



Autolab PGSTAT128N

AUT128N.S

The entry level member of the modular Autolab instruments family, the PGSTAT128N is a low current, low noise and fast potentiostat/galvanostat capable of measuring maximum 800 mA, with a compliance voltage of 12 V. The PGSTAT128N is a high performance low cost option for electrochemical measurements in small cells.

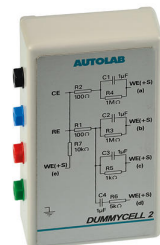
Designed for a wide range of electrochemical applications, from corrosion measurements to the characterization of energy storage devices, this budget instrument is the ideal choice for electrochemical applications where performance is important. You can customize and enhance the capabilities of the PGSTAT128N by adding one or more of the many available optional modules or accessories.

Phạm vi giao hàng AUT128N.S

Qt.	Order no.	Description
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1 PCS AUT.DUMCELL.S Autolab dummy cell

Dummy cell for instrument testing.



1 PCS CABLE.BNC.50 50 cm BNC cable

50 cm BNC cable for diagnostics purposes.



1 PCS CABLE.MONITOR Monitor cable for N series Autolab

Monitor cable for modular Autolab systems, providing connections for external equipments (Potential output (E_{out}), Current output (i_{out}) and Potential input (E_{in})).

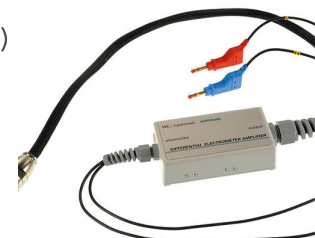


1 PCS CABLE.PWR Power cable

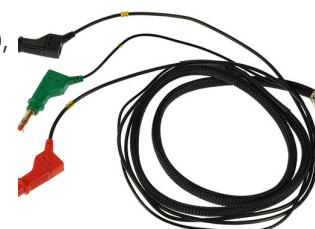
Standard power cable for Autolab instruments and accessories.



Standard cell cable, 1.5 m, with connection for reference electrode (RE) and sense electrode (S).



Standard cell cable, 1.5 m, with connection for counter electrode (CE), working electrode (WE) and ground.



NOVA is the package designed to control all the Autolab instruments with USB interface.

Designed by electrochemists for electrochemists and integrating over two decades of user experience and the latest .NET software technology, NOVA brings more power and more flexibility to your Autolab potentiostat/galvanostat.



NOVA offers the following unique features:

- Powerful and flexible procedure editor
- Clear overview of relevant real-time data
- Powerful data analysis and plotting tools
- Integrated control for external devices like Metrohm Liquid Handling devices

[Download the latest version of NOVA](#)

Phụ kiện tùy chọn

Order no.	Description
ADC10M.S	Dual-channel ultra-fast sampling module The ADC10M module is an ultra-fast sampling module that increases the sampling rate of the Autolab from 50 kSamples/s to 10 MSamples/s giving you the ability to acquire fast transients with intervals down to 100 ns. When combined with the SCAN250 module, you can perform ultra-fast cyclic voltammetry measurements with scan rates up to a practical limit of 250 kV/s, making it a powerful tool for studying fast kinetic processes.
ALL.CLIP.BLACK	Black Alligator Clamp Black alligator clamp for connections to electrodes in the electrochemical cell.
ALL.CLIP.RED	Red Alligator Clamp Red alligator clamp for connections to electrodes in the electrochemical cell.



The BA is a dual-mode bipotentiostat module that converts the Autolab into a double channel potentiostat with which measurements on 2 working electrodes can be performed sharing the same counter and reference electrode.

In the Bipotentiostat mode, a fixed potential is applied to the second channel (second Working Electrode) while applying a potential step or a sweep to the first channel (first Working Electrode). In the Scanning Bipotentiostat mode, a potential offset with respect to the first channel is applied to the second channel.



BSTR10A.S**Booster 10A**

The Booster 10A module increases the maximum current of the PGSTAT100N, PGSTAT128N, PGSTAT302N, PGSTAT204 or M204 to 10 Ampere. The compliance voltage of the system is 20 V in combination with the Booster10A.

With its fast response time, the Autolab Booster 10A has been optimized to perform electrochemical impedance measurements, in combination with the FRA32M module, on fuel cells, batteries and super-capacitors. The booster is able to handle active as well as passive cells. The Booster 10A can be used to measure the charge and discharge characteristics of super-capacitors, perform measurements on fuel cells or perform DC or AC measurements on large area electrodes.



ECI10M.S**High frequency impedance spectroscopy**

The ECI10M extends the measurable range for electrochemical impedance spectroscopy to a maximum of 10 MHz.

The ECI10M consists of a module, installed in the Autolab potentiostat /galvanostat and coupled to the FRA32M module and an external interface designed to be placed in close proximity of the electrochemical cell in order to minimize the effects from the electrode cables.

The small form factor of the external interface allows measurements in a glove box or Faraday cage.

The ECI10M uses the Automatic Amplitude Correction algorithm (AAC) to ensure that the amplitude applied on the cell corresponds to the required amplitude at all times, thus maximizing the resolution while respecting the linearity and stability conditions during the measurement.



