

B1 Stand-Alone Configurator User Guide

v1.3
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1 Introduction

This document describes the functionality of the graphical user interface which is used to operate the RFID B1 module and other B1-based readers (e.g. the USB-B1) with polling mode. The B1 Stand-Alone Configurator is a very useful tool which allows for simple configuration of polling in the B1 module, addition new tags to the whitelist, removal of the tags and export all the configuration to a *.txt file.

Chapter 2 includes instructions on how to get started with the B1 Stand-Alone Configurator and how to connect it to the B1 based module family of products.

The B1 Stand-Alone Configurator is divided into 2 panels: the Whitelist panel and the Polling configuration Panel. Each of them is described in detail, with examples in chapter 3. Section 3.1 describes the Whitelist panel and section 3.2 describes the Polling configuration panel.

Chapter 4 contains information about possible warnings the user may encounter when using the B1 Stand-Alone Configurator and testing B1 based modules.

All examples described in this document were done using the USB-B1 v1 reader.

2 Quick start guide

2.1 Minimum software requirements

The application is designed to be used in the Microsoft® Windows® environment. The B1 Stand-Alone Configurator requires the Microsoft .NET 4.0 Framework or higher. This can be found at:

<https://www.microsoft.com/en-US/download/details.aspx?id=17851>

2.2 Software installation

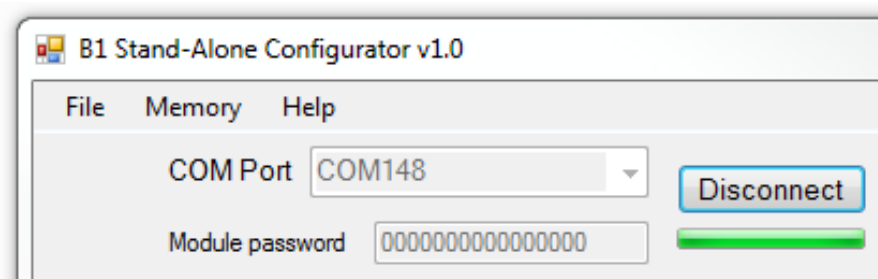
To install the B1 Stand-Alone Configurator, download the latest version from our website <http://www.eccel.co.uk/wp-content/uploads/B1Polling.zip>, extract the zip file and start the B1 Stand-Alone Configurator.

Connect the B1-based reader, e.g. the USB-B1 to the PC via the USB interface, make sure that the jumpers responsible for selecting the antenna type are properly set up. All required drivers should install automatically. Once the driver is installed, it will need to find the number of the COM Port that has been set up.

Open the Device Manager, look in *Ports (COM & LTP)* and find the COM Port which was created by the USB driver e.g. *USB Serial Port (COM 28)*.

2.3 Connecting the reader

In the main window of the B1 Stand-Alone Configurator chose the proper COM port and click *Connect* button. Below there is a text box where the user should enter the module password. The default password is "0000000000000000". This password protects the user memory in all B1-based modules. If the user changed the default password for another one then in this text box they must write their own password. The Baud Rate is set to 9600 by default and cannot be changed in this application. When everything is properly set up the *Connect* button will change into the *Disconnect* button and the progress bar below the Connect/Disconnect button will achieve 100% of its value.



