Exeltech Alarm Configuration Tool User Guide

Version 2.0.6

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Preface

1. Purpose

The Exeltech Alarm Configuration Tool sets which conditions raise the alarms of an Exeltech power system, over your network. This guide explains how to get the tool, how its window works, and how to read and change a system's alarm configuration safely.

2. Who should read this guide?

This guide is for Exeltech's customers who set up or service Exeltech power systems: the owners and operators of the systems, and those who install or service them for them.

3. Where to obtain the latest version of this guide?

The guide is built into the tool: click **User Guide** in the tool's window to open it. For the latest version, download it from the Exeltech download page, https://unumaleum.github.io/downloads/#alarm-configuration-tool-guide, where the latest tool is too.

4. Providing feedback for this guide

If you have questions or suggestions about this guide, send your feedback through https://exeltech.com/contact-us/technical-support/.

1. Introduction

1.1 What the Tool Does

Every Exeltech power system has two alarms:

- **Alarm 1, the minor alarm;**
- **Alarm 2, the major alarm.**

Which conditions raise each alarm is part of the system's configuration, stored in the system itself. The tool shows that configuration as rows of check boxes, one row for each condition, with an Alarm 1 box and an Alarm 2 box. On KC systems it also sets which power module slots and which cages the system has.

You find the system by the MAC address of its network card. The tool then:

1. reads the configuration the system holds now, and ticks the boxes to match;
2. lets you tick and clear boxes;
3. writes back only what you changed, and only the settings it shows. Everything else keeps the system's value;
4. waits until the system confirms each change, and tells you if it doesn't.

1.2 Supported Devices

The tool recognizes the device from the type it reports, and shows only the settings of that type.

Device	What the tool sets
KC Monitor: the monitor card of a KC system, KC Skinny systems included	Alarm 1 and Alarm 2 for the transfer switch, system level and module level conditions; the module slot configuration (slots 1 to 11); the cage configuration
KC Transfer Switch (3 kW, and Skinny 5 kW N+1)	As the KC Monitor
STS Controller: standalone, on CAN, with a System Monitor, or RIC	Alarm 1 and Alarm 2 for the transfer switch conditions and for the System Monitor's module conditions
UC Monitor: the UC System Monitor, with or without a transfer switch	Alarm 1 and Alarm 2 for the transfer switch conditions and for the monitor card's module conditions

The conditions of each device are listed in Appendix A. For any other device, the tool says it is not supported and changes nothing (Section 4.5).

1.3 System Requirements

- Windows 10 or 11, 64-bit.

- A network connection to the system: the tool finds the system with a broadcast on the local network, so the PC and the system must be on the same local network.
- Nothing else. `ConfigurationTool.exe` includes everything it needs, and it does not need administrator rights.

> **Close StatusBoost while you use the tool.** Both programs use UDP port 6006 to find systems, and a system accepts only two network connections at a time.

1.4 Who May Use It

The tool is for Exeltech's customers, free of charge: the owners and operators of Exeltech power systems, and those who install or service those systems for them. It is licensed under the Exeltech Alarm Configuration Tool License Agreement. Downloading, copying or using the tool is the acceptance of that agreement (Section 8.3).

2. Getting the Tool

2.1 Downloading It

Download `ConfigurationTool.exe` from the Exeltech download page, https://unumaleum.github.io/downloads/#alarm-configuration-tool. The page also shows the tool's license. By downloading the tool, you accept it.

2.2 Checking the Download

The download page and each release list the SHA-256 hash of `ConfigurationTool.exe`. A matching hash shows the file is complete and unchanged. In PowerShell, in the folder you downloaded to:

```
Get-FileHash .\ConfigurationTool.exe -Algorithm SHA256
```

Or in a Command Prompt:

```
certutil -hashfile ConfigurationTool.exe SHA256
```

Compare the result with the published hash; upper or lower case doesn't matter. If they differ, don't run the file: download it again.

2.3 A Folder of Its Own

Put `ConfigurationTool.exe` in a folder of its own that you can write to, for example `Documents\ConfigurationTool`. The tool keeps two files beside itself:

- `formats.ini`, the device formats: which boxes each type of device has, and their labels;
- `instance.ini`, the devices you have connected to.

If `formats.ini` is missing, the tool writes it at its first start. The tool needs no installation: to start it, open `ConfigurationTool.exe`.

2.4 "Windows protected your PC"

This version of the tool is not digitally signed yet, so Windows does not know it comes from Exeltech. When you open it, Windows may show "Windows protected your PC". Check the hash first (Section 2.2), then click **More info**, then **Run anyway**.

3. The Window

When the tool starts, it shows the last MAC address you used, and waits for you to connect (Figure 3.1).

