



Industrial Data Xchange

The Industrial Data Communications Experts

Setting up the ProfiTrace Troubleshooting Kit

Technical Guide



A step-by-step process for configuring your ProfiTrace Troubleshooting Kit, ensuring that you are equipped with the knowledge and resources to effectively utilise this powerful tool for diagnosing and resolving issues within your PROFIBUS networks.

What is covered in this guide:

- Terminology • Additional resources • Required software • Connect ProfiCore
- Initialise ProfiCore • Review live list for errors • Generate ProfiTrace reports • Training

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1. Introduction

Congratulations on purchasing the ProfiTrace Troubleshooting Toolkit.

In this guide, we will walk you through the step-by-step process of configuring your ProfiTrace Troubleshooting Kit, ensuring that you are equipped with the knowledge and resources to effectively use this powerful tool for diagnosing and resolving issues within your PROFIBUS networks.

Whether you are a seasoned technician or new to the field, this guide will provide the essential information needed to get started quickly and efficiently. Let us dive in and harness the full potential of your ProfiTrace Troubleshooting Kit.

2. Terminology

Before you start reading this guide, it will be helpful if you become familiar with the following terminology:

- ProfiTrace Software: The software used to diagnose your PROFIBUS network.
- ProfiCore Ultra: The hardware device required to use and run ProfiTrace.
- PC: Stands for personal computer (Windows laptop, Windows tablet, Windows PC).

3. Additional resources

IDX offers an in-depth video tutorial demonstrating how to use ProfiTrace effectively, including the identification and interpretation of various issues within your PROFIBUS network based on displayed characteristics. You can access this tutorial on our YouTube channel.

- Link to YouTube channel: <https://www.youtube.com/@IndustrialDataXchange>
- Link to ProfiTrace tutorial: <https://www.youtube.com/watch?v=s1qOF7EZopk>

4. Required software

To begin troubleshooting on your network, you will need to download and install ProfiTrace from: <https://www.anybus.com/technical-support/pages/files-and-documentation?ordercode=38022>

Alternatively, you can manually navigate to **Anybus.com** -> hover over **'Products'** on the Menu -> select **'Diagnostics'** -> click on **'See all products'** -> scroll down to ProfiTrace.

There are multiple versions of the ProfiTrace software, but we recommend downloading the latest version:

SOFTWARE			
Profitrace V2.9.8	2.9.8	104.08 MB	 Download
Profitrace V2.9.9	2.9.9	46.26 MB	 Download

Figure 1: ProfiTrace Software Versions

5. Connect ProfiCore

Once ProfiTrace is installed, open the program by clicking on the following icon:



Figure 2: ProfiTrace Software Icon

Next, you will need to connect ProfiCore to your PC. The ProfiCore is the hardware interface that will read and translate the electrical characteristics of your PROFIBUS network.



Figure 3: ProfiCore Ultra Hardware

This task can be accomplished using the USB AB cable. The USB-A side is the standard flat, rectangular plug, which is connected to your PC, and the USB-B side is the square plug with two curved edges which is connected to your ProfiCore.



Figure 4: USB AB Cable

6. Initialise ProfiCore

After opening the ProfiTrace software and connecting the ProfiCore via the USB port, initialise your ProfiCore by clicking on the 'Init ProfiCore Ultra' button illustrated in yellow in the screenshot that is visible on the next page.

