CPM 20, 46
Counter Power Meter

A ruggedized solution for microwave power and frequency measurements in the field

- Combined Frequency Counter and Power Meter in one unit
- Two models available:
  - 10 MHz to 20 GHz
  - 10 MHz to 46 GHz
- Large, easy to read screen allows simultaneous display of both power and frequency measurements
- Built-in DVM for AGC voltage measurements
- Designed for use in the field, weighing only 4.9 kg (10.8 lb) and battery operated
- Supported by the full range of IFR power sensors

IFR's Counter Power Meter (CPM) is a portable combination of three instruments: a Microwave Frequency Counter, true Power Meter and Digital Voltmeter. A compact instrument with internal rechargeable battery, ruggedized case and carrying strap, it can be used up a tower, on a roof top or at a field site. Digital microwave radios are commonly installed for network access to mobile radio cell sites and quick installation of business communications. The CPM is the ideal instrument for installation and maintenance engineers working on these systems.

Designed for Field Use

The CPM weighs 4.9 kg (10.8 lb), including battery, which makes it ideal for taking up radio towers or carrying on to exposed roof top sites. A supplied accessory pouch contains and protects all the required accessories. The rechargeable battery gives three hours of continuous operation. Batteries can be charged from either the supplied AC adapter or a vehicle supply. Battery life is continuously monitored and the display shows the percentage life remaining. As accessories a spare battery and desktop charger are available.

The display uses transflective LCD technology which has an integral backlight. This means that it can easily be read both outdoors in direct sunlight and indoors in low light. The user interface makes operation fast, simple and reliable. Measurements are swiftly configured, connections are clearly marked and results are easy to read.

Accuracy

Despite being lightweight and portable, there is no compromise in accuracy. The standard reference oscillator is a DTCXO, digitally controlled temperature compensated crystal oscillator. A DTCXO has no warm up time and is ready to make accurate measurements immediately after switch on, saving both time and battery life. Power measurement accuracy is guaranteed through the use of the standard IFR 6900 series of power sensors. These sensors have excellent return loss specifications which minimize mismatch errors in power measurements. Calibration and linearity factors, unique to each sensor, can also be entered into the CPM to ensure the best accuracy at all times. An integral 0 dBm, 50 MHz power reference is used for sensor calibration, ensuring measurement accuracy and traceability to national standards.

Fully Featured

Two versions of the CPM are available, CPM 20 measures frequencies from 10 MHz to 20 GHz and CPM 46 from 10 MHz to 46 GHz, through a single input. Power sensors cover the frequency range 30 kHz to 46 GHz, and when used with a CPM measure -60 dBm to +44 dBm (25 W).

The frequency counter has relative frequency and frequency offset modes for frequency drift and frequency conversion measurements. A limits function enables frequency to be measured against a specification, with pass/fail annunciator in the display. Resolution is user settable from 1 Hz to 1 MHz.

CPM is designed for radio link testing

The power meter features pass/fail limits, dB rel, power offset and duty cycle modes. An analog peaking meter is displayed for tuning and adjusting power levels.

A built-in DVM complements the frequency counter and power meter. Radio

links are often aligned by monitoring the receiver AGC voltage. The DVM, with its clear 10 mV resolution readout and analog peaking meter, is ideally suited to this task.

Specification

Frequency Measurement

Frequency Range
10 MHz to 20 GHz CPM 20
10 MHz to 46 GHz CPM 46

Sensitivity
10 MHz to 20 GHz -20 dBm (typ, below 20 MHz)
20 GHz to 26.5 GHz -20 dBm
26.5 GHz to 40 GHz -15 dBm
40 GHz to 46 GHz -10 dBm

Input Connector
Precision Type N (f) CPM 20
Precision 2.92 mm (f) CPM 46

Input Impedance
50 Ω Nominal

Maximum Input
10 MHz to 46 GHz +10 dBm (typ, below 20 MHz)

Damage Level
+27 dBm

Resolution
User selectable 1 Hz to 1 MHz

Measurement Time
1 Hz Resolution <2 s
>1 Hz Resolution <250 ms

FM Tolerance
20 MHz peak to peak, for >1 kHz rate

AM Tolerance
Any index as long as minimum level does not fall below sensitivity, at 20 kHz rate

