

Radio-over-IP Gateway

TRBOnet Swift A200

User Manual

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1 Introduction

1.1 About This Document

The information in this document is intended for engineers responsible for building MOTOTRBO radio networks and programming two-way radios for end users.

The document describes in detail how to connect, set up, and maintain the TRBOnet Swift A200 hardware radio-over-IP gateway.

1.2 About TRBOnet Swift

TRBOnet Swift is a family of hardware products designed by Neocom Software Solutions, Ltd for MOTOTRBO radio networks. The Swift family hardware is presented by RoIP gateways A001/002 and A200, the option board ST002, the data transfer module DT500, and the GSM tracker TR001.

For more information about the TRBOnet Swift family products, refer to our website.

1.3 Contacts

Region	Phone	Email & Support
EMEA	+44 203 608 0598	info@trbonet.com — general and commercial inquiries
Americas	+1 872 22 28 726	support@trbonet.com — technical support
APAC	+61 28 6078325	http://kb.trbonet.com — online knowledge base

2 About Swift A200

TRBOnet Swift A200 is a hardware radio-over-IP gateway designed to interface your TRBOnet Server to a MOTOTRBO or non-MOTOTRBO control (donor) radio, or a MOTOTRBO repeater in the analog or digital mode.

2.1 Features

- Compact size and light weight
- Wireless and wired connection with control radios
- Support for 10 connections with TRBOnet servers
- Interfaces:
 - 7 I/O contacts for external hardware (SCADA, sensors, and other)
 - USB interface for wired communication with MOTOTRBO control radios and repeaters
 - NRF interface for wireless communication with a MOTOTRBO radio
 - Audio interface for wired communication with non-MOTOTRBO control radios
 - LAN interface for the wired IP connection (Ethernet 10/100Base-T, 10/100 Mbit/s)
 - Micro-USB port for programming
- 12V DC power supply
- OLED display
- Support for flash cards with capacities up to 32 Gb
- Quick and easy connection and setup
- Unattended operation that does not require regular maintenance

2.2 Capabilities

- A gateway between a radio channel and an IP network

A radio connected to Swift A200 can transfer voice and data to all connected TRBOnet Servers over IP. Swift A200 performs no encryption of the transferred voice and data traffic.
- Remote control

TRBOnet control room operators can control a connected radio remotely by sending commands (power on/off, channel and zone selection) over IP.
- Self-check and alarm notification

Swift A200 performs continuous monitoring of all connections and physical parameters (interior temperature, battery status). When an error is detected, the device shows the corresponding information on the display and sends an alarm notification to all connected TRBOnet Servers. The notification is displayed on the screens of TRBOnet control room operators.

2.3 Delivery Kit

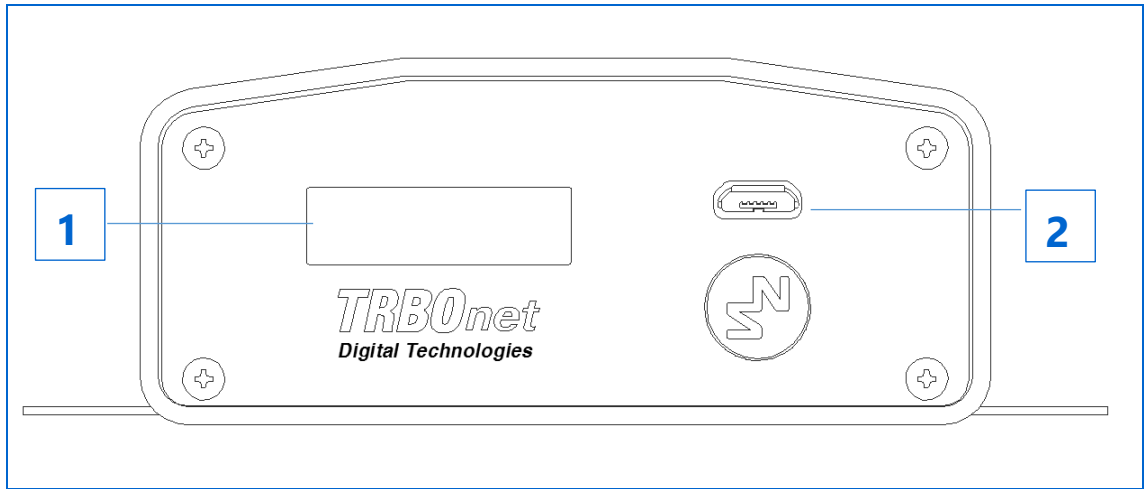
TRBOnet Swift A200 delivery kit includes accessories listed in Table 1.

Table 1: TRBOnet Swift A200 delivery kit

Item	Description	Quantity
TRBOnet Swift A200	A radio-over-IP gateway unit with a factory-installed MicroSD card (4 Gb or more) and a CR1220 battery.	1
TRBOnet Swift Transfer ST002	An option board for a MOTOTRBO radio.	1
Flex cable	A flex cable for connecting the option board to the main board of a MOTOTRBO radio.	1
Micro-USB <> USB cable	A programming cable.	1
USB <> RADIO cable	A service cable for connecting a MOTOTRBO radio to Swift A200.	1
Audio cable	An audio cable (in and out) for connecting a non-MOTOTRBO two-way radio to Swift A200.	1
Micro-Fit connector system	A Micro-Fit plug and a wire kit for connecting Swift A200 to a non-MOTOTRBO two-way radio, a 12V DC power supply, and external hardware.	1
Screw kit		1
Passport		1

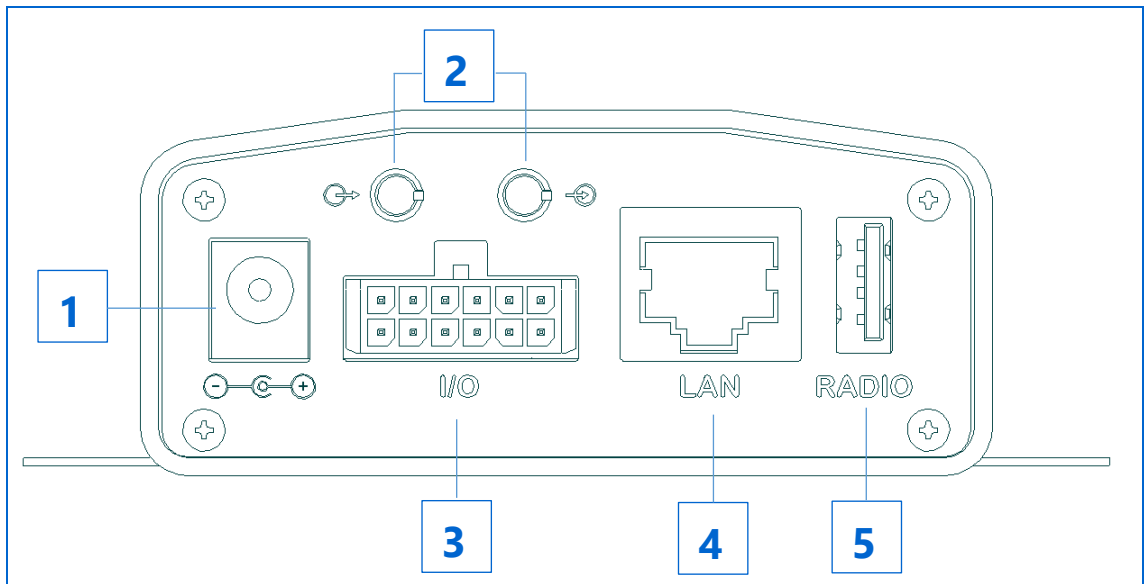
2.4 Design

FRONT PANEL



1. OLED display that shows the connection status and self-check information.
2. Micro-USB port to connect the device to a computer using the programming cable.

REAR PANEL



1. DC power inlet.
2. Audio Input and Audio Output to connect a non-MOTOTRBO two-way radio.
3. Micro-Fit 3mm pitch connector to connect a non-MOTOTRBO radio, a 12V DC power supply, and external hardware.
4. LAN port.
5. USB port to connect a MOTOTRBO radio.

2.5 Connectors











Table 2: I/O connector pinout

I/O Connector					
TX	IO1	IO3	IO5	OUT7	+12V
RX	IO2	IO4	IO6	IN7	GND

1. Power (GND)	7. Power (+12V)
2. Input (IN7)	8. Output (OUT7)
3. Input/output (IO6)	9. Input/output (IO5)
4. Input/output (IO4)	10. Input/output (IO3)
5. Input/output (IO2)	11. Input/output (IO1)
6. UART input, 5V (RX)	12. UART output, 5V (TX)

2.6 LED Indication

Table 3: LED icons

Icon	State
	Radio connection Flashing icon: The radio is not connected or powered off.
	Radio TX
	Radio RX
	IP connection Digits near the icon: The number of connected TRBOnet servers. Flashing icon: Swift A200 is not connected to an IP network.
	Activity on the IP connection
	Wireless connection to the radio
	USB connection to the radio
	Memory card Flashing icon: The memory card is not detected.
	Low battery charge Flashing icon: Battery replacement is required.
	Built-in clock not set Flashing icon: The built-in clock is not set. Update of the device configuration or battery replacement is required.

2.7 Acronyms

This section lists all abbreviations used in this document.

