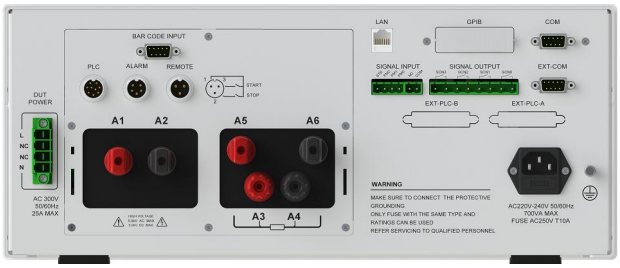
# AN1640(F)/AN1651(F) Intelligent Electrical Safety Comprehensive Analyzer

※ 8-in-1: ACW/DCW/IR/GB/LC/PW/ST/LN
※ High precision: 1% accuracy for safety comprehensive analyzer, 0.2% accuracy for power
※ High speed: GB and ACW/DCW/IR in paralle, LC and PW in parallel
※ Informatization: Android platform, data storage, barcode recognition, MES connection


## Product Introduction

This Ainuo AN1640(F)/AN1651(F) intelligent electrical safety comprehensive analyzer has new features such as intelligence, informatization, high speed, high precision, and multi-function, suitable for high-end lines of intelligent manufacturing with fast-pace, hybrid, automation, informatization and MES management.

In addition to eight-in-one testing, this product has rich optional functions for sub-sectors, including automatic multi-stage power judgment, smart lamp switching test, LN phase sequence detection, 100mA withstand voltage test, 64A ground bond resistance test, 500W/6kW/10kW testing power supply, U.S. standard testing power supply, leakage/power uninterruptible power supply test, etc.

This series of products can meet the safety standard testing requirements of various electrical products such as household appliances, energy-saving lamps, medical equipment, information equipment, audio and video equipment, laboratory equipment, and charging piles.

This series of products have a barcode scanning interface for automatic identification of product barcode and specifications, automatic call of the test program, scanning the code and starting automatically, and packing and storing the test data.

This series of products have functions of data management, local storage of test data, data query, statistics and export; real-time transmission of test data, active upload, query upload, breakpoint resume, etc.; and downloading test programs from the server.

Optional connection with MES through WIFI, LAN, RS232 and other interfaces, various MES interfaces.

# Features

## ★ High reliability

※ 13 draft units who participated in drafting of national standards and verification regulations for safety comprehensive analyzers;
※ 30 years of experience on safety testing expertise and understanding of customer needs;
※ Strict electromagnetic environment, load conditions, endurance test verification;
※ Electric shock protection, arc detection, open circuit detection, slow rise and down;
※ 1% accuracy for safety comprehensive analyzer, 0.2% accuracy for power.

## ★ High speed

※ Fast measurement and control: 0.5s step fast test, self-starting of first item after GB;
※ Parallel test: GB and ACW/DCW/IR in parallel, LC and PW in parallel;
※ Dual output: dual-station, dual output, intelligent parallel.

## ★ Intelligent

※ Intelligent platform: Android operating system, informatization without additional PC;
※ Barcode management: barcode scanning and recognition, program matching, scan to start;
※ Data management: test data storage, query, export, program file copy;
※ Connection with MES: LAN/WIFI interface, MES connection for various database;
※ Convenient: 10" touch screen, guide via multimedia, online technical services.

# Specifications

| Model | AN1640HD(F) Desktop-type | AN1640H(F) Desktop-type | AN1640B(F) Desktop-type | AN1651H(F) Cabinet-type | AN1651B(F) Cabinet-type |
|---|---|---|---|---|---|
| AC withstand voltage (ACW) | 5kVac/40mA (optional 5kVac/100mA) | | | | |
| DC withstand voltage (DCW) | 6kVdc/10mA | | | | |
| Insulation resistance (IR) | 2.5kVdc/50GΩ | | | | |
| Ground bond resistance (GB) | 32Aac/600mΩ (optional 64A) | | | | |
| Leakage current (LC) | 300V/20A, MD-A (IEC60990 Figure 4, 8 MDs optional), RMS/peak measurement | | | | |
| Power test (PW) | 300V/20A/6kW (optional 40A) | | | | |
| Start-up test (ST) | 300V/20A | | | | |
| Loop test (LN) (Optional) | Low voltage DC constant current test/999Ω | | | | |
| Parallel | Dual-channel output, intelligent parallel | GB and ACW/DCW/IR in paralle, LC and PW in parallel | Non-parallel | GB and ACW/DCW/IR in paralle, LC and PW in parallel | Non-parallel |
| Interface | Android system, 10" touch screen, RS232/LAN/WIFI/PLC/USB | | | | |
| Load power supply | Optional built-in 500VA variable frequency power supply or external power supply | | | Built-in 6kVA variable frequency power supply | |

