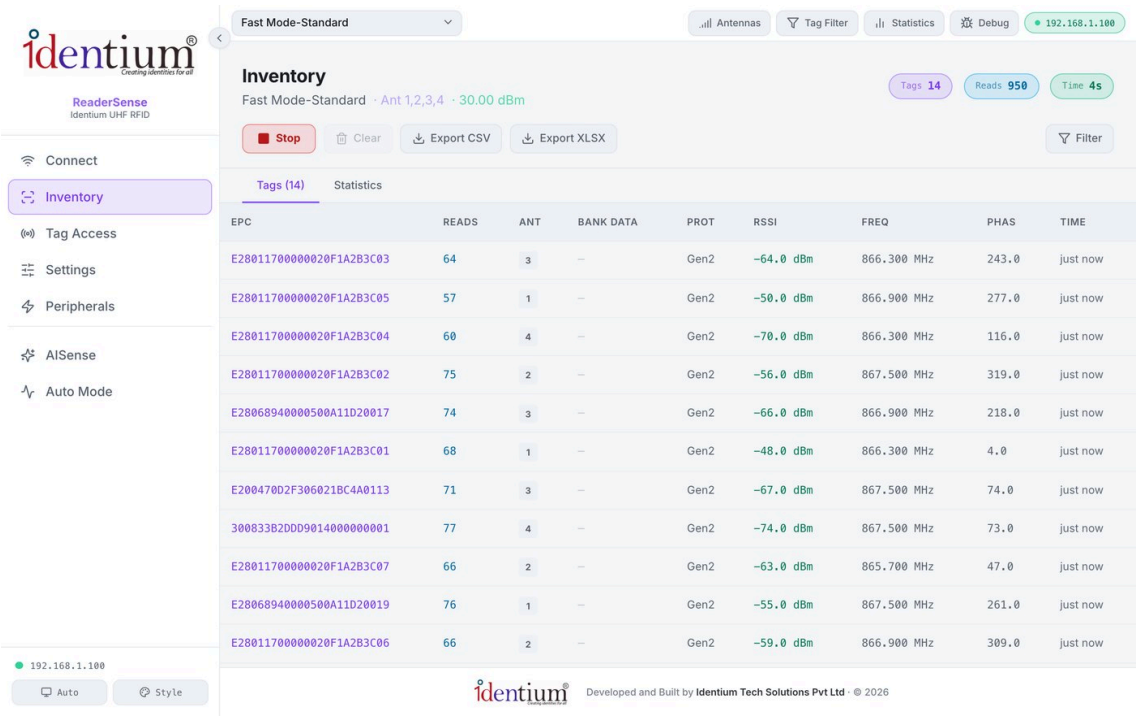
USER MANUAL

Identium ReaderSense

Desktop Software for Identium UHF RFID Readers

Install, connect, read tags, tune and set up stand-alone Auto Mode on Windows and macOS



THIS MANUAL COVERS	VERSION	PLATFORM
Identium ReaderSense	4.0.0	Windows 10/11 (64-bit) · macOS 10.15 or later

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Creating identities for all

Identium ReaderSense is the free desktop application for setting up and testing Identium UHF RFID readers over a network or serial connection. With it you can find and connect a reader, read tags live, read and write tag memory, set antenna power and air-protocol settings, watch inputs and switch outputs, and configure Auto Mode so the reader sends tag data to your server with no PC attached. This manual covers ReaderSense 4.0.0 as published on the Identium Resource Hub. The screens show version 4.0.0 set up for a 4-port reader; tag numbers and readings in them are examples.

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01/ System Requirements

Supported Identium readers



IDTS-IHZ8 8-port fixed reader, one of the readers ReaderSense drives.

ReaderSense works with the Identium UHF readers below. Pick yours in **Device Model** on the Connect page.

Reader	Ports ReaderSense drives	Pick in Device Model
IF9A integrated reader, IF9A-4G and IF9A evaluation kit	1 (built-in antenna)	IF9A
IDTS-IHZ4 multi-port reader (Ethernet, PoE and Wi-Fi versions)	4	IHZ4
IDTS-IHZ8 multi-port reader	8	IHZ8
HLR200 UHF reader	4	HLR200
ID-UM01 reader module (serial, Windows)	1 (built-in antenna)	Any (serial)

- **IF9A-2P:** ask Identium support which Device Model to choose so that its external antenna port is read as well.
- **IF9A-4G:** ask Identium support how to connect it for set-up; it then uploads over 4G in Auto Mode (section 10).

Computer

Windows	Windows 10 or Windows 11, 64-bit (x64)
macOS	macOS 10.15 Catalina or later, on Apple Silicon (M-series) or Intel Macs. The free **Mono** runtime must be installed (see section 02).
Network connection	Ethernet or Wi-Fi on the same IP subnet as the reader (the reader's factory address is 192.168.1.100, mask 255.255.255.0)
Serial connection	RS-232 or USB-serial (COM port) on Windows. Connect the ID-UM01 module's TTL UART through a USB-to-TTL serial adapter; it then appears as a COM port. Over a serial connection ReaderSense drives antenna 1 only, at up to 30.00 dBm.

Downloads on the Resource Hub

File	Use it for	Size
`Identium ReaderSense Client Setup 4.0.0.exe`	Windows installer (recommended)	89.1 MB
`Identium ReaderSense Client 4.0.0 Portable.exe`	Windows, runs without installing	88.8 MB
`Identium ReaderSense Client-4.0.0-arm64.dmg`	Mac with Apple Silicon (M1, M2, M3, M4…)	108.8 MB
`Identium ReaderSense Client-4.0.0-x64.dmg`	Mac with an Intel processor	117.1 MB

All four files are on www.identiumone.com/resourcehub/. To see which Mac you have: Apple menu → About This Mac → Chip (Apple) or Processor (Intel).