3 Interface description

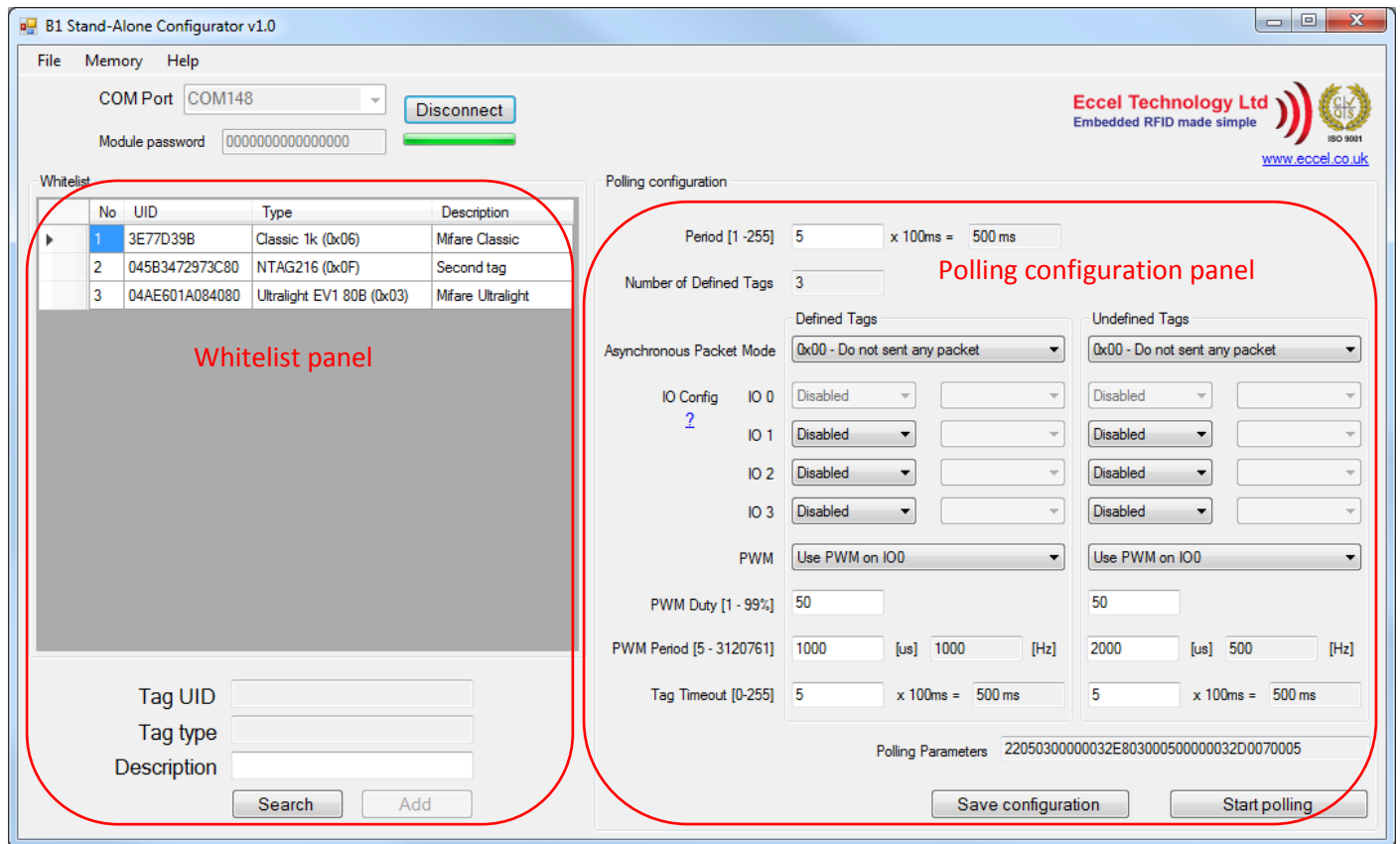


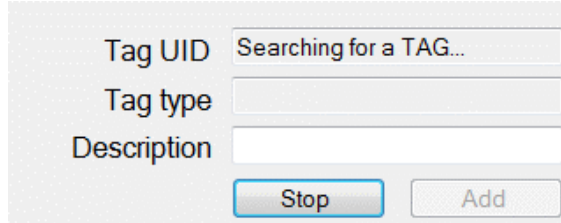
Figure 3-1 B1 Stand-Alone Configurator user interface description

3.1 Whitelist panel

The Whitelist panel contains a list of defined tags. Readers with default manufacturing settings have an empty whitelist. The user can add a tag to the whitelist by clicking the “Search” button and after a successful RFID tag reading click the “Add” button which will cause the addition a new tag to the whitelist. Adding and removing procedures are described below.

