

# CONFIGURATION GUIDE

## COMMUNICATION MODULE PDC B.ONE



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## 1 General information

Be sure to read the operating instructions for the **PDC B.One communication module** and for the **B.One Device Manager App**. This will protect you and prevent potential damage to the device. Check the contents of the packaging for completeness before the installation. Installation and commissioning may only be carried out by qualified personnel. Current applicable laws and regulations as well as the generally recognized rules of technology must be observed during assembly and installation.

### 1.1 Intended use

The PDC B.One module (Pulse Data Capture) is used to integrate meters with pulse output into wireless systems or smart metering systems. The PDC B.One is also known as a wireless M-Bus or LoRaWAN® converter. It processes pulse signals generated by the meter, converts the information into radio signals, and transmits the radio telegrams to suitable receivers or receiving systems. The PDC B.One module allows conventional meters with a pulse interface to be retrofitted as wireless meters. The module is primarily used in the energy sector and for consumption monitoring. Users are typically utility companies and service providers in the areas of consumption monitoring, billing, energy monitoring, etc. Operational reliability is only guaranteed when used as intended by the manufacturer. No liability is assumed for damages resulting from other uses. Any modification is only permitted with the manufacturer's consent. Otherwise, the manufacturer's warranty becomes invalid.

### 1.2 Safety instructions

General information about the device and safety instructions:

- This device is intended solely for its designated purpose. Caution! Improper use may damage the device. Caution! Opening the device may cause damage and potentially result in hand injuries. The device is factory-filled with resin and is not designed to be opened.
- Unauthorized tampering with the device can compromise its safety and functionality. Malfunctions and injuries may result. Make sure of the required procedure in advance.
- Ensure that the installation environment corresponds to the specified operating range. Maintain the specified temperature and limit values at all times.
- To avoid damaging the device or impairing its functionality, do not use chemical cleaning agents. If cleaning is necessary, use a dry or slightly damp cloth.
- The device is equipped with a permanently installed, non-rechargeable lithium battery. This type of battery is classified as hazardous material (hazardous goods class 9). All applicable transport regulations must be strictly observed! Data sheets, safety data sheets, and test reports for the batteries are available upon request. Please also note the following **general information regarding the handling of batteries**. The device contains a non-rechargeable lithium battery. Attempting to recharge it will damage the device and may result in injury.
- Under no circumstances should this device be disposed of with normal household waste. Please refer to our separate disposal instructions in this user manual.

## General information on handling batteries

**Caution!** The following must be observed when handling lithium batteries and devices containing lithium batteries.

- Store protected from moisture
- Do not heat or throw into fire to avoid explosions.
- Not short circuit
- Do not open or damage
- Do not recharge
- Keep out of reach of children.

## 2 Required materials



- Software B.One Device Manager App (only for Android devices)
- MinoConnect Bluetooth Radio or K01-Blue 3000
- ZVEI - IrDA CombiHead for MinoConnect Android device (at least Android version 8)



Figure 1: 186432 MinoConnect Set BTLE Radio Opto ZR (left) and 181560 Optokopf K01-Blue 3000 (right)

### 3 Configuration options for PDC B.One

To configure the PDC parameters, please proceed as follows:

- Open the B.One Device Manager app on your device.
- Check your connected devices by tapping the slide menu in the upper left corner and selecting "Pairing". Your connected device should be displayed here.
- Return to the main menu and select "CONFIGURATION"
- In the new menu, select "Default" as the device. Select "IR" to configure devices with the optical head .
- Make sure the MinoConnect is switched on.
- Place the optical head in the designated spot on the PDC and ensure it is positioned correctly.
- Press the "READ" button at the bottom of the configuration menu.
- After successful data retrieval, you can view and configure the various parameters of the PDC (see table below).
- Configurable parameters are marked by this symbol. 
- After tapping this symbol, please select the desired option from the drop-down menu and press "OK".
- In the configuration menu, press the "WRITE" button to execute the command.
- This symbol indicates that the command has been executed successfully. 

Please continue with this process until the PDC is fully configured to your requirements. An overview and explanation of the parameters displayed in the B.One Device Manager app can be found in the tables below. All configurable parameters are bold and italic shown .

