# Megger®

## Baker Instruments

## ADX
## Automated Static Motor Analyzer



- **Complete range of essential tests to determine motor health, analyze trends, and find faults.**
- **These include high voltage tests for surge, PD,**
- **DC insulation resistance (IR, DA, PI), and DC HiPot (standard, step, or ramp).**
- **Plus, low voltage testing for winding resistance, inductance, and capacitance.**
- **Test voltages from 4 kV to 15 kV (and up to 40 kV coupled with a Megger Baker PPX).**

## DESCRIPTION

The ADX family includes models designed to perform tests at voltages up to 15 kV. The five main voltage options include 4 kV, 6 kV, 12 kV, 15 kV, and each voltage range has further feature options for low voltage winding testing, Partial Discharge and Armature testing. Couple the ADX with a PPX to increase test voltages up to 40 kV for testing high voltage assets.

The Megger Baker ADX is used for motor winding, coil, assembled motor, and generator testing. It can be used by Original Equipment Manufacturers, Industrial Maintenance Engineers, Motor Repair Shops, and Service Engineers working on equipment in the field for verification, validation, fault finding, and research, or to serve as part of a maintenance program.

### Tests Performed:

- Winding Resistance
- Inductance
- Capacitance
- Insulation Resistance
- Dielectric Absorption (DA)
- Polarization Index (PI)
- DC HiPot
- DC Step-Voltage
- DC Continuous Ramped
- Surge analysis with EAR+™
- Partial Discharge on Surge

## FEATURES

- Detachable IEC61010-compliant HV/LV Kelvin test leads
- PowerDB Dashboard secure cloud-based analysis software
- 10.4-inch daylight viewable touch screen
- Industrial IP68 Waterproof Silicone Keyboard
- Choice of Manual, Automatic, or Sequence testing
- Screen-level context sensitive help
- Adaptable search capability
- Asset management tools
- Configurable Route based testing
- Pulse-to-Pulse and Line-to-Line Error Area Ratio analysis
- Import existing databases from AWA and DX
- Android operating system
- 2 x USB ports and ethernet connection
- HDMI port for duplicating screens
- Wi-Fi enabled
- Foldable viewing stand

## BENEFITS

- Asset-centric approach provides opportunities for turnkey testing.
- Sequence mode leverages the approach for fully automatic testing.
- Data analysis features identify service needs and reduce down time.
- Remote asset configuration via PowerDB Dashboard frees the ADX for testing needs.
- Separating Asset from Installation opens opportunities for data analysis.
- Battery backup allows transport between assets without needing to shut down.

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### DATA STORAGE, ANALYSIS, REPORT GENERATION, AND MANAGEMENT

All test results are saved and stored locally on the ADX, and are automatically synchronized with the cloud-based application PowerDB Dashboard for users with internet connection.

Test results can be analyzed through Dashboard. Comparing current and historical data can reveal downward trends and other issues, indicating when action should be taken to service assets and avoid unplanned downtime.

The built-in Report Generator provides on-board test result viewing that can be sent directly to a printer. Reports can be printed from the ADX wirelessly to a networked printer, or directly via a USB-connected printer. Data can be accessed securely through PowerDB Dashboard to view and download reports in MS Word. Data can also be exported in other formats such as CSV.

The ADX can function as an off-line system, utilizing PowerDB Print Engine software to create, edit, and print reports on a local computer. Data is transferred via ADX export to a USB drive, uploaded to a local computer, and edited as an MS Word document.

ADX software allows users to easily create, view, and edit assets, test configurations, installations, and routes. The asset-centric approach provides administrators and management with all the tools needed to set up a turnkey environment, simplifying the asset testing process for operators.

Asset configuration can be done directly on the ADX or remotely via PowerDB Dashboard. The integrated system allows access through any internet-connected device to create and edit assets, test configurations, installations, and routes. No matter where the changes are made, they are automatically synchronized between the ADX and PowerDB Dashboard via internet connection.

### EASE OF USE

The ADX has a large, 10.4-inch touch screen. The industrial-grade, daylight-viewable color display was designed to work in all environments. The user interface features large, intuitive icons for easy touch operation—even when an operator is wearing insulated electrical gloves.

