



VIONIC powered by INTELLO

Full Specifications

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Selected specifications. The specified values are typical values which are reached in optimal working conditions at 25 °C.
Specifications are subject to change without notice.

| Potentiostat, applied potential and applied current | |
|---|--|
| Compliance voltage | ±50 V |
| Maximum applied potential | ±10 V |
| Maximum applied current | ±6 A (up to ±10 V), ±3 A (up to ±50V) |
| Applied potential: accuracy | ± 0.2% of setting ± 2 mV |
| Applied potential: resolution | 100 µV |
| Applied current: accuracy (10 nA current range or higher) | ±0.2% of current ± 0.2% of current range |
| Applied current: resolution (10 nA current range) | 0.002% of current range (0.2 pA) |
| Rise time (typical) | 200 ns |
| Control loop bandwidth (typical) | 10 kHz / 100 kHz / 1 MHz, selectable |

| Measured potential (S-RE) | |
|--|-------------|
| Maximum measured potential | ±10 V |
| Measured potential: accuracy | 0.2% ± 2 mV |
| Measured potential: resolution (ADC resolution) | 100 µV |
| Measured potential: resolution (system, DC signals) | 1.5 µV |
| Measured potential: resolution (system, AC signals, < 20 Hz) | 12 nV |
| Input impedance of the electrometer | >1 TΩ |
| Bandwidth of electrometer (-3 dB) | >10 MHz |



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| Second Sense potential (S2-RE) | |
|---|-------------|
| Maximum measured S2 potential | ±50 V |
| Measured S2 potential: accuracy | 0.3% ± 5 mV |
| Measured S2 potential: resolution (ADC resolution) | 2 mV |
| Measured S2 potential: resolution (system, DC signals) | 7.5 µV |
| Measured S2 potential: resolution (system, AC signals, < 20 Hz) | 60 nV |

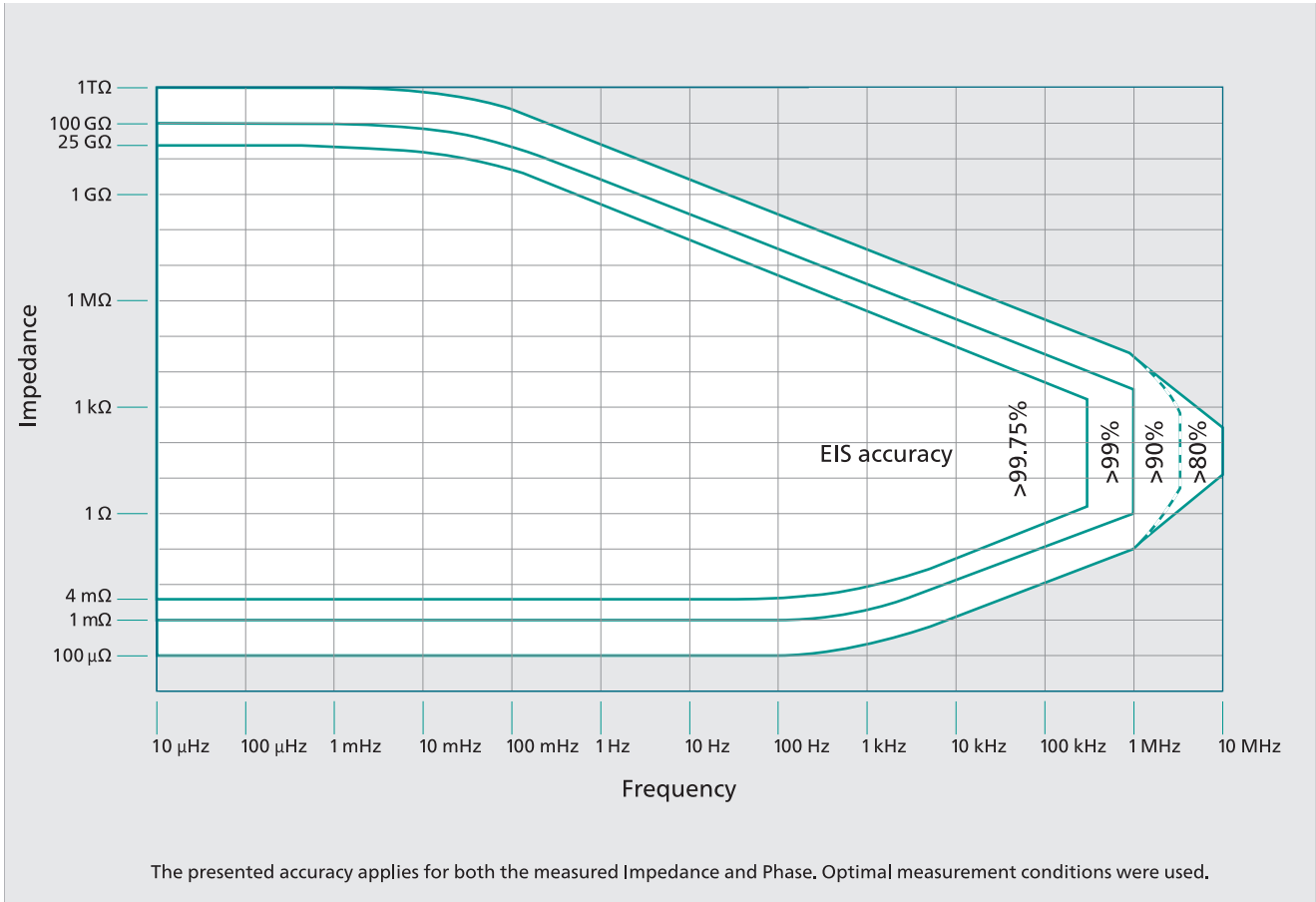
| Measured current | |
|---|--|
| Maximum measured current | ±6 A |
| Measured current: accuracy | ±0.2% of current ± 0.2% of current range |
| Measured current: resolution (ADC resolution, 1 nA current range) | 20 fA |
| Measured current: resolution (system, DC signals, 1 nA current range) | 300 aA |
| Measured current: resolution (system, AC signals, <20 Hz, 1 nA current range) | 2.3 aA |
| Lowest current range | 1 nA |
| Total number of current ranges | 11 |