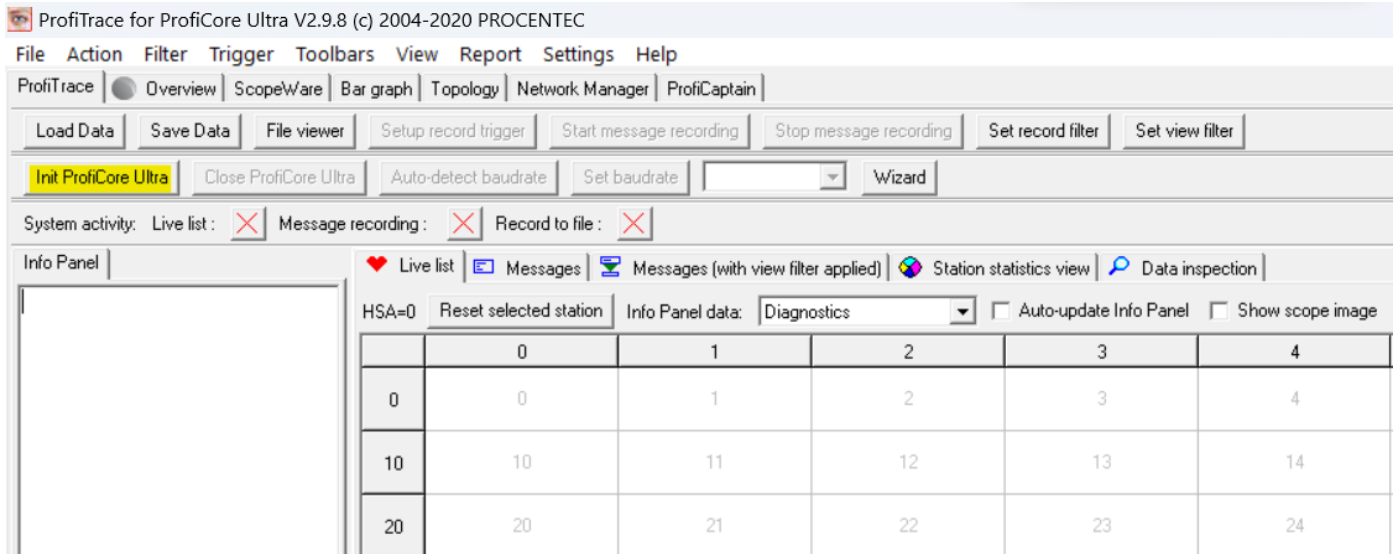


Figure 5: Location of Init ProfiCore Ultra button

Upon initialising the ProfiCore, a prompt may arise to update its software license. The license is linked to the serial number of the ProfiCore. This means that a single ProfiCore can be used with multiple PC devices. Every time you connect your ProfiCore to a new PC, you will receive a prompt to update the licenses. However, if you have downloaded the license for a particular PC once, you would not need to download it again.

It is important to note that an internet connection is necessary to update the licenses for the ProfiCore. The file size is less than 1 MB. There is a chance that ProfiTrace might not prompt you to update your license. In such instances, you will have to manually update the license for the specific PC you are using.

If you do not receive an automatic prompt to update your license but encounter a license error preventing the initialisation of your ProfiCore Ultra (you should receive an error indicating the license is not updated), you can manually update the license by accessing the **'Help'** tab.

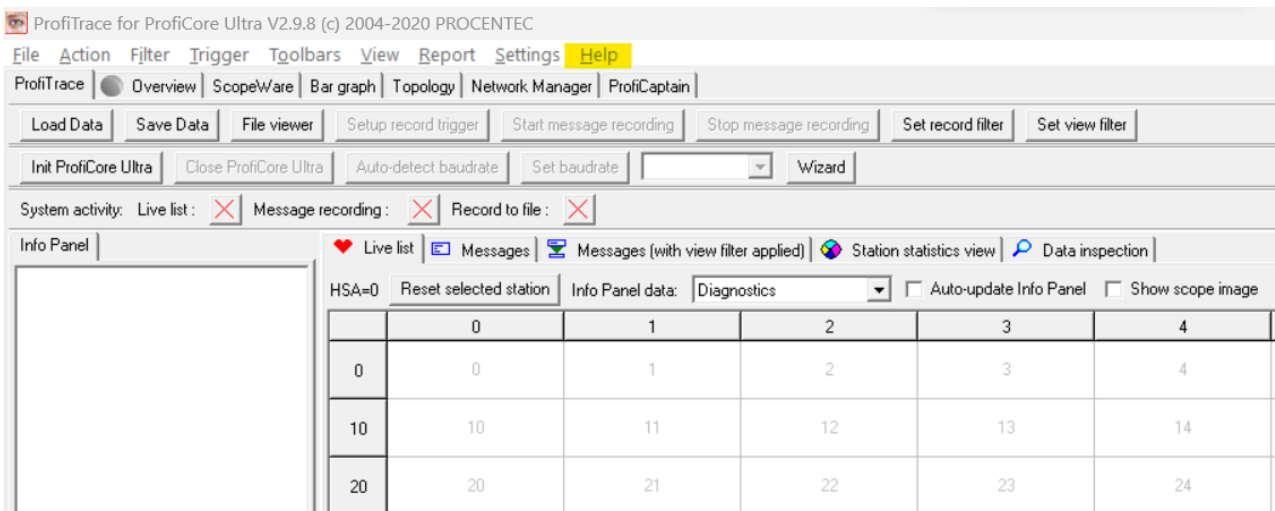


Figure 6: Location of the Help tab

From the 'Help' tab, navigate to 'License info tool'.

