891 Professional Analog Out

2.891.0010

Manual

8.891.8001EN / 2019-12-16

Metrohm

Metrohm AG
CH-9100 Herisau
Switzerland
Phone +41 71 353 85 85
Fax +41 71 353 89 01
info@metrohm.com
www.metrohm.com

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Technical Communication
Metrohm AG
CH-9100 Herisau
techcom@metrohm.com

This documentation has been prepared with great care. However, errors can never be entirely ruled out. Please send comments regarding possible errors to the address above.

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1 Instrument description

With the **891 Professional Analog Out**, digital signals of Metrohm ion chromatographs can be converted to analog signals and processed in non-Metrohm software.

Like the ion chromatograph, the 891 Professional Analog Out is operated with the **MagIC Net** software. When the 891 Professional Analog Out is connected to an ion chromatograph or an extension module, MagIC Net recognizes it automatically. The software checks its functional readiness and controls and monitors all devices connected to one another.

The 891 Professional Analog Out is equipped with two high-resolution outputs, *Out 1* and *Out 2*, as well as with two low-resolution auxiliary outputs, *Aux 1* and *Aux 2*. All outputs can be used for transmitting detector data and information on pump flow, temperature, etc. The output of detector data on the low-resolution auxiliary outputs is not recommended.

2 About the documentation

CAUTION

Please read through this documentation carefully before putting the 891 Professional Analog Out into operation. The documentation contains information and warnings which the user must follow in order to ensure safe operation of the instrument.

2.1 Symbols and conventions

The following symbols and formatting may appear in this documentation:

*(5-**12**)*	**Cross-reference to figure legend** The first number refers to the figure number, the second to the instrument part in the figure.
1	**Instruction step** Carry out these steps in the sequence shown.
Method	**Dialog text**, **parameter** in the software
File ▶ New	Menu or menu item
[Next]	**Button** or **key**
	**WARNING** This symbol draws attention to a possible life-threatening hazard or risk of injury.
	**WARNING** This symbol draws attention to a possible hazard due to electrical current.
	**WARNING** This symbol draws attention to a possible hazard due to heat or hot instrument parts.
	**WARNING** This symbol draws attention to a possible biological hazard.

CAUTION

This symbol draws attention to possible damage to instruments or instrument parts.

NOTE

This symbol highlights additional information and tips.

3 Safety instructions

WARNING

Operate this instrument only according to the information contained in this documentation.

WARNING

Never open the housing of the instrument. The instrument could be damaged by this. There is also a risk of serious injury if live components are touched.

There are no parts inside the housing which can be serviced or replaced by the user.

WARNING

Only personnel qualified by Metrohm are authorized to carry out service work on electronic components.

4 Overview of the instrument

4.1 Front

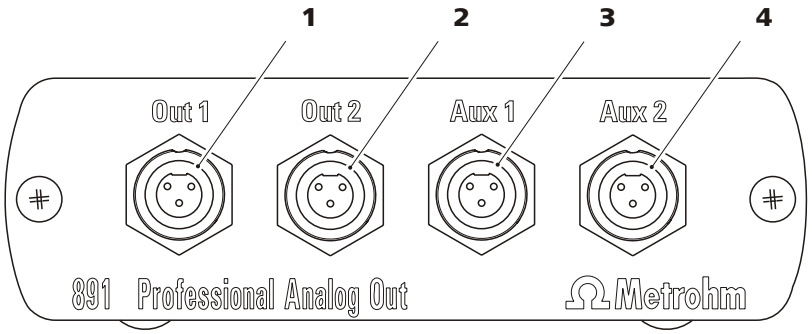

Figure 1 Front

1 **Analog output 1** Main channel with high resolution, labeled *Out 1*.	**2** **Analog output 2** Main channel with high resolution, labeled *Out 2*.
3 **Analog output 3** Auxiliary channel with low resolution, labeled *Aux 1*.	**4** **Analog output 4** Auxiliary channel with low resolution, labeled *Aux 2*.