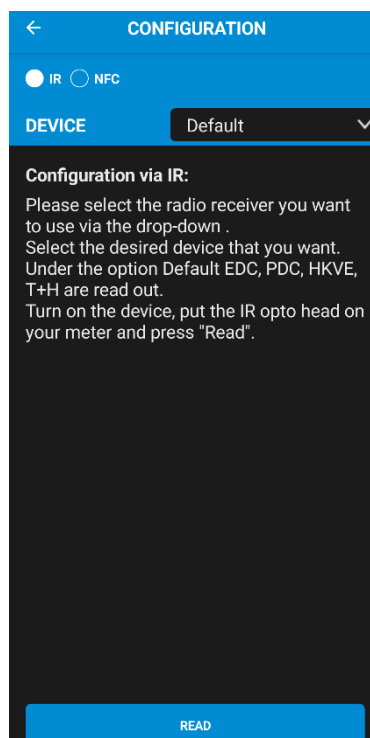


Figure 2: Configuration screen of the B.One Device Manager app

### 3.1 Description of the configuration parameters

parameter	Description
<b>Serial number meter</b>	Serial number of the device connected to the communication module
<b>medium</b>	medium of the measuring device connected to the communication module
<b>Set device time</b>	Takes the current time (system time) of the mobile device and writes it to the device.
<b>Key Date</b>	Date on which the cumulative consumption is stored in the device. This due date is often used to generate the consumption bill. ZENNER factory setting: January 1st.
<b>Set operation mode</b>	This function wakes the PDC module from DELIVERY mode.
<b>LoRaWAN version</b>	
<b>Scenario</b>	Three-digit scenario number (Each scenario specifies the transmission interval and telegram content that the device transmits).
<b>Activation mode</b>	<b>OTAA (Over The Air Activation)</b> The device initiates a connection process with the network, assigning a dynamic device address ( DevAddr ) and negotiating security keys with the device. After activation, the device switches to <b>ABP ( Activation By Personalization ) mode.</b>
<b>ADR</b>	ADR (Adaptive Data Rate) is an optimization mechanism for transmission power, data rate and transmission time in the network.
<b>Send Join Request</b>	Allows reconnection of a previously activated device. The "Activation" setting must first be set to OTAA.
<b>Wireless M-Bus version</b>	
<b>radio transmission interval</b>	This setting determines the interval at which the device sends radio packets.
<b>Impulse activated</b>	Indicates whether the pulse is switched on or not.
<b>Long wM -Bus header</b>	Indicates whether the secondary header is enabled or not.
<b>Encryption 7</b>	Indicates whether encryption 7 is enabled or not.
<b>Radio list</b>	Type of list transmitted wirelessly
<b>Activation mode</b>	<b>OTAA (Over The Air Activation)</b> The device initiates a connection process with the network, assigning a dynamic device address ( DevAddr ) and negotiating security keys with the device. After activation, the device switches to <b>ABP ( Activation By Personalization ) mode.</b>
NetID	The 24-bit value is used to identify LoRaWAN networks. It is assigned by the LoRa Alliance and used by networks to assign network-specific addresses (e.g., DevAddr ) to their end devices. This allows uplink frames from these devices to be forwarded even when they are outside their home network.
<b>ADR</b>	ADR (Adaptive Data Rate) is an optimization mechanism for transmission power, data rate and transmission time in the network.
<b>Send Join Request</b>	Allows reconnection of a previously activated device. The " Activation " setting must first be set to OTAA.

parameter	Description
<b>Burst</b>	This event indicates that the measuring device has detected a pipe break. For PDC modules with M-Bus and pulse: "Pipe break" is detected when the flow rate exceeds a certain value ( $> 30\%$ of $Q_3$ ) during a period of 30 minutes. This is averaged over a period of 15 minutes.
<b>Oversized</b>	This event indicates that the meter is oversized. The meter is considered oversized if the flow rate never exceeds $0.1 \cdot Q_3$ (10% of $Q_3$ ). This is averaged over a 15-minute period. The number of times the flow rate falls below 10% of $Q_3$ is counted. If the flow rate is not reached after 30 days, the "meter oversized" status is detected. Once a flow rate of $>10\%$ of $Q_3$ , averaged over a 15-minute period, is reached, the detection is permanently disabled and the "meter oversized" status is cleared.
<b>Blockage</b>	This event indicates that the meter has detected a blockage. If no meter reading progress is detected by the PDC module over a period of four weeks, a blockage is detected. The blockage is considered lifted when a meter reading difference of more than 10 liters occurs within a quarter of an hour.
<b>Leakage</b>	This event logger indicates that a leak has been detected. A leak is indicated by a 24-hour period of constant flow (the flow rate is never 0).
<b>Undersized</b>	This event indicates that the meter is too small. If the flow rate is continuously higher than $Q_3$ (continuous flow rate) over a period of 6 hours, this indicates that the meter is undersized and the message "Meter undersized" will be displayed.
<b>Reverse installation</b>	An event logger that is triggered when the return flow volume is higher than the forward flow volume over a period of 4 hours.
Manufacturer	Manufacturer 's name
Counter value	Meter reading of the connected device in liters.
multiplier	The pulse multiplier of the respective channel
Unit	Pulse unit of the respective channel
Radio switched on	Indicates whether radio communication is active on the respective channel.
Warnings reset	Function to delete all warnings from the device's memory

## 3.2 Example: Entering the serial number of the meter

This chapter illustrates the parameter configuration process using the example of entering the meters' serial number. Although the configuration options differ, the process remains the same for all parameters.