3.1.1 Adding a new tag to the whitelist

1. Click the “Search” button. It will change into the “Stop” button.



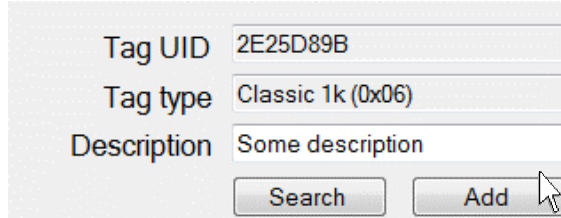
Tag UID Searching for a TAG...

Tag type

Description

Stop Add

2. If the reader finds a tag, the application will show the tag’s UID and the tag’s type.



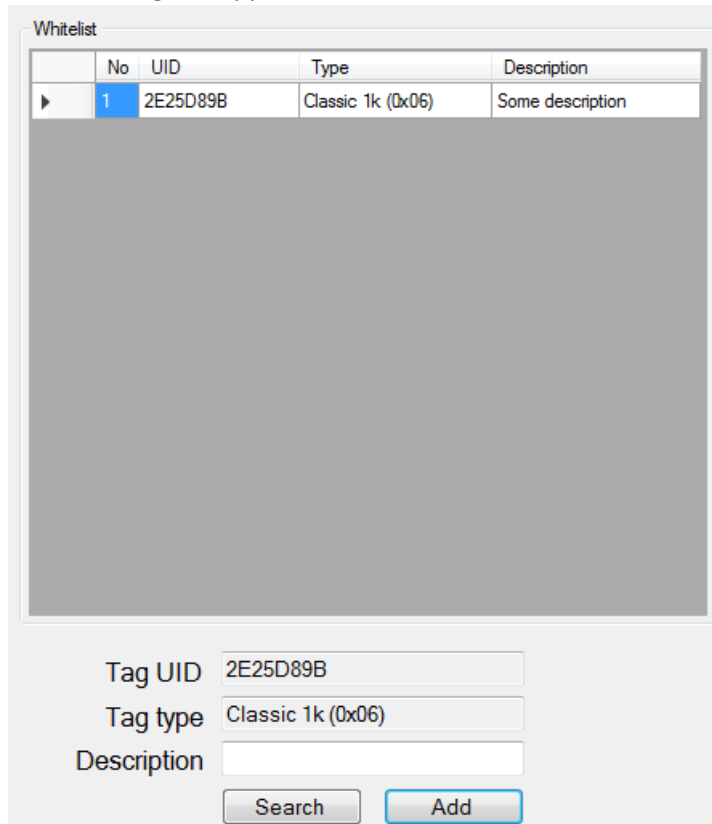
Tag UID 2E25D89B

Tag type Classic 1k (0x06)

Description Some description

Search Add

3. By click the “Add” button the new tag will appear on the Whitelist above.



Whitelist

No	UID	Type	Description
1	2E25D89B	Classic 1k (0x06)	Some description

Tag UID 2E25D89B

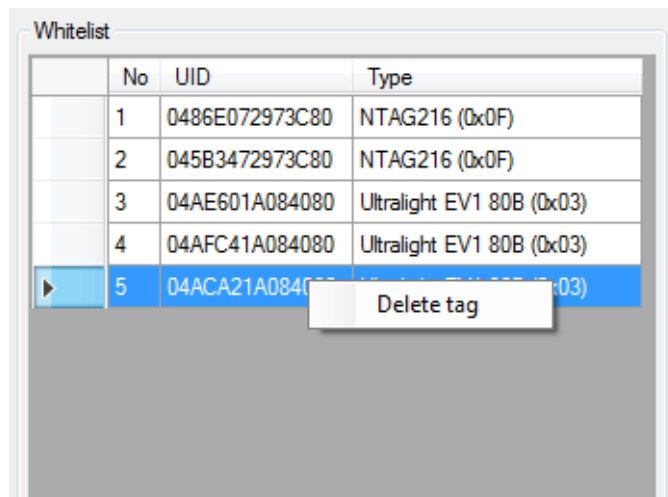
Tag type Classic 1k (0x06)

Description

Search Add

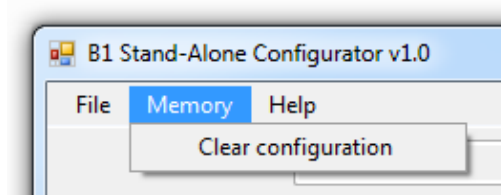
3.1.2 Removing a tag from the whitelist

I option. Click the right mouse button on a tag and select “Delete tag” form the context menu.