02/ Install the Software

Windows: installer

1. Download `Identium ReaderSense Client Setup 4.0.0.exe` from the Resource Hub and double-click it.
2. If Windows SmartScreen shows **Windows protected your PC**, click **More info → Run anyway**.
3. Choose whether to install for you only or for everyone who uses this PC, then choose the install folder (or keep the default) and click **Install**. The installer adds a desktop shortcut and a Start-menu entry, both named **Identium ReaderSense**.
4. Start ReaderSense from the desktop or the Start menu. It opens on the **Connect** page.

Windows: portable

`Identium ReaderSense Client 4.0.0 Portable.exe` runs straight from the file without installing anything, which suits a one-off test on a borrowed PC. It leaves any installed copy untouched. For everyday use, install the Setup version.

macOS

1. Download the DMG for your Mac: `-arm64.dmg` for Apple Silicon, `-x64.dmg` for Intel.

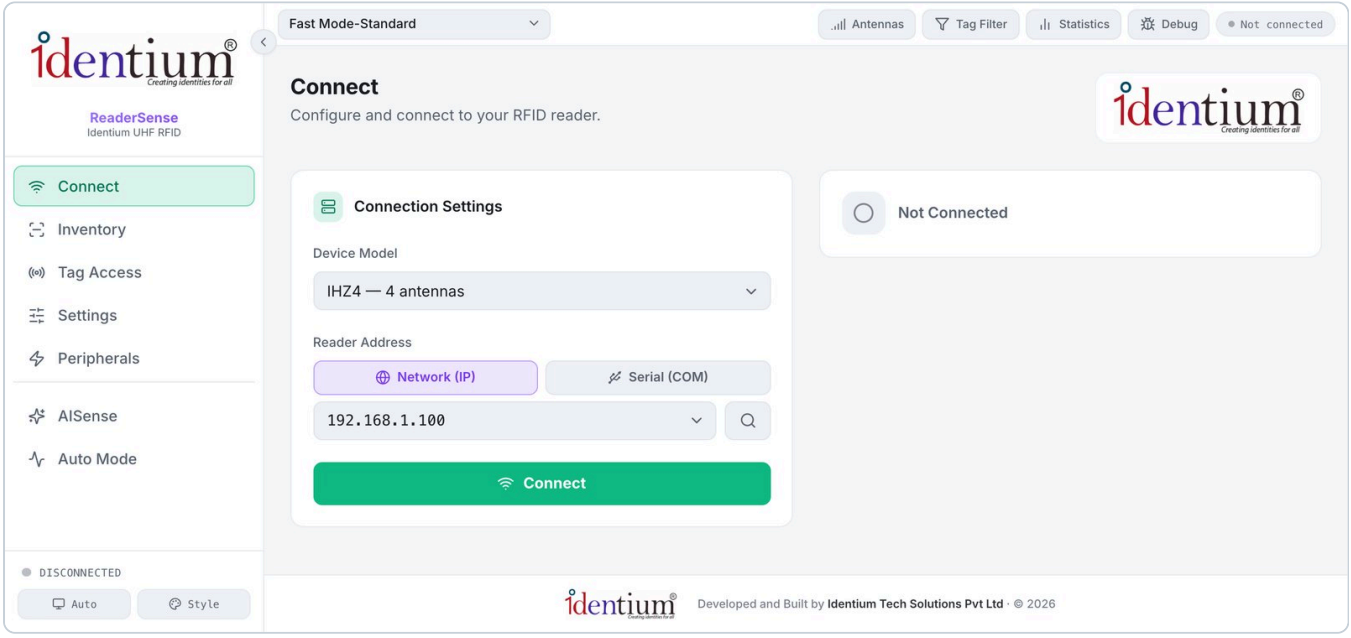
2. Install the free **Mono** runtime, which ReaderSense needs on macOS to talk to the reader: get the macOS package from the Mono project's download page, or run `brew install mono` in Terminal if you use Homebrew.
3. Open the DMG and drag **Identium ReaderSense** onto the **Applications** folder.
4. The first time, open it with a right-click (or Control-click) on the app → **Open** → **Open**. On newer macOS versions, if it is still blocked: **System Settings** → **Privacy & Security** → scroll down → **Open Anyway**.
5. If macOS says the app is **damaged and can't be opened**, run `xattr -cr "/Applications/Identium ReaderSense.app"` in Terminal, then repeat step 4.

> **NOTE**
> On macOS, connect to readers over the network (Ethernet or Wi-Fi). Serial (COM) and USB connections are available in the Windows version.

Updating and removing

- New versions are published on the Identium Resource Hub. On Windows, run the newer Setup file (your settings are kept); on a Mac, replace the app in Applications.
- Your version is shown on the **Connect** page under **Software Version** → **ReaderSense App** once a reader is connected.
- To remove it from Windows, use **Start** → **Uninstall Identium ReaderSense**. It asks whether to also delete saved settings and presets; choose **No** to keep them. On a Mac, drag the app to the Bin.

03/ Getting Started



The ReaderSense window before a reader is connected.

- **Page list (left)**: **Connect · Inventory · Tag Access · Settings · Peripherals**, then **AISense · Auto Mode**. The arrow at its edge collapses the list to icons. At the bottom: connection status, the theme button (Dark → Light → Auto) and **Style**.