Table 4: Acronyms

Acronym	Description
AC	Alternating current
CPS	Customer Programming Software
Db	Decibel
DC	Direct current
Gb	Gigabyte
GND	Ground
GPIO	Input/output Generic Pin
GSM	Global System for Mobile Communications
I/O	Input/output
IP	Internet Protocol
LAN	Local Area Network
LED	Light-emitting diode
MAC	Media Access Control
Mbit/s	Megabit per second
Mbps	Megabit per second
mm	Millimeter
NRF	Nordic RF
OLED	Organic LED
PTT	Push To Talk
RoIP	Radio-over-IP
RX	Reception
TX	Transmit
UART	Universal Asynchronous Receiver/Transmitter
USB	Universal Serial Bus
V	Volt

3 Setup and Connection

TRBOnet Swift A200 operates in the MOTOTRBO mode or in the non-MOTOTRBO mode. The choice of the operation mode depends on the type of the connected radio.

Table 5: A200 operation modes

Radio	Operation mode	Connection with the radio
Motorola MOTOTRBO	MOTOTRBO	Wireless (NRF), requires a radio with the firmware version 2.05.60 or earlier
		Wired (USB) - recommended
Non-MOTOTRBO	Non-MOTOTRBO	Wired (audio)

To configure your Swift A200, download the Swift Utilities Pack (version 1.6 and higher) from the www.trbonet.com website and install the TRBOnet Swift CPS software tool on your computer.

Then set up and connect your Swift A200 for operation in the preferred mode. Find the details in the following sections:

- [3.1 MOTOTRBO Mode](#) (page 8)
- [3.2 Non-MOTOTRBO Mode](#) (page 16)
- [3.3 Power Supply](#) (page 21)

3.1 MOTOTRBO Mode

To prepare TRBOnet Swift A200 for operation in the MOTOTRBO mode, follow the steps in Table 6.

Table 6: High-level steps to prepare TRBOnet Swift A200 for operation in the MOTOTRBO mode

#	Step	Refer to:
1	Update the firmware and configure your Swift A200.	3.1.1 Configuring Swift A200 (page 9)
2	Install the option board into the MOTOTRBO radio.	3.1.2 Installing the Option Board (page 12)
3	Update the configuration settings of the radio.	3.1.3 Configuring the Radio (page 13)
4	Update the firmware and configuration settings of the option board.	3.1.4 Configuring the Option Board (page 14)
5	Connect your Swift A200 to the radio and to the LAN.	3.1.5 Connecting Swift A200 to the Radio (page 14)
6	Connect your Swift A200 to the power supply.	3.3 Power Supply (page 21)
7	Power up the connected radio.	

3.1.1 Configuring Swift A200

To configure Swift A200:

1. Launch TRBOnet Swift CPS. In the main window, select **USB** as an interface for device programming at the bottom (Figure 1). Connect the programming cable to the micro-USB port of Swift A200 and to a USB port of your computer.

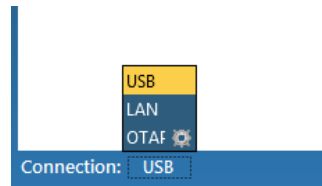


Figure 1: Selecting the USB connection for programming

If you prefer to program your Swift A200 using the LAN connection, select LAN as the programming interface and connect Swift A200 to the LAN and to the power supply.

2. (Recommended) Update firmware of your Swift A200:
 - a. Click **Options** on the **Tools** menu. In the right pane, make sure that the **Enable changing device mode** option is switched on (Figure 2).

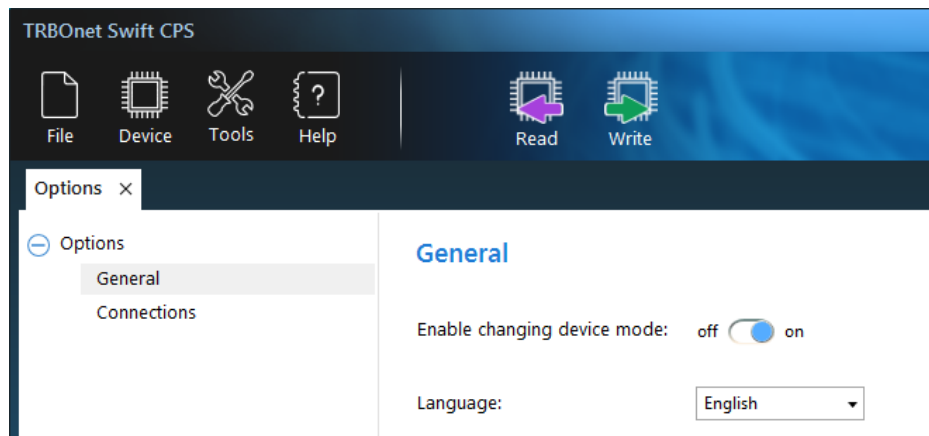


Figure 2: The device mode change is enabled

- b. On the **Device** menu, click **Update Firmware**. If you use the LAN connection for programming, specify the IP address of your Swift A200 and click **Connect**.
 - c. In the **Firmware update** window, select your Swift A200. Open the **Mode** menu and click the preferred mode - "NRF RoIP Gateway" (for the wireless connection to the radio) or "USB RoIP Gateway" (for the USB connection to the radio).
 - d. On the **Update to** menu, select the latest firmware version. Click **Update**.

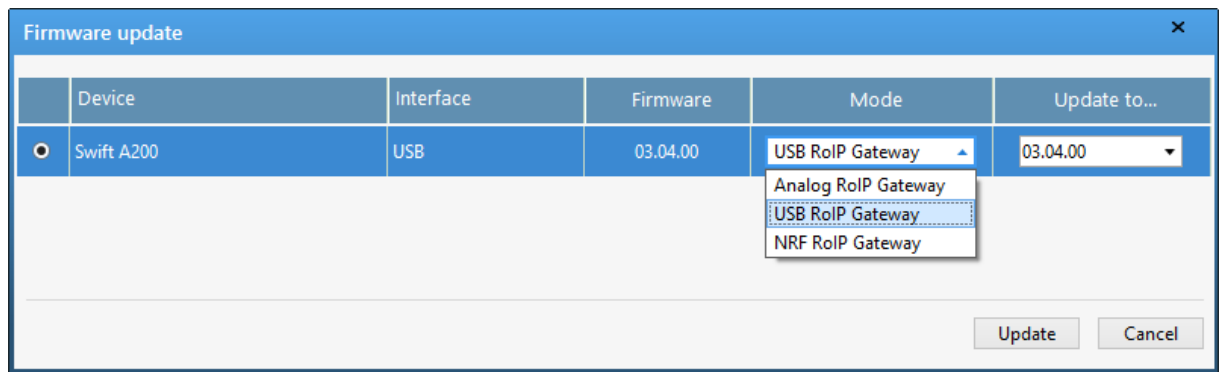


Figure 3: Updating firmware on Swift A200 connected through USB

3. To open the configuration of your Swift A200, click the **Read** button, or open the **Device** menu and click **Read**.
 - If you use the LAN connection, the **Read LAN** window appears. Specify the IP address of your Swift A200 and click **Read**.
 - If you use the USB connection and the **Select device** window appears, point your device.

The configuration settings appear in a separate tab.

4. Click **Network Settings** in the left panel.

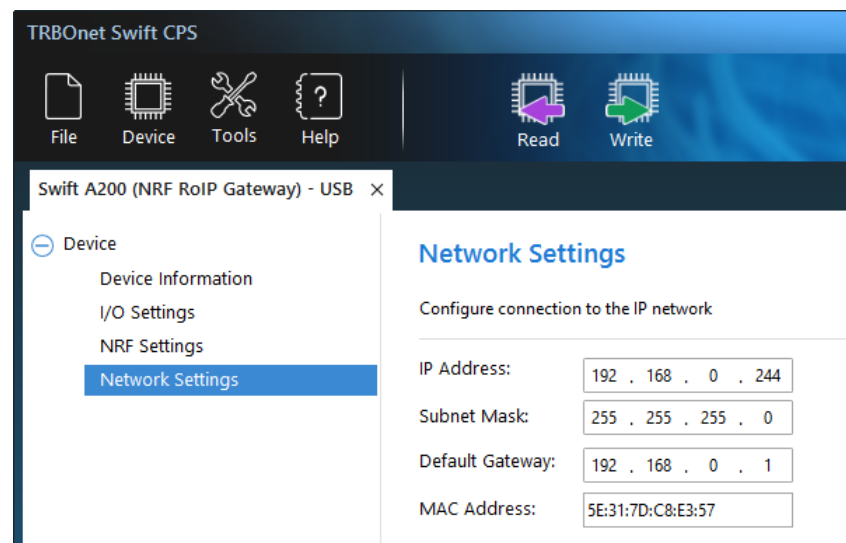


Figure 4: Configuring the IP network settings of Swift A200

In the right panel, specify the following settings:

- **IP Address:** The IP address assigned to your Swift A200.
 - **Subnet Mask:** The mask of the subnet to which Swift A200 belongs.
 - **Default Gateway:** The default gateway of the IP network.
 - **MAC Address:** The default network address of Swift A200. Modify it for each Swift A200 to use a unique MAC address on the IP network.
5. (Optional) If the wireless connection to the radio is required, click **NRF Settings** in the left panel. In the right panel, specify the following NRF connection settings:

- **Data transfer rate:** The data transfer rate for wireless communication. Values: 1 Mbps (default), 2 Mbps.
- **Channel:** The radio channel for wireless communication. Range: 0 to 125. If multiple Swift A200 use NRF on the same spot, it is recommended that their radio channel numbers differ by 5 or more.
- **Power:** The power of the ISM transceiver. Values: 20, 60, 250, 1000 μ W.
- **Address:** The group call ID on the NRF network. Only devices programmed with the same value can communicate on the NRF network. Default: E7:E7:E7:E7:E7.
- **Width address:** The number of sections in the NRF address (above) to be considered. Values: 3, 4, 5. Default: 3.

Note: It is important to specify the same NRF connection settings in the configuration of the option board installed inside the radio.

6. (Optional) If you need to display the states of I/O pins in the TRBOnet software tools, click **I/O Settings** in the left panel.