II option. Select a tag and press the “Delete” button on the keyboard.

III option. Select *Memory* -> *Clear configuration*.



3.2 Polling configuration panel

3.2.1 Parameters

The screenshot shows a 'Polling configuration' window with the following settings:

- Period [1 -255]:** 5 x 100ms = 500 ms
- Number of Defined Tags:** 3
- Asynchronous Packet Mode:** 0x00 - Do not sent any packet (for both Defined and Undefined Tags)
- IO Config:**
 - IO 0: Disabled
 - IO 1: Enabled, Output low
 - IO 2: Enabled, Output low
 - IO 3: Disabled
- PWM:** 0x00 - Use PWM on IO0 (for both Defined and Undefined Tags)
- PWM Duty [1 -99%]:** 50
- PWM Period [5 -3120761]:** 1000 [us] 1000 [Hz] (for Defined Tags); 2000 [us] 500 [Hz] (for Undefined Tags)
- Tag Timeout [1-255]:** 5 x 100ms = 500 ms
- Polling Parameters:** 22050300600032E803000500000032D0070005
- Buttons:** Save configuration, Start polling

Figure 3-2 Example polling parameters with 4 defined tags in the user memory.

Short description of all polling parameters is presented below. The user can configure different parameters for defined tags and different for undefined tags:

1. **Period** – decimal value from 1 to 255 which indicates the delay between attempts to detect a tag presence. The real polling period equals the period value multiply by 100 ms.
2. **Number of defined tags** (Read Only) – states how many UIDs are stored in the user memory.
3. **Asynchronous Packet Mode** – defines in which format UID will be sent via UART interface:
 - Async – Module sends Asynchronous Packet with UID information.
 - Binary – Module sends <UID0Size><UID0>...<UIDnSize><UIDn> as binary values. If a tag is on the whitelist then only one UID is sent.
 - String – Module sends UIDs in string format. If a tag is on the whitelist, then only one UID is sent.
4. **IO Config** – Configuration of all GPIOs. The user can enable or disable a GPIO and set the low or high state.
5. **PWM** - Defines which PWM channel will be used.

6. **PWM Duty** - Duty.
7. **PWM Period** – decimal value from 5 to 3120761 which indicates PWM period in us. The application also calculates the corresponding frequency using the formula: $\text{PWM frequency [Hz]} = 1 / \text{PWM Period[s]}$.
8. **Tag Timeout** – decimal value from 1 to 255 which indicates the delay between a tag detection and polling restart. The real Tag timeout equals the Tag timeout decimal value multiply by 100 ms.

At the bottom there is a text box named “Polling parameters”. It contains all polling parameters in a one string.

3.2.2 Buttons

Save configuration – this button saves the polling configuration and the whitelist of defined tags in the user memory. After restart these parameters will be still in the memory. This button also saves all polling parameters and the whitelist in the “B1PollingConfigurator_ListOfTags.txt” file in “Documents” folder on the User’s PC.