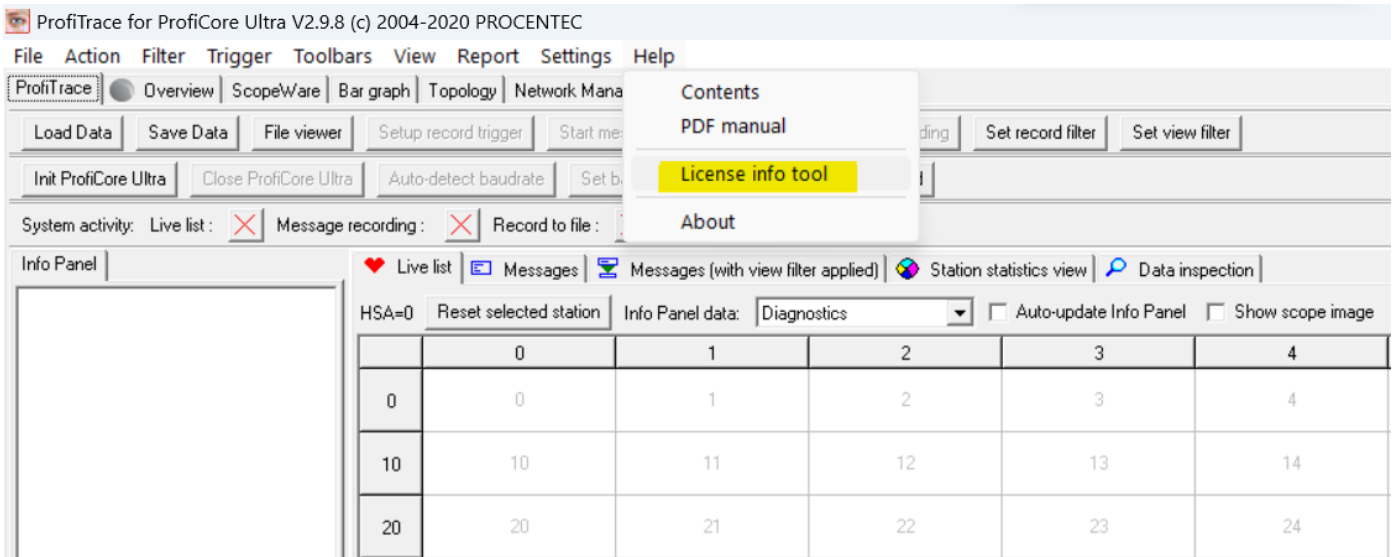


Figure 7: Location of License info tool

This will open a window with a few options. To automatically update all licenses, click on 'Download & install license (*)'.

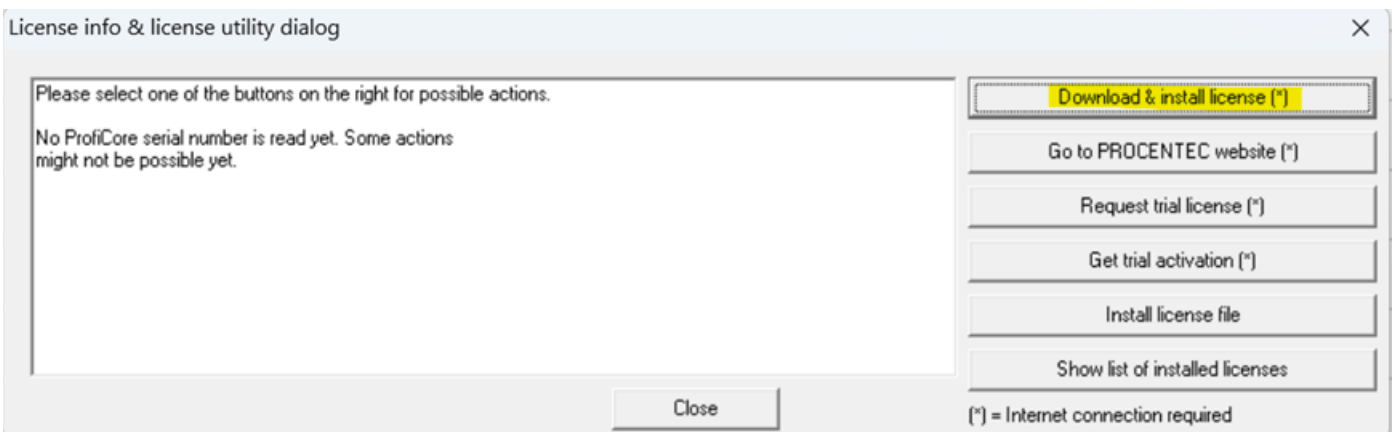


Figure 8: Location of Download & install license (*)

After updating your licenses, it is advisable to re-initialise your ProfiCore device. A pop-up window will appear to detect your network's baud rate.