Electrochemical noise (ECN) is an in-situ technique for measuring these localized corrosion processes on bare or coated metal samples. During measurements with the ECN module no external perturbation (potential or current) is applied to the electrode. The potential and current signals are measured as a function of time.

The accompanying analysis software allows the current and potential versus time data to be analyzed using Fast Fourier Transform (FFT). The software also provides several filtering and mathematical methods for treating electrochemical noise signals.



The EQCM module provides the means to perform Electrochemical Quartz Crystal Microbalance experiments. The EQCM module measures a mass change per unit area by recording the change in resonant frequency of a quartz crystal oscillator.

Measurements in the sub $\mu\text{g}/\text{cm}^2$ are possible. The EQCM can be fitted with 6 MHz, AT-cut crystals.

The EQCM module is supplied with a suitable electrochemical cell, reference and counter electrode and two 6 MHz gold-coated crystals.



The FI20 filter and integrator module allows the Autolab users to do coulometric and chrono-coulometric experiments. The analog integrator gives you the possibility to measure charge instead of current and can be used both in cyclic voltammetry as well as in potential step experiments.

With this module it is easy to separate the capacitive current from the faradaic current. In addition the integrator is effective in reducing signal noise by averaging it out.

The third order Sallen-Key filter with selectable RC-times between 0 and 500 ms, can be used to filter out noise.

The filter of the FI20 module is also useful in cases where the background noise (50 or 60 Hz for example) cannot be removed by using measures like a Faraday cage.

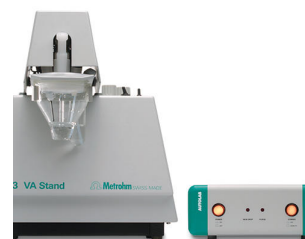


The FRA32M provides the means to perform impedance and electrochemical impedance measurements in combination with the Autolab. This module allows one to perform both potentiostatic and galvanostatic impedance measurements over a wide frequency range of 10 μ Hz to 32 MHz (limited to 1 MHz in combination with the Autolab PGSTAT). In addition to the classical EIS, the NOVA software also allows the users to modulate other outside signals such as rotation speed of a rotating disk electrode or the frequency of a light source to perform Electro-hydrodynamic or Photo-modulated impedance spectroscopy.

The FRA32M module comes with a powerful fit and simulation software for the analysis of impedance data.



Interface for Metrohm 663 VA Stand.



The MUX module series allows you to perform electrochemical experiments on multiple cells or multiple working electrodes, sequentially. The cell to perform measurement on can be selected either manually or automatically using the sequencing option of NOVA. Metrohm Autolab offers two types of MUX modules.



- MUX.MULTI4 - Used to multiplex all four connections from the Autolab. This allows sequential measurements on complete electrochemical cells, up to 64 cells with increments of 4.
- MUX.SCNR16 - Used to multiplex the working electrode connection of the Autolab. This allows sequential measurements on cells that share the same counter, reference and sense electrode but different working electrode, up to 255 different working electrodes with increments of 16.
- MUX.SCNR8 - Used to multiplex the reference and sense electrode connections of the Autolab. This allows sequential voltage sensing across different electrochemical cells, up to 128 cells with increments of 8.

SCAN250.S**True linear scan generator module**

When the processes exhibit very fast transient behavior, such as hydrogen adsorption, digital sweep can lead to loss of information regarding the adsorption process. The SCAN250 module, which has the capability of applying a true analog sweep to the sample, was specially designed to overcome this problem. The true linear scan rate range is from 10 mV/s to 250 kV/s. The SCAN250 module in combination with ADC10M is a very powerful tool for studying fast transients.



The Autolab Software Development Kit (Autolab SDK) is designed to control the Autolab instrument from different external applications such as LabVIEW, Visual Basic for Applications (VBA), scripting etc. With the Autolab SDK the external application can be used to measure complete procedures or control individual Autolab modules.

Metro Autolab

In order to use the Autolab SDK from other applications, these applications must have the possibility to use .NET assemblies or in the case of 'older' applications to use COM assemblies. How to integrate these assemblies is explained in the manual of the application.

The Autolab SDK is compatible with Autolab NOVA however it does not require NOVA to be installed.

pX1000.S

Voltage and pH measurement module

The pX1000 allows the measurements of pH or pX values during electrochemical experiments. This module also provides an additional Pt1000 input which allows recording of the temperature during the experiments, either through a Pt1000 sensor or through a combined pH /Pt1000 sensor. The temperature measurement allows automatic pH corrections.



The pX1000 module can also be used as an additional differential electrometer, with the same specifications as the main Autolab electrometer. The pX1000 module is compatible with the Metrohm pH and temperature sensors.

The user can connect any pH, pX or 'double' electrode to the pX1000 module. In case an electrode other than a pH electrode is used, the output is given as the voltage difference that is measured between the electrodes making it possible to connect a detection electrode to perform coulometric titration. The pX1000 module also works as an independent pH meter.