### ADDITIONAL KEY FEATURES

- High-definition graphical user interface displays surge test waveforms.
- Displays DC HiPot results.
- Displays hundreds of coil waveforms for quick analysis.
- Stores reference waveforms for comparison coil testing.
- Secure cloud-based data storage
- Ability to create and edit assets and test configurations remotely through PowerDB Dashboard
- Internal battery backup secures data due to unexpected power loss.

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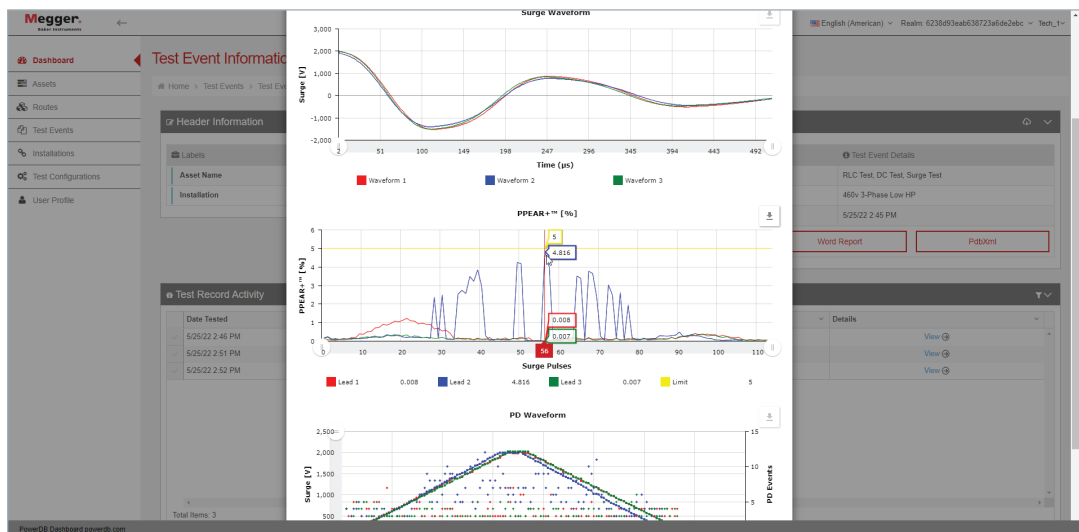
## ADX
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## SPECIFICATIONS

### Hardware and system specifications

| Parameter | Value |
|---|---|
| Weight | ADX4, 6, 12, 15 46.3 lbs. (21 kg)<br>ADX Armature 52 lbs (23 kg) |
| Dimensions (W x D x H) | 18 x 23 x 8.5 in (457 x 584 x 216 mm) |
| Internal memory | RAM 2GB DDR3 |
| Internal storage | 8GB MMC and 480GB SSD Drive |
| Processor speed | 1.0 Ghz (Quad core) |
| User interface | Capacitive touch screen, mouse, keyboard, stylus |
| Platform | Android |
| Display | 10.4-in touch screen |
| Resolution | XGA 1024 x 768 |
| Wi-Fi | 802.11 a/b/g/n Dual Band 2.4 / 5 GHz |
| Ethernet | Gigabit 10/100/1000 Mbps |
| USB flash drive | USB 2.0 |
| Battery Backup | 4+ hours standby time |

### Languages supported
*User interface and documentation localization*

| Language | Regional Translations |
|---|---|
| English | |
| French | Europe |
| Spanish | Europe and Latin America |
| Portuguese | Europe and Brazil |
| German | |
| Czech | |
| Polish | *Available soon* |
| Russian | |
| Chinese | Traditional and Simplified |