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| Dimensions | 426*177*550（W×H×D, mm） | 483*1355*600（W×H×D, mm） |

## Specification Details (subject to the final confirmation of the technical specification)

| Features (varies by model) | | | Technical indicator (some are optional functions) |
|---|---|---|---|
| AC withstand test | Rated output capacity | | 500VA (5000V/100mA, short circuit current 200mA); Optional thermal withstand voltage test function |
| | Output voltage setting | Range/Accuracy | Range:(100~5000)V, Resolution:1V, Allowable error:±(1%×setting value+5V) |
| | Output frequency setting | Range/Accuracy | 50Hz/60Hz, Allowable error:±0.1Hz |
| | Alarm current setting | Upper limit range/ Accuracy | Range:(0.00~100.0)mA, Resolution:0.01mA, Allowable error:±(1%×reading value+5 counts) |
| | | Lower limit range/ Accuracy | Range:(0.000~9.999)mA, Resolution:0.001mA, Allowable error:±(1%×reading value +5 counts) |
| | Time setting | Range of test time/ Accuracy | Range:0, (0.5~999.9)s, 0 is infinite, Resolution:0.1s, Allowable error:±(0.1%× setting value+2 counts) |
| | | Range of ramp-up time/Accuracy | Range:0, (0.1~999.9)s, 0 is off, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts) |
| | | Range of ramp-down time/Accuracy | Range:0, (0.1~999.9)s, 0 is off, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts) |
| | Arc detection | | Level 1~9 (9: highest level), 0 is off. |
| DC withstand voltage test | Rated output | | 60VA(6000Vdc/10mA) |
| | Output voltage setting | Range/Accuracy | Range:(100~6000)VDC, Resolution:1V, Allowable error:±(1%×setting value+5V) |
| | Alarming current setting | Upper limit range/ Accuracy | Range:(0.0~10000)μA, Resolution:0.1μA/1μA, Allowable error:±(1%×reading value+5 counts) |
| | | Lower limit range/ Accuracy | Range:(0.0-999.9)μA, Resolution:0.1μA, Allowable error:±(1%xreading value+5 counts) |
| | Time setting | Range of test time/ Accuracy | Range:0, (0.5~999.9)s, 0 is infinit, Resolution:0.1s, Allowable error:±(0.1%× setting value+2 counts) |
| | | Range of ramp-up time/Accuracy | Range:0,(0.4~999.9)s, 0 is off, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts) |
| | | Range of ramp-down time/Accuracy | Range:0,(1~999.9)s, 0 is off, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts) |
| | Arc detection | | Level 1~9 (9: highest level), 0 means that arc function is off. |
| Insulation | Rated output | | 2500Vdc/50GΩ; Optional 6000Vdc/50GΩ |

