MINI Analog Pro app

Help

Application note
106125_en_02

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1 Description

Every MINI Analog Pro module provides an option for NFC (Near Field Communication). An additional wireless connection is also available via Bluetooth for the programmable modules.

NFC

On all modules, the NFC antenna is in the module base and is marked with the following symbol.

NFC

Figure 1 NFC logo

To establish a connection via the MINI Analog smartphone app, simply place your smartphone on the MINI Analog Pro module.

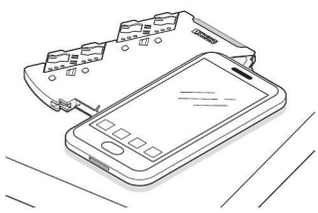

Figure 2 Connection establishment

The module is detected automatically and the options the app offers in combination with the detected module are displayed automatically.

The module does not require a supply voltage for NFC configuration. For Bluetooth configuration, however, an external supply is absolutely essential.

Make sure that your smartphone supports NFC or Bluetooth and that these options are activated. The position of the NFC antenna may vary for the different smartphones. Check where the antenna is located first and change the orientation of the smartphone accordingly. As soon as the module has been detected via NFC, you can take the smartphone in your hand again and operate it as usual. The smartphone must only be placed on the module again, if you wish to write a created configuration to the module (see 3.5 on page 12).

Activate the audio function of your smartphone: Often, a useful audible signal can be heard when an NFC connection is detected.

In the case of Bluetooth communication, it is not necessary to place it on the module for detection and transmission purposes.

Make sure you always use the latest documentation.
It can be downloaded at phoenixcontact.net/products.

This document is valid for all products listed in the “Ordering data” on page 4 section.

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1.1 NFC technology

Near Field Communication (NFC) is a transmission standard for wireless and contactless data exchange at a close distance. In contrast to Bluetooth or WLAN, for example, NFC is not a permanent point-to-point connection. This means that data transmission starts as soon as a connection is established between the module and the smartphone. As there are restrictions with regard to the amount of data and the transmission speed, the smartphone must not be moved during transmission.

1.2 Bluetooth technology

Bluetooth is a technology for wireless networks with limited range and can be used to connect devices without the need for cables. Bluetooth devices do not need a direct visual or physical connection to communicate. As a result, the connections are significantly more flexible. Bluetooth can be used to transfer data and information between devices.

Each configurable MINI Analog Pro module allows you not only to read data using the Bluetooth adapter (IFS-BT-PROG-ADAPTER, Order No.: 2905872), but also to configure and monitor the module.

You can use the Bluetooth adapter in conjunction with the following devices:

- Android smartphones (Version 4.3 and later)
- Android tablets (Version 4.3 and later)
- Apple smartphones (IOS 6 and later)
- Apple tablets (IOS 6 and later)
- PCs (Windows (32/64-bit) XP, Vista, 7, and 8)

The Bluetooth adapter comprises a device adapter and a PC USB stick. To use this device, you must ensure that your smartphone or tablet is Bluetooth LE enabled.

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2 Ordering data

The app can be used in combination with the following products:

Description	Type	Order No.	Pcs./Pkt.
Single-channel input loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of analog signals. Input signal = output signal: 0(4) mA ... 20 mA. Screw connection technology.	MINI MCR-2-I-I-ILP	2901994	1
Single-channel input loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of analog signals. Input signal = output signal: 0(4) mA ... 20 mA. Push-in connection technology.	MINI MCR-2-I-I-ILP-PT	2901995	1
Two-channel input loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of analog signals. Input signal = output signal: 0(4) mA ... 20 mA. Screw connection technology.	MINI MCR-2-2I-2I-ILP	2901996	1
Two-channel input loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of analog signals. Input signal = output signal: 0(4) mA ... 20 mA. Push-in connection technology.	MINI MCR-2-2I-2I-ILP-PT	2901997	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0(4) mA ... 20 mA, output signal: 0(4) mA...20 mA, screw connection technology	MINI MCR-2-I-I	2901998	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0(4) mA ... 20 mA, output signal: 0(4) mA ... 20 mA, push-in connection technology.	MINI MCR-2-I-I-PT	2901999	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0 ... 20 mA, output signal: 0 ... 10 V, screw connection technology	MINI MCR-2-I0-U	2902000	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0 ... 20 mA, output signal: 0 ... 10 V, push-in connection technology	MINI MCR-2-I0-U-PT	2902001	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 4 ... 20 mA, output signal: 0 ... 10 V, screw connection technology	MINI MCR-2-I4-U	2902002	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 4 ... 20 mA, output signal: 0 ... 10 V, push-in connection technology	MINI MCR-2-I4-U-PT	2902003	1
Configurable NAMUR signal conditioner with plug-in connection technology for proximity sensors, floating switch contacts, and switch contacts with resistance circuit. 2 transistor outputs, configurable via DIP switch. Screw connection technology.	MINI MCR-2-NAM-2RO	2902004	1
Configurable NAMUR signal conditioner with plug-in connection technology for proximity sensors, floating switch contacts, and switch contacts with resistance circuit. 2 transistor outputs. Configurable via DIP switch. Push-in connection technology.	MINI MCR-2-NAM-2RO-PT	2902005	1
3-way repeater power supply with plug-in connection technology. HART-transparent, input signal 0(4) ... 20 mA, output signal 0(4) ... 20 mA. The device can be used in both isolator and repeater power supply operation. Screw connection technology	MINI MCR-2-RPSS-I-I	2902014	1
3-way repeater power supply with plug-in connection technology. HART-transparent, input signal 0(4) ... 20 mA, output signal 0(4) ... 20 mA. The device can be used in both isolator and repeater power supply operation. Push-in connection technology	MINI MCR-2-RPSS-I-I-PT	2902015	1
Configurable potiposition transducer with plug-in connection technology for connecting potentiometers from 0 Ω ... 100 Ω to 0 kΩ ... 100 kΩ. Configurable via DIP switch or software. Screw connection technology, standard configuration	MINI MCR-2-POT-UI	2902016	1
Configurable potiposition transducer with plug-in connection technology for connecting potentiometers from 0 Ω ... 100 Ω to 0 kΩ ... 100 kΩ. Configurable via DIP switch or software. Push-in connection technology, standard configuration	MINI MCR-2-POT-UI-PT	2902017	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0 ... 10 V, output signal: 0 ... 20 mA, screw connection technology	MINI MCR-2-U-I0	2902022	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0 ... 10 V, output signal: 0 ... 20 mA, push-in connection technology	MINI MCR-2-U-I0-PT	2902023	1