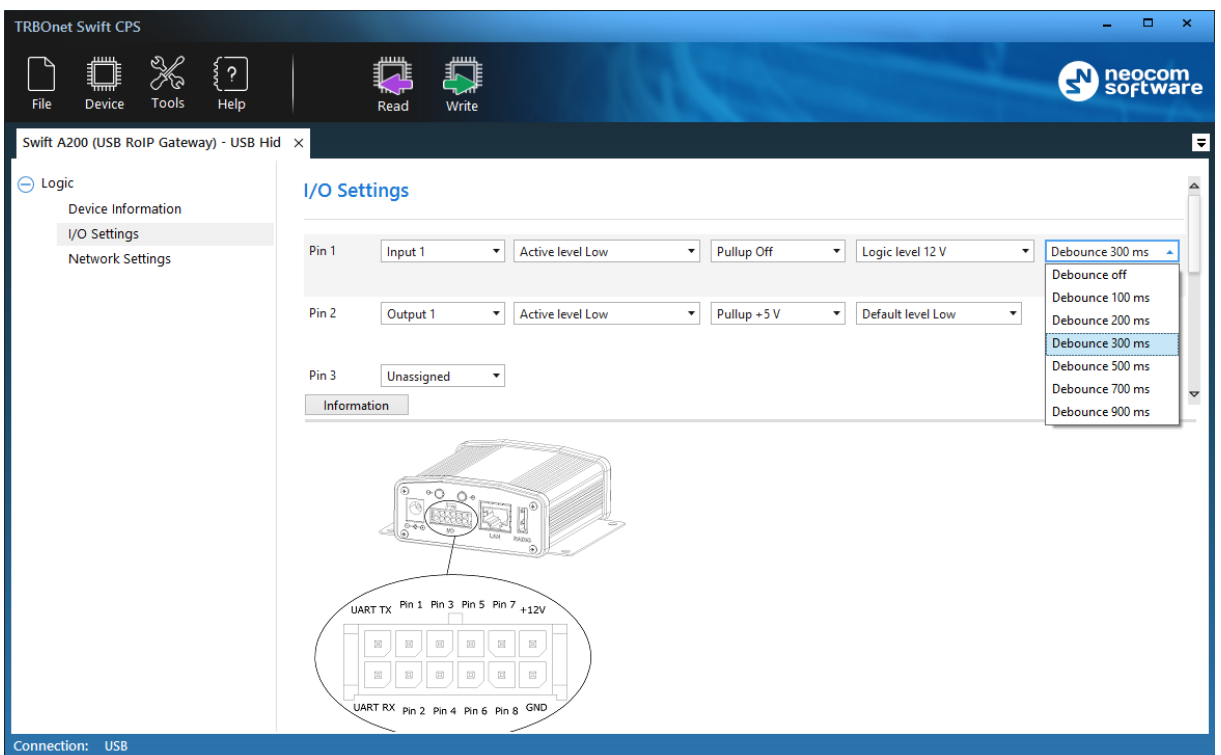


Figure 5: Configuring I/O pins

In the right panel, configure the I/O pins of Swift A200 that are connected to external hardware (Figure 5). For each connected I/O pin, expand the menu and select the logical pin in TRBOnet:

- For input pins, choose "Input" with the index 1 through 4.
- For output pins, choose "Output" with the index 5 through 9.

Specify the active level of the signal and other I/O pin settings.

Note: For TRBOnet software to display the states of Swift A200 pins, configure TRBOnet software as described in section [4 TRBOnet Configuration](#) (page 22).

If a physical pin is not connected, leave it unassigned.

7. To save the configuration on your Swift A200, click the **Write** button or open the **Device** menu and click **Write**.

3.1.2 Installing the Option Board

The delivery kit includes an option board that you need to install into a MOTOTRBO radio.

To install the option board into the radio:

1. Insert the dismantling tool in the groove between the control head and the radio assembly.

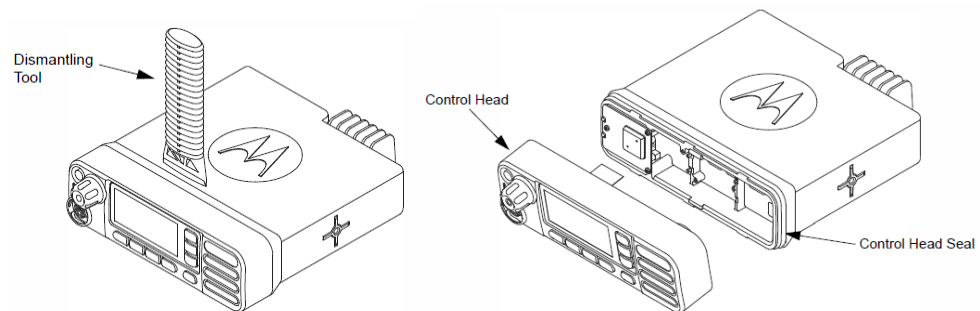


Figure 6: Removing the control head

2. Press the dismantling tool under the control head to release the snap features. Pull the control head away from the radio assembly. Remove the control head seal.
3. Orient the flex cable (supplied in the delivery kit) so that it contacts face the option board. Secure the connector latch to the flex cable.

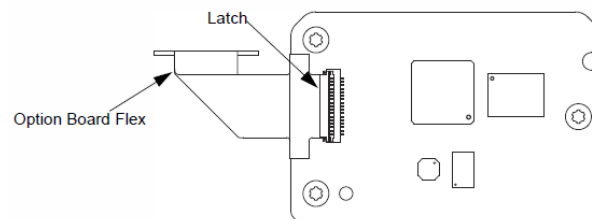


Figure 7: Connecting the flex cable to the option board

4. Connect the flex cable from the option board to the main board connector.

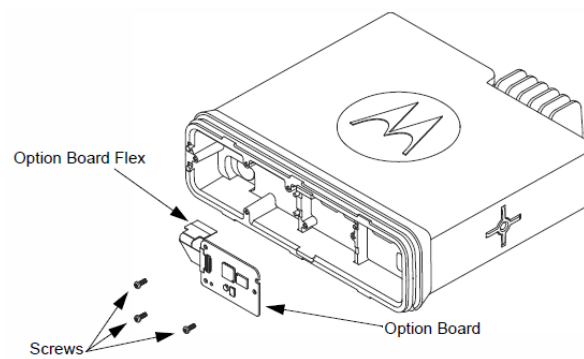


Figure 8: Connecting the option board to the main board of the radio

5. Align the option board to the mounting holes ensuring that the flex tabs are against the chassis alignment posts.
6. Using a T6 TORX™ driver, tighten the three screws to 0.28 N-m (2.5 lbs-in) to secure the option board to the chassis.
7. Assemble the control head seal on the radio. Assemble the control head to the radio chassis by aligning one side of the control head assembly tabs to one side of the radio chassis tabs and then rotate the control head assembly until the other side engages.

Note: Verify that the control head seal is not pinched and not visible. If a pinch is found, disassemble the control head, reseal the seal and reassemble the control head.

3.1.3 Configuring the Radio

After you have installed the option board into your MOTOTRBO radio, configure the radio using the MOTOTRBO CPS software.

To configure the radio:

1. Power off the radio. Connect the programming cable to the radio and to a USB port of your computer. Power up the radio.
2. Launch the MOTOTRBO CPS software on your computer.
3. Open the configuration settings of your radio by clicking **Read** on the **Device** menu.
4. In the left pane, expand the **Channels** section.
5. For all channels on which the radio should work through the option board, select **Option Board** in the right pane (Figure 9).
6. Save the updated settings to the radio by clicking **Write** on the **Device** menu.
7. Close the application and disconnect the radio from the computer.

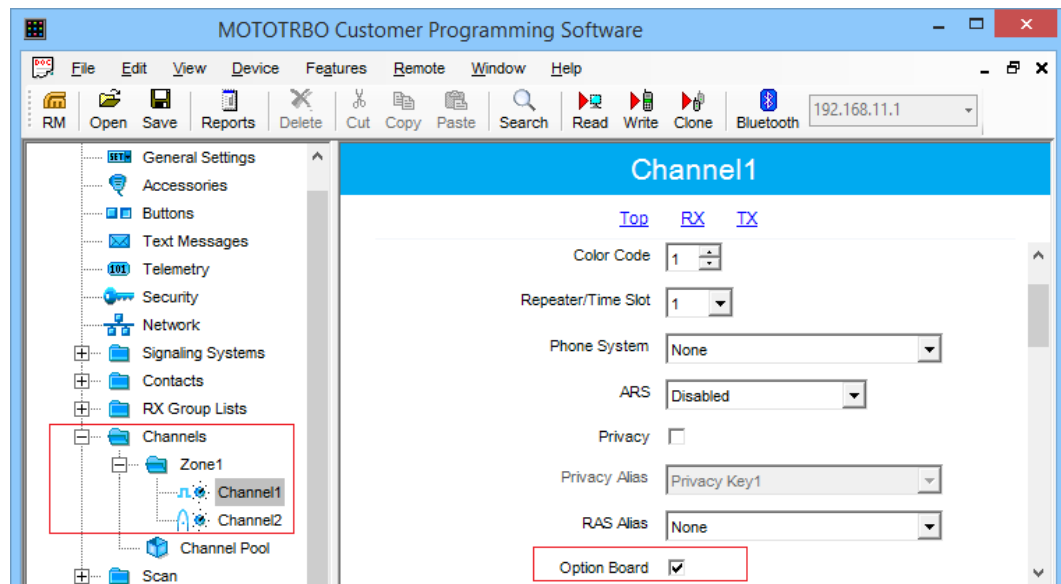


Figure 9: Enabling the option board capability

3.1.4 Configuring the Option Board

After you have installed the option board into a MOTOTRBO radio, update the firmware of the option board to the latest version. If the wireless connection between Swift A200 and the radio is required, configure the NRF settings of the option board.