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| resistance test | Output voltage | Range/Accuracy | Range:(100~2500)VDC, Resolution:1V, Allowable error:±(1%×setting value+5V) |
| | Alarm resistance setting | Range of upper/lower limits | Range:0.10MΩ~50000MΩ, upper limit includes no upper limit setting |
| | | Accuracy | 100~499V: 0.10MΩ~999.99MΩ,<br>1000~2000MΩ, ±(5%×reading value+2 counts)<br>500~2500V: 0.10~999.99MΩ,±(2%×reading value+2 counts)<br>1000~9999MΩ, ±(5%×reading value+2 counts)<br>10000~50000MΩ, ±(15%×reading value+2 counts) |
| | Time setting | Range of delay time/ Accuracy | Range:0,(0.5~999.9)s, 0 is infinit, Resolution:0.1s, Allowable error:±(0.1%× setting value+2 counts) |
| | | Range of ramp-up time/Accuracy | Range:0,(0.1~999.9)s, 0 is off, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts) |
| | | Range of ramp-down time/Accuracy | Range:0,(1.0~999.9)s, 0 is off, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts) |
| Ground bond resistance test | Rated output | | Max test current 32A, max resistance 600mΩ, open-circuit voltage<12V; optional 64A test current |
| | Output current setting | Range/Accuracy | Range:(2.0A-32.0A)AC, Resolution:0.1A, Allowable error:±(1%×setting value+2 counts) |
| | Output voltage setting | Range/Accuracy | Range:(3.0~10.0) V AC, Resolution:0.1V, Allowable error:±(1%×setting value+2 counts), in the open circuit case |
| | Output frequency setting | Range/Accuracy | 50Hz/60Hz, accuracy:±0.1Hz |
| | Alarm limit setting | Range of resistance upper/lower limit | 3 A≤output current≤10A: 0.1 ~ 600 mΩ<br>11A≤output current≤32A: 0.1-R, R=6400/setting current (mΩ)<br>Resolution:0.1/1mΩ |
| | | Accuracy | <100mΩ,±(1%×reading value+1mΩ); ≥100mΩ,±(1%×reading value+2 counts) |
| | Test time setting | Range/Accuracy | Range:0,(0.5-999.9)s, 0 is infinit, Resolution:0.1s, Allowable error:±(0.1%× setting value+2 counts) |
| Leakage /Touch current test | Load power supply | | Single-phase power supply,<br>Desktop analyzer: external isolation power supply or optional built-in 500W power supply is required,<br>Cabinet-type analyzer: built-in 6kw power supply. |
| | Load current | | Upper limit:20A; optional 40A |
| | Test method setting | | Single-phase load, leakage/touch current at operating temperature (dynamic) and leakage current at non-operating temperature (static), G-L、G-N、AUTO(G-L、G-N) switch setting. |
| | State of operating power supply | | Polarity: on, off, automatic; neutral: on, off; ground: on, off |

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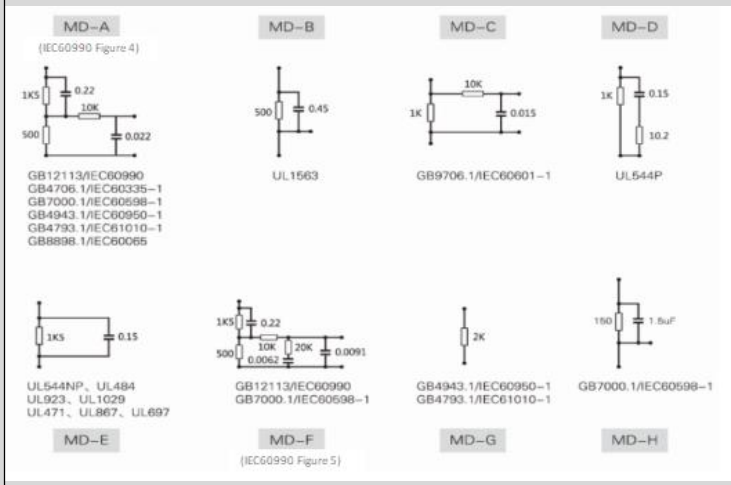
| | Simulate human MD networks:<br>Standard MD-A networks, IEC60990 Figure 4;<br>Optional networks:<br>Optional MD-A/F/H networks for lighting industry;<br>Optional MD-C/D/E networks for medical device;<br>Max 8 optional MD networks. |  |
| | Touch current/leakage current opper/lower limit setting (RMS) | Range:0.0μA~12.00mA, Resolution:0.1μA/1μA/0.01mA; optional 20mA<br>Allowable error:DC、15Hz≤f≤100kHz:±(1.5%×reading value+10 counts)<br>100kHz<f≤1000kHz:±5%×reading value |
| | Touch current/leakage current upper/lower limit setting (peak) | Range of upper/lower limit: 0.0μA~18.00mA, Resolution: 0.1μA/1μA/0.01mA<br>Allowable error: DC:±(2%×setting value+2μA), 15Hz<f≤1000kHz:±(10%×reading value+2μA) |
| | Touch current/leakage current upper/lower limit setting (AC component, only for MD-C networks) | Range: 0.0μA~20.00mA, Resolution: 0.1μA/1μA/0.01mA<br>Allowable error: 0.0uA~999.9μA:15Hz≤f≤30Hz:±(3%×reading value+5 counts)<br>30Hz<f≤100kHz:±(2%×reading value+3 counts)<br>100kHz<f≤1000kHz,10.0μA~999.9μA:±5%×reading value<br>1000μA~7999uA:15Hz≤f≤100kHz:±(2%×setting value+3 counts)<br>100kHz<f≤1000kHz,10uA~7999μA:±5%×reading value<br>8.00mA~20.00mA:15Hz≤f≤1000kHz,0.01mA~20.00mA:±5%×reading value |
| | Touch current/leakage current upper/lower limit setting (DC component, only for MD-C networks) | Range:0.0μA~20.00mA,Resolution:0.1μA/1μA/0.01mA<br>0.0μA~999.9μA:±(2%×reading value+3 counts)<br>1000μA~7999μA:±(2%×reading value+3 counts)<br>8.00mA~20.00mA:±(5%×reading value) |
| | Test time | Range:0,(1~999.9),0 is infinite, Resolution:0.1s,<br>Allowable error:±(0.1%×setting value+2 counts), (when test method is AUTO(G-L、G-N),each gets half time) |
| Power parameter measurement | Alarm function | You can choose to set power, voltage or current |
| | Power upper/lower limit setting (The actual upper limit is determined by the power of the power supply) | Range:0.00W~6000W; optional 10kW or other high power spec<br>Resolution: 0.01W/0.1W/1W<br>Allowable error:PF>0.5:±(0.1%×reading value+0.1%×measuring range); PF≤0.5:±(0.4%×reading value+0.1%×measuring range) |
| | Voltage upper/lower limit setting | Range:0.00V~300.0V,Resolution:0.01V/0.1V;<br>Allowable error:±(0.1%×reading value+0.1%×measuring range),45Hz≤f≤65Hz |
| | Current upper/lower limit setting (The actual upper limit is determined by the power of the power supply) | Range:0.010A-0.999A, 1.000A-4.999A, 5.00A-20.00A; optional 40.00A<br>Resolution:0.001A, 0.01A.<br>Allowable error:±(0.1%×reading value+0.1%×measuring range),45Hz≤f≤65Hz |
| | Test time | Range:0,(0.5-999.9)s, 0 is infinite, Resolution:0.1s,<br>Allowable error:±(0.1%×setting value+2 counts) |
| Low voltage starting test | Current upper/lower limit setting (The actual upper limit is determined by | Range:0.010A-0.999A, 1.000A-4.999A, 5.00A-20.00A; optional 40.00A<br>Resolution:0.001A、0.01A |