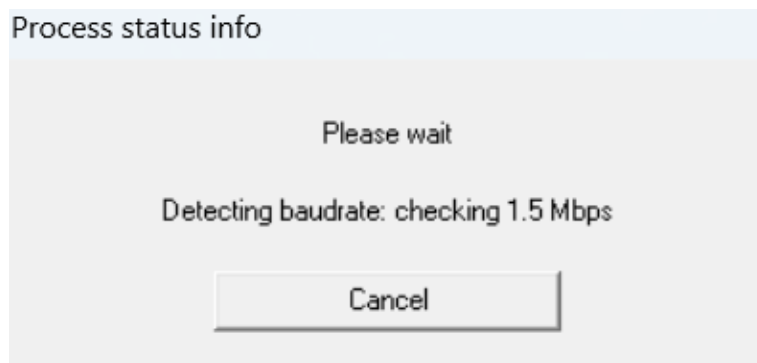


Figure 9: Baud rate status information

If the ProfiCore is unable to automatically detect the baud rate, the PROFIBUS PLC might be experiencing a communication error.

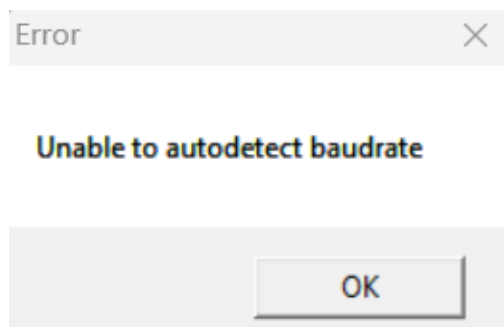


Figure 10: Baud rate error

If successful, a window will indicate that the baud rate has been detected, and the oscilloscope has been set up. You will also see a colour indicator of your network in **'Overview'**:

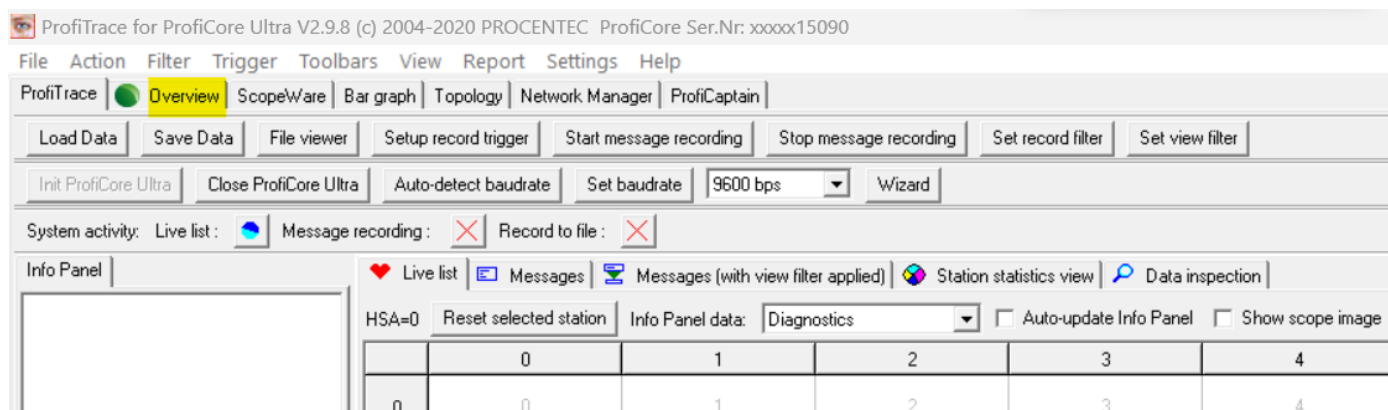


Figure 11: Colour indicator of network

From the **'Overview'** page you can view the status of your network.