To configure the option board:

1. Power off the radio. Connect the programming cable to the radio and to a USB port of your computer. Power up the radio.
2. Launch TRBOnet Swift CPS on your computer. In the main window, select **USB** as the programming interface (Figure 1, page 9).
3. On the **Device** menu, click **Update Firmware**.
4. In the **Update Firmware** window, point the option board connected through USB. Expand the **Update to** drop-down menu and select the latest firmware version. Click **Update**.
5. (Optional) If the wireless connection with Swift A200 is used, click **NRF Settings** in the left panel. Specify the NRF connection settings of the option board exactly as programmed in the configuration of Swift A200. For details, refer to section [3.1.1 Configuring Swift A200](#) (page 9).

3.1.5 Connecting Swift A200 to the Radio

When all configuration settings are made, connect your Swift A200 to the radio and to the local IP network. The LAN port is located on the rear panel of Swift A200.

Wireless (NRF) connection with the radio

If the radio and Swift A200 have identical NRF settings (data transfer rate and channel), the wireless connection is established automatically as soon as both devices are powered up.

Wired (USB) connection with the radio

For the wired connection between the radio and Swift A200, use the USB cable supplied with Swift A200.

Note: Before connecting Swift A200 to a MOTOTRBO two-way radio with the USB cable, power off the radio and make sure that Swift A200 is disconnected from the power supply.

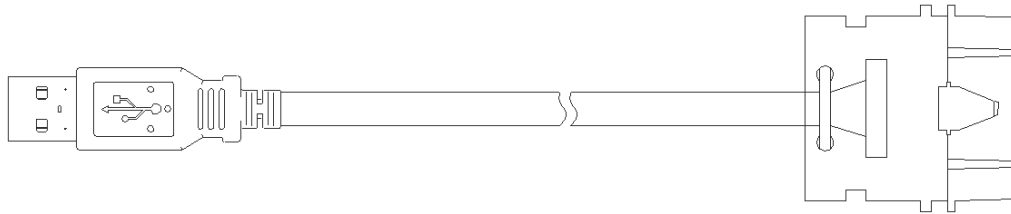


Figure 10: The radio cable

Connect the cable to the USB connector on the rear panel of Swift A200 and to the rear accessory connector of the radio.

3.2 Non-MOTOTRBO Mode

To prepare TRBOnet Swift A200 for operation in the non-MOTOTRBO mode, follow the steps in Table 7.

Table 7: High-level steps to prepare TRBOnet Swift A200 for operation in the non-MOTOTRBO mode

#	Step	Refer to:
1	Assemble the service cable.	3.2.1 Assembling the Service Cable (page 16)
2	Update the firmware and configure your Swift A200.	3.2.2 Configuring Swift A200 (page 18)
3	Update the configuration settings of the radio.	3.2.3 Configuring the Radio (page 20)
4	Connect your Swift A200 to the radio and to the LAN.	3.2.4 Connecting the Radio (page 20)
5	Connect your Swift A200 to the power supply.	3.3 Power Supply (page 21)
6	Power up the connected radio.	

3.2.1 Assembling the Service Cable

Swift A200 and a non-MOTOTRBO radio are connected using the service cable and the audio cable. To assemble the service cable, use a Micro-Fit connector plug, a wire kit, and a radio connector plug.

Note: The radio connector plug is not included in the delivery kit. Contact the manufacturer of your radio or a sales representative to get the plug compatible with the service connector of your radio.

To assemble the service cable:

1. Connect the wires to the Micro-Fit plug and to the radio connector plug to implement the following required links:

Table 8: Service cable – required links

Function	Micro-Fit plug	Radio connector plug
PTT	Any input pin (Pin 1 – Pin 7)	Use pins as advised in the documentation of the radio.
CSQ Detect	Any output pin (Pin 1 – Pin 6, Pin 8)	
Ground	GND pin (black wire)	

Note: The Micro-Fit connector pins are described in section [2.5 Connectors](#) (page 5).

2. Connect the wires of the audio cable (provided in the delivery kit) to the radio connector plug. Implement the following required links:

Table 9: Audio cable – required links

Audio cable (wires)	Radio connector pin (function)
Audio In	RX AUDIO

Audio cable (wires)	Radio connector pin (function)
Audio Out	EXT MIC AUDIO (TX AUDIO)
Ground	AUDIO GND

- (Optional) Add wires between the Micro-Fit plug and the radio connector plug to implement additional features. Consult the documentation of your radio to learn about supported GPIO pin functions.
- (Optional) Connect external hardware (sensors, controllers) to the I/O pins of the Micro-Fit plug.

Example

The following diagram shows how to assemble the service cable for a Motorola CM140 two-way radio.

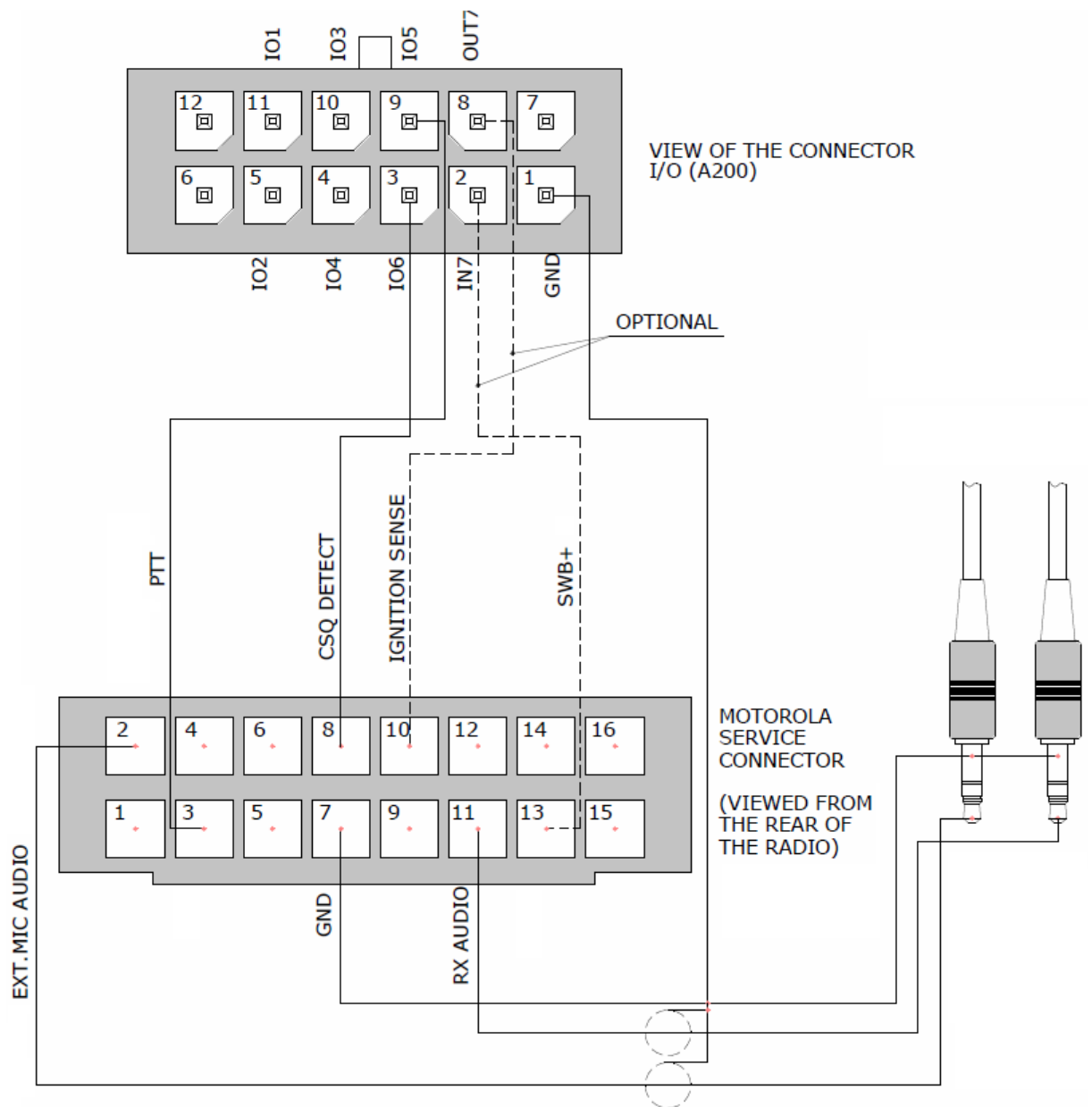


Figure 11: Connecting wires to the Micro-Fit plug and to the radio connector plug

3.2.2 Configuring Swift A200

To configure Swift A200:

1. Launch TRBOnet Swift CPS. In the main window, select **USB** as an interface for device programming at the bottom (Figure 1, page 9). Connect the programming cable to the micro-USB port of Swift A200 and to a USB port of your computer.

If you prefer to program your Swift A200 using the LAN connection, select LAN as the programming interface and connect Swift A200 to the LAN and to the power supply.

2. (Recommended) Update the firmware of your Swift A200:
 - a. Click **Options** on the **Tools** menu. In the right pane, make sure that the **Enable changing device mode** option is switched on (Figure 2, page 9).