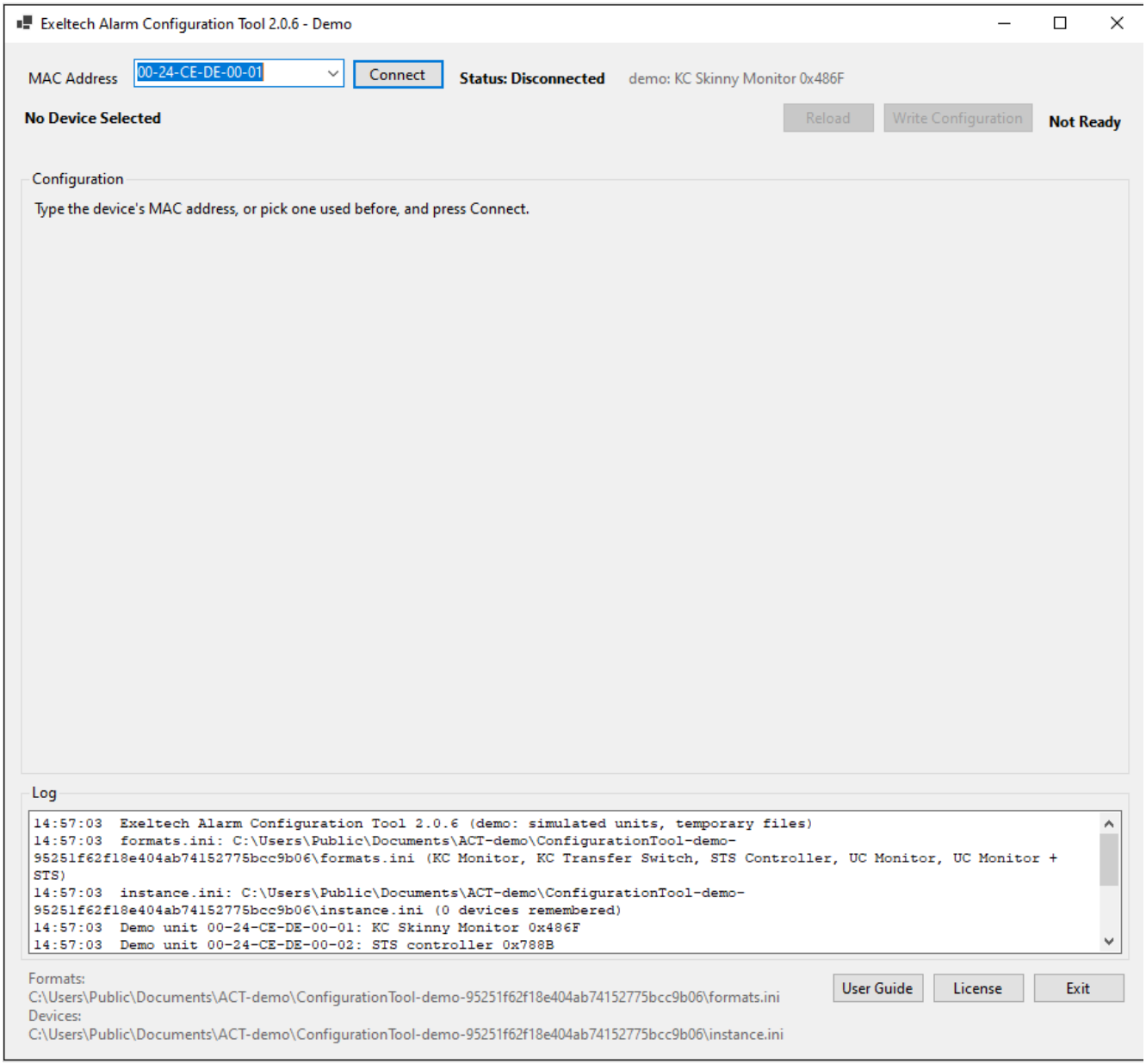


Figure 3.1. The window before connecting

Figure 3.2 shows the window connected to a KC monitor. The numbered parts are described below it.