### Instrument rating summary

| Parameter | Variant | Value |
|---|---|---|
| Internal and operating environment | | Pollution degree 2 |
| Operating altitude | | ≤ 3,000 m (9,842 ft) |
| Operating temperature | | 5–40° C (41–104° F) |
| Operating humidity | | ≤ 80% RH for temperature up to 31°C (88° F), decreasing linearly to 50% RH at 40° C (104° F) |
| Storage temperature<br>*Ensure that the unit has sufficient time to warm to ambient temperature before operating after storing the unit in a colder area.* | | 0–60° C (32–140° F) |
| Storage humidity | | Less than 95% non-condensing |
| IP Rating | | IP40 |
| Mains Power Input | | 90–264 VAC, 47–63 Hz, 2.5 A, CAT II 300 V |
| Voltage limits | ADX4 | Nominal 100 V–4 kV |
| | ADX6 | Nominal 100 V–6 kV |
| | ADX12 | Nominal 100 V–12 kV |
| | ADX15 | Nominal 100 V–15 kV |
| Standard Kelvin 4-wire test leads voltage rating | | 16 kV DC peak |
| Maximum input voltage rating | | See Caution below |

⚠ **CAUTION**

The ADX must be connected only to isolated, de-energized circuits. Connection to live circuitry can expose personnel to severe electrical shock risk, permanently damage tester, and void warranty. Refer to chapter 1 of the ADX User Guide, "General Operating and Safety Information" for complete information on safely connecting and operating the unit.

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## DC IR and HiPot test specifications

| Parameter | Variant | Value |
|---|---|---|
| Voltage accuracy | | ± 2% ± 5 V |
| Maximum output current | | 1.2 mA |
| Displayed current resolution | | 1 nA |
| Current measurement resolution | | 16 pA |
| Current accuracy | Test voltage 0–2 kV | ± 4% ± 5 nA |
| | Test voltage 2–4 kV | ± 4% ± 10 nA |
| | Test voltage 4–8 kV | ± 4% ± 25 nA |
| Overcurrent trip settings | | Adjustable to 1.2 mA |
| IR measurement range | | 100 kΩ–1 TΩ |

## Surge test specifications

| Parameter | Variant | Value |
|---|---|---|
| Nominal surge capacitance | | 100 nF |
| Typical surge energy | | 11.25 J at 15 kV |
| Typical short circuit current | | 700 A |
| Repetition rate | | 4 Hz nominal |
| Minimum inductance | 4 kV | 70 µH |
| | 6 kV | 100 µH |
| | 12 kV | 120 µH |
| | 15 kV | 170 µH |
| Voltage accuracy | | ±10% |

## Surge with Partial Discharge (PD) test specifications

| Parameter | Value |
|---|---|
| Inception and extinction voltages (PDIV, PDEV) | Measured per IEC 61934 |
| Repetitive inception and extinction voltages (RPDIV, RPDEV) | Measured per IEC 61934 |
| Programmable PD threshold range (Resolution to 0.1 mV) | 1.0–999 mV |
| PD time scaling | 1.024–26,400 µs |

## Resistance test specifications

| Parameter | Value |
|---|---|
| Measurement range | 0.001 Ω–100 KΩ |
| 4-wire measurement | Yes |
| Maximum test current | 10 A |
| Accuracy | ±2% ±0.25 mΩ |

## Capacitance test specifications

| Parameter | Value |
|---|---|
| Measurement range | 0.01 nF–50 µF |
| 4-wire measurement | Yes |
| Test frequency | 4000 Hz |
| Accuracy | ±5% ±1 nF |

## Inductance test specifications

| Parameter | Value |
|---|---|
| Measurement range | 0.01 µH–10 H (120 Hz) 0.01µH–200 mH (1000 Hz) |
| 4-wire measurement | Yes |
| Test frequency | 120, 1000 Hz |
| Accuracy | ±5% ±5 µH |

## Armature specifications

| Parameter | Value |
|---|---|
| Maximum surge voltage* | 1900 V (no load) |
| Maximum surge current | 5000 A |
| Maximum surge energy | 11.3 J |
| Typical range of test inductance** | 0.0 µH to 20 µH |

\* Maximum test voltage achievable is load dependent

\*\* 0.29 µH is a typical minimum load for inducing minimum Paschen's breakdown voltage. The instrument is fully protected against running a test into an open circuit (>> 20 µH) or a complete short circuit (0.0 µH).