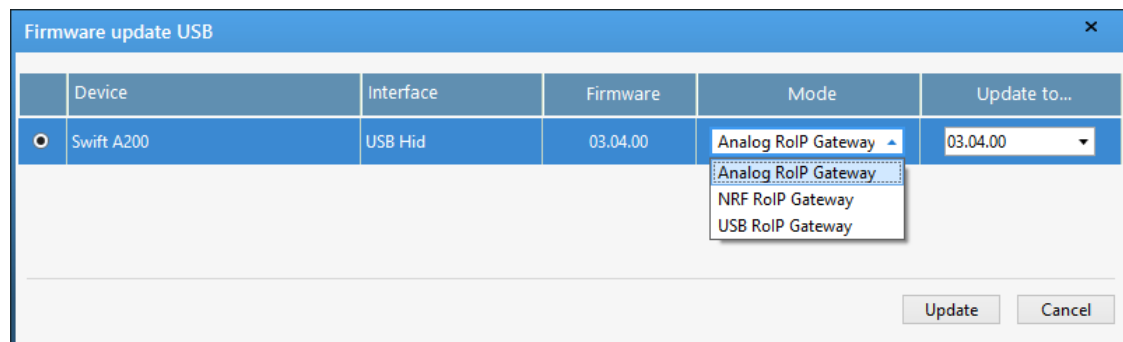


Figure 12: Updating firmware on Swift A200 connected through USB

- b. On the **Device** menu, click **Update Firmware**. If you use the LAN connection for programming, specify the IP address of your Swift A200 and click **Connect**.
 - c. In the **Firmware update** window, select your Swift A200. Open the **Mode** menu and click "Analog RoIP Gateway".
 - d. On the **Update to** menu, select the latest firmware version. Click **Update**.
3. To open the configuration of your Swift A200, click the **Read** button, or open the **Device** menu and click **Read**.
 - If you use the LAN connection, the **Read LAN** window appears. Specify the IP address of your Swift A200 and click **Read**.
 - If you use the USB connection and the **Select device** window appears, point your device.

The configuration settings appear on a separate tab.

4. Click **Network Settings** in the left panel. Specify the following settings:
 - **IP Address:** The IP address assigned to your Swift A200.
 - **Subnet Mask:** The mask of the subnet to which Swift A200 belongs.
 - **Default Gateway:** The default gateway of the IP network.
 - **MAC Address:** The MAC address of your Swift A200.

5. Click **I/O Settings** in the left panel. In the right panel, configure the I/O connector pins:
 - For I/O pins connected to the service cable, specify the function (PTT Output, CSQ Input, other), the active level, and other I/O pin settings (Figure 13).

Note: The coupled pins of the radio connector must be configured to use the matching function and active level. For details, refer to section [3.2.3 Configuring the Radio](#) (page 20).

- If any I/O pins are connected by external hardware, configure Swift A200 to send the states of these pins to TRBOnet software. For each I/O pin connected by external hardware, expand the menu and select the logical pin in TRBOnet:
 - For input pins, choose "Input" with the index 1 through 4.
 - For output pins, choose "Output" with the index 5 through 9.

Specify the active level of the signal and other I/O pin settings.

Note: For TRBOnet software to display the pin states received from Swift A200, configure TRBOnet software as described in section [4 TRBOnet Configuration](#) (page 22).

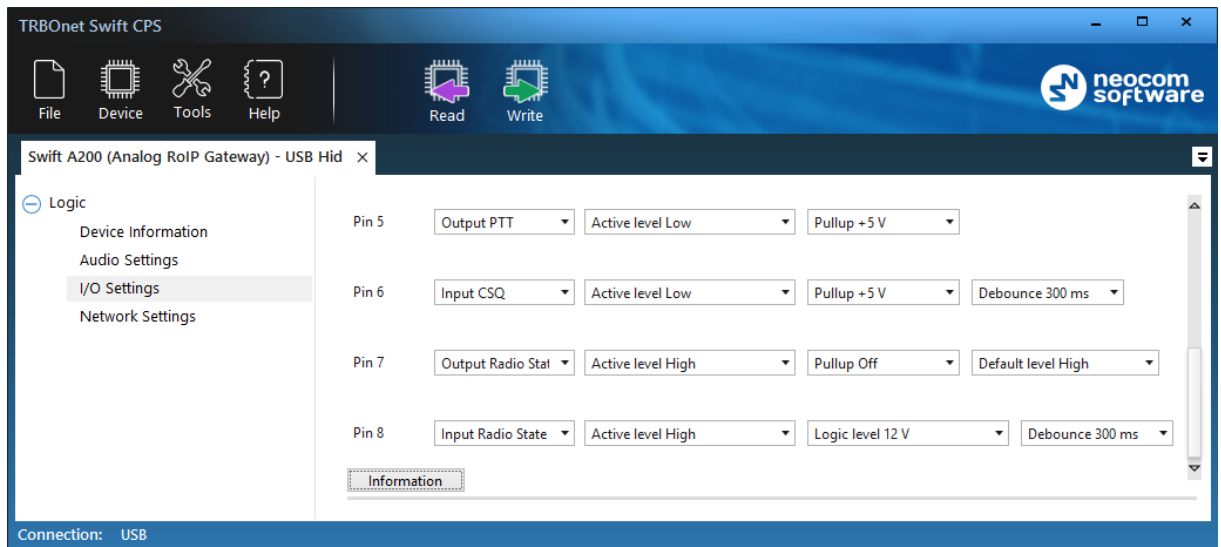


Figure 13: Configuring I/O pins connected to the service cable

6. Click **Audio Settings** in the left panel. In the right panel (Figure 14):
 - Use the sliders to adjust the level of the input and output audio signal in the range of -42Db to 20 Db.
 - To raise the level of the input audio signal, adjust the amplifier.
 - To lower the level of the input signal from a non-MOTOTRBO radio, consider setting **Input for Audio** to **IN2**.

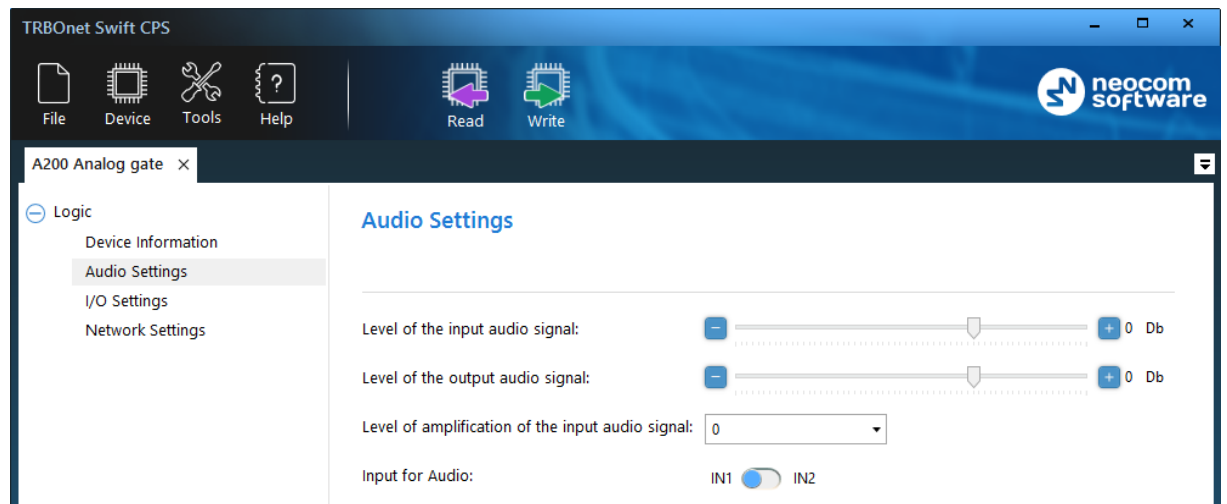


Figure 14: Configuring the audio signal

7. To save the configuration to your Swift A200, click the **Write** button, or open the **Device** menu and click **Write**.

3.2.3 Configuring the Radio

After you have assembled the service cable, configure your radio to use the radio connector pins that are coupled with pins of Swift A200. Use the radio programming software provided by the manufacturer of the radio.

Program the GPIO pins of your radio as described in the documentation supplied by the manufacturer of the radio.

3.2.4 Connecting the Radio

When the service cable is finished and pins are configured on the radio and on Swift A200 accordingly, connect your Swift A200 to the radio and to external hardware (if necessary).

Note: Before connecting Swift A200, make sure that the radio is powered off and that Swift A200 and all external hardware (if any to be connected) is disconnected from the power supply.

To connect Swift A200 to the radio and to external hardware:

1. Connect the Micro-Fit plug of the service cable to the Micro-Fit connector on the rear panel of Swift A200.
2. Connect the audio cable to the audio input and audio output on the rear panel of Swift A200.
3. Connect the other end of the service cable to the service jack of the radio.
4. If required, connect the wires of the service cable to external hardware.

When all connections are done, connect Swift A200 and external hardware to the power supply. Then power up the radio.

3.3 Power Supply

This section describes how to connect Swift A200 to the source of +12V DC (recommended) or to an AC power supply.

3.3.1 DC Power Supply

To power Swift A200 from a DC power source, use the Micro-Fit connector supplied in the delivery kit. The Micro-Fit plug and the wires are connected as follows: the red wire links contact 2 (+12V) and the black wire links contact 1 (GND).

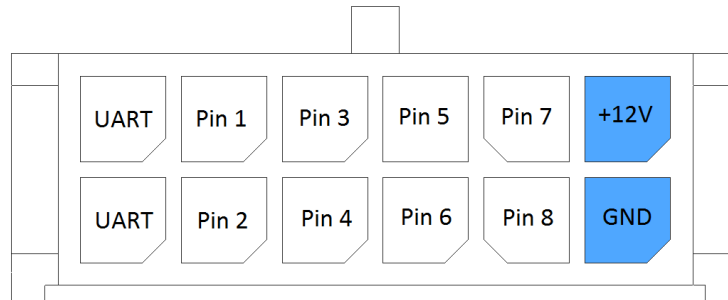


Figure 15: Micro-Fit contact positions

To connect your Swift A200 to a DC power source:

1. Insert the Micro-Fit plug into the I/O jack on the rear panel of Swift A200.
2. Connect the other end of the red wire to terminal (+) and the black wire to terminal (-) of a DC power unit.