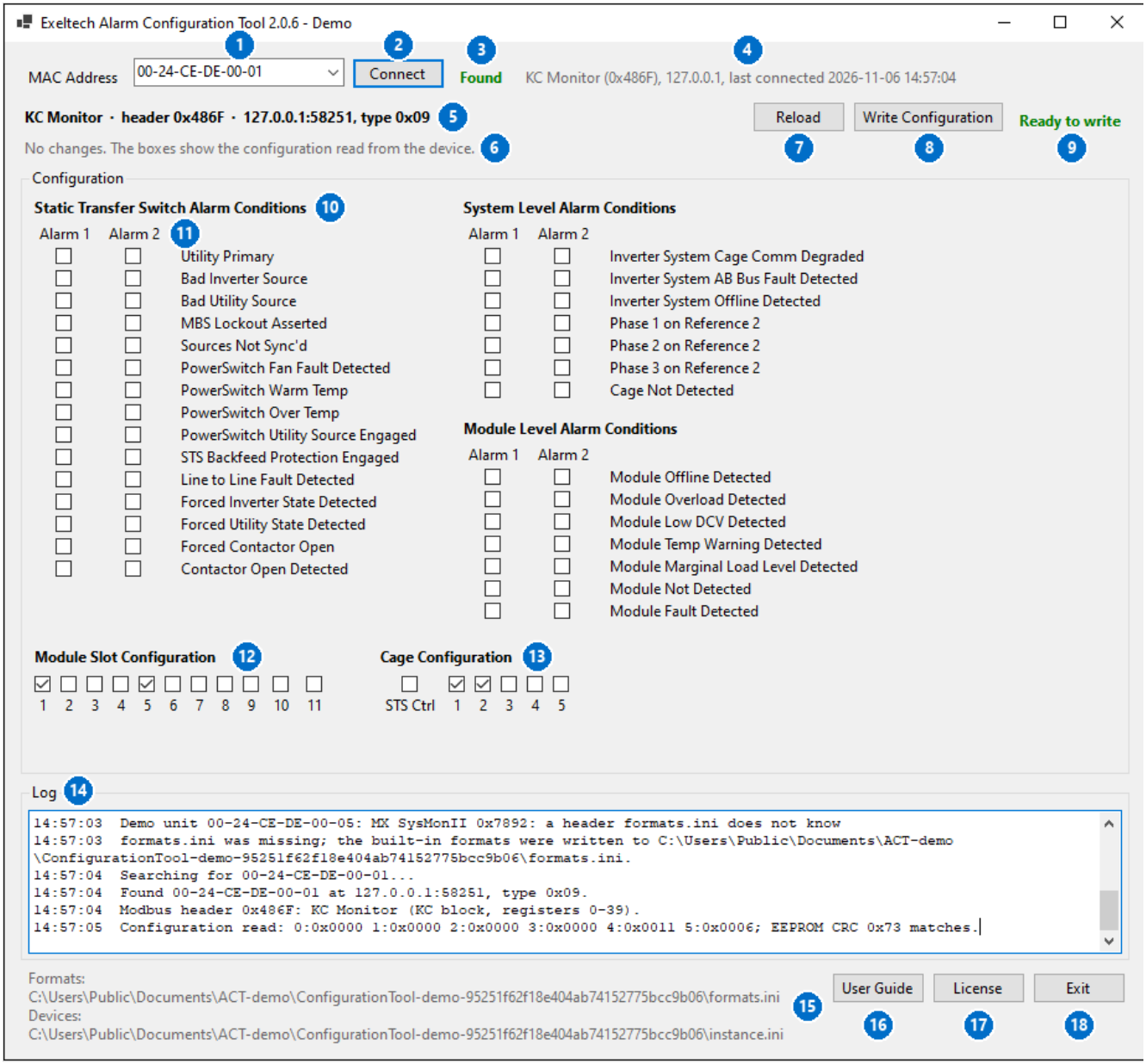


Figure 3.2. The parts of the window, connected to a KC monitor

No.	Part	What it does
1	**MAC Address**	Type the MAC address of the system's network card, or pick one from the list, which holds the MAC addresses you used before
2	**Connect**	Finds the system and reads its configuration (Section 4). Pressing Enter does the same
3	**Connection status**	Disconnected, Searching..., Found, Not Found, Bad MAC Address or No Connection
4	**What the tool remembers**	For a MAC address used before: the type of device, the address it answered from, when you last connected, and when you last wrote to it, with the result
5	**The device line**	The type of device, the type code it reports ("header"), the address and port it answered from, and the type of its answer to the search
6	**The changes line**	"No changes" while the boxes show the system as it is. After you change a box, "Not written yet:" and each setting word that will change, with its value now and after the write, in hexadecimal
7	**Reload**	Reads the configuration from the system again, and drops your changes (Section 5.5)
8	**Write Configuration**	Writes your changes to the system (Section 5.2)
9	**Write status**	Not Ready, Ready to write, Writing..., Write Success..., Write Failure..., Reload needed, Not supported or Not Found
10	**An alarm group**	A set of conditions under one heading. Each row is one condition, with its label on the right
11	**Alarm 1 and Alarm 2**	The two columns of boxes. A ticked box means the condition raises that alarm: Alarm 1 is the minor alarm, Alarm 2 the major alarm
12	**Module Slot Configuration**	KC systems only: the power module slots the system has (Section 6)
13	**Cage Configuration**	KC systems only: the STS controller and the cages the system has (Section 6)
14	**Log**	Every step the tool takes, with the time. You can select its text and copy it, for example for Exeltech technical support
15	**Files**	Where `formats.ini` and `instance.ini` are
16	**User Guide**	Opens this guide, which is built into the tool, in your PDF viewer (Section 8.2)
17	**License**	Shows the license agreement (Section 8.3)
18	**Exit**	Closes the tool. If you changed boxes and didn't write them, the tool asks first

Hold the mouse over a box to see which setting word and bit it is. Exeltech technical support may ask for these.

4. Connecting to a System

4.1 The MAC Address

StatusBoost shows the MAC address of each system it finds. Any common form works:

- `00-24-CE-12-34-56`
- `00:24:ce:12:34:56`
- `0024CE123456`
- `0024.ce12.3456`

The tool shows it as `00-24-CE-12-34-56`. If what you typed is not a MAC address, the status says "Bad MAC Address" and the log says why.

4.2 What Connect Does

Click **Connect**, or press Enter:

1. **The search.** The tool sends a search to the local network and waits up to 5 seconds for the system with that MAC address to answer. The status shows "Searching...", then "Found".
2. **The type.** It reads the type of device, and picks the matching format from `formats.ini`.
3. **The configuration.** It reads the system's configuration and ticks the boxes to match it. The device line shows the type of device, and the write status turns to "Ready to write".

Connecting takes a few seconds. An STS controller takes about a second longer, because the tool believes its readings only when the same reading comes back 1.5 seconds later.

If you connected to the same system before, and its configuration changed since then, the log says so and shows what it was.