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Description	Type	Order No.	Pcs./Pkt.
Universally configurable 4-way signal conditioner, with switching output and plug-in connection technology for the electrical isolation of analog signals. Configurable via DIP switch or software. Screw connection technology, order configuration.	MINI MCR-2-UNI-UI-UIRO-C	2902024	1
Universally configurable 4-way signal conditioner, with switching output and plug-in connection technology for the electrical isolation of analog signals. Configurable via DIP switch or software. Screw connection technology, standard configuration.	MINI MCR-2-UNI-UI-UIRO	2902026	1
Universally configurable 4-way signal conditioner, with switching output and plug-in connection technology for the electrical isolation of analog signals. Configurable via DIP switch or software. Push-in connection technology, order configuration.	MINI MCR-2-UNI-UI-UIRO-PT-C	2902027	1
Universally configurable 4-way signal conditioner, with switching output and plug-in connection technology for the electrical isolation of analog signals. Configurable via DIP switch or software. Push-in connection technology, standard configuration.	MINI MCR-2-UNI-UI-UIRO-PT	2902028	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0 ... 10 V, output signal: 4 ... 20 mA, screw connection technology	MINI MCR-2-U-I4	2902029	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0 ... 10 V, output signal: 4 ... 20 mA, push-in connection technology	MINI MCR-2-U-I4-PT	2902030	1
Analog frequency transducer with limit value functionality and plug-in connection technology for converting standard signals into frequency or PWM signals. Configurable via DIP switch or software. Screw connection technology, standard configuration.	MINI MCR-2-UI-FRO	2902031	1
Analog frequency transducer with limit value functionality and plug-in connection technology for converting standard signals into frequency or PWM signals. Configurable via DIP switch or software. Push-in connection technology, standard configuration.	MINI MCR-2-UI-FRO-PT	2902032	1
Universally configurable limit value switch with PDT relay output and plug-in connection technology for switching analog limit values. Configurable via DIP switch or software, screw connection technology.	MINI MCR-2-UI-REL	2902033	1
Universally configurable limit value switch with PDT relay output and plug-in connection technology for switching analog limit values. Configurable via DIP switch or software, push-in connection technology.	MINI MCR-2-UI-REL-PT	2902035	1
3-way signal conditioner with plug-in connection technology and calibrated measuring range changeover for the electrical isolation of unipolar and bipolar analog signals. Input/output configurable via DIP switch. Screw connection technology, order configuration.	MINI MCR-2-UI-UI-C	2902036	1
3-way signal conditioner with plug-in connection technology and calibrated measuring range changeover for the electrical isolation of unipolar and bipolar analog signals. Input/output configurable via DIP switch. Screw connection technology, standard configuration.	MINI MCR-2-UI-UI	2902037	1
3-way signal conditioner with plug-in connection technology and calibrated measuring range changeover for the electrical isolation of unipolar and bipolar analog signals. Input/output configurable via DIP switch. Push-in connection technology, order configuration.	MINI MCR-2-UI-UI-PT-C	2902039	1
3-way signal conditioner with plug-in connection technology and calibrated measuring range changeover, for the electrical isolation of unipolar and bipolar analog signals. Input/output configurable via DIP switch. Push-in connection technology, standard configuration.	MINI MCR-2-UI-UI-PT	2902040	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of unipolar and bipolar analog signals. Input signal: 0 ... 10 V/±10 V, output signal: 0 ... 10 V/±10 V, screw connection technology	MINI MCR-2-U-U	2902042	1
3-way signal conditioner with plug-in connection technology for the electrical isolation of unipolar and bipolar analog signals. Input signal: 0 ... 10 V/±10 V, output signal: 0 ... 10 V/±10 V, push-in connection technology.	MINI MCR-2-U-U-PT	2902043	1
Configurable temperature transducer with plug-in connection technology for connecting 2, 3, and 4-conductor resistance thermometers and resistance-type sensors. Configurable via DIP switch or software. Screw connection technology, order configuration	MINI MCR-2-RTD-UI-C	2902048	1