4.2 Rear

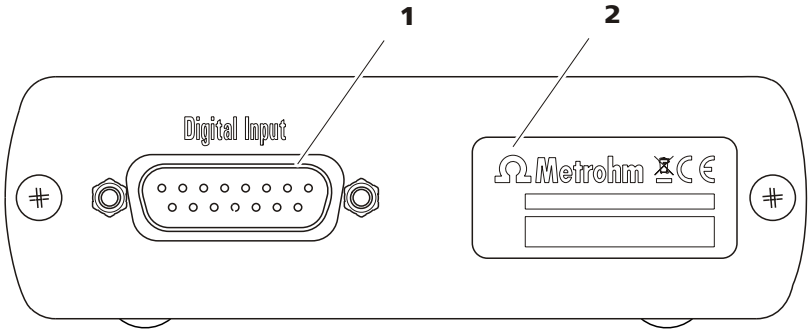

Figure 2 Rear

1 **Digital input**	**2** **Type plate**

5 Installation

5.1 Setting up the instrument

5.1.1 Packaging

The instrument is supplied in highly protective special packaging. Keep this packaging, as only this ensures safe transportation of the instrument.

5.1.2 Checks

Immediately after receipt, check whether the shipment has arrived complete and without damage by comparing it with the delivery note.

5.1.3 Location

The instrument has been developed for operation indoors and may not be used in explosive environments.

Place the instrument in a location of the laboratory which is suitable for operation and free of vibrations and which provides protection against corrosive atmosphere and contamination by chemicals.

The instrument should be protected against excessive temperature fluctuations and direct sunlight.