4.3 Devices Used Before

The tool remembers every system it connected to, by MAC address, in `instance.ini`. Open the list of the MAC Address box to pick one. When the MAC address in the box is one you used before, the line beside the status shows what the tool remembers about it (part 4 in Figure 3.2).

4.4 Other Devices

Each type of device shows its own groups. A KC transfer switch has the same groups as a KC monitor (Figure 4.1).

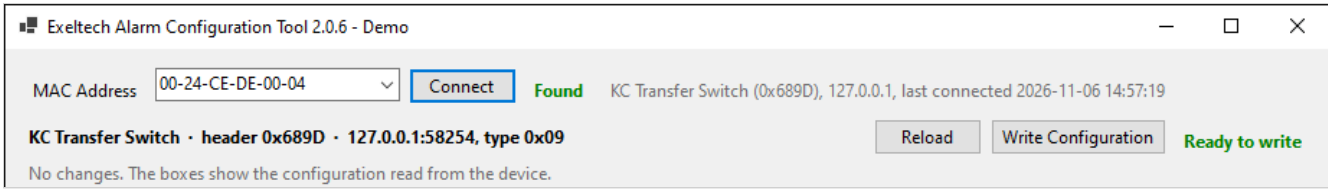


Figure 4.1. Connected to a KC transfer switch

An STS controller has the transfer switch's conditions, and the module conditions it receives from its System Monitor (Figure 4.2).

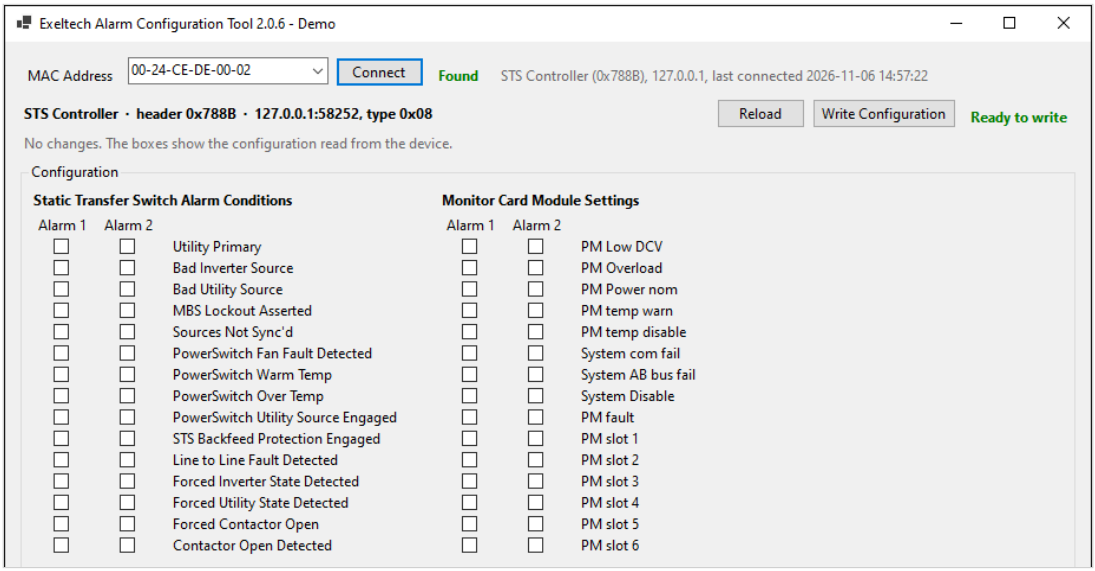


Figure 4.2. Connected to an STS controller

A UC monitor has the transfer switch's conditions, and the module conditions of its monitor card (Figure 4.3).