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Description	Type	Order No.	Pcs./Pkt.
Configurable temperature transducer with plug-in connection technology for connecting 2, 3, and 4-conductor resistance thermometers and resistance-type sensors. Configurable via DIP switch or software. Screw connection technology, standard configuration	MINI MCR-2-RTD-UI	2902049	1
Configurable temperature transducer with plug-in connection technology for connecting 2, 3, and 4-conductor resistance thermometers and resistance-type sensors. Configurable via DIP switch or software. Push-in connection technology, order configuration	MINI MCR-2-RTD-UI-PT-C	2902051	1
Configurable temperature transducer with plug-in connection technology for connecting 2, 3, and 4-conductor resistance thermometers and resistance-type sensors. Configurable via DIP switch or software. Push-in connection technology, standard configuration	MINI MCR-2-RTD-UI-PT	2902052	1
Configurable temperature transducer with plug-in connection technology for connecting thermocouples. Configurable via DIP switch or software. Screw connection technology, order configuration	MINI MCR-2-TC-UI-C	2902053	1
Configurable temperature transducer with plug-in connection technology for connecting thermocouples. Configurable via DIP switch or software. Screw connection technology, standard configuration	MINI MCR-2-TC-UI	2902055	1
Output loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of unipolar and bipolar analog signals. Input configurable via DIP switch. Screw connection technology, order configuration.	MINI MCR-2-UI-I-OLP-C	2902060	1
Output loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of unipolar and bipolar analog signals. Input configurable via DIP switch. Screw connection technology, standard configuration.	MINI MCR-2-UI-I-OLP	2902061	1
Output loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of unipolar and bipolar analog signals. Input configurable via DIP switch. Push-in connection technology, order configuration.	MINI MCR-2-UI-I-OLP-PT-C	2902062	1
Output loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of unipolar and bipolar analog signals. Input configurable via DIP switch. Push-in connection technology, standard configuration.	MINI MCR-2-UI-I-OLP-PT	2902063	1
Constant voltage/current source with plug-in connection technology, input voltage: 9.6 V DC ... 30 V DC. Output voltage: 1.25 V ... 10 V DC or output current: 2.5 mA ... 20 mA can be set. Configurable via DIP switch. Screw connection technology	MINI MCR-2-CVCS	2902064	1
Constant voltage/current source with plug-in connection technology, input voltage: 9.6 V DC ... 30 V DC. Output voltage: 1.25 V DC ... 10 V DC or output current: 2.5 mA ... 20 mA can be set. Configurable via DIP switch. Push-in connection technology.	MINI MCR-2-CVCS-PT	2902065	1
Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Screw connection technology	MINI MCR-2-PTB	2902066	1
Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Push-in connection technology	MINI MCR-2-PTB-PT	2902067	1
Feed-through terminal block with plug-in connection technology for the transmission of signals already electrically isolated. Screw connection technology	MINI MCR-2-TB	2902068	1
Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error reporting via N/O contact. Screw connection technology, standard configuration	MINI MCR-2-FM-RC	2904504	1
Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error reporting via N/O contact. Push-in connection technology, standard configuration	MINI MCR-2-FM-RC-PT	2904508	1
Configurable potiposition transducer with plug-in connection technology for connecting potentiometers from 0 Ω ... 100 Ω to 0 kΩ ... 100 kΩ. Configurable via DIP switch or software. Screw connection technology, order configuration	MINI MCR-2-POT-UI-C	2905005	1
Configurable potiposition transducer with plug-in connection technology for connecting potentiometers from 0 Ω ... 100 Ω to 0 kΩ ... 100 kΩ. Configurable via DIP switch or software. Push-in connection technology, order configuration	MINI MCR-2-POT-UI-PT-C	2905006	1
Configurable temperature transducer with plug-in connection technology for connecting thermocouples. Configurable via DIP switch or software. Push-in connection technology, order configuration	MINI MCR-2-TC-UI-PT-C	2905248	1