Amplitude Discrimination
20 dB for signals >400 MHz

Accuracy (1 Hz Resolution)
Frequency standard error ±25 Hz
(10 MHz to 20 GHz)
Frequency standard error ±50 Hz
(20 GHz to 46 GHz)

10 MHz Frequency Standard

Features
Limit checking
Relative frequency
Frequency offset
Frequency hold

Temperature Stability
DTCXO (standard)
Better than ±5 in 10^8, 0 to 50°C
TCXO (option 001)
Better than ±1 in 10^6, 0 to 50°C

Ageing
DTCXO (standard) ±0.3 ppm/year
TCXO (option 001) ± 1ppm/year

External Frequency Standard Input
10 MHz, 0.7 to 5 V p-p sine or square wave into 1 kΩ nominal. AC coupled. BNC female

Power Measurement

Frequency Range (Sensor Dependent)
30 kHz to 46 GHz

Power Range (Sensor Dependent)
-65 dBm (0.31 nW) to +44 dBm (25 W)

Power Sensors Supported
6910 series (-30 dBm to +20 dBm)
6920 series (-65 dBm to -20 dBm)*
6930 series (-15 dBm to +35 dBm)
6930 series opt 2, (-5 dBm to +44 dBm)

Power Accuracy
After calibration using 0 dBm power reference: ±0.2 dB. Measuring a signal in the centre of the power sensor dynamic range, from a source with return loss better than 14 dB

Resolution
4 digits

Units
dBm, dBW, pW, nW, µW, mW, W, kW

Features
Limit checking, Duty cycle, dB Relative, Power offset, Analog Meter

Correction
Linearity Factor
Calibration Factor

Auto-Calibration
Ability to calibrate against a 0 dBm (1 mW), 50 MHz power reference

Auto-Zero
Removes DC offset from gain stages and power sensor.

Noise Floor (after Auto-Zero)
6910 series <-30 dBm
6920 series <-65 dBm*
6930 series <-15 dBm

Power Reference

Frequency
50 MHz ±0.10 MHz

Power Level
0 dBm (1 mW)

Uncertainty
±0.7% traceable to National Standards

Accuracy
±1.2% worst case for one year

Output Connector
N (f), 50 Ω. Adapters are supplied with 75 Ω, 3.5 mm and 2.92 mm power sensors

Digital Voltmeter

Voltage Range
0 V to +10 V (DC only) protected to 40 V

Accuracy
±2.5% of reading

Resolution
10 mV

Connector
4 mm banana sockets

Impedance
6 MΩ in parallel with 100 pF, -ve terminal connected to chassis via 10 kΩ resistor

Display

LCD
1/4 VGA transflective with backlight

Terminal Interface

Connector
9 pin D male. RS-232 (DTE) compatible

Power Requirements

DC Input (Vehicle Supply or AC Adapter)
10 V to 28 V, 32 VA (max)

Rechargable Battery
3 hours continuous operation minimum

Recharge Time
<4 hours

Size & Weight

285 mm (width), 130 mm (height), 210 mm (depth)
4.9 kg (10.8 lb)

Environmental

Operating Temperature Range
0 to +45°C

Storage Temperature Range (Excluding Battery)
-40 to +70°C

Storage Humidity Range
Up to 93% RH at +40°C

Shock and Vibration
MIL-T-28800 for class 3

Drop Test
IEC 68-2-32

Overall Instrument Protection
IEC 529 (rating IP 523)

EMC and Safety

Conforms with the limits specified in the following standards:

