



**PH2000 Series
Power Heads**

The PH2000 Series of Power Heads is designed for use with the Model PM2000 Series Power Meters. The most critical element of any power meter is the power head. The head is responsible for converting the incident RF or microwave power to an equivalent voltage which can be processed by the power meter. The head must also present to the incident power an impedance, which is closely matched to the transmission system, to avoid mismatch errors. Finally, the head must introduce the smallest drift and noise possible so as not to disturb the measurement.

AR RF Microwave Instrumentation offers a family of diode or thermocouple, 50 ohm power heads with excellent specifications. All are supplied with carefully measured calibration factors that are NIST-traceable. Each Power Head is supplied with a data adapter and a 5 foot Power Head Cable.

The export classification for this equipment is EAR99. These commodities, technology or software are controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

Model Impedance RF Connector	Frequency Range	Dynamic Range Model PH2000 Series	Overload Rating Peak Power CW Power	Max. SWR		Drift and Noise Lowest Range			Compatibility
				Frequency	SWR	Drift (typical) 1 Hr Note 3	Noise RMS	(typical) 2σ	
DUAL DIODE HEADS									
PH2000A 50Ω N(M)	10 kHz to 8GHz	-60 to +20 dBm	1 W for 1μS 300 mW	10 kHz to 2 GHz 2 GHz to 4 GHz 4 GHz to 8 GHz	1.12 1.20 1.40	150 pW	80 pW	160 pW	PM2003
PH2001A 50Ω N(M)	100 kHz to 12.4 GHz	-60 to +20 dBm	1 W for 1μS 300 mW	100 kHz to 2 GHz 2 GHz to 4 GHz 4 GHz to 11 GHz 11 GHz to 12.4 GHz	1.12 1.20 1.40 1.60	150 pW	80 pW	160 pW	PM2003
PH2005 50Ω N(M)	500 kHz to 18 GHz	-70 to +20 dBm	1 W for 1μS 300 mW	500 kHz to 2 GHz 2 GHz to 6 GHz 6 GHz to 18 GHz	1.15 1.20 1.40	100 pW	30 pW	60 pW	PM2002 PM2003
PH2006 50Ω N(M)	500 kHz to 18 GHz	-60 to +30 dBm	10 W for 1μS 3 W	500 kHz to 2 GHz 2 GHz to 6 GHz 6 GHz to 18 GHz	1.15 1.20 1.40	100 pW	30 pW	60 pW	PM2002 PM2003
PH2007A 50Ω N(M)	100 kHz to 18 GHz	-50 to +30dBm	10 W for 1μS 2 W	100 kHz to 1 GHz 1 GHz to 2 GHz 2 GHz to 4 GHz 4 GHz to 12.4 GHz 12.4 GHz to 18 GHz	1.07 1.10 1.12 1.18 1.28	1.5 nW	.8 nW	1.6 nW	PM2003
PH2009 50Ω K(M)	10 MHz to 26.5 GHz	-70 to +20 dBm	1 W for 1μS 300 mW	10 MHz to 2 GHz 2 GHz to 4 GHz 4 GHz to 18 GHz 18 GHz to 26.5 GHz	1.15 1.20 1.45 1.50	100 pW	30 pW	60 pW	PM2002 PM2003
PH2010 50Ω K(M)	30 MHz to 40 GHz	-70 to +20 dBm	1 W for 1μS 300 mW	30 MHz to 4 GHz 4 GHz to 38 GHz 38 GHz to 40 GHz	1.25 1.65 2.00	100 pW	30 pW	60 pW	PM2002 PM2003

THERMOCOUPLE HEADS

PH2030 50Ω N(M)	10 MHz to 18 GHz	-20 to +20 dBm	15 W 300 mW Note 1	10 MHz to 30 MHz 30 MHz to 16 GHz 16 GHz to 18 GHz	1.25 1.18 1.28	200 nW	100 nW	200 nW	PM2002 PM2003
PH2033 50Ω N(M)	10 MHz to 18 GHz	0 to +37 dBm	150 W 10 W Note 2	10 MHz to 2 GHz 2 GHz to 12.4 GHz 12.4 GHz to 18 GHz	1.10 1.18 1.28	20 μW	10 μW	20 μW	PM2002 PM2003

Notes for Power Heads:

1. Thermocouple Pulse Characteristics at 25°C: Maximum pulse energy = 30 w-μsec. (per pulse).
2. Thermocouple Pulse Characteristics at 25°C: Maximum pulse energy = 300 w-μsec. (per pulse).
3. After 2-hour warm up: High frequency power linearity uncertainty: (worst case) PH2000A, PH2001A, and PH2004A (0.005 x f) dB per dB above +4dBm; (above +14dBm for the PH2007A), where f is in GHz.
4. Power Linearity Uncertainty at 50MHz:
 <20dBm: 1% for PH2000A, PH2001A, PH2004A, and PH2007A Heads after performing AutoCal
 20 to 30dBm: 1% increasing linearly to 6% for PH2007A Heads after performing AutoCal
 <10dBm: 1% for PH2030, PH2009, PH2010 and PH2005 Heads.
 10 to 17dBm: 3% for PH2009, PH2010 and PH2005 Heads.
 17 to 20dBm: 6% for PH2009, PH2010 and PH2005 Heads.
5. Temperature Influence:
 - a. 0 to 25°C: 0.02 dB/°C; 25 to 50°C: 0.01 dB/°C for PH2001A, PH2004A, PH2007A, and PH2005 Heads.
 - b. 0 to 50°C: 0.03 dB/°C for PH2009, PH2010 Heads.
 - c. 0 to 50°C: 0.01 dB/°C for PH2030, and PH2033 Heads.

MODEL PH2000/PM2003 ACCESSORIES

Part No.	
10017970	5ft. Power Head Cable*
10017971	10ft. Power Head Cable*
10017972	20ft. Power Head Cable*
10017973	50ft. Power Head Cable*
10017974	100ft. Power Head Cable*
10016003	Power Head Cable Interconnection Adapter (F/F)
10013186	FT3000 Bulkhead Feedthrough Connector (F/F)
10008829	RM2000 Rackmounting Kit
10008941	Data Adapter, for Power Head

* All power head cables are shipped complete with a blank data adapter. Data from the PH to be used must be loaded onto the new adapter (See Operation Manual for details).