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Description	Type	Order No.	Pcs./Pkt.
Configurable temperature transducer with plug-in connection technology for connecting thermocouples. Configurable via DIP switch or software. Push-in connection technology, standard configuration	MINI MCR-2-TC-UI-PT	2905249	1
Analog frequency transducer with limit value functionality and plug-in connection technology for converting standard signals into frequency or PWM signals. Configurable via DIP switch or software. Screw connection technology, order configuration.	MINI MCR-2-UI-FRO-C	2906201	1
Analog frequency transducer with limit value functionality and plug-in connection technology for converting standard signals into frequency or PWM signals. Configurable via DIP switch or software. Push-in connection technology, order configuration.	MINI MCR-2-UI-FRO-PT-C	2906202	1

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3 Function description

Figure 3 App logo

3.1 Main menu

When pressing on the menu button at the top-left of the screen, the main menu opens. The main menu can be used to quickly and easily access the major functions of the app. You can change to the module selection list, connect to the module via the Bluetooth adapter, call the file manager including documents and configurations stored, change the language, open the help or call contact information.

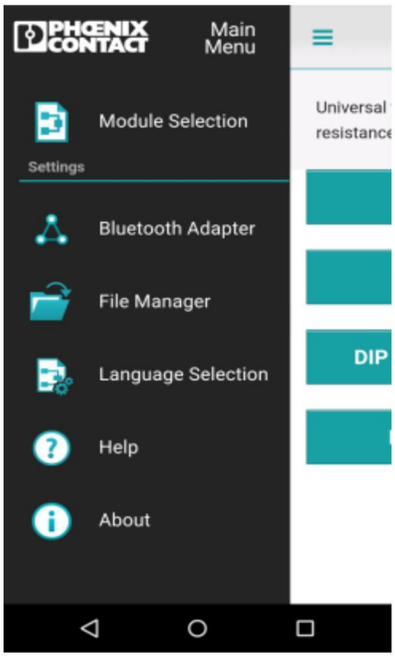

Figure 4 Main menu

3.2 Establishing a Bluetooth connection

Search for Bluetooth-enabled devices in the surrounding area using the “Find new adapter” button.

A message window appears which asks whether you would like to connect to the corresponding adapter.

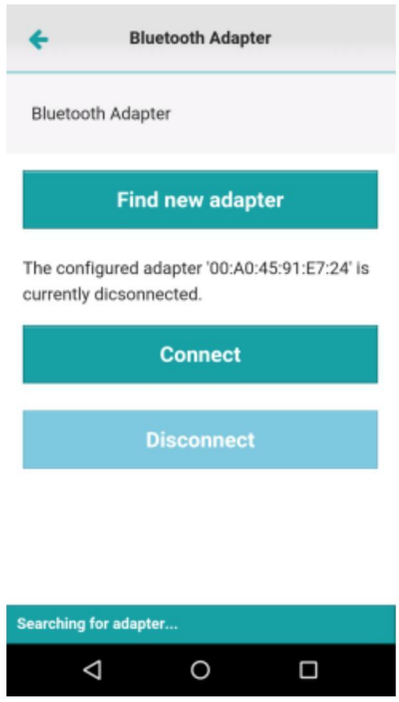

Figure 5 Searching for a new adapter

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Confirm the message with “OK”.

Figure 6 Confirming the connection

The connection allows you to access the monitoring data (see page 15). If there are several Bluetooth adapters in the area, a connection is established with the closest one.

You can only establish the Bluetooth connection between your mobile end device and the MINI Analog Pro module using the MINI Analog Pro app. You cannot establish a connection via the Bluetooth menu on your smartphone or tablet.

3.3 Accessing module information

For each MINI Analog Pro module, the required information can be accessed from the app. You can always call basic information, package slips, data sheets, and block diagrams directly and store them on your smartphone. Modules providing this option are marked with the following symbol.

Figure 7 Symbol for accessing module information

If a connection has been established between the smartphone and a MINI Analog Pro module providing the information access function, the corresponding module start screen is automatically displayed.

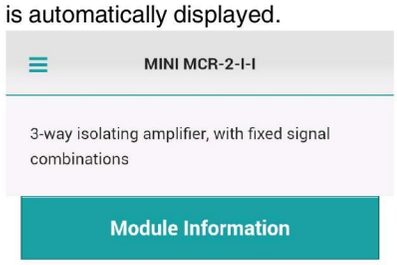

Figure 8 Start screen - access to information

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When pressing on the “Module Information” button, different documents are available. Package slips and data sheets can be downloaded as required.