Emissions
EN55011:1991
AS/NZS2064.1/2 CISPR11

Immunity
EN50082-1:1992
AS/NZS4252.1 IEC801-2:1991
IEC801-3:1984
IEC801-4:1988

Safety
EN61010-1
UL3111-1 IEC 1010-1
CSA-C22.2 No. 1010.1

Versions and Accessories

When ordering please quote the following ordering number information

Ordering Number	*Version*
CPM 20	10 MHz to 20 GHz Counter Power Meter
CPM 46	10 MHz to 46 GHz Counter Power Meter
Option 001	Replaces DTCXO with TCXO
	Supplied with
41690/616	Accessory pouch
41700/788	Carrying strap
43113/022	Rechargable battery
28541/213	Universal AC adapter/battery charger
	Power lead for charger
43169/039	Vehicle DC supply lead
43138/663	1.5 m power sensor cable
23443/874	DVM, BNC adapter
46882/335	Operating Manual
	Accessories
54311/219	20 GHz standard counter cable 1.5 m, SMA (m) to SMA (m)
54311/134	Adapter N (m) to SMA (f)
54351/027	40 GHz counter cable 0.5 m, 2.92 mm (m) to 2.92 mm (m)
43113/022	Spare battery
54464/001	Desktop battery charger
46880/084	Service Manual
	Power Sensors
	Standard (-30 dBm to +20 dBm)
56910/900	10 MHz to 20 GHz. Type N
56911/900	10 MHz to 20 GHz. APC 7
56912/900	30 kHz to 4.2 GHz. Type N
56913/900	10 MHz to 26.5 GHz. MPC 3.5 mm
56914/001	10 MHz to 40 GHz. 2.92 mm
56914/002	10 MHz to 40 GHz. 2.92 mm plus waveguide 22 coax transition and calibration table
56914/003	10 MHz to 46 GHz. 2.92 mm
56919/900	75 Ω 30 kHz to 3 GHz. Type N
	Low power (-65 dBm to -20 dBm)*
56920/900	10 MHz to 20 GHz. Type N
56923/900	10 MHz to 26.5 GHz. MPC 3.5
56924/001	10 MHz to 40 GHz. 2.92 mm
56924/002	10 MHz to 40 GHz. 2.92 mm plus waveguide 22 coax transition and calibration table
56924/003	10 MHz to 46 GHz. 2.92 mm
	High power
56930/900	10 MHz to 18 GHz. (-15 to +35 dBm) Type N
56932/900	30 kHz to 4.2 GHz. (-15 to +35 dBm) Type N
56934/001	10 MHz to 40 GHz. (-15 to +30 dBm) 2.92 mm
56934/002	10 MHz to 40 GHz. (-15 to +30 dBm) 2.92 mm plus waveguide 22 coax transition and calibration table
56934/003	10 MHz to 46 GHz. (-15 to +30 dBm) 2.92 mm
56930/002	10 MHz to 18 GHz (-5 to +44 dBm) Type N
56932/002	30 kHz to 4.2 GHz (-5 to +44 dBm) Type N

* - 60dBm for 6923 and 6924

6910, 6920 & 6930 series RF Power Sensors

A range of 17 power sensors available for use with 6200B series MTS, CPM, 6960B and 6970 power meters

- Wide frequency coverage 30 kHz to 46 GHz
- Power levels from: -70 dBm (100 pW) to +44 dBm (25 W)
- 50 Ω and 75 Ω sensors
- Low VSWR reduces measurement uncertainty
- Linearity correction data supplied
- Field replaceable RF assembly
- High overload capability

These stable and accurate power sensors operate at frequencies up to 46 GHz. They are for use with the 6960B and 6970 Power Meters as well as the CPM 20, 40 Counter Power Meter and the 6200B series Microwave Test Set.

High Measurement Accuracy

High measurement accuracy over a wide frequency range is ensured by low input VSWR - the result of innovative design.

Fully Interchangeable

The sensors are fitted with precision connectors. They have a multiway socket for cable connection to the Power Meter, and are interchangeable.

Small and Lightweight

The small size and light weight of these sensors makes them very adaptable for use anywhere without requiring additional mechanical support.

Rugged Construction

Rugged mechanical construction makes them ideal for both bench and field use. Minimum down-time is ensured by using a pre-calibrated field replaceable RF sensing assembly. Unit lifetime is enhanced by high overload capabilities. Seventeen different sensors are currently available covering a range of frequencies from 30 kHz to 46 GHz. Type N, APC-7, MPC 3.5 and 2.92 mm connectors are available from -70 dBm (100 pW) to +44 dBm (25 W). A 75 Ω sensor is also available.

For the 40 GHz sensors (6914, 6924 and 6934) a waveguide 22 transformer is optionally available. By ordering version '/002' the transformer (54417/002) is supplied as well as a calibration table to give both accurate waveguide and coaxial measurements. The calibration information is traceable to national standards.