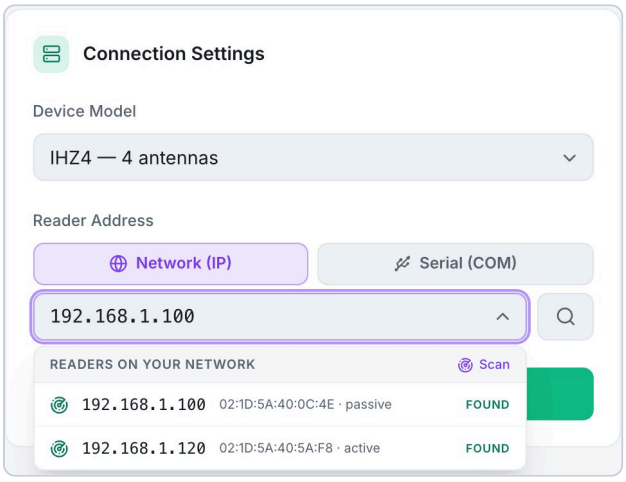
- **Read mode (top left)**: the inventory mode used whenever a page starts reading; **Fast Mode-Standard** is the default (section 05).
- **Top-bar buttons**: **Antennas**, **Tag Filter**, **Statistics** and **Debug** open panels at the bottom of the window (section 05). The badge at the far right shows the reader's address in green when connected.

Good to know

- Only one copy of ReaderSense runs at a time. Leaving **Inventory** or **AISense** while a read is running stops the reader.
- The window's close button keeps ReaderSense running in the system tray. To quit, right-click the tray icon, or set **Style → Close Button Behavior** to **Quit app**.
- **Style** also sets the theme, accent colour, text size (Compact to Massive) and font, and can turn off background effects and animation.

04/ Connect to a Reader

> **NOTE**
> **Before you start:** power the reader and connect it to your network (or straight to the computer) with an Ethernet cable. Give the computer an address in the reader's subnet: a reader with factory settings uses **192.168.1.100**, mask **255.255.255.0**, so set the computer to, for example, 192.168.1.50. Close any other reader software, because a reader accepts one connection at a time.



Clicking the address box lists the readers found on your network.

1. Open **Connect** and choose your reader in **Device Model** (IF9A, IHZ4, IHZ8 or HLR200).
2. Under **Reader Address** keep **Network (IP)** and click the address box. ReaderSense scans the network and lists **Readers on your network** with their MAC address and work state, plus addresses you used before. Click one, or type the IP.
3. For a serial connection (Windows: an RS-232 cable, or a USB-to-TTL adapter for the ID-UM01 module), choose **Serial (COM)**. ReaderSense checks the COM ports and fills in the one the reader answers on. Over a serial (COM) connection ReaderSense drives antenna 1 only, at up to 30.00 dBm; to use all ports of a multi-port reader, connect over the network.
4. Click **Connect**. The status card turns green and shows **Connected** with the address.

The magnifier button next to the address opens **Network Reader Search**: a table of every reader that answered, with the computer's network adapter, the reader's IP and MAC address, subnet mask, gateway, DNS, software versions, work state and DHCP. Click a row to use that address. A reader whose work state is **active** is running Auto Mode (section 10).

What you see after connecting

- **Versions & Serials**: module and mainboard hardware and software versions and the module serial number. Click any value to copy it, or **Copy All** to copy them as one comma-separated line for a support request.
- **Software Version**: the version of ReaderSense (**ReaderSense App**) and of the software inside the reader.
- **Current Reader Settings** (below the connection card): region, Gen2 session, target and Q, write mode, hop mode, read power and number of hop channels, as the reader is running now (a reader set up for India shows Region **IN**). **Refresh** reads them again.
- Click **Disconnect** before you connect to a different reader.



Versions & Serials of the connected reader. Copy All copies them in one line.

> **TIP**
> ReaderSense checks the reader every few seconds while connected. If the cable or power is lost, the app switches to disconnected so every page shows the true state.

05/ Top-Bar Tools

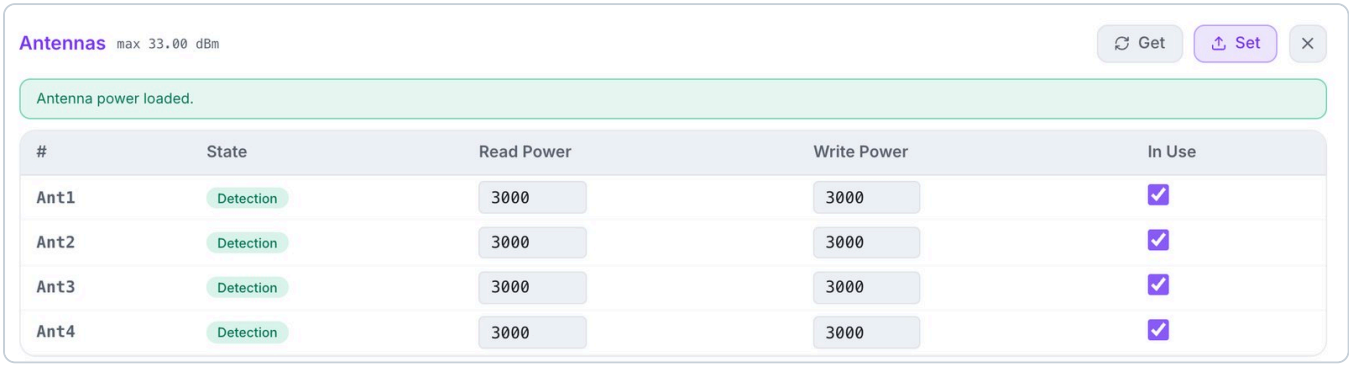
Read mode

Mode	Use it when
Normal Mode	Widest tag compatibility; try it if a fast mode reads nothing.
Fast Mode-Standard	Default; balanced speed for most jobs.
Fast Mode-Reading Distance / Reading Count	Favour range, or many tags in the field at once.
The last three modes in the list (extended fast modes)	Extended fast modes for readers that support them; use them when Identium support recommends it.