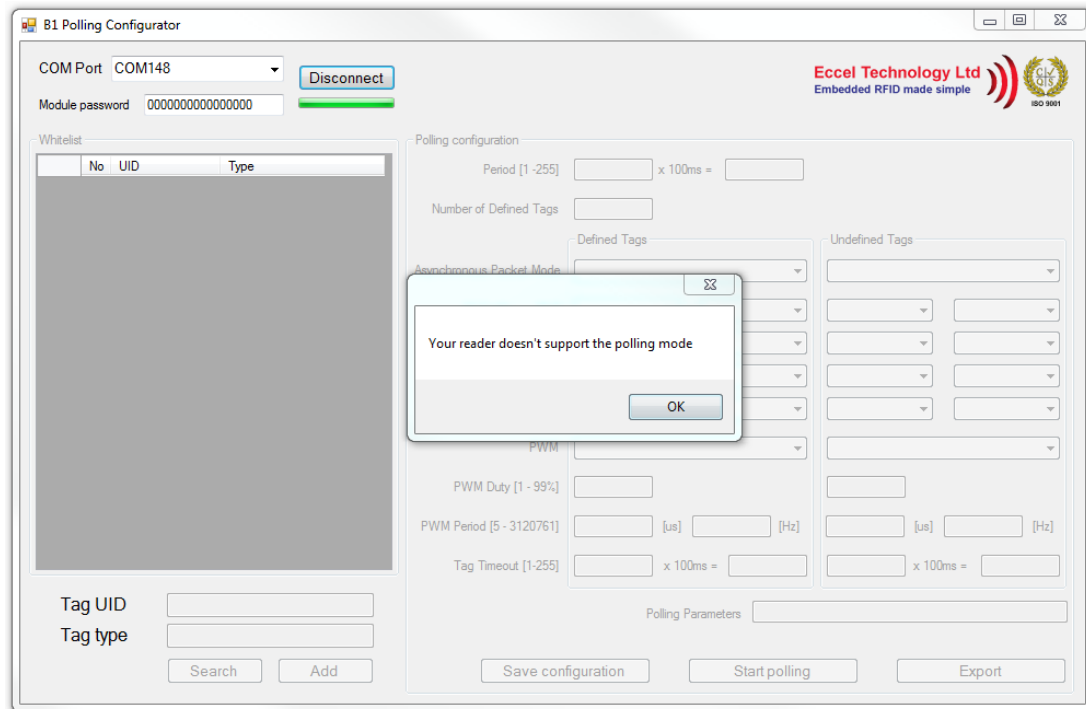
Start polling – this button starts the polling. User can test polling without reconnecting the reader from the power supply. When polling mode is active this button will change into the “Stop polling” button. When the user changes polling parameters they should save the configuration firstly and then press the “Start polling” button. Starting polling after changing polling parameters but without saving them will not give any results.

4 Troubleshooting

During using the B1 Stand-Alone Configurator some warnings may appear:

1. Your reader doesn't support polling mode.

The firmware inside the reader is older than version 2.0. This reader doesn't support polling. The user can buy a new module with polling mode from our website www.eccel.co.uk or send the old one to us in order to reprogram it.



2. Invalid command parameter.

This warning indicates that polling parameters are not properly set up. The warning appears when one or more polling parameters are out of the range or unpermitted. Two examples of invalid command parameters are shown below.