6910 series: Medium Power Thermocouple Power Sensors

	6910	6911	6912
FREQUENCY RANGE	10 MHz - 20 GHz	10 MHz - 20 GHz	30 kHz - 4.2 GHz
POWER RANGE	-30 dBm to +20 dBm (1 µW to 100 mW)	-30 dBm to +20 dBm (1 µW to 100 mW)	-30 dBm to +20 dBm (1 µW to 100 mW)
MAX RF INPUT	+25 dBm (300 mW) CW +42 dBm (15 W) peak for 2 µs	+25 dBm (300 mW) CW +42 dBm (15 W) peak for 2 µs	+25 dBm (300 mW) CW +42 dBm (15 W) peak for 2 µs
SENSING ELEMENT	Semiconductor thermocouple	Semiconductor thermocouple	Semiconductor thermocouple
VSWR	1.25 10 MHz - 30 MHz 1.1 30 MHz - 2GHz 1.18 2 GHz - 16 GHz 1.28 16 GHz - 18 GHz 1.4 typical 18 GHz - 20 GHz †	1.25 10 MHz - 30 MHz 1.15 30 MHz - 2 GHz 1.18 2 GHz - 16 GHz 1.28 16 GHz - 18 GHz 1.4 typical 18 GHz - 20 GHz †	1.6 30 kHz - 100 kHz 1.2 100 kHz - 300 kHz 1.1 300 kHz - 4.2 GHz
LINEARITY FACTOR	Provided with sensor	Provided with sensor	Provided with sensor
Accuracy	±0.5% at 25°C between +10 and +20 dBm Improves by a factor of 10 for each lower range	±0.5% at 25°C between +10 and +20 dBm Improves by a factor of 10 for each lower range	±0.5% at 25°C between +10 and 20 dBm Improves by a factor of 10 for each lower range
CALIBRATION FACTOR	Provided with sensor	Provided with sensor	Provided with sensor
Accuracy	Uncertainty provided with sensor	Uncertainty provided with sensor	Uncertainty provided with sensor
Resolution	0.01%	0.01%	0.01%
RF CONNECTOR	Precision N-type, male 50 Ω	APC-7, 50 Ω	Precision N-type, male 50 Ω
SIZE & WEIGHT	87 mm long, 33.5 mm dia. 140g	87 mm long, 33.5 mm dia. 140 g	87 mm long, 33.5 mm dia. 140 g
ORDER CODES	56910/900	56911/900	56912/900

† specifications involving APC-7 and type N connectors above 18 GHz are not traceable to national standards as these do not exist at present