Antennas

- **Read Power** and **Write Power** are entered in hundredths of a dBm: `3000` = 30.00 dBm. The maximum your reader accepts is shown next to the title (for example `max 33.00 dBm`).
- **State** shows **Detection** when the reader senses an antenna on that port.

- **In Use** chooses the ports swept during inventory. Tick only ports that have an antenna; an empty port wastes reading time.
- **Get** reads the reader's values; **Set** writes every port and reads them back. If the reader adjusts a value, the panel tells you what it set.



Antennas panel: power per port, detection state and the ports used for reading.

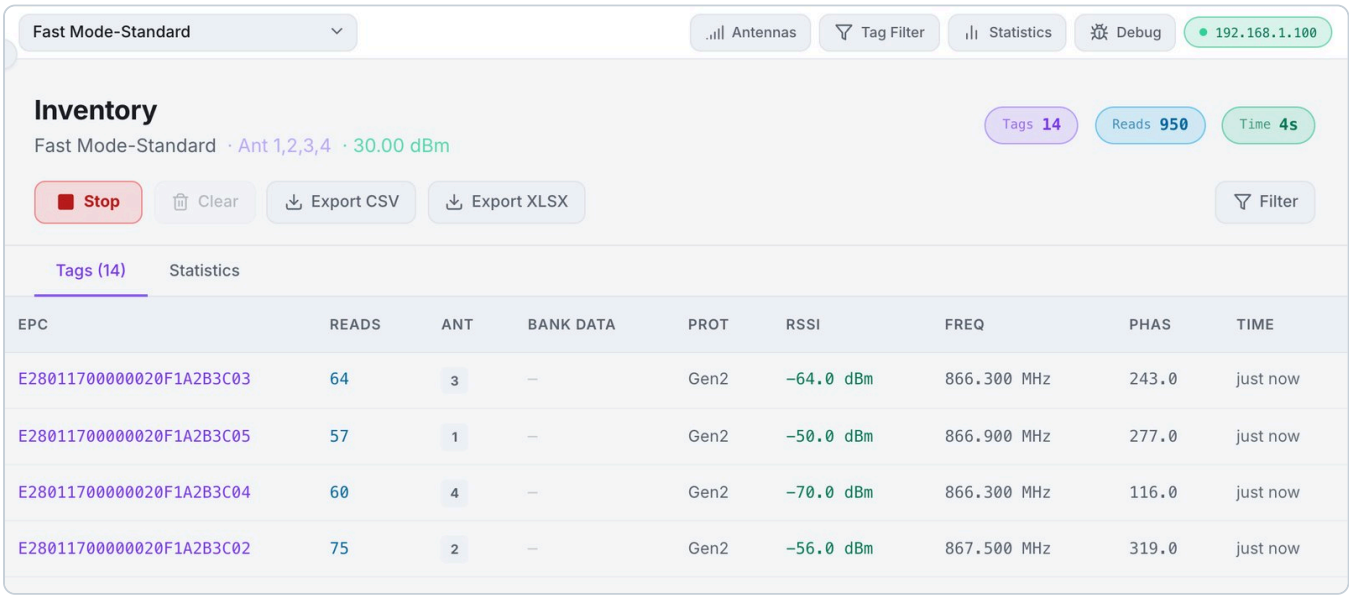
Tag Filter

The tag filter is applied inside the reader, so tags that do not match are never reported. Choose the **Bank** (usually EPC), **Filter Rule** (**Match** or **Not Match**), **Start Address** in bits (`32` is the first bit of the EPC number, after the CRC and PC words), the **Mask Format** and the **Filter Mask**, for example `E28011`. Then tick **Enable in Inventory**, **Enable in Tag Access**, or both.

Statistics and Debug

Statistics shows bar charts of reads per antenna and reads per frequency channel for the current inventory, which is a quick way to spot a weak antenna. **Debug** turns on **Debug Mode**, a log of the low-level messages exchanged with the reader; leave it off unless Identium support asks for a trace.

06/ Read Tags (Inventory)



Inventory running on four antennas. The counters at the top right show unique tags, total reads and elapsed time.

1. Connect the reader and check the **Antennas** panel: **In Use** ticked only for ports with an antenna.
2. Open **Inventory**. The line under the title shows the read mode, the antennas in use and the power the reader is set to.
3. Click **Start Inventory**. Each tag appears once in the table, and its **Reads** count rises every time it is seen.
4. Click **Stop** when you have finished.
5. Click **Export CSV** or **Export XLSX** to save the list. **Clear** empties the table for a new count.