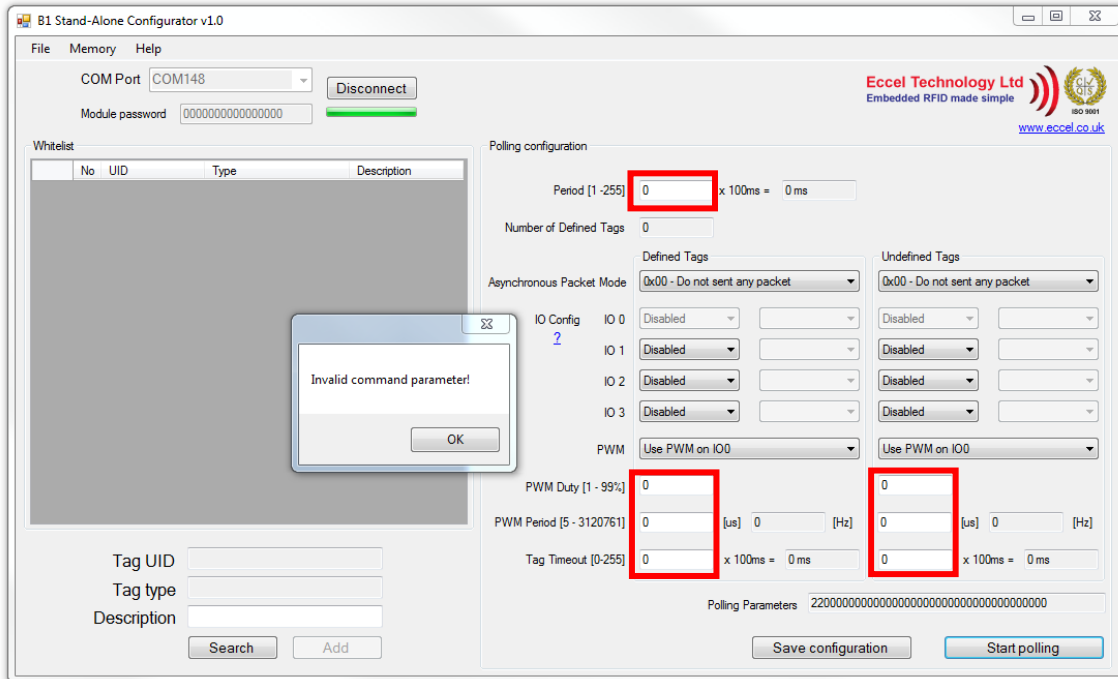


Figure 4-1 Example of invalid command parameter (values out of range).

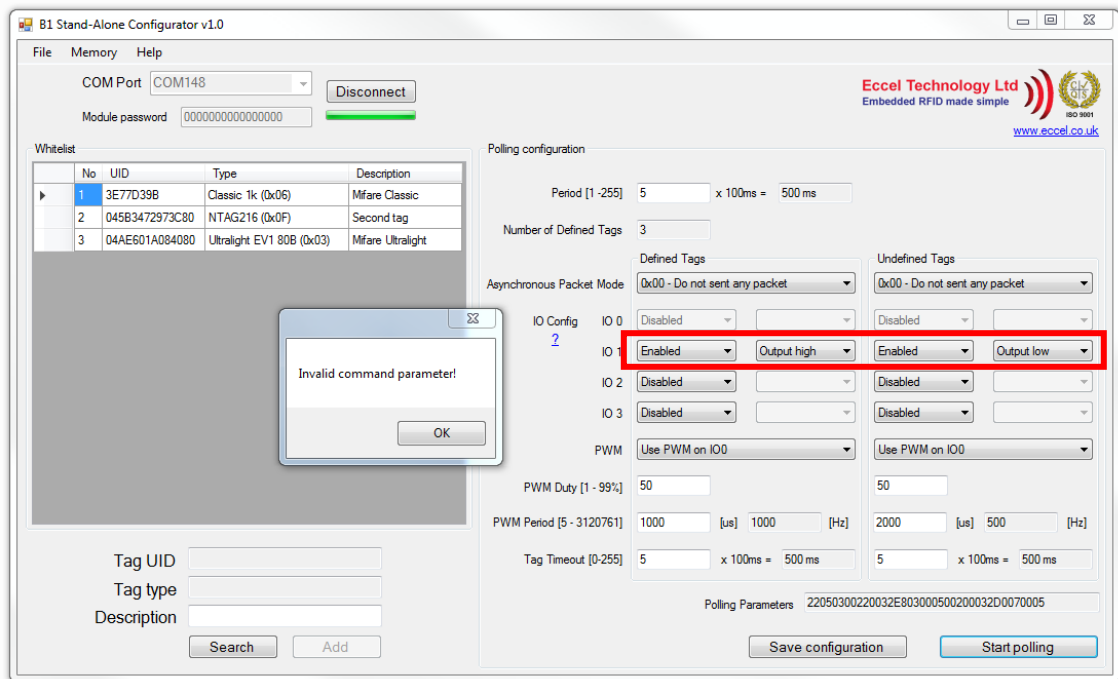


Figure 4-2 Example of invalid command parameter (unpermitted state of IO's).

3. Invalid Password

The default password for all B1-based modules is “0000000000000000”, but it can be changed e.g. by using the B1 Client (<http://www.eccel.co.uk/wp-content/uploads/B1Client.zip>). When the user enters an incorrect password this warning will appear.