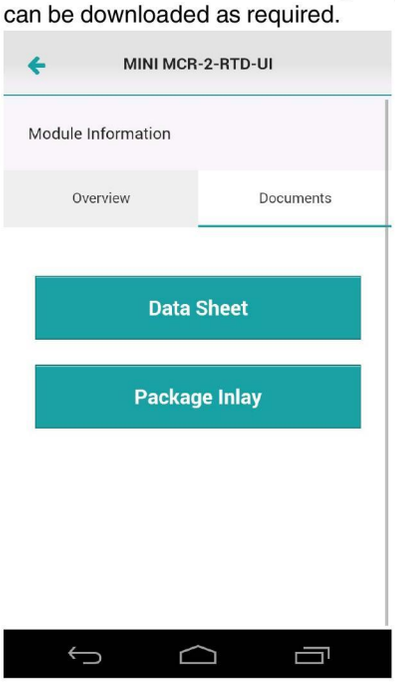

Figure 9 Module information - data sheets and package slips

The download of block diagrams and short descriptions is always up to date.

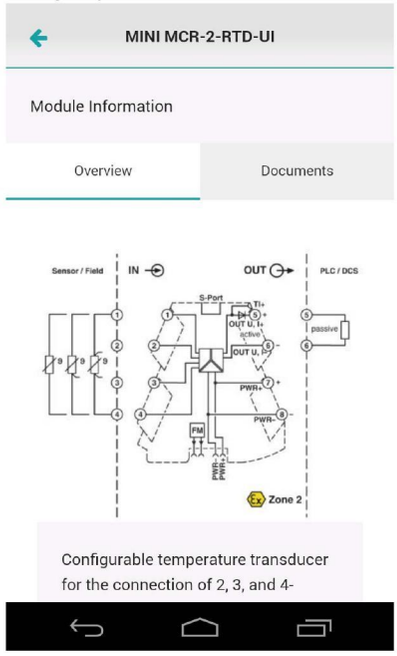

Figure 10 Module information - block diagram and short description

Please be aware that additional costs may be incurred when downloading data via a mobile phone network.

Downloaded documents can be stored on the smartphone and processed and transmitted using the corresponding programs.

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3.4 Executing the DIP switch adjustment aid

In addition to accessing module information, a DIP switch adjustment aid can be executed using the app. The adjustment aid can be used to set a configuration; the required DIP switch settings will be displayed. It is also possible to check already set DIP switch configurations. Modules providing these options are marked with the following symbol.

Figure 11 Symbol for the DIP switch adjustment aid

If a connection has been established between the smartphone and a MINI Analog Pro module that can be configured via DIP switches, the corresponding module start screen is automatically displayed. In this case, you can either access the module information (see 3.3 on page 9) or call the DIP switch adjustment aid.

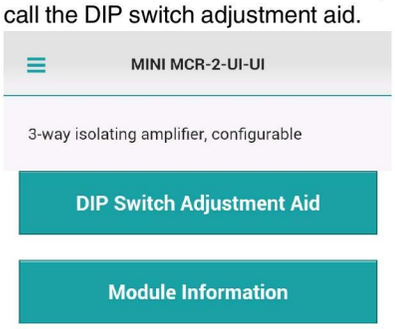

Figure 12 Start screen - access to information and DIP switch adjustment aid

The DIP switch adjustment aid can either be used to check already set DIP switch settings or to specify a configuration and display the required DIP switch configuration.

The displayed DIP switch settings are not transferred to the module. The settings must still be made on the module.

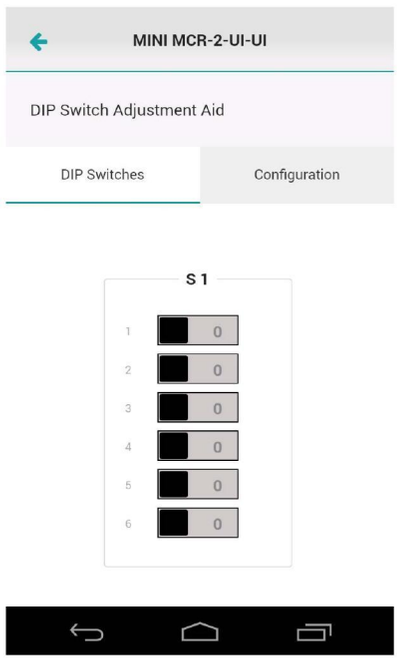

Figure 13 DIP switch setting aid - DIP switches

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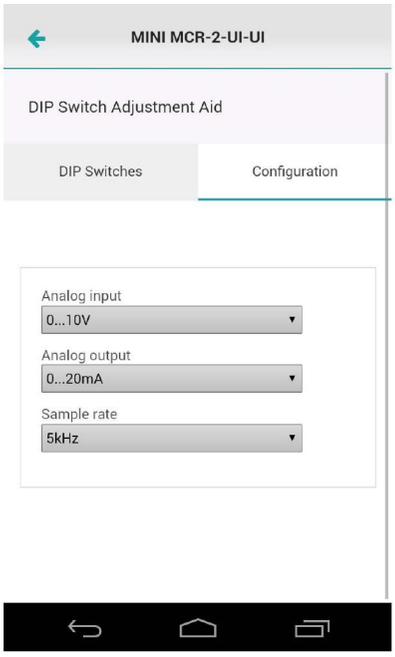

Figure 14 DIP switch setting aid - configuration

3.5 Module configuration

For modules that can be parameterized via software, the module can be completely configured in addition to accessing information and executing the DIP switch adjustment aid. This is possible with a Bluetooth or NFC interface. Modules that can be parameterized via software are marked with the following symbol.