5.2 Connecting the 891 Professional Analog Out

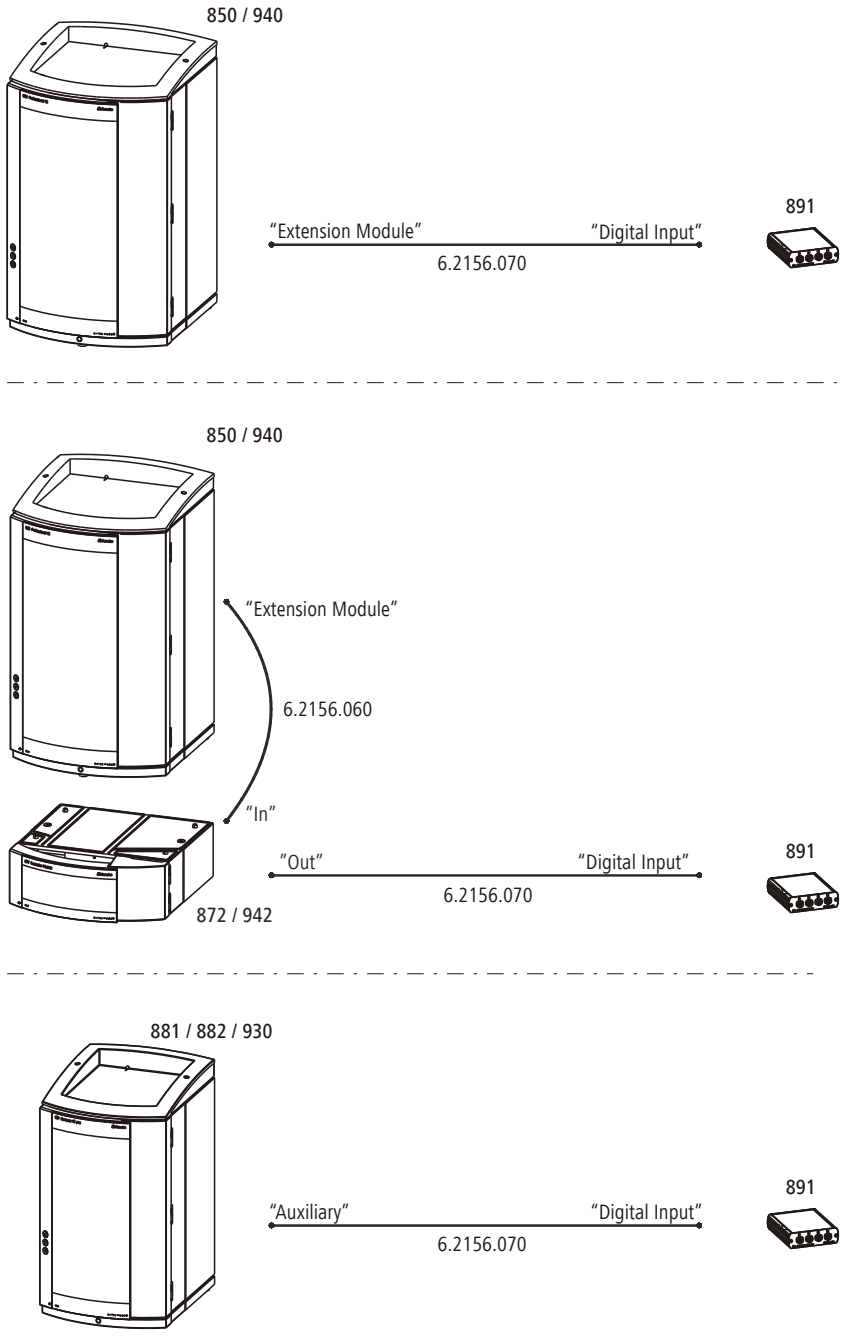

Figure 3 Possible connections to the 891 Professional Analog Out

NOTICE

The total length of all 6.2156.0x0 connecting cables between the ion chromatograph and the 891 Professional Analog Out must not exceed 3.5 m.

Connecting the digital input

1 Connect the cable (6.2156.070) to the connector *Digital Input* of the 891 Professional Analog Out.

2 Depending on the instrument, connect the other end of the cable to one of the following connectors:

On the instrument …	… to the connector …
850 Professional IC / 940 Professional IC Vario	*Extension Module*
872 Extension Module / 942 Extension Module Vario	*Out*
881 Compact IC pro	*Auxiliary*
882 Compact IC plus	*Auxiliary*
930 Compact IC Flex	*Auxiliary*

Connecting the analog outputs

The cable (6.2128.200) has a plug on one end which fits to the analog outputs of the 891 Professional Analog Out. On the other end, a plug fitting to the target device must be mounted.

This is supported by the following color code:

- Green cable = positive voltage.
- Brown cable = negative voltage.
- White cable = negative voltage.
- Grounding

1 Connecting the analog cable to the 891 Professional Analog Out

- Connect the plug of the cable (6.2128.200) *(4-**1**)* to the required socket. Observe the alignment of the three contact pins.
- Tighten the knurled screw *(4-**2**)* at the front end of the plug by hand in clockwise direction to secure the plug.

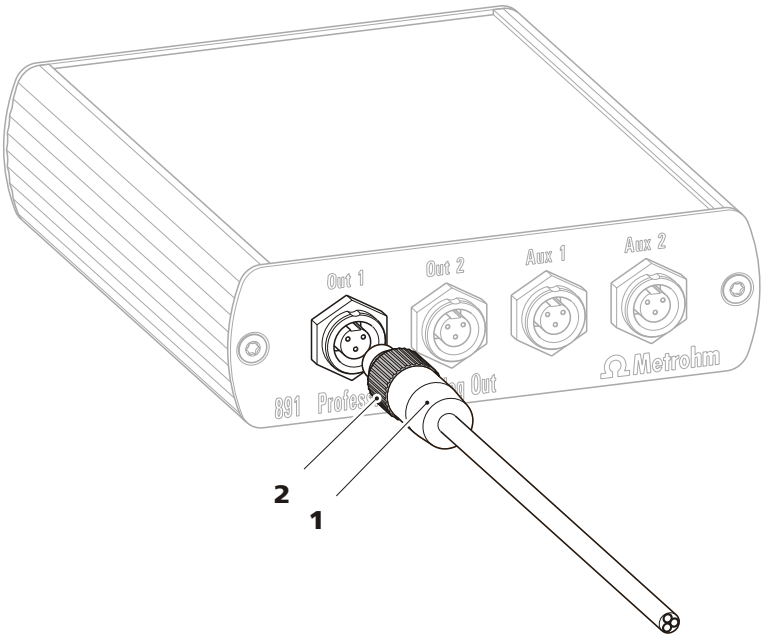

Figure 4 Connecting the analog output

1 Cable 6.2128.200	**2 Knurled screw**

2 Connecting the analog cable to the target device

Plug the other end of the cable into the analog input of the target device.