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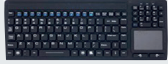**Baker Instruments**

**Testing and safety standards compliance**

| Standard | Topic |
|---|---|
| IEC 61326-1 2020 2012-07 | Electrical equipment for measurement, control, and laboratory use - EMC requirements – Table 1. |
| FCC 47CFR: Part 15 Subpart B: 2020 | Unintentional Radiators |
| ICES-003 Issue 7, October 2020 | Limits and Methods of Measurement to Information Technology Equipment (including Digital Apparatus). |
| IEC 61010-031:2022 | Safety requirements for electrical equipment for measurement, control, and laboratory use. Safety requirements for hand-held probe assemblies for electrical measurement and test. |
| IEC 61010-2-034:2023 | Safety requirements for electrical equipment for measurement, control, and laboratory use. Particular requirements for measurement equipment for insulation resistance and test equipment for electric strength. |
| IEC 62133-2:2017 | Safety Test Standard of Li-Ion |
| CISPR 11:2015+AMD1:2016+AMD2:2019 | Radiated Emissions and AC Mains Conducted Emissions |
| IEC 61000-3-2:2018+AMD1:2020 | Harmonics |
| IEC 61000-3-3:2013+AMD1:2017+AMD2:2021 | Flicker |
| IEC 61000-4-2:2009 | Electro-Static Discharge Immunity Test |
| IEC 61000-4-3:2020 | Radiated, Radio-Frequency, Electromagnetic Immunity |
| IEC 61000-4-4:2012 | Electrical Fast Transient/Burst Immunity Test |
| IEC 61000-4-5:2014 | Immunity to Surges |
| IEC 61000-4-8:2010 | Power Frequency Magnetic Field Immunity Test |
| IEC 61000-4-11:2020 | Voltage Dips/Interruptions Immunity Test |

| ACCESSORIES | | | |
|---|---|---|---|
| | Product | Part Number | Description |
|  | ADX-PLC | 1014-115 | Transport case for ADX |
|  | ADX-ASR | 1014-103 | Armature Surge Accessory |
|  | ADX-ASP | 1014-104 | ADX Armature Surge Probes |
|  | ADX-ASC | 1014-105 | ADX Armature Surge Clips |
|  | ADX-LVC | 1011-928 | ADX Low Voltage Kelvin Test Leads with Clips |
|  | ADX-LVP | 1011-929 | ADX Low Voltage Kelvin Test Leads with Probes |
|  | ADX-FSW | 1014-110 | ADX Foot Switch |
|  | ADX-LV1 | 1014-029 | 2 x ADX Duplex 3 mtr test leads with Duplex pistol type probes |
|  | KC1-C | 1006-447 | KC1-C KELVIN CLIP-CONNECT (X1) - Use with ADX-LV1 |
|  | CP1-C | 1006-448 | CP1-C CONCENTRIC PROBE-CONNECT (X1) - Use with ADX-LV1 |
|  | DTP1-C | 1006-449 | DTP1-C DUPLEX TWIST PROBE-CONNECT (X1) - Use with ADX-LV1 |
|  | DP1-C | 1006-450 | DP1-C DUPLEX PROBE-CONNECT (x1) - Use with ADX-LV1 |
|  | KC2-C | 1006-451 | KC2-C INSULATED KELVIN CLIP-CONNECT (X1) - Use with ADX-LV1 |

| | ACCESSORIES | | |
|---|---|---|---|
| | **Product** | **Part Number** | **Description** |
|  | ADX-KEY | 1014-111 | ADX Keyboard |
|  | ADX-BPK | 1014-114 | ADX Backpack |
|  | ADX-TSL | 1014-108 | ADX Safety Lights |
|  | ADX-EQS | 1014-109 | ADX Equipment Stop with Warning Lights |
|  | ADX-EQJ | 1014-308 | Equipment Stop Outlet Over-ride Jumper |
|  | ADX-STL | 1014-106 | ADX Standard Test Lead Set (3x Red + 1x Black) |
|  | ADX-TL2 | 1014-119 | ADX Test Lead Set (3x Red + 1x Black) 2m |
|  | ADX-TLR | 1014-116 | ADX Test Lead - Single 15kV Red test lead and labelling kit |
|  | ADX-TLB | 1014-117 | ADX Test Lead - Single 15kV Black test lead and labelling kit |
|  | ADX-CTL | 1014-107 | ADX Custom Test Lead Set (length) - by enquiry |
|  | ADX-AGS | 1014-600 | ADX Ground Strap |
|  | ADX-PCC | 1015-495 | ADX / PPX Tether Cable |