3.3.2 AC Power Supply

The AC power cable is not supplied with Swift A200. To power Swift A200 from an external AC power source, use any power cable with the 5.5mm x 2.1 mm DC plug and the AC/DC adaptor with the DC output of +12V (positive polarity) and the input AC voltage recommended for your region. Find all information on the label of the power adaptor.

Note: Before connecting Swift A200 to an AC power supply, test the power adaptor to make sure it has the proper voltage and polarity. The use of a power adapter with reverse polarity or higher voltage may cause the damage to Swift A200.

To connect your Swift A200 to an AC power source:

1. Connect the power cable through the AC/DC adaptor to the AC power inlet located on the rear panel of your Swift A200.
2. Plug the power cable into an AC power source.

4 TRBOnet Configuration

This section describes how to configure TRBOnet software so that the operator could see and manage the physical I/O pins of Swift A200. In the example below, Swift A200 is connected to a MOTOTRBO radio through USB and has three input pins and two output pins connected to external hardware (Figure 16).

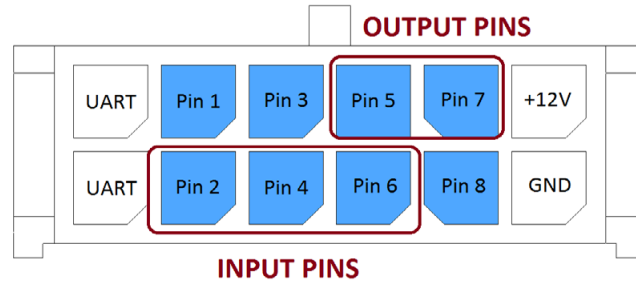


Figure 16: Connected I/O pins

In the Swift A200 configuration, the physical I/O pins are mapped to the logical pins of TRBOnet (Figure 17).

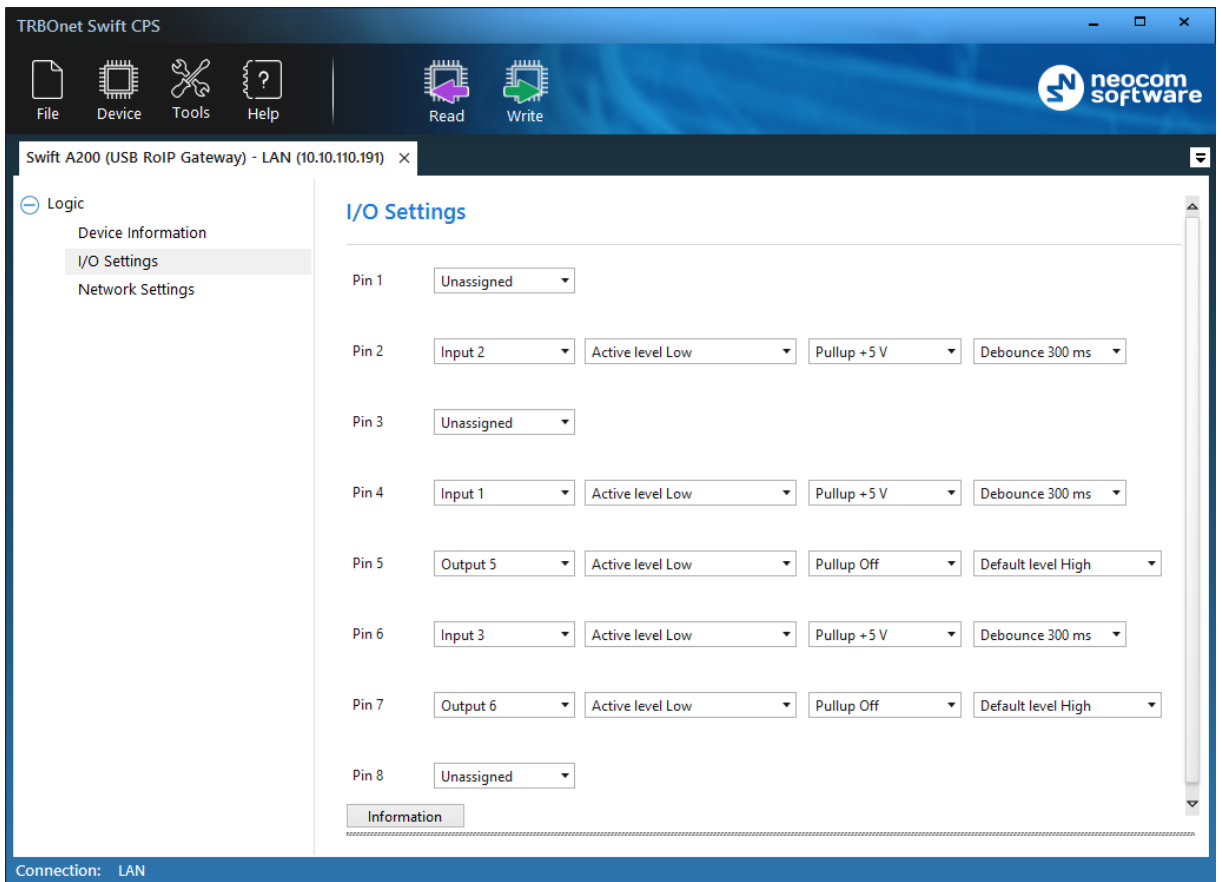


Figure 17: Pin configuration

To complete the I/O pin configuration in TRBOnet, read the following sections:

- [4.1 TRBOnet Enterprise/PLUS Configuration](#) (page 23)
- [4.2 TRBOnet Watch Configuration](#) (page 26)

4.1 TRBOnet Enterprise/PLUS Configuration

Swift A200 is registered as a radio system in the TRBOnet Enterprise (PLUS) server configuration (Figure 18).

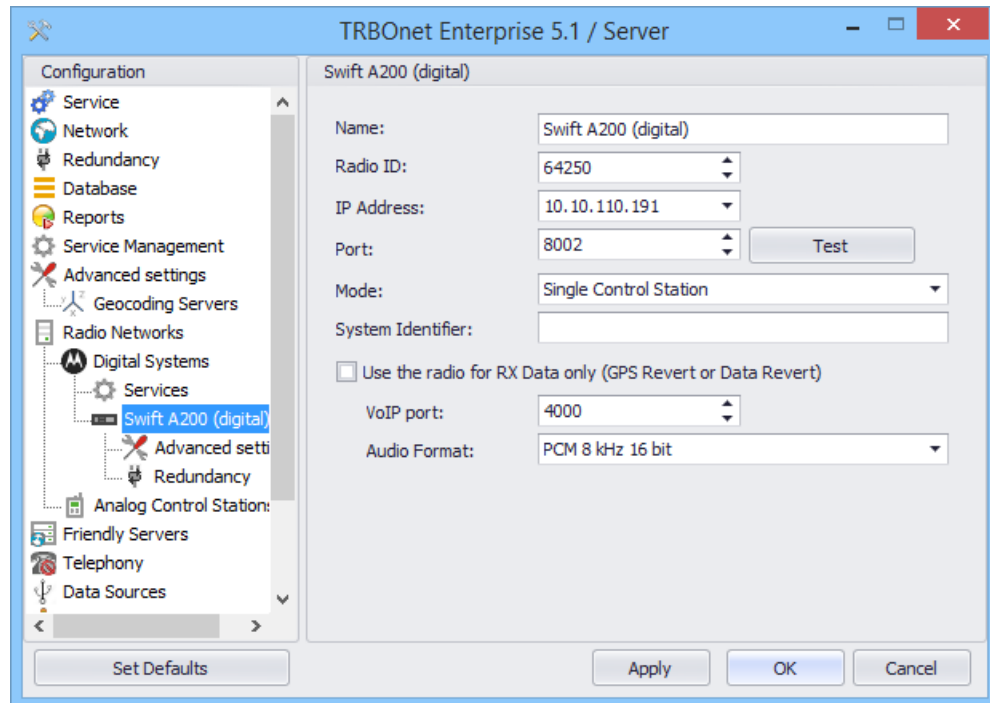


Figure 18: Registering Swift A200 as a radio system

Launch the TRBOnet Dispatch console and click **Voice Dispatch** in the left pane. If registered correctly, your Swift A200 appears on the **Radio Interface** tab with the green (“connected”) icon (Figure 19).