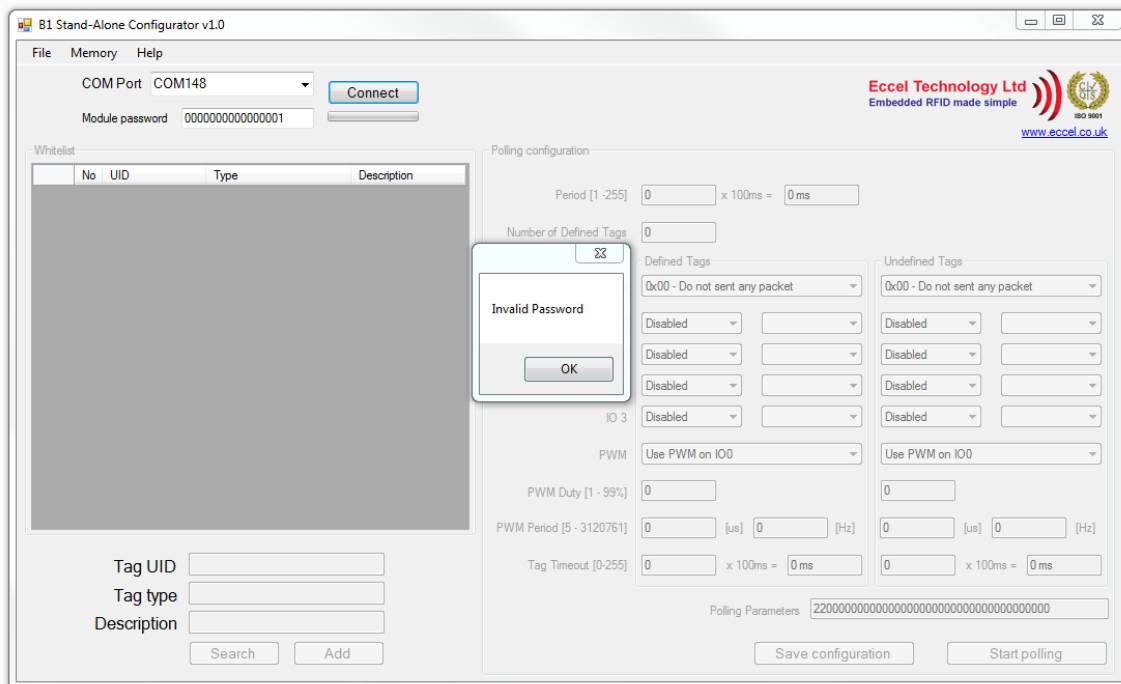


Figure 4-3 Example of Invalid Password.

4. This tag is already on the Whitelist

This warning appears when the user is trying to add a tag which is already on the whitelist.