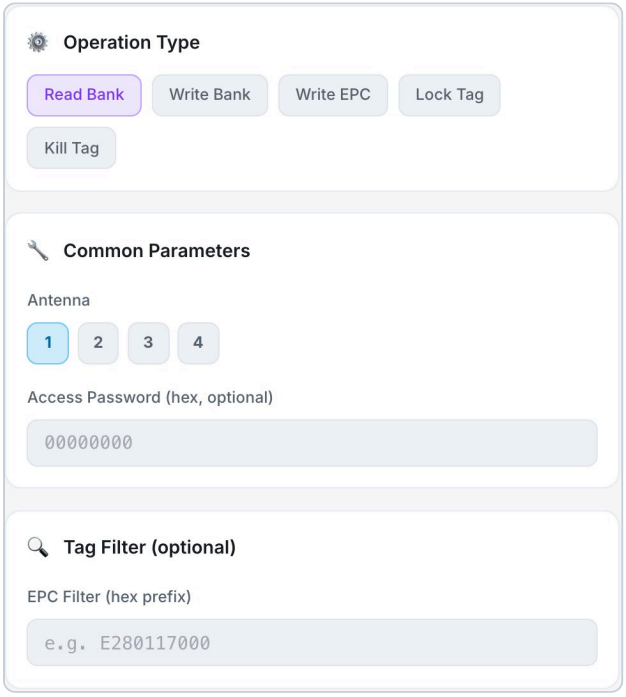
Table columns: EPC (tag number) · **Reads** (times read) · **Ant** (antenna that last read it) · **Bank Data** (extra memory, when Additional Data is on, section 08) · **Prot** (air protocol) · **RSSI** (signal strength in dBm; closer to 0 is stronger) · **Freq** (channel, MHz) · **Phas** (RF phase) · **Time** (last seen).

- **Filter** (right) narrows the table. Type comma-separated starts of EPCs, for example `E280, 3008`. Switch on **Series** to match numbered tags: `F001` then shows F001, F002, F003 and so on. Export saves the tags the filter shows.
- The **Statistics** tab gives reads per antenna and per frequency and a session summary. The table draws the first 500 tags so the window stays fast; Export always includes every tag.

> **TIP**
> If nothing is read for 20 seconds, ReaderSense says so and offers **Retry in Normal mode**. First check that a tag is in front of an antenna that is ticked **In Use**.

07/ Tag Access: Read, Write, Lock and Kill

Tag Access works on one tag at a time. Put only the tag you want near the antenna, or narrow the choice with the EPC filter on this page or the top-bar Tag Filter.



Choose the operation, antenna, password and an optional EPC filter.

1. Open **Tag Access** and pick an **Operation Type**: **Read Bank**, **Write Bank**, **Write EPC**, **Lock Tag** or **Kill Tag**.
2. Pick the **Antenna** the tag is in front of.
3. Enter the **Access Password** (8 hex characters) if the tag is locked; leave it blank otherwise.
4. Optionally type the start of the tag's EPC in **EPC Filter** so only that tag answers.
5. Fill in the parameters on the right and click **Execute**. The result appears under the button.

> **CAUTION**
> **Permanent** lock and **Kill** cannot be undone, with any password. Try them on a spare tag first.

Before you lock a bank, write a non-zero access password to the Reserved bank (words 2–3) and enter it in **Access Password**; a lock with password 0 leaves the tag unprotected.

Operation	Parameters
Read Bank	**Bank** (Reserved, EPC, TID or User), **Start Address** and **Block Count** in words. In the EPC bank, word 0 is the CRC, word 1 the PC and the EPC number starts at word 2.
Write Bank	Bank, start address and the data in hex. Data must be whole words: a multiple of 4 hex characters.
Write EPC	The new EPC in hex, whole words; a standard 96-bit EPC is 24 characters. ReaderSense updates the PC word for you.
Lock Tag	**Lock Target** (EPC, TID, User, Kill password or Access password) and **Lock Type** (Unlock, Lock or Permanent).
Kill Tag	The tag's kill password (hex). A tag whose kill password is still 0 cannot be killed; write a kill password to the Reserved bank (words 0–1) first.

08/ Reader Settings

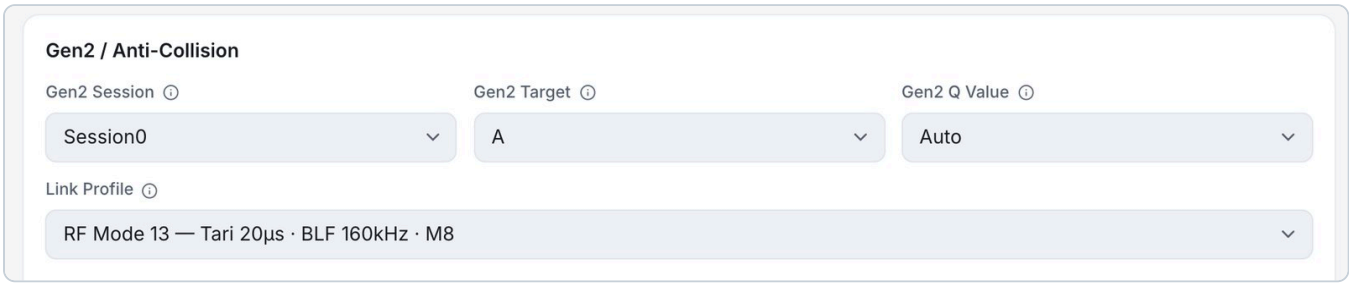
Settings holds the reader's own parameters, grouped in tabs. ReaderSense reads them from the reader when the page opens.