Power Sensors

6910 Series: Medium Power Thermocouple Power Sensors (continued)

	6913	6914	6914S	6919
FREQUENCY RANGE	10 MHz - 26.5 GHz	10 MHz - 40 GHz	10 MHz - 46 GHz	30 kHz - 3 GHz
POWER RANGE	-30 dBm to +20 dBm (1 µW to 100 mW)	-30 dBm to +20 dBm (1 µW to 100 mW)	-30 dBm to +20 dBm (1 µW to 100 mW)	-30 dBm to +20 dBm (1 µW to 100 mW)
MAX RF INPUT	+25 dBm (300 mW) CW +42 dBm (15 W) peak for 2 µs	+25 dBm (300 mW) CW +42 dBm (15 W) peak for 2 µs	+25 dBm (300 mW) CW +42 dBm (15 W) peak for 2 µs	+25 dBm (300 mW) CW +42 dBm (15 W) peak for 2 ms
SENSING ELEMENT	Semiconductor thermocouple	Semiconductor thermocouple	Semiconductor thermocouple	Semiconductor thermocouple
VSWR	1.4 10 MHz - 40 MHz 1.15 40 MHz - 100 MHz 1.1 100 MHz - 2 GHz 1.15 2 GHz - 12.4 GHz 1.2 12.4 GHz - 18 GHz 1.25 18 GHz - 26.5 GHz	1.58 10 MHz - 40 MHz 1.15 40 MHz - 100 MHz 1.1 100 MHz - 2 GHz 1.15 2 GHz - 12.4 GHz 1.21 2.4 GHz - 18 GHz 1.43 18 - 40 GHz (vers. /001) 1.55 26.5 - 40 GHz (vers. /002)	1.58 10 MHz - 40 MHz 1.15 40 MHz - 100 MHz 1.1 100 MHz - 2 GHz 1.15 2 GHz - 12.4 GHz 1.43 12.4 GHz - 33 GHz 3.6 40 GHz - 46 GHz†††	1.4 30 kHz - 100 kHz 1.15 100 kHz - 300 kHz 1.1 300 kHz - 2 GHz 1.2 typical 2 GHz - 3 GHz
LINEARITY FACTOR	Provided with sensor	Provided with sensor	Provided with sensor	Provided with sensor
Accuracy	±0.5% at 25°C between +10 and +20 dBm. Improves by a factor of 10 for each lower range	±0.5% at 25°C at 100 mW, decreasing by 0.005% per mW	±0.5% at 25°C at 100 mW, decreasing by 0.005% per mW	±0.5% at 25°C between +10 and +20 dBm. Improves by a factor of 10 for each lower range
CALIBRATION FACTOR	Provided with sensor	Provided with sensor	Provided with sensor	Provided with sensor
Accuracy	Uncertainty provided with sensor	Uncertainty provided with sensor	Uncertainty provided with sensor	Uncertainty provided with sensor
Resolution	0.01%	0.01%	0.01%	0.01%
RF CONNECTOR	MPC 3.5 mm, male 50 Ω	MPC 2.92 mm, male 50 Ω†	MPC 2.92 mm, male 50 Ω†	Precision N-type, male, 75 Ω
SIZE & WEIGHT	80 mm long, 33.5 mm dia. 140g	88.5 mm long, 33.5 mm dia. 140g	88.5 mm long, 33.5 mm dia. 140g	89 mm long, 33.5 mm dia. 140g
ORDER CODES	56913/900	56914/001 56914/002 includes waveguide 22 coax transition and cal table	56914/003	56919/900
Supplied with	Adapter part no. 23443/822 for connection between 6913 and 0 dBm Power Reference.	Adapter part no. 23443/822 for connection between 6914 and 0 dBm Power Reference.	Adapter part no. 23443/822 for connection between 6914 and 0 dBm Power Reference.	Adapter part no. 23443/842 for connection between 6919 and 0 dBm Power Reference.

†2.92 mm connectors mate non-destructively with 3.5 mm and SMA connectors.