Figure 15 Symbol for module configuration

If a connection has been established between the smartphone and a MINI Analog Pro module that can be configured via software, the corresponding module start screen is automatically displayed. You can either access the module information (see 3.3 on page 9), call the DIP switch adjustment aid (see 3.4 on page 11), call the monitoring area (see 3.6 on page 15) or parameterize the module directly with all its functions.

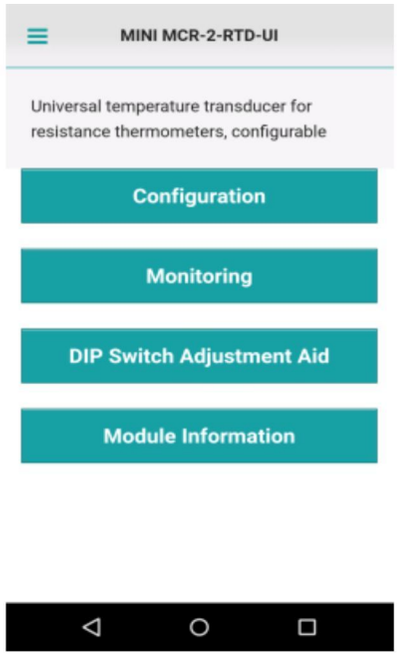

Figure 16 Module configuration start screen

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After calling the configuration screen, several tabs are available to view or define general information, e.g., the name of a measuring point, and to parameterize the input and the output.

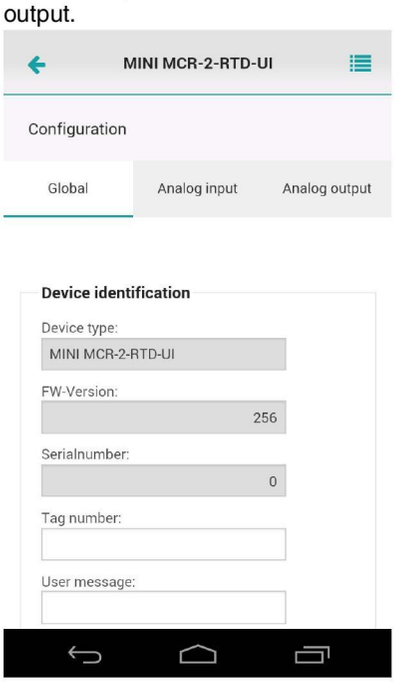

Figure 17 Module configuration - general information

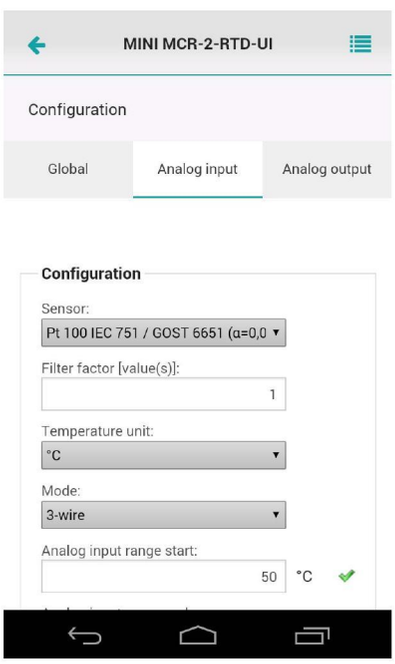

Figure 18 Module configuration - input

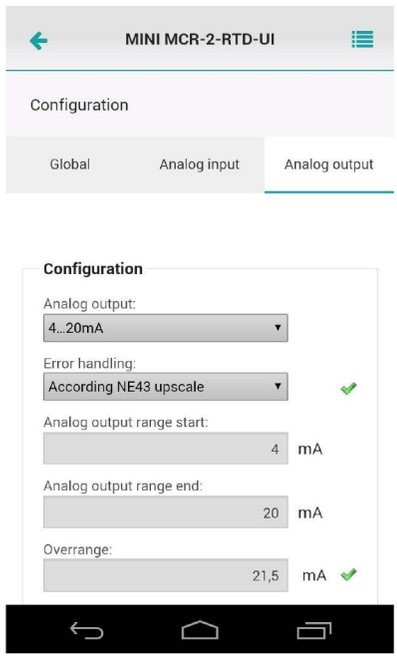

Figure 19 Module configuration - output

To write a created configuration to a module, press the button at the top-right of the screen. The communication menu opens.