- **Get** reads the current values from the reader. Click it before changing anything on a reader you did not just set up.
- **Set** writes the values on the tab you are looking at.
- **Perpetual** writes them and asks the reader to keep them after a power cycle. After using it, switch the reader off and on and click **Get** to confirm.

Tab	What you set there
Antennas	Read and write power per port and the **In Use** ports (the same list as the top-bar Antennas panel).
Inventory	**Fast Mode Type**; **Read Duration** and **Read Interval** for Normal mode; **Gen2 Session**, **Target**, **Q Value** and **Link Profile**; an option that returns the TID with the EPC on tags whose chip supports it (for any tag, turn on **Additional Data 1**, which reads the TID bank by default); an option to report each tag only once until it leaves the field; **Additional Data** 1–3 (extra bank words returned with every tag) and the shared access password.
Network	The reader's IP address, subnet mask and gateway. After **Set** the reader answers on the new address; reconnect from the Connect page.
Advance	**Hop Mode**, **Max Dwell Time of Ant**, **Gen2 Write Mode**, tag data cache options, **Working Region** with its frequency hopping table, **Recover default frequencies** and **Restore module defaults**. Leave **Working Region** as it is: check that **Connect → Current Reader Settings** shows Region **IN** (India), and if it does not, contact Identium support rather than changing it here.
GPIO	**GPI Trigger Operation**: start and stop inventory from an input such as a photo-eye or push button. **Tag Read GPO Trigger**: switch an output (GPO1–GPO5, GPO5 is the buzzer) each time a tag is read. Its hold timer restarts with every read, so a tag that stays in range keeps the output on; about 100 ms on GPO5 gives one beep per read.
Last tab (after GPIO)	Extended air-protocol options. Leave them at their defaults unless Identium support advises otherwise.

CAUTION

Restore module defaults acts at once, with no confirmation. It resets the region, power and frequency table, and **Recover default frequencies** also rewrites the region. Afterwards, reconnect and check **Connect → Current Reader Settings** (Region **IN** for India, and the power) before you use the reader again.

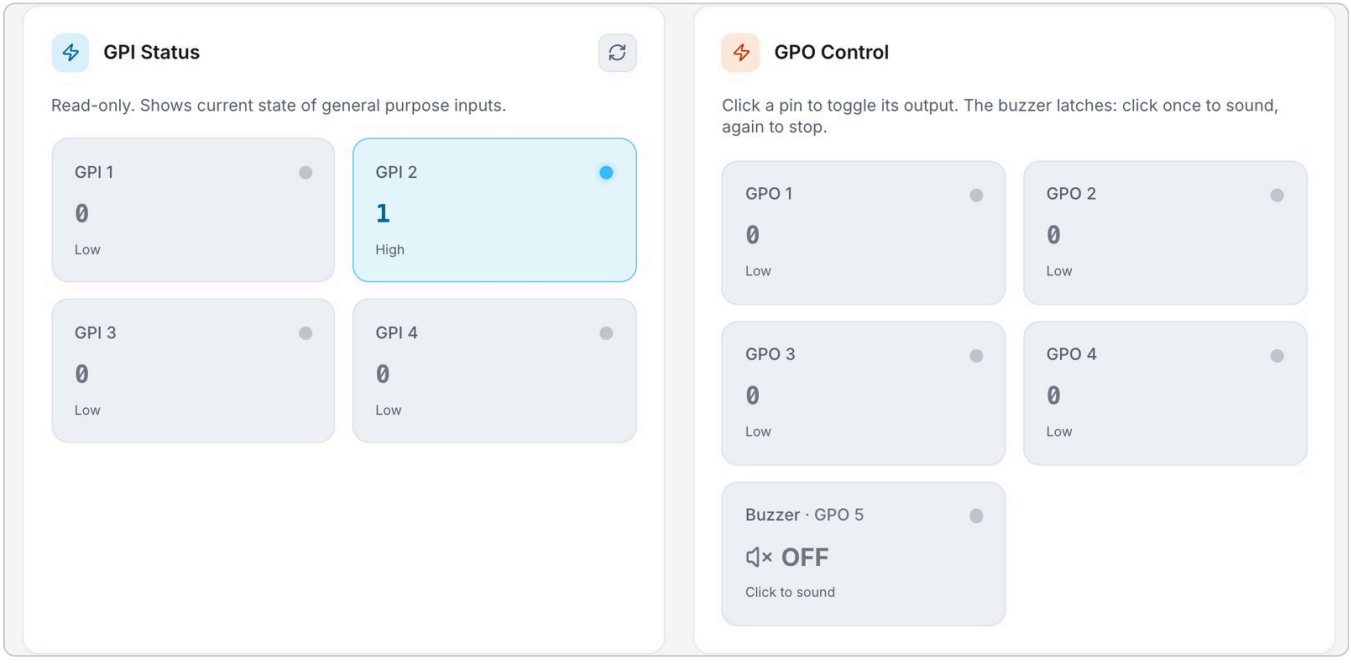


Settings → Inventory tab, Gen2 / Anti-Collision: session, target, Q value and link profile.

Choosing the main inventory settings

Setting	Guidance
Gen2 Session	**Session0** re-reads tags constantly: use it for doorways, conveyors and moving tags. **Session2/3** keep a read tag quiet for seconds: use them for large populations that stay still.
Gen2 Q Value	Sets the anti-collision slots (about 2^Q). **Auto** lets the reader adapt and suits most sites.
Report once per tag	The option *each tag reports once until it leaves the field*. Keep it off for doorways, conveyors and counting tests.