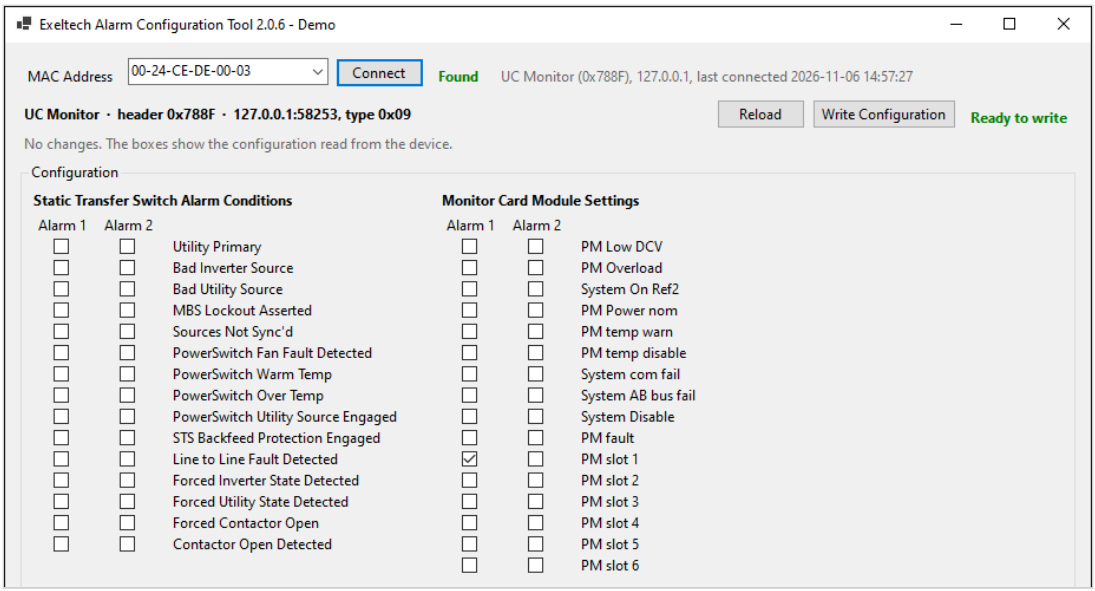


Figure 4.3. Connected to a UC monitor. Here, PM slot 1 raises Alarm 1

4.5 A Device the Tool Does Not Support

If the device reports a type that no format in `formats.ini` has, the device line says "Unknown device", the write status says "Not supported", and the tool shows no boxes (Figure 4.4). It writes nothing to such a device.

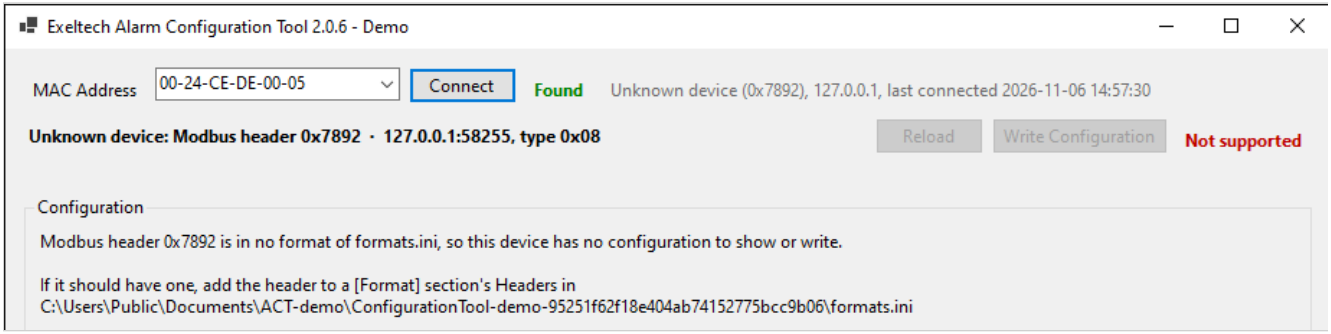


Figure 4.4. A device the tool does not support

4.6 When the System Is Not Found

If the system is found but can't be read, the status says "No Connection" and a message shows the reason. If no system answers within 5 seconds, the status says "Not Found". Check:

- the MAC address;
- that the PC and the system are on the same local network;
- that StatusBoost is not running: it uses the same port to find systems.

5. Changing the Alarm Configuration

5.1 Ticking and Clearing Boxes

Tick a box to make its condition raise that alarm; clear it so that the condition doesn't. While a box differs from the system, its row's label turns blue and bold, and the changes line lists what is not written yet (Figure 5.1). Set the box back, and the row looks as before.

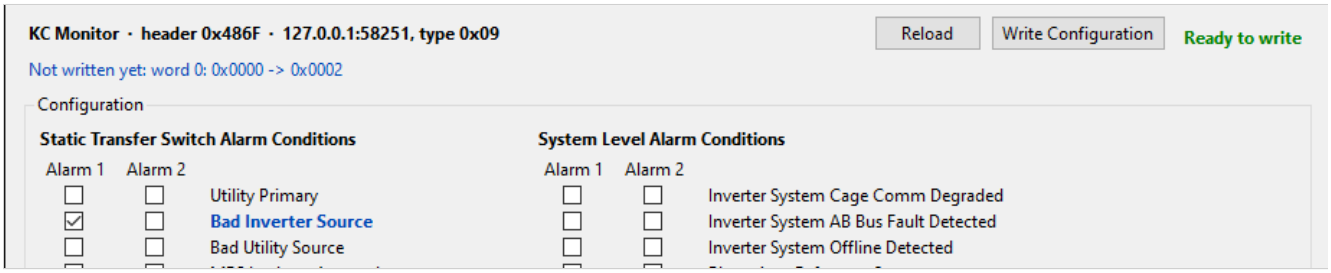


Figure 5.1. A changed row: Bad Inverter Source now raises Alarm 1

Nothing reaches the system until you click **Write Configuration**.

5.2 Writing the Changes

Click **Write Configuration**. The tool asks first, and shows the system it will write to, the changes, and how they are sent (Figure 5.2). Click **Yes** to write, or **No** to change nothing. If you changed nothing, it says "No changes detected." instead.