6920 Series: High Sensitivity Diode Sensors

	6920	6923	6924	6924S
FREQUENCY RANGE	10 MHz - 20 GHz	10 MHz - 26.5 GHz	30 kHz - 40 GHz	10 MHz - 46 GHz
POWER RANGE	-70 dBm to -20 dBm† (0.1 nW to 10 µW)	-70 dBm to -20 dBm†* (0.1 nW to 10 µW)	-70 dBm to -20 dBm†* (0.1 nW to 10 µW)	-70 dBm to -20 dBm†* (0.1 nW to 10 µW)
MAX RF INPUT	+26 dBm (300 mW) CW +30 dBm (1 W) peak for 2 µs	+26 dBm (300 mW) CW +30 dBm (1 W) peak for 2 µs	+26 dBm (400 mW) CW +30 dBm (1 W) peak for 2 µs	+26 dBm (300 mW) CW +30 dBm (1 W) peak for 2 µs
SENSING ELEMENT	Shottky barrier diode	Shottky barrier diode	Shottky barrier diode	Shottky barrier diode
VSWR	1.4-1.2 10 MHz - 40 MHz 1.2 40 MHz - 10 GHz 1.35 10 GHz - 18 GHz 1.4 typ 18 GHz - 20 GHz††	1.4 10 MHz - 40 MHz 1.15 40 MHz - 100 MHz 1.12 100 MHz - 2 GHz 1.17 2 GHz - 8 GHz 1.3 8 GHz - 18 GHz 1.5 18 GHz - 26.5 GHz	1.58 10 MHz - 40 MHz 1.15 40 MHz - 100 MHz 1.12 100 MHz - 2 GHz 1.33 2 GHz - 18 GHz 1.51 8 GHz - 33 GHz 1.95 26.5 - 40 GHz(vers./001) 1.97 26.5 - 40 GHz(vers./002)	1.4-1.2 10 MHz - 40 MHz 1.15 40 MHz - 100 MHz 1.12 100 MHz - 2 GHz 1.33 2 GHz - 18 GHz 1.5 18 GHz - 33 GHz 1.95 33 GHz - 40 GHz 3.6 40 GHz - 46 GHz†††
LINEARITY FACTOR	Provided with sensor	Provided with sensor	Provided with sensor	Provided with sensor
Accuracy	±1% at 25°C between -30 and -20 dBm. Improves by a factor of 10 for each lower range	±1% at 25°C between -30 and -20 dBm. Improves by a factor of 10 for each lower range	±1% at 25°C between -30 and 20 dBm at 23°C	±1% at 25°C between -30 and -20 dBm at 23°C
CALIBRATION FACTOR	Provided with sensor	Provided with sensor	Provided with sensor	Provided with sensor
Accuracy	Uncertainty provided with sensor	Uncertainty provided with sensor	Uncertainty provided with sensor	Uncertainty provided with sensor
Resolution	0.01%	0.01%	0.01%	0.01%
RF CONNECTOR	Precision N-type, male 50 Ω	MPC 3.5 mm, male 50 Ω	MPC 2.92 mm, male 50 Ω†	MPC 2.92 mm, male 50 Ω†
SIZE & WEIGHT	104 mm long, 33.5 mm dia. 180 g	87 mm long, 33.5 mm dia. 180 g	88.5 mm long, 33.5 mm dia. 150 g	88.5 mm long, 33.5 mm dia. 150 g
ORDER CODES	56920/900	56923/900	56924/001 56924/002 includes waveguide 22 coax transition and calibration table	56924/003
Supplied with	Precision Attenuator part no. 23448/873. 30 dB ±0.05 dB at 50 MHz at 25°C	Precision Attenuator part no. 23448/873 30 dB ±0.05 dB at 50 MHz at 25°C Adapter part no. 23443/822 for connection between 6923 and 0 dBm Power Reference.	Precision Attenuator part no. 23448/873. 30 dB ±0.05 dB at 50 MHz at 25°C Adapter part no. 23443/822 for connection between 6924 and 0 dBm Power Reference.	Precision Attenuator part no. 23448/873. 30 dB ±0.05 dB at 50 MHz at 5°C Adapter part no. 23443/822 for connection between 6924 and 0 dBm Power Reference.

* Lower limit is -65 dBm (0.3 nW) when used with 6970 & -60 dBm when used the Counter Power Meter
† Lower limit is -65dBm (0.3 nW) when used with Counter Power Meter
†† specifications involving type N connectors above 18 GHz are not traceable to national standards as these do not exist at present
††† specifications involving 2.92 mm connectors above 40 GHz are not traceable to national standards as these do not exist at present