6 Start-up

The 891 Professional Analog Out is put into operation together with the ion chromatograph it is connected to.

Putting ion chromatographs with 891 Professional Analog Out into operation

1. Start MagIC Net.
2. Connect the ion chromatograph to the PC and switch it on.

   The 891 Professional Analog Out is recognized automatically by MagIC Net.

Additional information can be found in the *Start-up* chapter in the manual for the ion chromatograph as well as in the MagIC Net online help.

7 Operation

The **891 Professional Analog Out** is configured and the data sources are assigned to the output channels in the **MagIC Net** software. Additional information on operating the software can be found in the document *"MagIC Net Tutorial"* or in the online help.

Configuration

If the 891 Professional Analog Out is connected to an ion chromatograph or an Extension Module, it is recognized automatically when MagIC Net is started but it will not be entered into the device table as a stand-alone device.

Displaying configuration data

1. In the **Configuration** program part, open the properties of the IC instrument to which the 891 Professional Analog Out is connected.
2. Open the **Analog Out** tab.

   The name and the serial number of the 891 Professional Analog Out are shown. These data cannot be modified.

The actual assignment of the data sources to the output channels takes place in the **Method** program part, on the four tabs for the analog outputs: **Out1** / **Out2** / **Aux1** / **Aux2**. For this, the instrument to which the 891 Professional Analog Out is connected has to be selected in the device window. The four analog outputs can be found on the four tabs on the back.

Configuring output channels

1. Open the **Method** program part.
2. In the **Devices** subwindow, select the instrument to which the 891 Professional Analog Out is connected.

   The data for the four analog outputs *Out 1* / *Out 2* / *Aux 1* / *Aux 2* is to be found on the four tabs at the back.
3. The following indications can be made for each channel:

- Selection of the data source. The matching data channel is automatically assigned.
- Indication of the signal to be output as 1 volt (maximum output voltage).
- Selection of the sign of the output voltage.
- Optional: Indication of a value to be subtracted from every measured value before it is converted to the output voltage.

8 Technical specifications

8.1 Ambient temperature

Operation	+5 - +45 °C
Storage	–20 - +70 °C
Transport	–40 - +70 °C

8.2 Housing

Dimensions	
Width	106 mm
Height	32 mm
Depth	123 mm
Material	Aluminum

8.3 Connectors

Front	4 three-pin circular plugs for voltage output
Rear	1 D-sub plug, 15-pin
Power supply unit	no power supply unit required

8.4 Output channels

Number	4 output channels
Absolute output range	2,000 mV
Noise	< 2 µV rms
Channel assignment	universal, without restrictions; e.g. detector signals, system pressure, gradient percentages, column temperature, etc.

8.5 Out 1 and Out 2 outputs

Resolution	25 bit
Recommended usage	as main channel for detector signals, e.g. conductivity 0 - 15,000 µS/cm
Output voltage	–1,000 - +1,000 mV, bipolar
Accuracy	typical: < ±0.1% deviation

8.6 Aux 1 and Aux 2 outputs

Resolution	16 bit
Recommended usage	as auxiliary channel for system pressure, column temperature, etc.
Output voltage	–1,000 - +1,000 mV, bipolar
Accuracy	typical: < ±0.2% deviation

8.7 Output and configuration possibilities

Measured value offset	absolute, in units of the source value, e.g. 10 µS/cm
Voltage offset	absolute, in mV
Full scale per volt	rangeless for all channels in units of the source value per volt
Polarity	positive, negative
Baseline	reset baseline
Autozero	programmable Autozero

8.8 Weight

1.891.0010 300 g

9 Accessories

Up-to-date information on the scope of delivery and optional accessories for your product can be found on the Internet. You can download this information using the article number as follows:

Downloading the accessories list

1. Enter *https://www.metrohm.com/* into your Internet browser.
2. Enter the article number (e.g. **2.891.0010**) into the search field.
   The search result is displayed.
3. Click on the product.
   Detailed information regarding the product is shown on various tabs.
4. On the **Included parts** tab, click on **Download the PDF**.
   The PDF file with the accessories data is created.

NOTICE

Once you have received your new product, we recommend downloading the accessories list from the Internet, printing it out and keeping it together with the manual for reference purposes.

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