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| Electrochemical Impedance Spectroscopy | |
|---|---|
| Maximum Frequency | 10 MHz |
| Minimum Frequency | 10 μHz |
| Max AC amplitude P-stat | 10 V |
| Max AC amplitude G-stat | 6 A |
| Minimum AC amplitude P-stat | 0.1 mV |
| Minimum AC amplitude G-stat | 0.5 pA |
| Maximum measurable impedance (accuracy %) | 25 GΩ (>99.75%) 100 GΩ (>99%) 1 TΩ (>90%) See Contour Plot |
| Minimum Measurable impedance (accuracy %) | 4 mΩ (>99.75%) 1 mΩ (>99%) 100 μΩ (>90%) See Contour Plot |
| Full EIS Accuracy | See Contour Plot |

Contour plot



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| General | |
|--|--|
| EIS | Yes |
| Analog scan | Yes |
| Floating mode | Selectable with 4 options |
| Cell Cables | Pure Signal Bridge w/ 1m fixed and an additional 0.5 m provided by Adaptive Cables with 4 mm male banana connectors. |
| Maximum scan rate - analog scan | 100 V/s |
| Minimum scan rate - analog scan | 50 μV/s |
| Maximum scan rate - staircase scan (@ 10 mV step potential & 100 μs duration) | 100 V/s |
| Minimum scan rate - staircase scan (@ 100 μV step potential & 1 s duration) | 100 μV/s |
| Number of cell connections | 5 (WE, CE, RE, S, S2) |
| Earth ground connection | Yes |
| Analog ground connection | Yes |
| Maximum output power (maximum power applied to a passive cell) | 150 W |
| Maximum input power (maximum dissipated power from active cells) | 50 W @ 25 °C |
| Cell isolation | Automatic |
| Dynamic interface | 7-segment LED with color signage |
| Connection type | Ethernet |
| True parallel data acquisition | Yes |
| Seamless measurements | Yes |
| Untethering (Remove and use the computer for other tasks while the experiment is in progress.) | Yes |

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| Timing | |
|--|---------------|
| Time gap between 2 seamless measurement commands | 0 ns (no gap) |
| Clock resolution (internal clock) | 10 ns |
| Lowest sampling interval (acquisition) time (i, E, S2) | 1 μs |

| Memory | |
|--|----------------------------------|
| On-board data buffer (with sampling rate <10000 data points/s) | 10 million data points (samples) |
| On-board data buffer (with sampling rate ≥10000 data points/s) | 1 million data points (samples) |

| Dimensions (w x h x d), excl. cables | 20 cm x 27 cm x 40 cm |
|--------------------------------------|--------------------------|
| Weight | 13 kg |
| Power requirements | 300W, 100..240V, 50/60Hz |

VIONIC external components

| Component | Material |
|--|---|
| Instrument transparent frontplate | Polymethyl methacrylate (PMMA) |
| Instrument back, bottom and green rims | Polypropylene (PP, 20% mineral filled) |
| Instrument side and top panels | Stainless steel (SS) |
| Fixed cables | Polyvinyl chloride nitrile (PVC Nitrile) |
| Buffer and splitter box | Aluminium (Al), black anodized with silicone protective rings |
| Adaptive cables | Polyvinyl chloride (PVC) with Au-plated contacts |
| Test Cell | Acrylonitrile butadiene styrene (ABS) |

VIONIC’s components have been carefully selected based on their chemical compatibility with the laboratory environment.

One for all,
and all in one
instrument.



Metrohm Autolab



The research and development of VIONIC powered by INTELLO was based upon over 30 years of customer insight. Each feature was created to meet the requirements of electrochemical research and improve your day-to-day discoveries.

Metrohm Autolab provides an industry-leading **3 year warranty** on all instruments and accessories.

| Benefits | |
|------------------|--|
| Pure Efficiency | VIONIC and the INTELLO software are bursting with time-saving features that optimize any workflow. |
| Pure Versatility | With unmatched standard specifications, VIONIC is the instrument of choice for your electrochemical applications. |
| Pure Safety | Smart hardware and software safety features protect your cell, your lab, and your data. |
| Pure Discovery | VIONIC powered by INTELLO offers a unique combination of features that observes electrochemical processes, in real time with no gaps or missed information: complete data, pure discovery. |

Dedicated to research