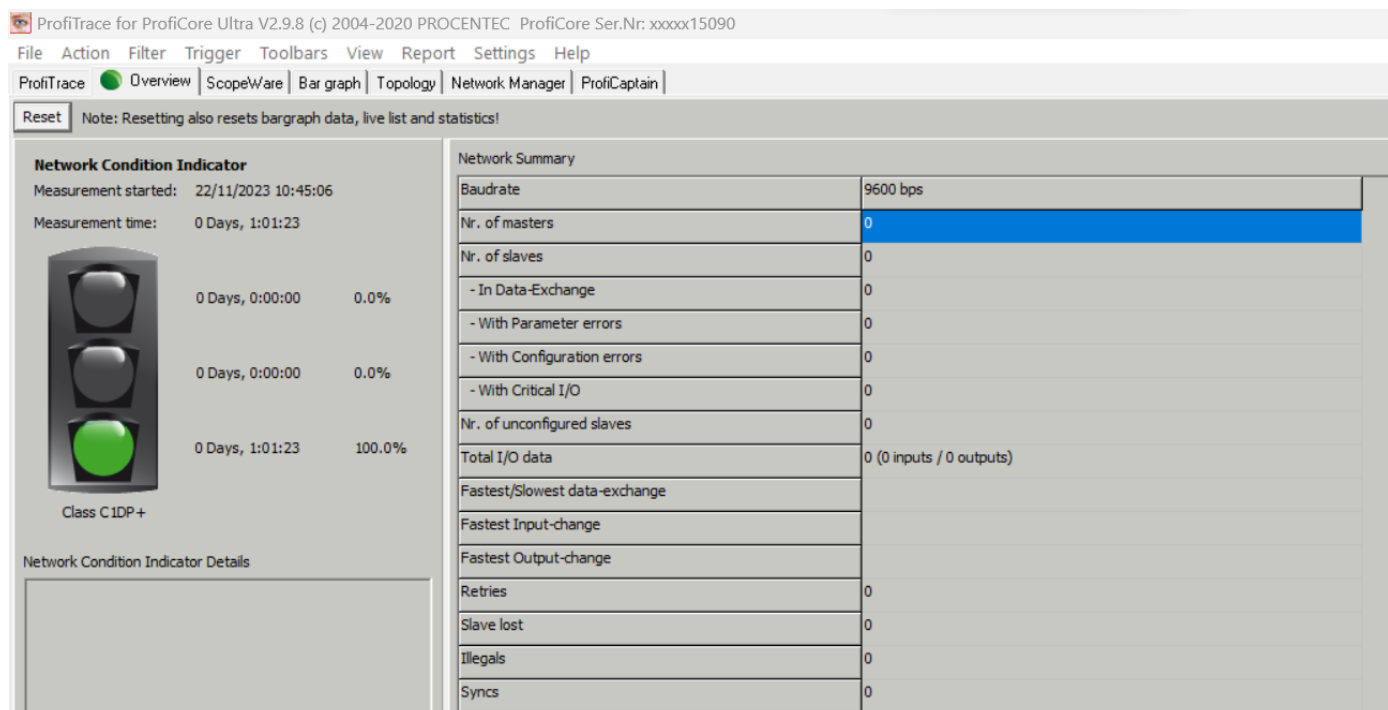


Figure 12: View the status of your network

The **'Network Condition Indicator'** (overview tab) gives a general idea of the health of the PROFIBUS system. A traffic light indicates if the PROFIBUS network is okay (green), has problems but still runs (yellow) or has problems needing urgent attention (Red).

As a general guideline:

- **Green** indicates 60% to 100% health.
- **Yellow** indicates 40% to 59% health.
- **Red** indicates below 40% health.

After initialising your ProfiCore and ensuring it is engaged in data exchange, review your live list for any errors.

7. Review the live list for errors

The live list comprises all devices and their PROFIBUS addresses. Various errors are depicted with different colours, represented by a small square within a block.

- **Green** indicates the device is in data exchange.
- **Yellow** indicates the device is lost.
- **Red** indicates a parameter fault.
- **Purple** indicates a configuration fault.
- No colour indicates the device is on the bus but not in data exchange.