09/ Peripherals: Inputs, Outputs and Buzzer



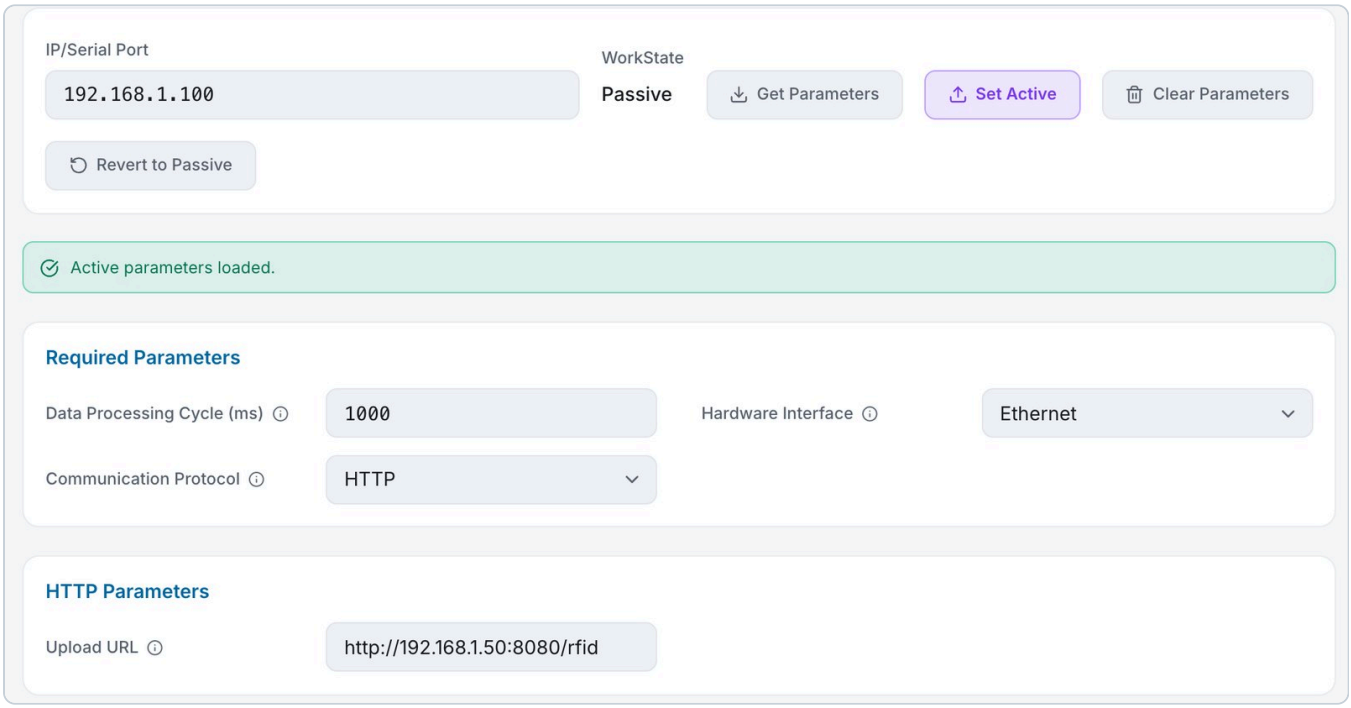
Peripherals: live input states on the left, output switches and buzzer on the right.

- **GPI Status** shows each input's current value, **1** or **0**. It refreshes every 2 seconds, and at once with the refresh button. Use it to check that a sensor is wired correctly: trigger the sensor and note the value its input shows before you set up a GPI trigger (Settings → GPIO, section 08).
- **GPO Control**: click an output to switch it between Low and High. This acts at once and does not change any trigger settings.
- **Buzzer · GPO 5** latches: click once to sound it, again to stop.

> **NOTE**
> The page shows four inputs, four outputs and the buzzer. On IHZ4 and IHZ8 readers, **GPO1–GPO3** are relay outputs, **GPO4** is a solid-state output and **GPO5** drives the reader's buzzer. How many inputs are wired out on your reader, and the voltage ratings, are given in the reader's datasheet.

10/ Auto Mode: Reading Without a PC

In Auto Mode the reader starts reading by itself at power-on and sends tag data straight to your server over TCP, HTTP or MQTT (or, on readers with that port, as keyboard, Wiegand or serial output) with no PC attached. Uploads over TCP, HTTP or MQTT need a reader with its own Ethernet, Wi-Fi or 4G connection. ReaderSense sets this up by the reader's IP address; you do not have to connect first.



Advanced Parameter Configuration with Ethernet and HTTP selected. The Static Parameter Configuration tab next to it holds the reader's network, RF, antenna and inventory settings; sections for Wi-Fi, Bluetooth and 4G appear only on readers with that hardware.

Example: send tag reads to your server over HTTP

1. Open **Auto Mode**, type the reader's address in **IP/Serial Port** and click **Get Parameters**.
2. On **Static Parameter Configuration**, check the **Ethernet Setting** (IP address, subnet mask, gateway, and DNS if your server address is a host name), **Ant Power**, the **Working Region** (it must show **India**), **Working Antenna** and **Device Type**. Click **Set Parameters**. Tick **Restart the device** if you changed network settings; the reader is back in about 20 seconds.