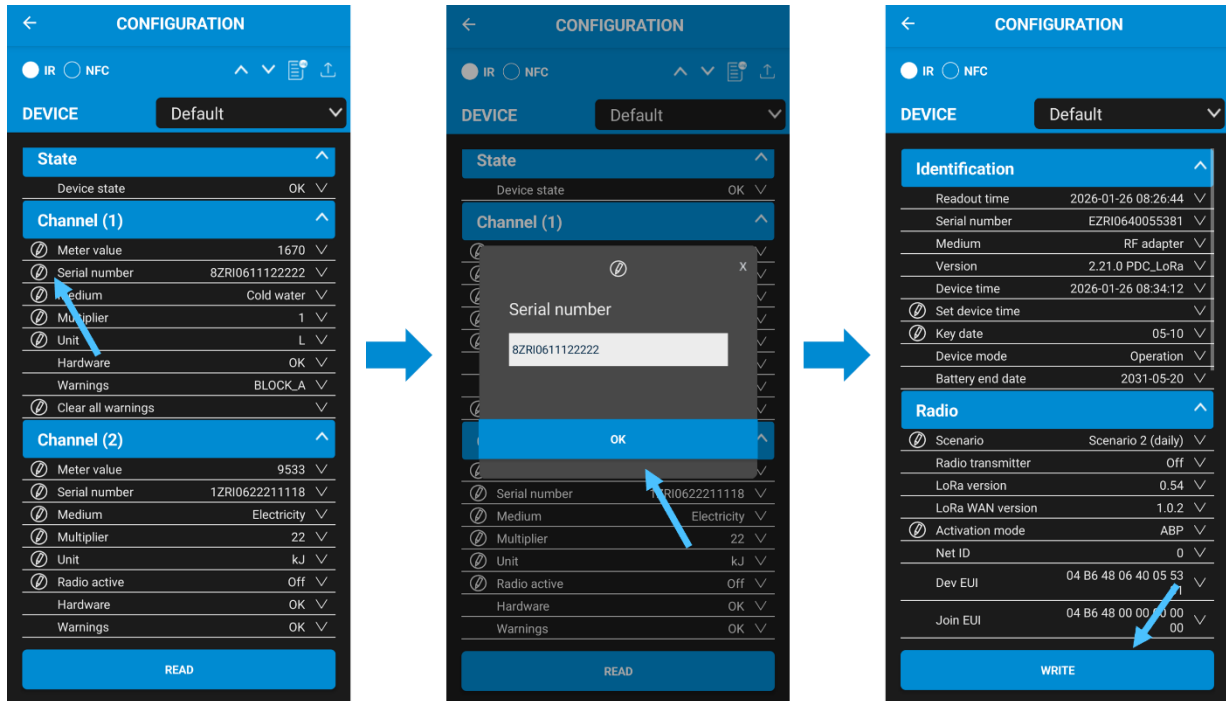


Figure 1: Example configuration procedure

- Follow the steps at the beginning of Chapter 3 to set up your MinoConnect and read your device.
- To change the serial number, please tap the icon to the left of the parameter name.
- In the pop-up window that appears, enter the serial number of your meter and confirm your selection with "OK".
- Back in the device overview, you will see a preview of the changes you have made.
- If the changes you made are correct, tap the "WRITE" button at the bottom of the screen.
- This symbol indicates successful configuration of the parameter. ✓

## 4 Example: Retrofitting a PDC LoRa

This example shows the process of retrofitting a PDC B.One. LoRa on water meter (type MNK-N) with a pulse value of 100 liters per pulse. In this example, the meter reading should be set to 1546 liters or 1.546 m<sup>3</sup>.

To combine the PDC module with the counter, set the following parameters:

- **Serial number of the meter:**  
The serial number can be found on the meter. It begins with 8 ZRI...
- **Multiplier (impulse value)**  
The pulse value is also located on the counter and is given in liters/pulse.

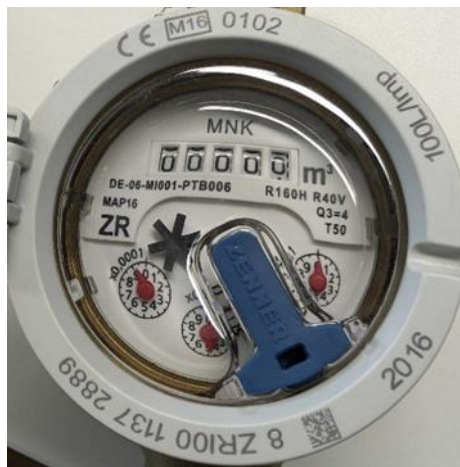


Figure 3: Example water meter MNK-D

- **Medium:**  
Select the desired medium from the drop-down menu. In this example, it is "water".
- **Unit:**  
Select the desired unit from the drop-down menu. In our case, we want to measure in liters.
- **Counter value:**  
Enter the counter reading in your chosen unit, taking into account the right-hand pointer circle. If the pulse value is 100L/pulse, round to the nearest 100L. In our example, enter 1500L.

## 5 Contact

**ZENNER** International GmbH & Co. KG

Address: Heinrich-Barth-Straße 29, 66115 Saarbrücken (Germany)

Email: [info@zenner.com](mailto:info@zenner.com)

Telephone: +49 681 99 676-30

Web: [www.zenner.de](http://www.zenner.de) / [www.zenner.com](http://www.zenner.com)