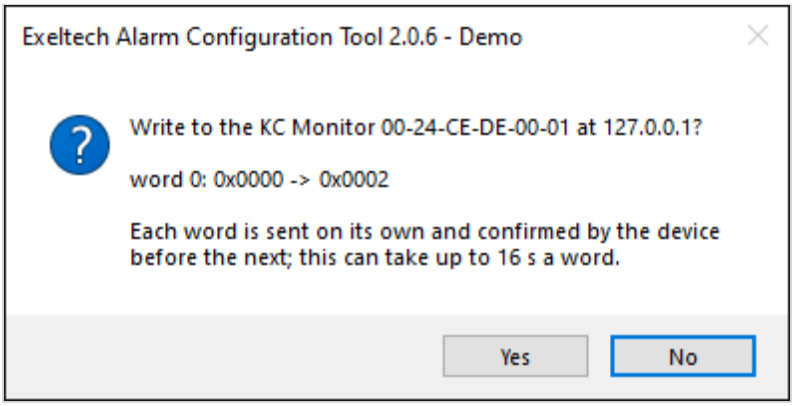


Figure 5.2. The question before a write to a KC monitor

Before it sends anything, the tool reads the system's type and configuration again:

- if the system now reports another type of device, it writes nothing;
- only the settings that change are sent, and in each, only the bits that have a box. Every other bit keeps the system's value.

5.3 How the Tool Confirms Each Change

After it sends a change, the tool reads the system until the system shows the new value. Then it goes on to the next change. How it sends and confirms depends on the device:

Device	How the changes are sent	How long it takes
KC Monitor, KC Transfer Switch	One setting at a time. The tool waits until the system shows each one before it sends the next	Usually 1 to 11 seconds a setting; up to 16 seconds
STS Controller	The changed settings go to the controller as whole groups, with the group's other settings as the controller holds them. The controller's own record of its settings, and that record's checksum, must show the change	Usually a few seconds; up to 16 seconds
UC Monitor	The four alarm settings go to the card together, with the card's other settings as it holds them. The card's own record of its settings, and that record's checksum, must show the change	6 to 23 seconds

STS controllers can restart their network card after a write. Their readings are then 0 for a few seconds, and come back a part at a time. The tool waits through this: after a write, and for 20 seconds after any reading that failed or came back as 0, it believes a reading only when the same reading comes back 1.5 seconds later.

UC cards refresh their readings about every 6 seconds, so the tool waits at least that long before it believes them. If the card's record of its settings doesn't match its checksum before a write, the tool sends nothing and says so.

The window stays responsive while the tool writes, and the log shows every step.

5.4 The Result

When the system has confirmed every change, the tool says so (Figure 5.3), the write status says "Write Success...", and the boxes show the configuration read from the system after the write.

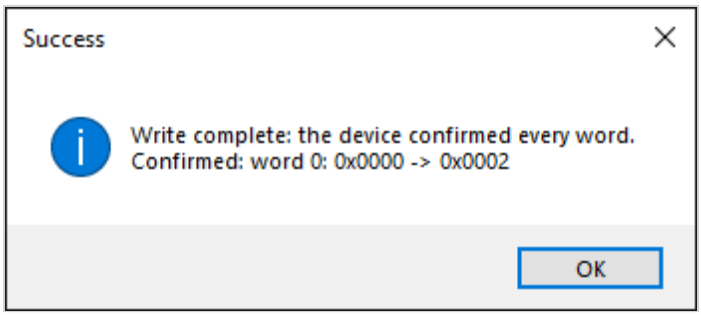


Figure 5.3. The write is complete

The log shows each step, with how long the system took to confirm each change (Figure 5.4).

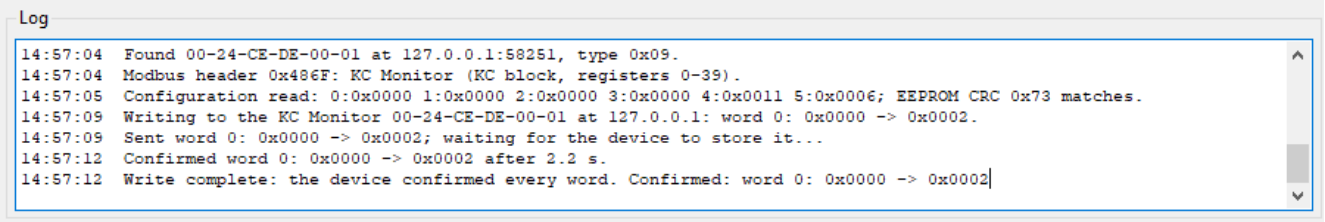


Figure 5.4. The log after a write

If the system does not confirm a change, the tool says what happened, and the write status says "Write Failure...":

The message says	What it means
Accepted but still reading the old value	The system took the change but still shows the old value. On a KC system, the setting may only take effect after the system restarts. On an STS controller or a UC card, it did not store it
Read back, but ... does not agree (or **did not confirm it**)	The value reads back, but the system's checksum of its settings doesn't confirm it. The system may not have saved it
The write stopped	Reading or writing failed, for example because the connection was lost. The reason follows
Not sent	The changes after the one that wasn't confirmed. The tool does not send them

Click **Reload** to see what the system holds now, then make your changes again if needed. If the tool could not read the configuration after the write, the write status says "Reload needed", and **Write Configuration** waits until you click **Reload**.

5.5 Reloading

Reload reads the system's configuration again and sets every box to match. If you have changes that are not written yet, the tool asks before it drops them. If the system now reports another type of device, the tool connects to it again.

5.6 Check the Alarms Afterwards

> **A wrong setting can keep a system from raising an alarm it should raise.** After every change, check that each system's alarms work as intended.

5.7 Closing the Tool

If you changed boxes and didn't write them, **Exit** asks before it closes the tool. Closing it during a write asks too: the write stops after the change being confirmed, and the changes after it are not sent.

