VALHALLA SCIENTIFIC – MODEL **ALPHA 4314**

ULTRA SAFE DIGITAL IGNITER TESTER

Ultra-Safe Resistance Measurement Designed with Life Protecting Safety in Mind

The Alpha 4314 Digital Igniter Tester is a portable digital ohmmeter which has been specifically designed for ultra-safe resistance testing on explosive devices (i.e. squibs, detonators). The Alpha 4314 is an Upgrade of the 4314 Series and now features a new front panel, Range and Fail-Safe LED indicators, and optional BCD output compatible with the Valhalla Model 1248 Digital Dual Comparator. Many versions of the 4314 series have had the unit's circuitry reviewed and approved by a U.S. Government Safety Board as well as most branches of the armed forces for specific military programs (i.e. Cruise Missile).

Features:

- Ultra-Safe Resistance Measurements
- Ultra Fail Safe Circuitry Limits Current
- 1mΩ Resolution to 200MΩ - 8 Ranges
- Rechargeable Battery Operated
- Safe Tester for Explosive Devices
- Safety Approval by US Government/Military
- Certificate of N.I.S.T. traceability included at no extra charge

There are a variety of critical military, aerospace and industrial applications which utilize squibs and other blasting devices. In each case, it is extremely important that these devices detonate when required. It is equally important that these devices do not detonate while being tested for coil integrity. To this end, Valhalla equips each instrument with redundant, dual fail-safe current limiting network circuitry to insure that the instrument test currents cannot exceed the specified amount. Even in the unlikely event of a worst case component failure, the output current limiting network is still in effect. To prove that this level of safety is intact in every unit we ship, a worst case component failure is simulated during final test with the resulting output recorded and attached to the unit. The Alpha 4314 utilizes a four-wire Kelvin input configuration to eliminate lead wire length and lead contact resistance errors. The instrument is battery powered with a heavy duty rechargeable Ni-Cad pack for portability and line isolation purposes. An AC adaptor battery charger is standard. For added convenience and safety, the Alpha 4314 feature an internal switching configuration which automatically disables the battery charging circuit when in the operate mode. Alternately, all power is removed from the output circuitry when in the off/charging mode. As with all Valhalla Digital Ohmmeters and Igniter Testers, the Alpha 4314 is available with a host of 4-wire probes and cable sets.

The standard version of the Alpha 4314 features a 20Ω, 200Ω, 2kΩ, and 20kΩ range; however the user can choose to purchase an instrument with a different configuration. 8 available ranges (20Ω, 200Ω, 2k, 20kΩ, 200kΩ, 2MΩ, 20MΩ and 100MΩ) allow many combinations to fit anyone's needs

Also available is the "**KRC**" Models that feature a reduced Test and FailSafe Current. The nominal output current for these models is half a value of the standard units. The Fail-Safe for the lowest range drops from 16mA on the standard models to 8mA on the KRC model.

For applications requiring data output the Alpha 4314 is available with "BCD". The "BCD" talk only interface is fully compatible with our 1248 Dual Limit Comparator, and does not interfere or change the FailSafe feature of the instrument.

VALHALLA SCIENTIFIC

MODEL ALPHA 4314
DIGITAL IGNITER TESTER

VALHALLA SCIENTIFIC

Range Specifications

Rng #	Range	Resolution	Test Current	Failsafe Current	Accuracy
1	20Ω	1mΩ	10mA	16mA	± 0.03% of reading ± 0.02% of range
2	200Ω	10mΩ	1mA	1.8mA	± 0.03% of reading ± 0.02% of range
3	2kΩ	100mΩ	100µA	180µA	± 0.03% of reading ± 0.02% of range
4	20kΩ	1Ω	10µA	18µA	± 0.03% of reading ± 0.02% of range
5	200kΩ	10Ω	1µA	1.8µA	± 0.05% of reading ± 0.05% of range
6	2MΩ	100Ω	100nA	180nA	± 1% of reading ± 0.2% of range
7	20MΩ	1kΩ	10nA	18nA	± 2% of reading ± 0.2% of range
8	100MΩ	10kΩ	1nA	1.8nA	± 3% of reading ± 1% of range