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| Part No. | Name | Description |
|---|---|---|
| 1013-911 | ADX-4 | ADX with Surge and Insulation Resistance tests only (IR, PI, DA, Step Voltage, DC HiPot) |
| 1013-912 | ADX-6 | |
| 1013-913 | ADX-12 | |
| 1013-914 | ADX-15 | |
| 1015-887 | ADX-4-A | ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Armature coil |
| 1015-895 | ADX-6-A | |
| 1015-903 | ADX-12-A | |
| 1013-915 | ADX-15-A | |

| Part No. | Name | Description |
|---|---|---|
| 1013-916 | ADX-4-RLC | ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Low Resistance, Inductance and Capacitance |
| 1013-916 | ADX-4-RLC | |
| 1013-917 | ADX-6-RLC | |
| 1013-918 | ADX-12-RLC | |
| 1013-919 | ADX-15-RLC | |
| 1015-888 | ADX-4-RLC-A | ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Low Resistance, Inductance and Capacitance and Armature coil |
| 1015-896 | ADX-6-RLC-A | |
| 1015-904 | ADX-12-RLC-A | |
| 1015-911 | ADX-15-RLC-A | |

| Part No. | Name | Description |
|---|---|---|
| 1015-889 | ADX-4-PPI | ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) fitted with PowerPack Interface |
| 1015-897 | ADX-6-PPI | |
| 1015-905 | ADX-12-PPI | |
| 1015-912 | ADX-15-PPI | |
| 1015-890 | ADX-4-PPI-A | ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) fitted with PowerPack Interface and Armature coil |
| 1015-898 | ADX-6-PPI-A | |
| 1015-906 | ADX-12-PPI-A | |
| 1015-913 | ADX-15-PPI-A | |

| Part No. | Name | Description |
|---|---|---|
| 1015-891 | ADX-4-RLC-PPI | ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Low Resistance, Inductance and Capacitance fitted with Power Pack Interface |
| 1015-899 | ADX-6-RLC-PPI | |
| 1015-907 | ADX-12-RLC-PPI | |
| 1015-914 | ADX-15-RLC-PPI | |
| 1015-892 | ADX-4-RLC-PPI-A | "ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Low Resistance, Inductance and Capacitance fitted with Power Pack Interface and Armature coil" |
| 1015-900 | ADX-6-RLC-PPI-A | |
| 1015-908 | ADX-12-RLC-PPI-A | |
| 1015-915 | ADX-15-RLC-PPI-A | |

| Part No. | Name | Description |
|---|---|---|
| 1013-920 | ADX-4-RLC-PD | "ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Low Resistance, Inductance and Capacitance and Partial Discharge" |
| 1013-921 | ADX-6-RLC-PD | |
| 1013-922 | ADX-12-RLC-PD | |
| 1013-923 | ADX-15-RLC-PD | |
| 1015-893 | ADX-4-RLC-PD-A | "ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Low Resistance, Inductance and Capacitance and Partial Discharge and Armature coil" |
| 1015-901 | ADX-6-RLC-PD-A | |
| 1015-909 | ADX-12-RLC-PD-A | |
| 1013-924 | ADX-15-RLC-PD-A | |

| Part No. | Name | Description |
|---|---|---|
| 1013-925 | ADX-4-RLC-PD-PPI | "ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Low Resistance, Inductance and Capacitance and Partial Discharge and Power Pack Interface" |
| 1013-926 | ADX-6-RLC-PD-PPI | |
| 1013-927 | ADX-12-RLC-PD-PPI | |
| 1013-928 | ADX-15-RLC-PD-PPI | |
| 1015-894 | ADX-4-RLC-PD-PPI-A | "ADX with Surge and Insulation Resistance tests (IR, PI, DA, Step Voltage, DC HiPot) and Low Resistance, Inductance and Capacitance and Partial Discharge and Power Pack Interface and Armature coil" |
| 1015-902 | ADX-6-RLC-PD-PPI-A | |
| 1015-910 | ADX-12-RLC-PD-PPI-A | |
| 1015-916 | ADX-15-RLC-PD-PPI-A | |