, a single rotary knob, and a dedicated power on/off switch to offer extensive control and status reporting capability. The display provides operational presentation of Forward Power and Reflected Power plus control status and reports of internal amplifier status. Special features include a gain control, internal/external automatic level control (ALC) with front panel control of the ALC threshold, pulse input capability and RF output level protection. Also included is an internal RF detector which provides an output for use in self-testing or operational modes.

All amplifier control functions and status indications are available remotely in GPIB/IEEE-488 format, RS-232 hardwire and fiber optic, USB, and Ethernet. The buss interface connector is located on the back panel and positive control of local or remote operation is assured by a keylock on the front panel of the amplifier.

The Model 90S4G8 is designed to have low spurious signals, linearity and is extremely load tolerant which enables it to be used in many RF applications such as: RF susceptibility testing, antenna/component testing, and communication technology testing. It can be used as a test instrument covering multiple frequency bands and is suitable for a variety of communication technologies such as CDMA, W-CDMA, TDMA, GSM, UWB, WiMAX etc.

The 90S4G8 is part of AR’s Expandable Power concept, which gives the amplifier much more versatility. The 90S4G8 consists of three 35S4G8A sub-amplifiers housed in a single equipment rack with a controller. The 90S4G8 can function as one amplifier or be separated and operate as three separate 35S4G8A amplifiers which can be used independently. The 90S4G8 can be upgraded in the future to a 120S4G8 by simply adding one more 35S4G8 sub-amplifier, upgrading the controller and performing minor tuning. Model 90S4G8M2 is not upgradable.

**90S4G8 TYPICAL POWER OUTPUT**
## Specifications, Model 90S4G8

**Rated Power Output**
- 90 watts minimum

**Power Output @ 3dB Compression**
- Nominal: 100 watts
- Minimum: 90 watts

**Power Output @ 1dB Compression**
- Nominal: 90 watts
- Minimum: 75 watts

**Flatness**
- ±1.5 dB typical
- ±2.5 dB maximum

**Frequency Response**
- 4.0–8.0 GHz instantaneously

**Input for Rate Output**
- 1.0 milliwatt maximum, 0 dBm

**Gain (at maximum setting)**
- 49.6 dB minimum

**Gain Adjustment (Continuous Range)**
- 10 dB minimum

**Input Impedance**
- 50 ohms, VSWR 2.5:1 maximum

**Output Impedance**
- 50 ohms, nominal

**Mismatch Tolerance**
- 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.

  *See Application Note #27.

**Modulation Capability**
- Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal

**Harmonic Distortion**
- Minus 20 dBc maximum at 90 watts

**Third Order Intercept Point**
- 57 dBm typical

**RF Power Display**
- Digital, forward, and reflected

**Primary Power**
- 90-132, 180-264 VAC
- 50/60 Hz, single phase
- <1800 watts maximum

**Connectors**
- RF Input: See Model Configurations
- RF Output: Type N female on rear panel
- External Leveling Inputs: Type BNC female on front panel
- Pulse Modulation Input: Type BNC female on front panel
- Detected RF Output: Type BNC female on front panel

**Remote Interfaces**
- IEEE-488: 24 pin female
- RS-232: 9 pin Subminiature D (female)
- RS-232 (Fiber-optic): Type ST
- USB 2.0: Type B
- Ethernet: RJ-45

**Safety Interlock**
- 15 Pin Subminiature D

**Cooling**
- Forced air (self contained fans)

**Weight (approximate)**
- 148kg (325 lbs)

**Size (W x H x D)**
- 56.1 x 152.4 x 67.1cm (22.1 x 60.0 x 26.4 in)

### Model Configurations

<table>
<thead>
<tr>
<th>Model</th>
<th>RF Input</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>90S4G8</td>
<td>N female on front</td>
<td></td>
</tr>
<tr>
<td>90S4G8M1</td>
<td>N female on rear</td>
<td></td>
</tr>
<tr>
<td>90S4G8M2</td>
<td>N female on rear</td>
<td>Special configuration with 7U (12.25 inch) rack space available for auxiliary equipment. Unit is not upgradable.</td>
</tr>
<tr>
<td>90S4G8M3</td>
<td>N female on rear</td>
<td>Supplied without an outer enclosure. For use in AR rack systems only.</td>
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</tbody>
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