Option KRC Specifications

Rng #	Range	Resolution	Test Current	Failsafe Current	Accuracy
1	20Ω	1mΩ	5mA	8mA	± 0.03% of reading ± 0.02% of range
2	200Ω	10mΩ	500µA	1.8mA	± 0.03% of reading ± 0.02% of range
3	2kΩ	100mΩ	50µA	180µA	± 0.03% of reading ± 0.02% of range
4	20kΩ	1Ω	5µA	18µA	± 0.03% of reading ± 0.02% of range
5	200kΩ	10Ω	500nA	1.8µA	± 0.05% of reading ± 0.05% of range

General Specifications

Display Type: 4 ½ digits LEDs (19999)
Overload Indication: Display flashes
Conversion Rate: 3 readings per second
Terminal Configuration: 4-Wire Kelvin
Current Source Compl. Voltage: Clamped at 1.6V

Power

Power: 4 "D" Cell 1.2V recharg. NiCad Batteries4000mAh
Battery Charger: 6VDC at 300mA nominal

Temperature

Temperature Coefficient: ±0.002% per °C (from 0°C-15°C and 35°C-50°C)
Operating Temp. Range: 0°C to 50°C
Storage Temp. Range: -10°C to 70°C

Physical Specifications

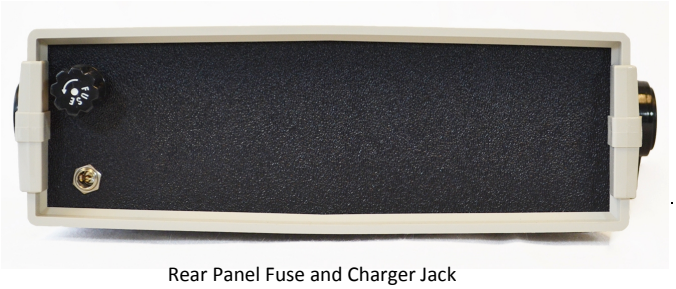
Width: 9.5" / 24cm
Depth: 11" / 27cm
Height: 3" / 8cm
Weight: 3 lbs / 1.3kg net; 6lbs / 3kg shipping

ACCESSORIES

A	Battery Charger 115Vac to 6VDC @ 300mA
HDB	4 Heavy Duty rechargeable Ni-Cad Batteries 1.2V 4500mAH.
CC4	Carrying Case for the meter with room for the battery charger and Lead Sets
R4	Standard 19" equipment rack adaptor

OPTIONS

BCD	This option provides parallel BCD data on p rear-panel 50-pin connector. All outputs are TTL comparable levels with a drive capability of 1 LS load. The Option BCD may be used to drive the Valhalla Model 1248 Dual Limit Comparator.



Rear Panel Fuse and Charger Jack

TEST LEADS

K	4-Wire Kelvin shielded 48" lead set terminating in ½ inch gold plated clips
KK	48" heavy duty cable set terminated in large "jaws" that have an open span of 2".
MP-S	Single Probe 4-Wire Lead set terminated in single points. The 4-wire configuration is maintained up to the point of the probe, eliminating most cable resistance effects.
MP-1	Kelvin Micro-Probes 48" shielded lead set (dual banana), handheld pencil type, terminated in spring loaded steel tips with .05" separation.
MP-2	Kelvin Micro-Probes 48" shielded lead set (dual banana), handheld pencil type, terminated in spring loaded steel tips with 0.18" separation.
MP-4	Surface Probes permit rapid, bonding testing on flat surfaces. Test current is distributed through the 1 inch probe base while sensing accomplished via a spring loaded center contact.
MP-5	Surface Probes permit rapid, bonding testing on flat surfaces. Test current is distributed through the ½ inch probe base while sensing accomplished via a spring loaded center contact.
C	48" shielded cable one end terminated in dual alligator clips and the other in dual banana plugs.
BBL	48" shielded cable terminated in dual banana plugs at both ends.