6. Module Slots and Cages (KC Systems)

On a KC monitor and a KC transfer switch, the tool also shows two groups under the alarm groups (Figure 6.1):

- **Module Slot Configuration:** slots 1 to 11. Tick the slots the system has;
- **Cage Configuration:** the STS controller ("STS Ctrl") and cages 1 to 5. Tick the STS controller if the system has one, and each cage it has.



Figure 6.1. Here, slots 1 and 5 and cages 1 and 2 are ticked

These are written and confirmed as the alarm settings are (Section 5).

7. Trying It Without a System

The demo shows the tool with simulated systems, so you can try every step without a real one. Start the tool with `--demo`, from a Command Prompt in its folder:

```
ConfigurationTool.exe --demo
```

The window's title ends in "- Demo". The demo has five simulated systems, listed in the MAC Address box and in the log:

MAC address	Simulated system
`00-24-CE-DE-00-01`	A KC Skinny monitor
`00-24-CE-DE-00-02`	An STS controller
`00-24-CE-DE-00-03`	A UC monitor
`00-24-CE-DE-00-04`	A KC transfer switch
`00-24-CE-DE-00-05`	A device the tool does not support

The simulated systems answer on this PC (address 127.0.0.1), and they take a moment to confirm a change, as real systems do. The demo talks to nothing on your network. It keeps its own `formats.ini` and `instance.ini` in a temporary folder, which it removes when you close it. The pictures in this guide were taken in the demo.

8. Files, Privacy, Help and License

8.1 The Tool's Files

File	Where	What it holds
`formats.ini`	Beside `ConfigurationTool.exe`	The device formats: which boxes each type of device has, their labels, and the settings they change. Change it only if Exeltech asks you to. If it is missing, the tool writes it; if it has errors, the tool says so and uses its built-in formats
`instance.ini`	Beside `ConfigurationTool.exe`	The systems you connected to, by MAC address: the type of device, the address it answered from, when you last connected, the configuration read, and the last write and its result
The guide's copy	Windows' temporary folder	When you click **User Guide**, the tool copies this guide there to open it (Section 8.2)

`ConfigurationTool.exe --data <folder>` keeps `formats.ini` and `instance.ini` in that folder instead.

If the folder holds the `instance.json` of the earlier Python tool, version 1.0, the tool takes over its MAC address once, when it creates `instance.ini`.

To upgrade, replace `ConfigurationTool.exe` with the newer one, and keep `instance.ini`. If you haven't changed `formats.ini`, take the new one too. If you have, compare it with the new one and carry your changes over.

To uninstall, delete the folder. The tool keeps nothing anywhere else, apart from the guide's temporary copy, which Windows may clean up with its other temporary files.

8.2 The User Guide Button

User Guide copies this guide, which is built into the tool, to a temporary file and opens it in your PDF viewer. If no program on the PC opens PDF files, the tool says so, and names the download page where the guide is too.

8.3 The License

The tool is licensed under the Exeltech Alarm Configuration Tool License Agreement:

- **It is for Exeltech's customers, free of charge:** the owners and operators of Exeltech power systems, and those who install or service those systems for them.
- **Downloading, copying or using the tool is the acceptance:** the tool has no installer to ask.
- **You may copy it** for use by you and your organization, but not distribute it to others, who can download it from Exeltech.

- **You are responsible for the changes you make with it,** and for checking that each system's alarms work as intended.
- **It comes as is,** without warranty, and in no event is Exeltech liable for any claim, damages or other liability arising from its use.

Click **License** in the tool's window to read the whole agreement (Figure 8.1). It is also in `LICENSE.txt`, beside the tool and with every release, and on the download page.