6930 Series: High Power Thermocouple Sensors

	6930	6932	6934	6934S
FREQUENCY RANGE	10 MHz - 18 GHz	30 kHz - 4.2 GHz	10 MHz - 40 GHz	10 MHz - 46 GHz
POWER RANGE	-15 dBm to +35 dBm (30 µW to 3 W)	-15 dBm to +35 dBm (30 µW to 3W)	-15 dBm to +30 dBm (30 µW to 1W)	-15 dBm to +30 dBm (30 µW to 1 W)
MAX RF INPUT	+37 dBm (5 W) CW +50 dBm (100 W) peak for 2 µs	+37 dBm (5 W) CW +50 dBm (100 W) peak for 2 µs	+33 dBm (2 W) CW +45 dBm (32 W) peak for 2 µs	+33 dBm (2W) CW +45 dBm (32 W) peak for 2 µs
SENSING ELEMENT	Semiconductor thermocouple	Semiconductor thermocouple	Semiconductor thermocouple	Semiconductor thermocouple
VSWR	1.1 10 MHz - 2 GHz 1.18 2 GHz - 16 GHz 1.28 16 GHz - 18 GHz	1.1 30 kHz - 4.2 GHz	1.12 10 MHz - 100 MHz 1.1 100 MHz - 2 GHz 1.15 2 GHz - 12.4 GHz 1.2 12.4 GHz - 18 GHz 1.25 18 GHz - 26.5 GHz 1.43 26.5 - 40 GHz (vers./001) 1.55 26.5 - 40 GHz (vers./002)	1.12 10 MHz - 100 MHz 1.1 100 MHz - 2 GHz 1.15 2 GHz - 12.4 GHz 1.2 12.4 GHz - 18 GHz 1.25 18 GHz - 26.5 GHz 1.43 26.5 GHz - 40 GHz 2.3 40 GHz - 46 GHz†††
LINEARITY FACTOR	Provided with sensor	Provided with sensor	Provided with sensor	Provided with sensor
Accuracy	-1% to +5% between +25 and +35 dBm. Improves by a factor of 10 for each lower range.	-1% to +5% between +25 and +35 dBm. Improves by a factor of 10 for each lower range.	-1% to +5% between +25 and +30 dBm, less on other ranges.	-1% to +5% between +25 and +30 dBm, less on other ranges.
CALIBRATION FACTOR	Provided with sensor	Provided with sensor	Provided with sensor	Provided with sensor
Accuracy	Uncertainty provided with sensor	Uncertainty provided with sensor	Uncertainty provided with sensor	Uncertainty provided with sensor
Resolution	0.01%	0.01%	0.01%	0.01%
RF CONNECTOR	Precision N-type, male 50 Ω	Precision N-type, male 50 Ω	MPC 2.92 mm, male 50 Ω†	MPC 2.92 mm, male 50 Ω†
SIZE & WEIGHT	93 mm long, 33.5 mm dia. 190g	93 mm long, 33.5 mm dia. 190g	87 mm long, 33.5 mm dia. 150g	87 mm long, 33.5 mm dia. 150g
ORDER CODES	56930/900	56932/900	56934/001 56934/002 includes waveguide 22 coax transition and calibration table.	56934/003
Supplied with			Adapter part no. 23443/822 for connection between 6934 and 0 dBm Power Reference.	Adapter part no. 23443/822 for connection between 6934 and 0 dBm Power Reference.

†2.92 mm connectors mate non-destructively with 3.5 mm and SMA connectors.

††† specifications involving 2.92 mm connectors above 40 GHz are not traceable to national standards as these do not exist at present

	6930 (Option 002) *(Comprises standard 6930 plus calibrated precision 10 dB attenuator)*	6932 (Option 002) *(Comprises standard 6932 plus calibrated precision 10 dB attenuator)*
FREQUENCY RANGE	10 MHz - 18 GHz	30 kHz - 4.2 GHz
POWER RANGE	-5 dBm to +44 dBm (0.3 mW to 25W)	-5 dBm to +44 dBm (0.3 mW to 25W)
MAX RF INPUT	+45 dBm (30 W) CW +60 dBm (1 kW) peak for 2 µs	+45 dBm (30 W) CW +60 dBm (1 kW) peak for 2 µs
Sensing element	Semiconductor thermocouple	Semiconductor thermocouple
VSWR	1.2 10 MHz - 8 GHz 1.25 8 GHz - 12.4 GHz 1.35 12.4 GHz - 18 GHz	1.2 30 kHz - 4.2 GHz
LINEARITY FACTOR	Provided with sensor	Provided with sensor
Accuracy	-2% to +6% between +35 and +44 dBm. Improves by a factor of 10 for each lower range	-2% to +6% between +35 and +44 dBm. Improves by a factor of 10 for each lower range
CALIBRATION FACTOR	Provided with sensor	Provided with sensor
Accuracy	Uncertainty provided with sensor	Uncertainty provided with sensor
Resolution	0.01%	0.01%
RF CONNECTOR	Precision N-type, male 50 Ω	Precision N-type, male 50 Ω
SIZE & WEIGHT	228 mm long, 64 mm dia. 533 g	228 mm long, 64 mm dia. 533 g
ORDER CODES	56930/002	56932/002

Ordering numbers	*Power Sensor Pre-Calibrated Front End Field Replacement Modules*
44991/008	For 6910 Power Sensor
44991/009	For 6911 Power Sensor
44991/010	For 6912 Power Sensor
44991/011	For 6913 Power Sensor
44991/012	For 6919 Power Sensor
44991/013	For 6920 Power Sensor
44991/014	For 6930 Power Sensor
44991/015	For 6932 Power Sensor
44991/224	For 6914 Power Sensor
44991/225	For 6934 Power Sensor

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