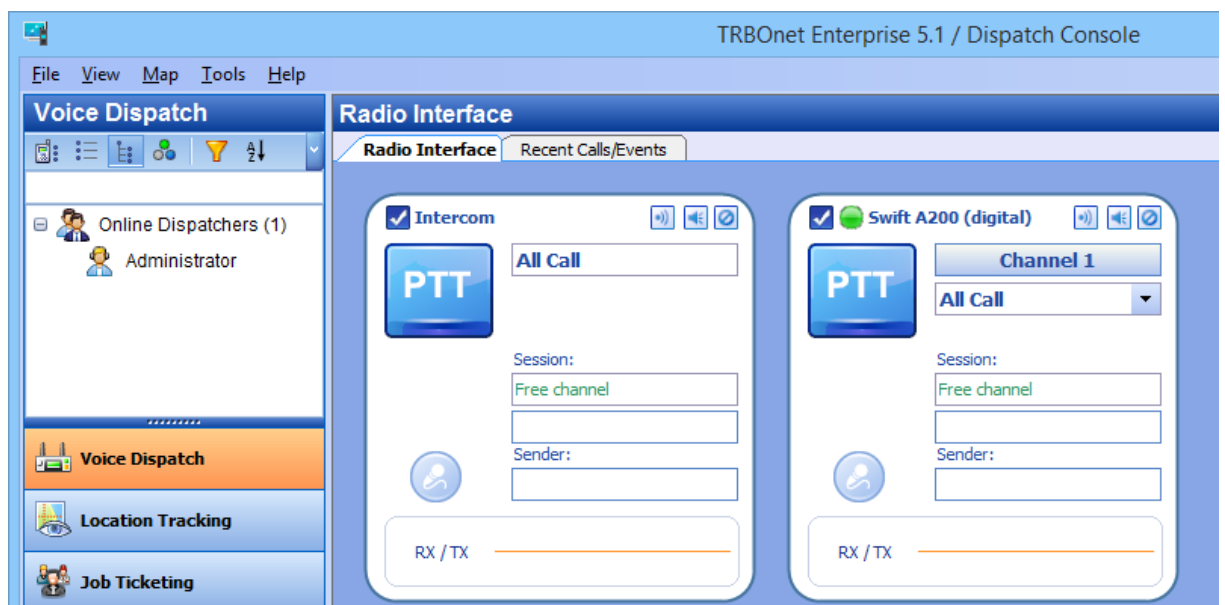


Figure 19: The RoIP gateway “Swift A200 (digital)” is connected properly

To configure pins:

1. In the TRBOnet Dispatch console, click **Administration** and **Radio Systems** in the left pane (Figure 20, step 1 and 2).
2. In the right pane, the list of the registered radio systems appears. Double-click the radio system associated with your Swift A200 (Figure 20, step 3).
3. In the popup window, click the **Channels** tab. Double-click the channel (Figure 20, step 4), or select it and click **Properties**. Another popup window appears.
4. In the second popup window, click the **Master Control** tab and configure pins.

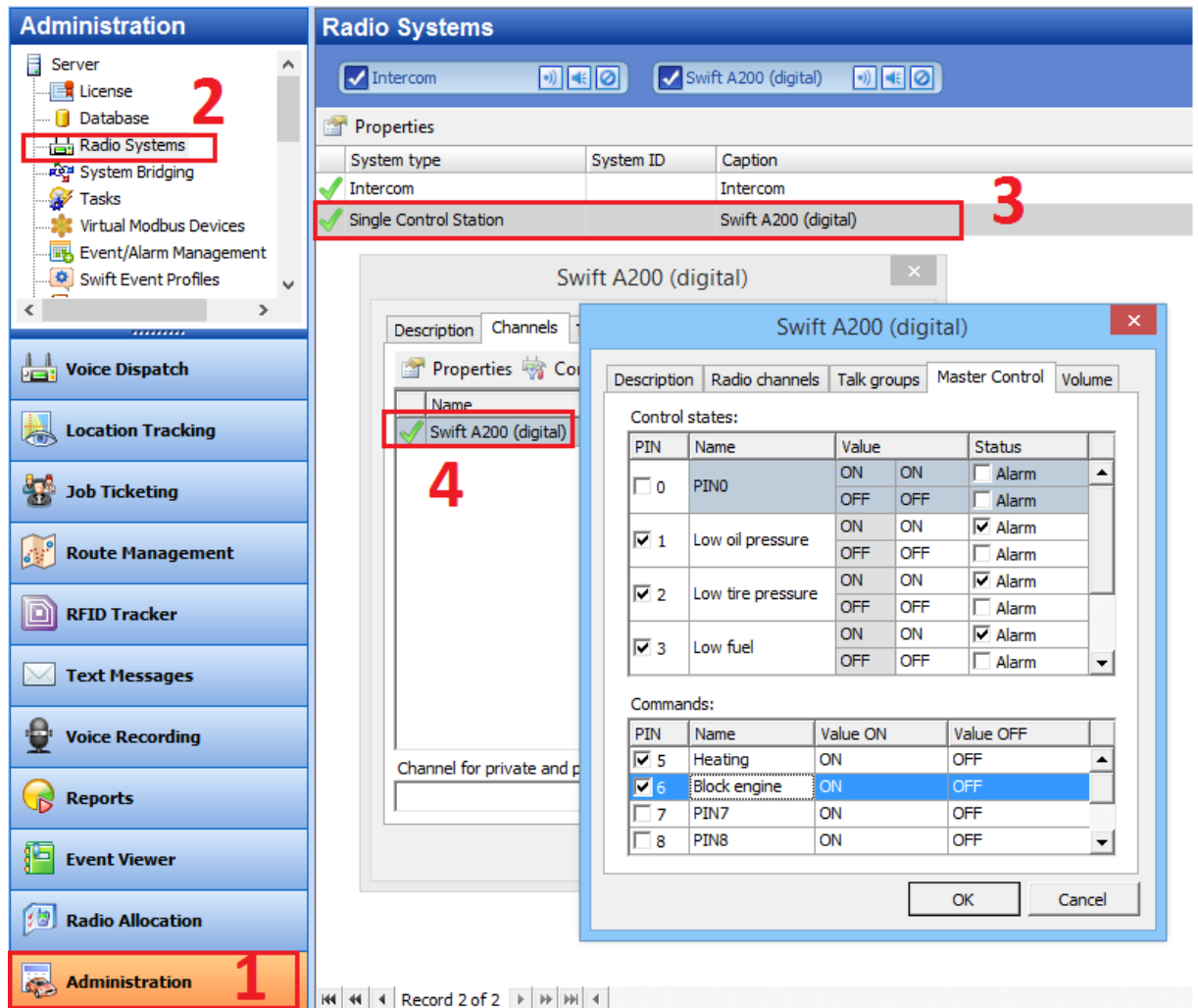


Figure 20: Configuring Swift A200 pins in TRBOnet Dispatch Console

- Under **Control states**, select the logical input pins that you have mapped in the configuration of your Swift A200 (Figure 17, page 22). Do not select pin 0. For each selected pin:
 - Double-click the value in the **Name** field and enter a descriptive pin name.
 - In the **Value** field, you see the pin states (ON and OFF) and their displayed values (also ON and OFF by default). If necessary, double-click the value in the second column and enter a custom name of the pin state.
 - In the **Status** field, select **Alarm** for the TRBOnet Dispatch Console operator to see an alarm box when the given pin state is detected.

- Under **Commands**, select the logical output pins that you mapped to the physical pins of your Swift A200 (Figure 17). For each selected pin, specify a descriptive name. In the **Value ON** and **Value OFF** fields, double-click the value and enter a custom name of the command.
5. Click **OK** and again **OK**.

To see the configured pins, click **Voice Dispatch** in the left pane. Click the green icon in the PTT box of your Swift A200 (Figure 21).



Figure 21: Opening Swift A200 pin states

The pin states appear in a popup window:

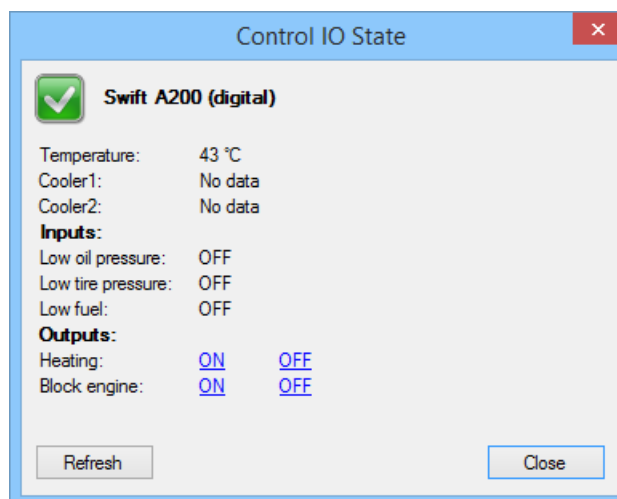


Figure 22: Pin states

The temperature is measured inside the unit and transmitted to TRBOnet by default, no additional configuration is required. The coolers are missing ("No data").

Input and output pins appear with their custom names. The input pin states are read-only. The operator can change the output pin states by clicking a respective command next to the pin name (**ON** and **OFF** under **Outputs** in Figure 22). Or, the operator can

right-click the green icon in the PTT box of Swift A200 and change the output pin states from the popup menu (Figure 23).



Figure 23: Changing the output pin states

4.2 TRBOnet Watch Configuration

Register your TRBOnet Swift A200 as a radio system in the TRBOnet Watch server configuration (Figure 24).