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| | the power of the power supply) | Allowable error:±(0.1%×reading value+0.1%×measuring range),45Hz≤f≤65Hz |
| | Voltage measurement | Range:10.00-300.0V, peak factor:≤1.6, Resolution:0.01V/0.1V;<br>Allowable error:±(0.1%×reading value+0.1%×measuring range),45Hz≤f≤65Hz |
| | Current measurement<br>(The actual upper limit is determined by the power of the power supply) | Range: 0.010A-0.999A, 1.000A-4.999A, 5.00A-20.00A, peak factor:≤1.6<br>Resolution:0.001A, 0.01A<br>Allowable error:±(0.1%×reading value+0.1%×measuring range), 45Hz≤f≤65Hz |
| | Test time | Range:0, (0.5-999.9)s, 0 is infinite, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts) |
| LN circuit detection | Detection method | Low voltage DC or AC test power supply |
| | Resistance upper/lower limit setting | Range:(1.0~999.9)Ω, Allowable error:±(5%×reading value+2Ω), Resolution:1Ω |
| | Test time | Range:0, (0.5-999.9)s, 0 is infinite, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts) |
| Wait function | Wait time | Range:0, (0.5-999.9)s, 0 is infinite, Resolution:0.1s, Allowable error:±(0.1%×setting value+2 counts), Press start button, exit wait, start next test. |
| Interface | Communication interface | RS232 (optionalRS485), LAN, WIFI, USB |
| | Control interface | Scanner interface, PLC interface, alarm light interface, remote control interface, I/O interface |
| Accessories | Standard accessories | Safety test box, ground bond test clip, three-color alarm light, remote control foot switch, power cord |
| | Optional accessories | Barcode scanner, MES docking custom software interface |
| Dimensions | AN1640HD(F)/AN1640H(F)/AN1640B(F) | 426*177*550 (W×H×D, mm) |
| | AN1651H(F)/AN1651B(F) | 483*1355*600 (W×H×D, mm) |