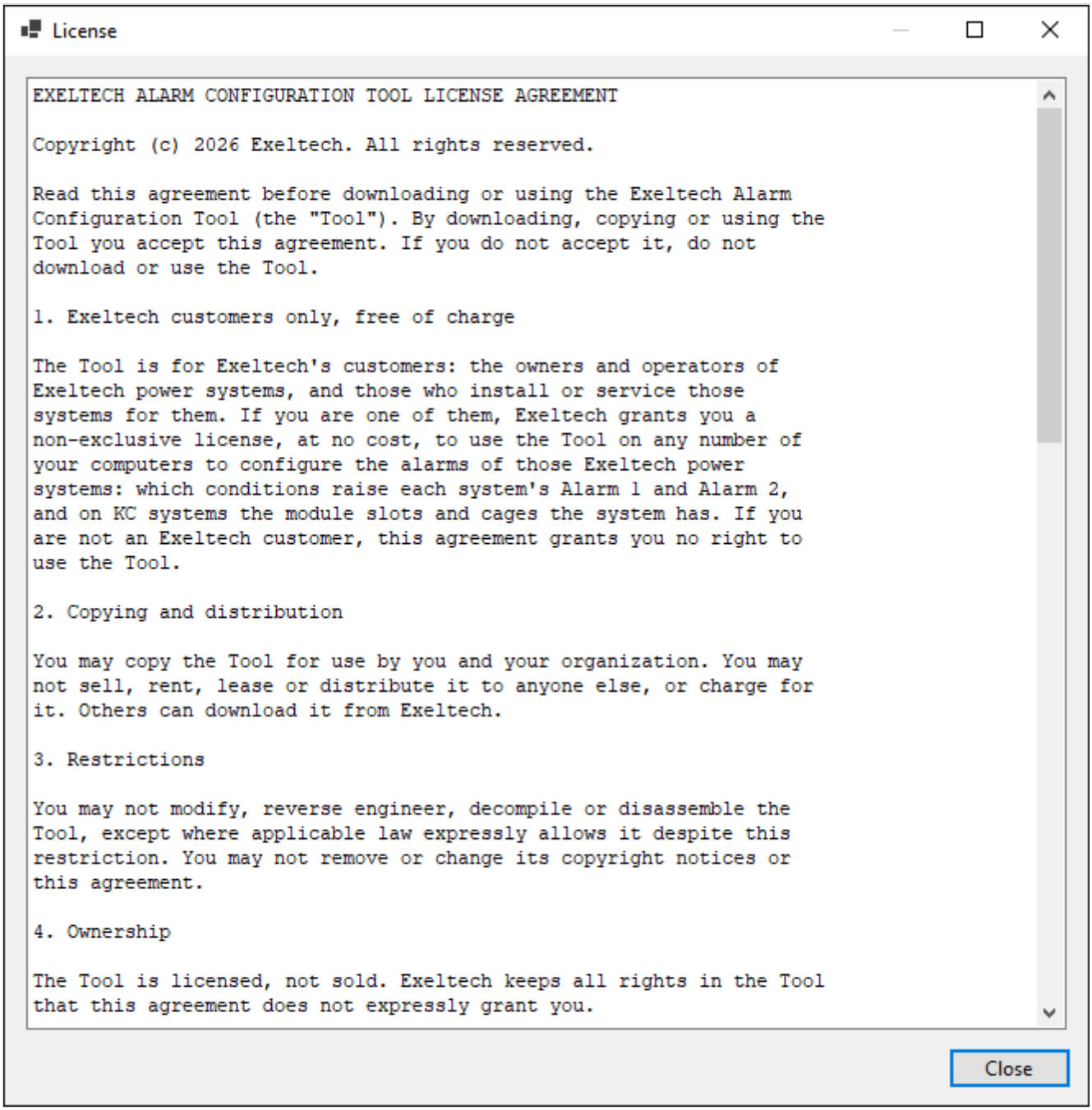


Figure 8.1. The License window

8.4 Privacy

Exeltech does not collect any information through the tool. It sends nothing about you, your PC, your systems or how you use it to Exeltech or anyone else. It has no analytics, no telemetry, no update checks and no user accounts.

The tool talks only to the Exeltech systems on your network:

What	How
Finds a system by its MAC address	A UDP broadcast on the local network, port 6006
Reads and writes the system's configuration	Modbus TCP, port 502

What it learns about your systems stays in `instance.ini`, on your PC.

8.5 Support

Contact Exeltech technical support: https://exeltech.com/contact-us/technical-support/. Say which version of the tool you use (it is in the window's title), and copy the log's text into your message.

Appendix A: Alarm Conditions by Device

These are the conditions as the tool labels them, group by group, in the window's order. Each condition has an Alarm 1 box and an Alarm 2 box.

A.1 KC Monitor and KC Transfer Switch

Static Transfer Switch Alarm Conditions

Utility Primary
Bad Inverter Source
Bad Utility Source
MBS Lockout Asserted
Sources Not Sync'd
PowerSwitch Fan Fault Detected
PowerSwitch Warm Temp
PowerSwitch Over Temp
PowerSwitch Utility Source Engaged
STS Backfeed Protection Engaged
Line to Line Fault Detected
Forced Inverter State Detected
Forced Utility State Detected
Forced Contactor Open
Contactor Open Detected

System Level Alarm Conditions

Inverter System Cage Comm Degraded
Inverter System AB Bus Fault Detected
Inverter System Offline Detected
Phase 1 on Reference 2
Phase 2 on Reference 2
Phase 3 on Reference 2
Cage Not Detected

Module Level Alarm Conditions

Module Offline Detected
Module Overload Detected
Module Low DCV Detected
Module Temp Warning Detected
Module Marginal Load Level Detected
Module Not Detected
Module Fault Detected

Module Slot Configuration: slots 1 to 11. **Cage Configuration:** STS Ctrl, and cages 1 to 5 (Section 6).

A.2 STS Controller

Static Transfer Switch Alarm Conditions: as for the KC monitor (A.1).

Monitor Card Module Settings: the module conditions the STS controller receives from its System Monitor.

PM Low DCV
PM Overload
PM Power nom
PM temp warn
PM temp disable
System com fail
System AB bus fail
System Disable
PM fault
PM slot 1
PM slot 2
PM slot 3
PM slot 4
PM slot 5
PM slot 6

A.3 UC Monitor

The UC monitor, with or without a transfer switch.

Static Transfer Switch Alarm Conditions: as for the KC monitor (A.1).

Monitor Card Module Settings: the module conditions of the UC monitor card.

PM Low DCV	System com fail	PM slot 3
PM Overload	System AB bus fail	PM slot 4
System On Ref2	System Disable	PM slot 5
PM Power nom	PM fault	PM slot 6
PM temp warn	PM slot 1	
PM temp disable	PM slot 2	

"PM" is a power module.