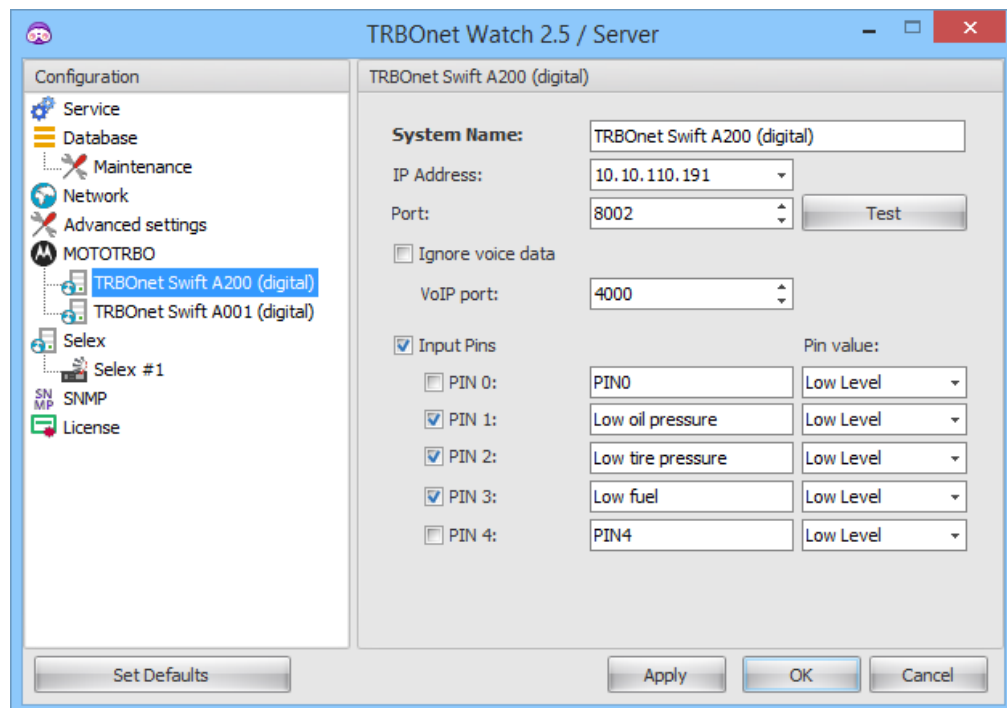
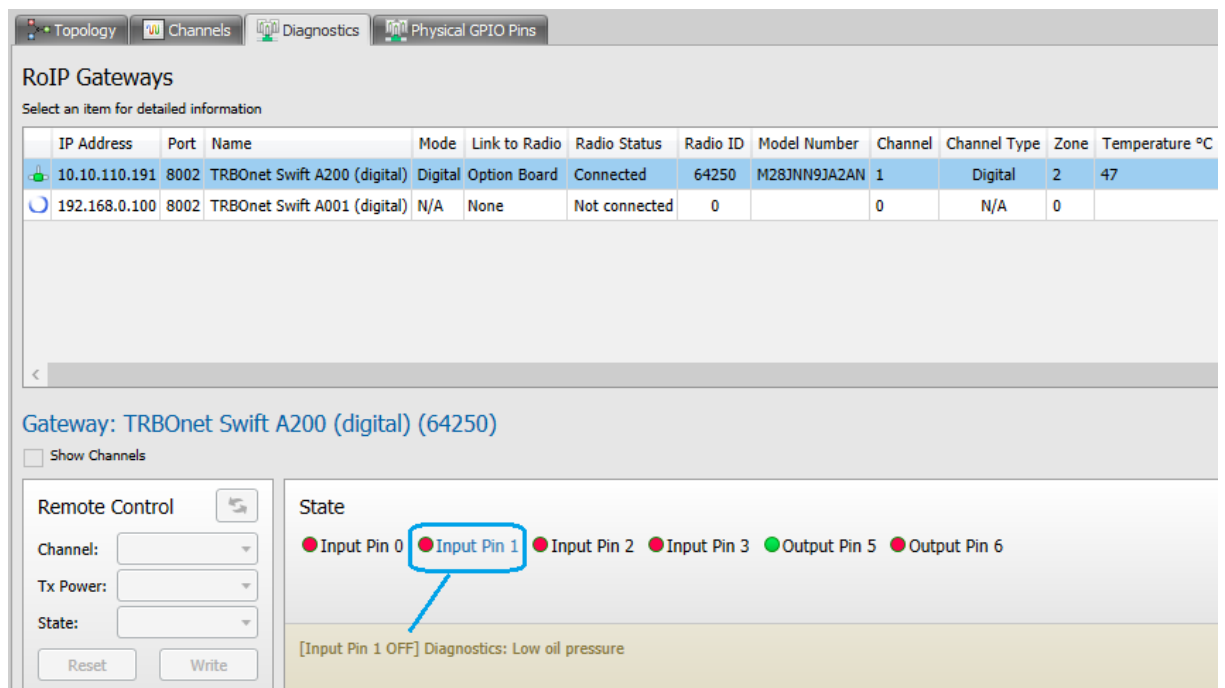


Figure 24: Registering Swift A200 as a radio system

Enable the **Input Pins** feature and configure pins as follows:

- Select the logical input pins (**PIN 1** through **PIN 4**) that you have mapped in the configuration of your Swift A200 (Figure 17, page 22). Leave **PIN 0** not selected.
- If needed, enter a descriptive name for each input pin. Otherwise, the console will display the default pin names (PIN1, PIN2, and so on).
- For each pin, expand the **Pin value** menu and select the active level exactly as specified in the Swift A200 configuration (Figure 17, page 22).

After you apply the changes, launch the TRBOnet Watch console and click **Live Monitor** in the left pane. You can see the states of connected Swift A200 pins on the **Diagnostics** tab and on the **Physical GPIO Pins** tab.



The screenshot shows the TRBOnet Watch console interface. At the top, there are tabs for Topology, Channels, Diagnostics, and Physical GPIO Pins. The main area is titled 'RoIP Gateways' and contains a table with columns: IP Address, Port, Name, Mode, Link to Radio, Radio Status, Radio ID, Model Number, Channel, Channel Type, Zone, and Temperature °C. Below the table, there is a section for 'Gateway: TRBOnet Swift A200 (digital) (64250)' with a 'Show Channels' checkbox. The 'Remote Control' section includes fields for Channel, Tx Power, and State, along with 'Reset' and 'Write' buttons. The 'State' panel shows a row of colored circles representing pin states: Input Pin 0 (red), Input Pin 1 (red), Input Pin 2 (red), Input Pin 3 (red), Output Pin 5 (green), and Output Pin 6 (red). A tooltip for Input Pin 1 displays the message '[Input Pin 1 OFF] Diagnostics: Low oil pressure'.

IP Address	Port	Name	Mode	Link to Radio	Radio Status	Radio ID	Model Number	Channel	Channel Type	Zone	Temperature °C
10.10.110.191	8002	TRBOnet Swift A200 (digital)	Digital	Option Board	Connected	64250	M28JNN9JA2AN	1	Digital	2	47
192.168.0.100	8002	TRBOnet Swift A001 (digital)	N/A	None	Not connected	0		0	N/A	0	

Figure 25: Swift A200 pin states on the Diagnostics tab

The **State** panel shows all pins (input and output) that are connected to external hardware.

- The green icon indicates the active level on the pin.
- The red icon indicates an inactive pin.

Point the mouse cursor at the pin in the **State** panel to see the detailed information about the pin (Figure 25).

5 Maintenance

5.1 Built-in Clock Battery Replacement

If the flashing **Low battery charge** icon appears on the display of the unit, you need to replace the built-in clock battery.

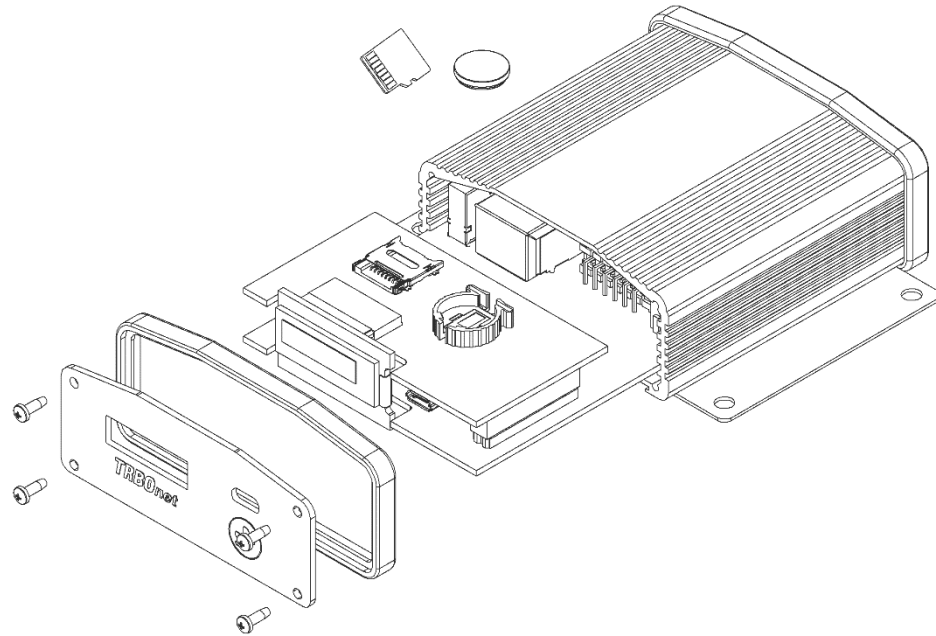


Figure 26: Replacement of the battery and memory card

To replace the battery:

1. Disconnect the unit from the power supply.
2. Remove the screws and pull the front panel from the unit. Remove the seal.
3. Press the jacks on the rear panel to pull the board out of the unit.
4. Remove the old battery from the battery slot.
5. Insert a new CR1220 3V lithium coin battery so it matches the polarity: (+) to (+) and (-) to (-).
6. Insert the board inside the unit, assemble the seal and the front panel on the unit. Tighten the screws to secure the front panel to the unit.

Note: Use the recommended battery type. Batteries that look similar may differ in voltage.

5.2 Memory Card Replacement

Swift A200 is equipped with a 4 Gb microSD memory card. If necessary, you can replace the memory card as described below.

To replace the memory card:

1. Disconnect the unit from the power supply.
2. Remove the screws and pull the front panel from the unit. Remove the seal.
3. Press the jacks on the rear panel to pull the board out of the unit.
4. Unlock the microSD card holder by pulling it in the front panel's direction.

5. Lift the card holder and remove the microSD card.
6. Insert a replacement microSD card. Ensure that the golden contacts of the memory card face the contacts of the microSD card holder.
7. Put down and lock the card holder, pulling it in the rear panel's direction.
8. Insert the board inside the unit, assemble the seal and the front panel. Tighten the screws to secure the front panel to the unit.

Note: The maximum supported memory size of a microSD card is 32 Gb.