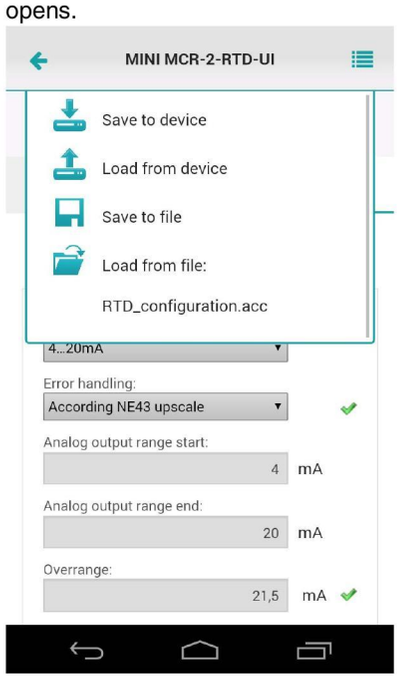

Figure 20 Communication menu

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The “Save to device” button offers an added level of security by asking you to confirm whether you want to save the configuration to the device.

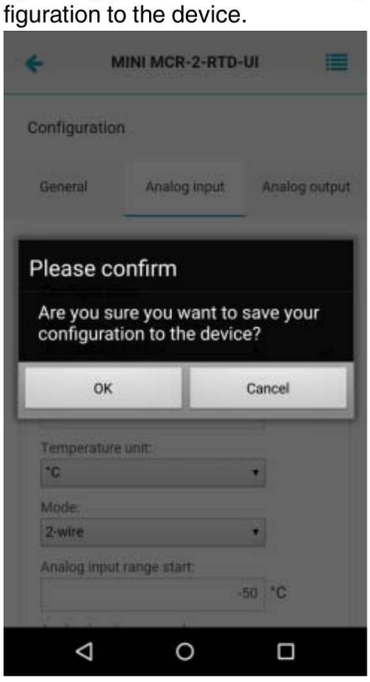

Figure 21 Confirmation of saving configuration to device

Pressing “OK” to confirm allows you to select the transmission method.

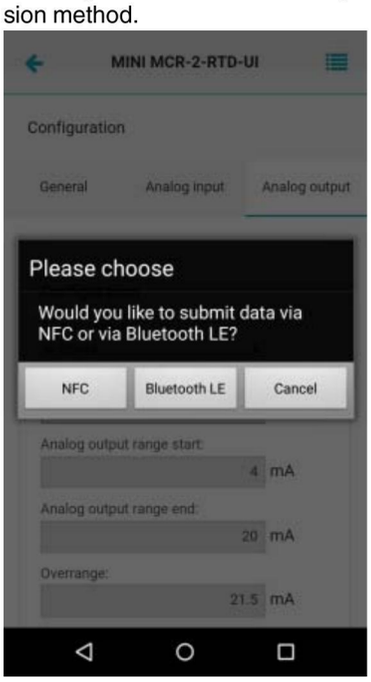

Figure 22 Selecting the transmission method

The created configuration is then written to the module.

For transmission via NFC, the smartphone must be placed on the module (see Figure 2 on page 1). In case the transmission cannot be completed, the previous configuration that is stored on the module will be restored.

Only valid configurations are transmitted and the configuration must also be adequate for the module. Completion of transmission will be displayed.

It is also possible to store the created configuration on your smartphone and send it via e-mail.

Besides that, you can read the configuration stored on the module or reload configurations already created.

Configurations that have been created on a PC using the ANALOG-CONF software can also be opened (e.g., as an e-mail attachment) and processed on your smartphone using the app. Likewise, configurations that have been created on the smartphone can be opened and processed on a PC.

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3.6 Monitoring

In addition to calling the module information, DIP switch adjustment aid, and module configuration, you can also call/monitor the current behavior/status of the module.

Before calling the information and data, you must establish a connection via the Bluetooth interface (see page 8).

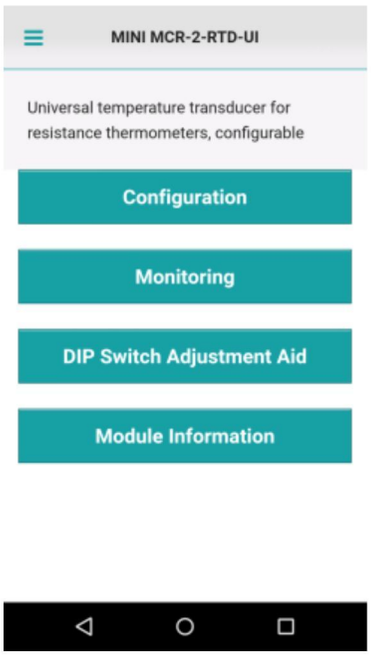

Figure 23 Monitoring start screen

The overview shows the module status along with the PWR (power) and ERR (error) LEDs, which display the energy supply and error messages. It also shows you the current measured values.