3. Open **Advanced Parameter Configuration** and click **Get Parameters**.
4. Under **Required Parameters**, choose the **Hardware Interface** the reader will use (Ethernet, WIFI or 4G for network uploads), set **Communication Protocol** to **HTTP**, and set the **Data Processing Cycle** (1000 ms uploads buffered reads every second).
5. Under **HTTP Parameters**, enter the **Upload URL** of your server.
6. Under **Event Subscription**, tick **Tag Data** (and **Heartbeat** if you want a regular sign of life). Under **Additional Parameters**, give the reader a **Reader Logical Name** and set **Initial Count Condition** to **Inventory** so it starts reading at power-on.
7. Click **Set Active**. ReaderSense reads the reader's full configuration, adds your changes and sends it back; the reader restarts. When **WorkState** shows **Active**, the message reads *Done – reader is in Active mode*.

Interface / protocol	Fields to fill in
TCP	**Server Address** and **Port Number** of your TCP server.
HTTP	**Upload URL**. Your server must answer each upload with HTTP 200 OK.
MQTT	**Host Address**, **Port Number** (usually 1883), **Publish Topic** and QoS, optional subscribe topics, **Keepalive Time**, user name/password and TLS.
HID Keyboard / Wiegand	HID: upload mode, EPC prefix/suffix and separators (the reader types each EPC). Wiegand: interface type, pulse timing, output interval and byte order.
RS-232 / RS-485 serial	Choose **RS232 Serial Port** or **RS485 Serial Port** as the **Hardware Interface**, then set the matching **RS232 Serial Parameter** or **RS485 Serial Parameter** section on the **Static Parameter Configuration** tab (**Baud Rate**, **Data Bits**, **Stop Bits**, **Verification**).

Choose only an interface your reader has; its datasheet lists the ports.

Other options on the Advanced tab

- **GPI Trigger Operation**, **Tag Read GPO Trigger** and **Tag JSON Format** (the fields sent with each tag) are stored in the reader for stand-alone use. **Client Confirmation** makes the reader expect an acknowledgement from your server after each upload and resend the upload if none arrives.
- **Time Synchronization**: the reader's clock starts from zero at power-on. Subscribe to it if you need real timestamps; your server then answers the reader's time request.
- **Network Timeout Restart** and **Abnormal Restart Time** restart the reader after that many minutes without a server or without reads. Keep them at 0 (off) unless you want that.

Taking a reader out of Auto Mode

Click **Revert to Passive**. The button switches the reader's work state, so check that **WorkState** now reads **Passive**; the reader then stops uploading and you can connect to it from the Connect page. For the message format your server receives, ask Identium support for the Auto Mode integration guide.

> **CAUTION**
> **Clear Parameters** erases the Auto Mode configuration at once, with no confirmation. Click **Get Parameters** and note your settings first.

11/ Troubleshooting

Installing and connecting

Problem	Likely cause	What to do
macOS: app "is damaged and can't be opened", or is blocked	Downloaded-file check by macOS	Right-click the app → **Open**, or **Privacy & Security** → **Open Anyway**. If it says damaged, run `xattr -cr "/Applications/Identium ReaderSense.app"`.
macOS: note "Mono runtime not found" or "Bridge unavailable"	Mono is not installed	Install Mono (section 02), then quit ReaderSense fully (⌘Q) and open it again.
The reader does not appear in the scan or ping fails	Computer and reader are on different subnets, or cable/power issue	Set the computer to the reader's subnet (section 04) and check the cable and power LED. If you have lost the reader's address, use the network scan; on readers with a RESET button, holding it for about 3 seconds while powered returns the address to 192.168.1.100.
"The reader is in use by another program on this PC: …"	A reader accepts one connection at a time	Close the program named in the message and click **Connect** again.
"The reader did not respond in time"	Reader still starting, busy, or held by software on another computer	Close other reader software on every computer, switch the reader off and on, wait 20 seconds and try again.

Serial (COM): no reader found. Install the driver of your USB-serial or USB-to-TTL adapter and check that its COM port shows in Windows Device Manager. For the ID-UM01 module, drive its EN pin high and allow about 100 ms after power-up before you connect.

Reading tags

Problem	Likely cause	What to do
Inventory runs but no tags appear	No tag in front of an antenna in use, or a tag filter is on	Tick **In Use** for the right ports, turn off **Enable in Inventory** in Tag Filter, clear the page Filter, then try **Retry in Normal mode**.
A tag is read once and then is not reported again	*Each tag reports once* option on, or **Session2/3**	In Settings → Inventory untick *each tag reports once until it leaves the field* and use **Session0**.

Settings and region

Problem	Likely cause	What to do
Settings are lost after the reader is switched off	Values were written with **Set**	Write them again with **Perpetual**, power-cycle and click **Get** to confirm.
Current Reader Settings shows a Region other than **IN**	**Restore module defaults** or **Recover default frequencies** rewrote the region	Stop using the reader and contact Identium support.

Auto Mode

Problem	Likely cause	What to do
WorkState is Active but no data arrives	**Tag Data** not subscribed, wrong Hardware Interface, server unreachable or not answering 200 OK	Tick **Tag Data**, choose the interface the reader really uses (WIFI and 4G are different choices), test the URL from the reader's network and make the server return 200 OK.
The reader restarts on its own	A restart timer is set	Set **Network Timeout Restart** and **Abnormal Restart Time** to 0.

When you contact support, open **Connect** → **Versions & Serials** → **Copy All** and paste the line into your message, together with the ReaderSense version and a screenshot of the problem.

12/ Support

For help with installation, integration or a fault that the steps above do not clear, contact Identium. Please keep the product model, the software version shown in the app and a short description (or screenshot) of the problem ready.

Company	Identium Tech Solutions Pvt. Ltd.
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