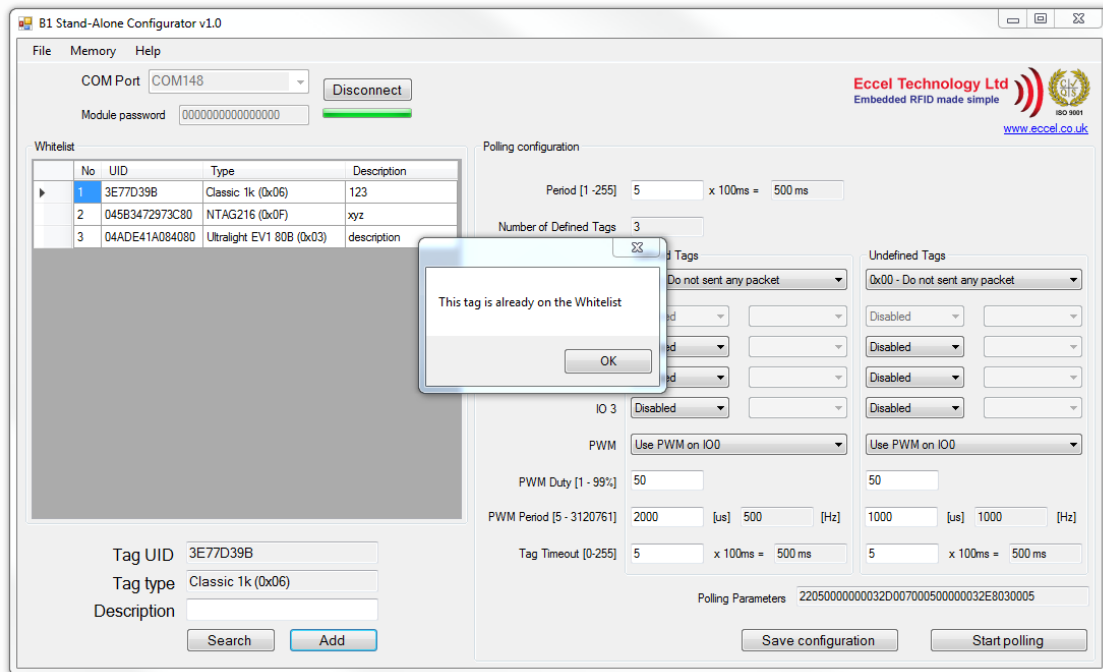


Figure 4-4 The tag is on the whitelist.

5. The Whitelist memory overloaded

This warning appears when the user memory for whitelist is overloaded. The B1-based reader user memory is 128-bytes length and can contain at most 21 tags with 4-bytes UID (e.g. Mifare Classic 1k).

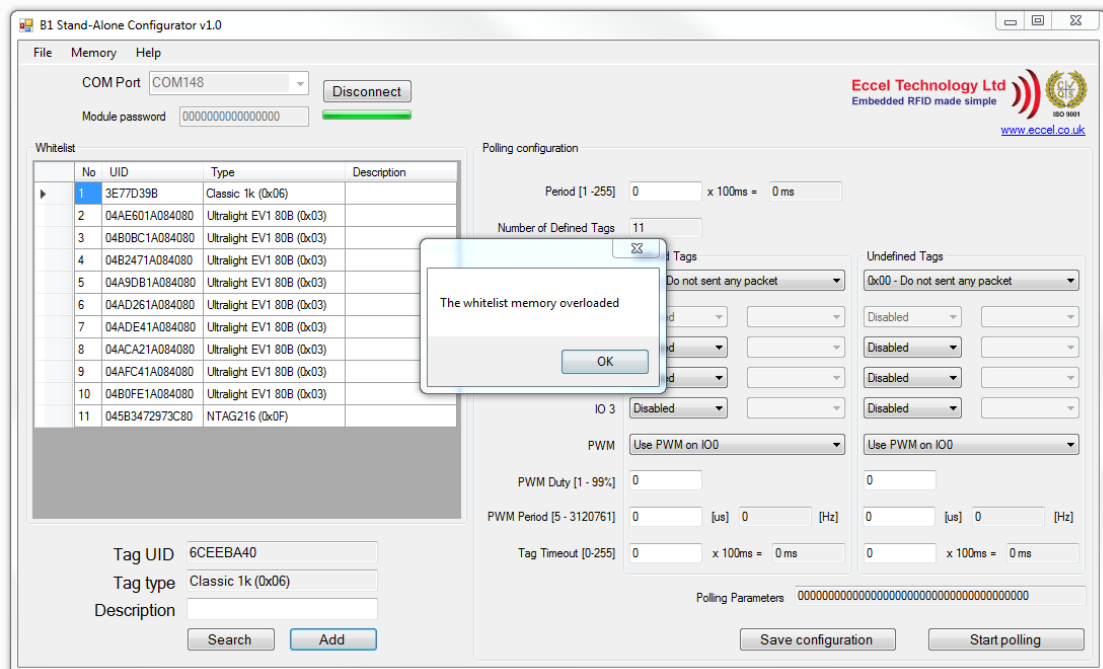


Figure 4-5 Example of the whitelist overloaded.

No responsibility is taken for the method of integration or final use of the B1 based modules

More information about the B1 module and other products can be found at the Internet site:

<http://www.eccel.co.uk>

or alternatively contact ECCEL Technology (IB Technology) by e-mail at:

sales@eccel.co.uk