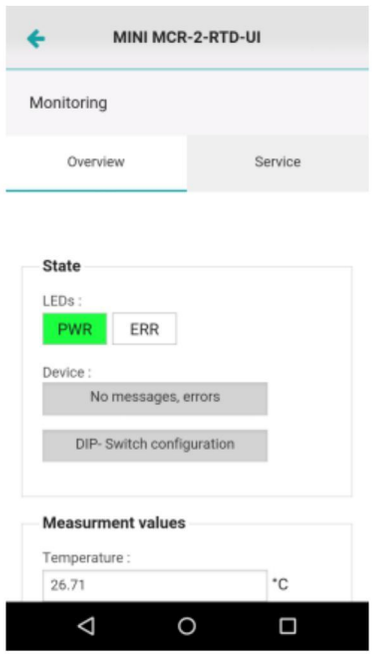

Figure 24 Monitoring overview - Power LED

Figure 25 Monitoring overview - Error LED

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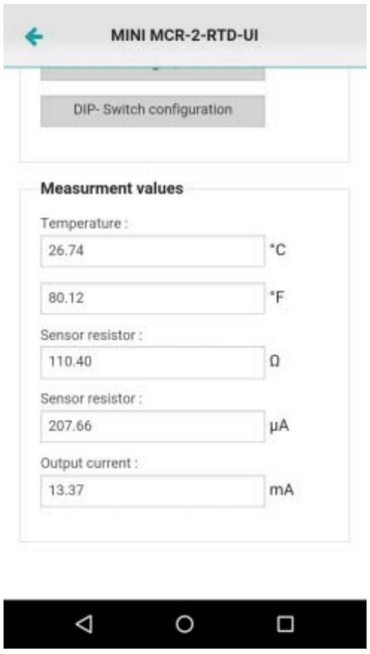

Figure 26 Monitoring overview - Current measured values

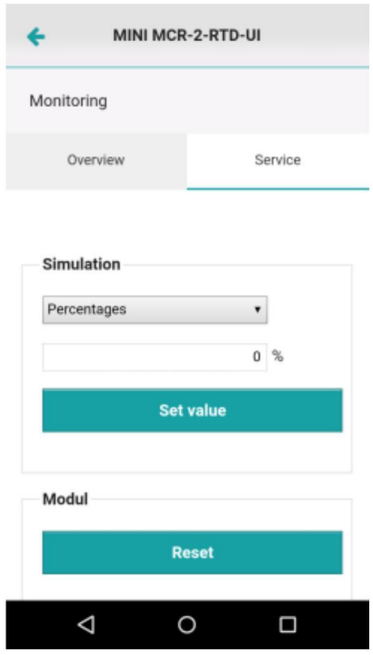

Figure 27 Monitoring service - Simulation

You can simulate device behavior under “Service”. This allows you to choose between percentage values and absolute values. You can reset the device if required once the simulation is complete. You can also see the DIP-switch settings along with what they mean.

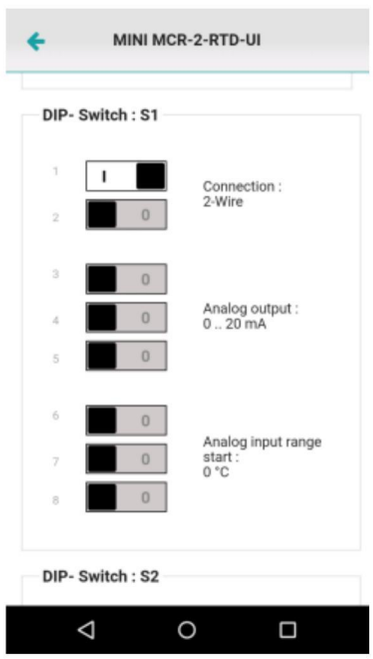

Figure 28 Monitoring service - DIP switch

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3.7 File manager

A clear overview of stored configurations as well as stored package slips and data sheets listed according to the module type can be found in the file manager. All files can easily be sent via e-mail.

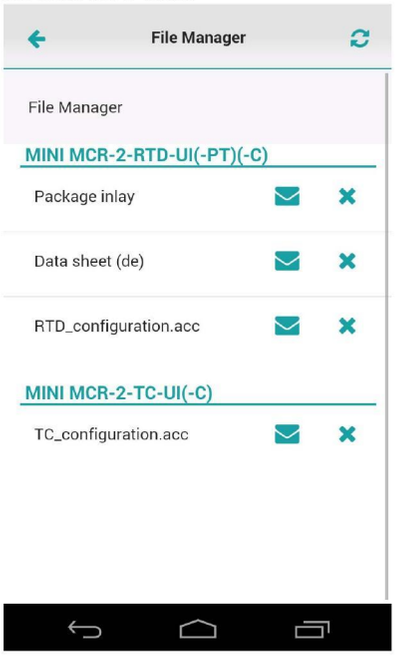

Figure 29 File manager

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