COOKNELL ELECTRONICS LTD

PICOAMMETER TYPE CP13

1. INTRODUCTION

The CP13 is a combined DC ammeter and generator for use over the current range $12x10^{-3}$A FSD to $12x10^{-14}$A FSD in 23 ranges. An additional range enables charge to be measured with an FSD of 12pC. As an ammeter, it maintains its virtual earth input within 50μV of earth for signals from zero to FSD and has an equivalent input drift typically less than 50μV over 1 hour after an initial 10 minutes settling period. As a generator, it has an equivalent source voltage of greater than 1kV and will tolerate a load voltage deviation from earth of more than 1.5V.

2. PERFORMANCE SPECIFICATION

(At 20°C except where otherwise stated and after 10 minutes settling period)

As the same measuring components are used for current generate and current measure, the specification for the two modes is identical. It follows that the range trimming potentiometers may be set using either operating mode.

2.1 Error and Stability

Range (FSD)	Error ±%		Temp Coef ppm/°C	Stability typ. ±%/annum
	EXT DVM	INT METER		
$12x10^{-3}$A and $4x10^{-3}$A	0.3	1.5	±50	0.1
$12x10^{-4}$A to $4x10^{-8}$A	0.2	1.5	±50	0.1
$12x10^{-9}$A to $4x10^{-10}$A	1.0	2.0	±100	0.1
$12x10^{-11}$A to $4x10^{-11}$A	1.0*	2.0*	±150	0.1
$12x10^{-12}$A to $12x10^{-14}$A	2.0*	3.0*	-1200 typ.	0.5

*This does not include the error due to residual current which is less than ±$1x10^{-14}$A (typically ±$2x10^{-15}$A).

2.2 Zero Shift

With temperature: ±100μV/°C max
With input signal: 50μV max (zero to FSD)
With time: ±50μV/hour typical

2.3 Residual Current

Less than ±$1x10^{-14}$A, typically ±$2x10^{-15}$A

2.4 Current Generator

Apparent voltage: Greater than 1kV
Load voltage: ±3.0V max

2.5 Outputs

EXT METER: For remote indication or more accurate reading of current:
Output resistance: 100Ω max
Scaling: ±1.0V for internal meter indication of: ±1.0 on 1.2 FSD range
±3.16 on 4.0 FSD range

VE POTENTIAL: Enables voltage across load to be measured when in 'Generate' mode.
Output resistance: 50Ω max
Scaling: Unity

2.6 Over-Ranging

Measure Mode	1.2 FSD range - beyond 4.0 with external indicator
(full batteries)	4.0 FSD range - beyond 12.0 with external indicator
	No over-ranging is guaranteed on the $12x10^{-3}$A range

2.7 Overload Capability at Signal Connector

50V dc or RMS sinusoid on $4x10^{-3}$A and $12x10^{-3}$A ranges (for indefinite period)
250V dc or RMS sinusoid on all other ranges (for indefinite period)

2.8 Capacitance Permitted at Signal Connector

Generate Mode:	Unlimited
Measure Mode:	0 - 15nF

3. DATA SUMMARY

3.1 Batteries Rechargeable Lead Acid.

3.2 Integral Charger
Voltage: 90V to 264V ac
Phases: 1 phase and neutral
Frequency: 47Hz to 63Hz
Current: 1A max
Connector: IEC

3.3 Dimensions
Height 146mm (5¾")
Width 430mm (17")
Depth 254mm (10")

3.4 Weight (inc. batteries) 7.5kg

3.5 Accessories Supplied Four 2mm plugs; one instruction manual; one UK Mains lead

4. **Unit Price** **2760.00** GBP