



**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 or 75 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.

Model Impedance RF Connector	Frequency Range	Dynamic Range Model PH2000 Series	Overload Rating Peak Power CW Power	Max. SWR		Drift and Noise Lowest Range		
				Frequency	SWR	Drift (typical) 1 Hr Note 3	Noise RMS	(typical) 2σ
DUAL DIODE HEADS								
PH2000 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	65 pW	130 pW
PH2001 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	65 pW	130 pW
PH2004 50Ω N(M)	100 kHz to 18 GHz	-60 to +20 dBm	1 W for 1μS 300 mW	100 kHz to 4 GHz 4 GHz to 10 GHz 10 GHz to 18 GHz	1.30 1.50 1.70	150 pW	65 pW	130 pW
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
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
PH2007 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	.65 nW	1.3 nW
PH2008 50Ω N(M)	100 kHz to 18 GHz	-40 to +33 dBm	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	15 nW	6.5 nW	13 nW
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
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
PH2011 50Ω N(M)	100 kHz to 18 GHz	-20 to +37 dBm	100 W for 1μS 7W	100 kHz to 4 GHz 4 GHz to 12 GHz 12 GHz to 18 GHz	1.15 1.25 1.40	150 nW	65 nW	130 nW

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
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

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) PH2000, PH2001 and PH2004 (0.005 x f) dB per dB above +4dBm; (above +14dBm for the PH2007 and above +24 dBm for the PH2008), where f is in GHz.
4. Power Linearity Uncertainty at 50MHz:
 <10dBm: 1% for PH2000, PH2001, PH2004, PH2007, PH2008, PH2030, PH2009, PH2010 and PH2005 Heads.
 10 to 20dBm: 1% for PH2007 and PH 2008 Heads: 3% for PH2000, PH2001 and PH 2004 Heads.
 20 to 33dBm: 3% for PH2007 and PH2008 Heads.
 10 to 17dBm: 3% for PH2009, PH2010 and PH2005 Heads.
 17 to 20dBm: 6% for PH2009, PH2010 and PH2005 Heads.
 30 to 37dBm: 3% for PH2011 Head.
5. Temperature Influence:
 - a. 0 to 25°C: 0.02 dB/°C; 25 to 55°C: 0.01 dB/°C for PH2001, PH2004, PH2007, PH2008 and PH2005 Heads.
 - b. 0 to 55°C: 0.03 dB/°C for PH2009, PH2010 and PH2011 Heads.
 - c. 0 to 55°C: 0.01 dB/°C for PH2030, and PH2033 Heads.

MODEL PH2000/PM2002 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).