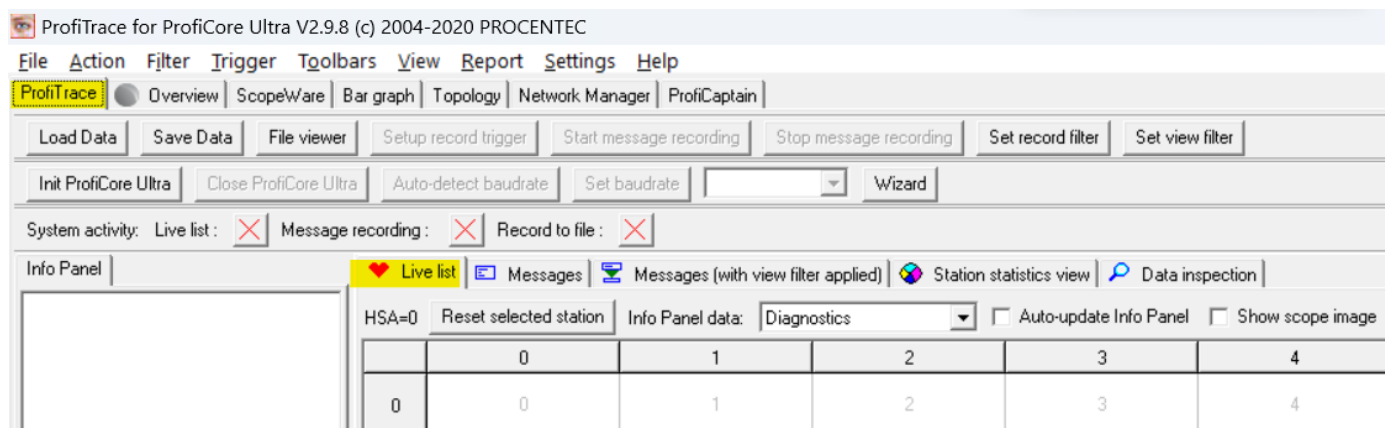


Figure 13: View of the Live List

On the **'Live List Page'** (located under the ProfiTrace tab, highlighted in yellow in the image above), you can view messages, station/device statistics, inspect data, and initiate message recording.

Additionally, you can view the oscilloscope image for each specific device:

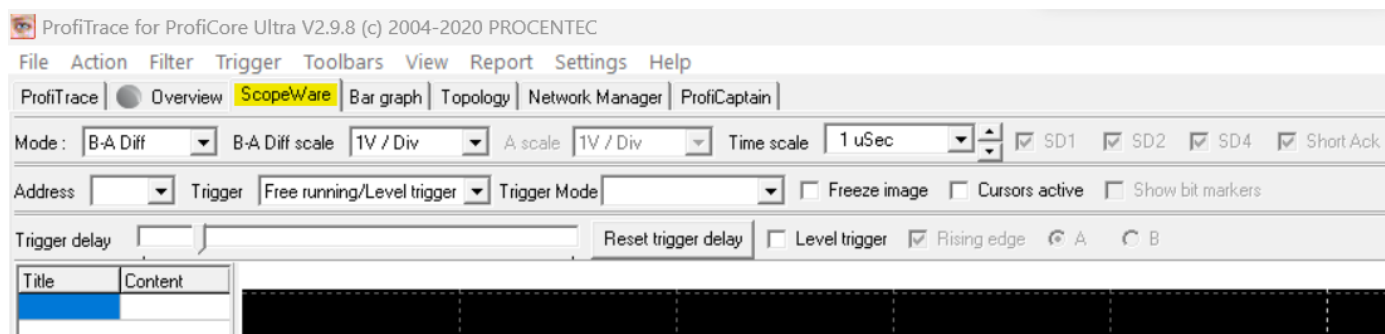


Figure 14: View of oscilloscope image

You should see a waveform as illustrated below:

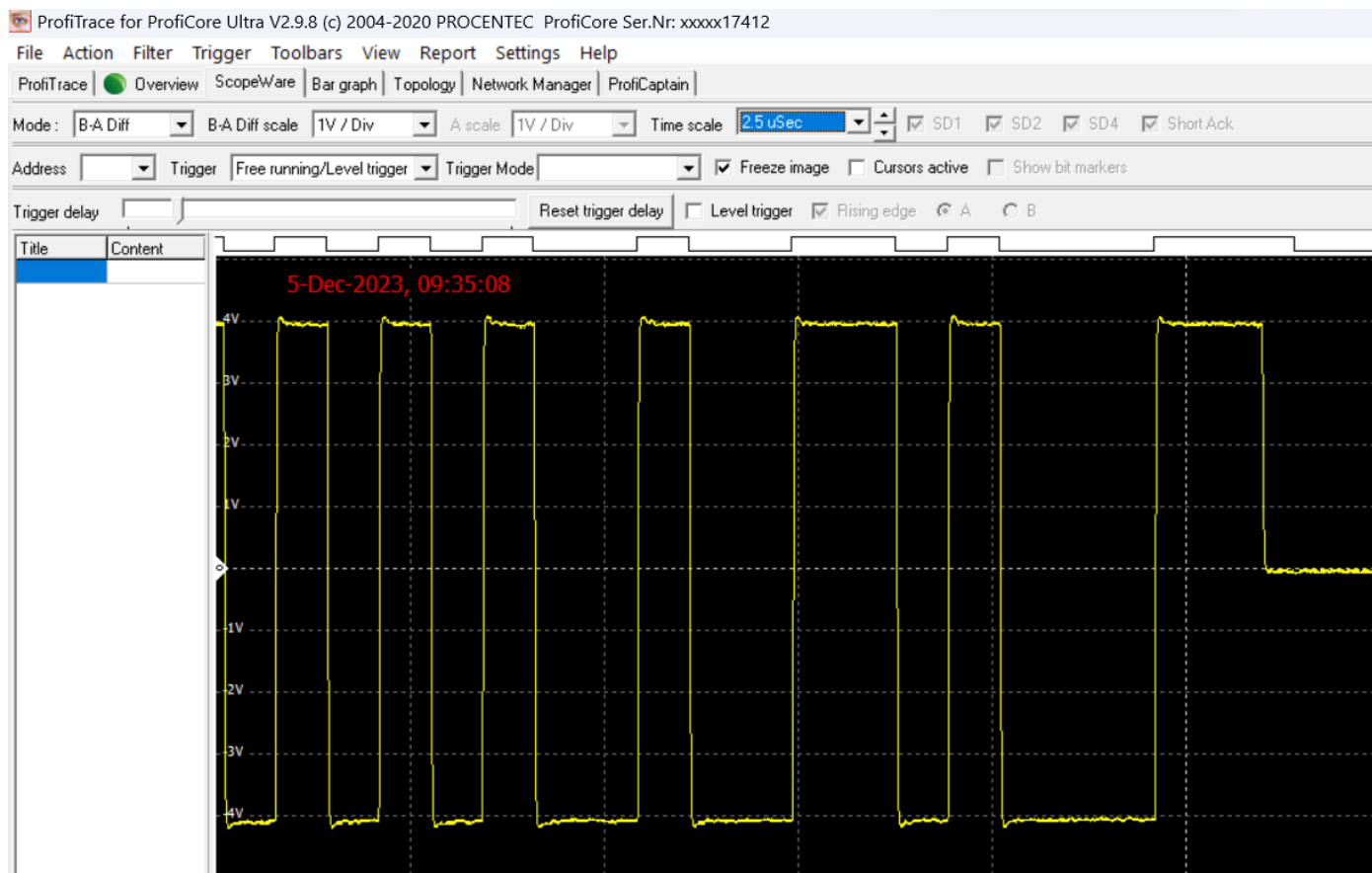


Figure 15: Example of waveform

The A and B cores of the PROFIBUS RS485 cable can be examined individually, by viewing the A & B cores separately:

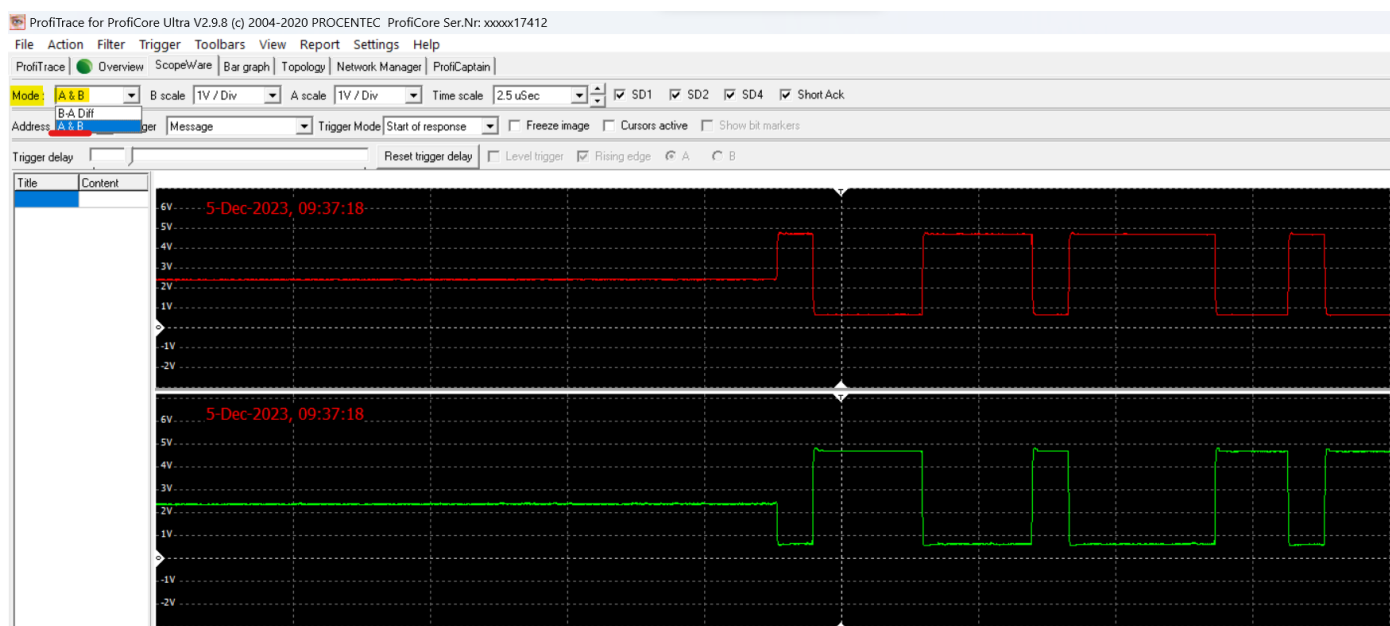


Figure 16: View of the A & B core

Examining the A and B cores separately allows for precise evaluation of electromagnetic compatibility (EMC) and noise issues. This enables targeted troubleshooting and mitigation strategies to ensure optimal signal integrity and reliability in PROFIBUS RS485 communication.

View the driver voltages of each specific device:

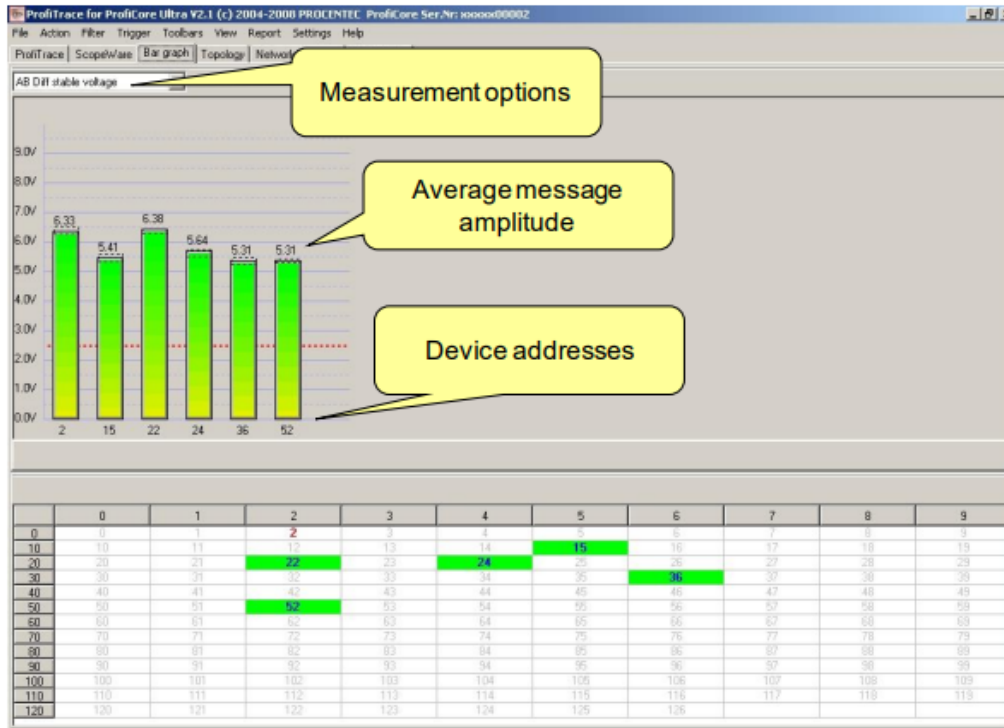


Figure 17: View of the driver voltages in a bar graph

8. Generate ProfiTrace Reports

The feature of generating reports enables you to monitor alterations within your network by producing weekly or monthly reports and comparing these changes with waveforms and driver voltages. This ensures the maintenance of a consistent level of health quality within your network. Moreover, the capability to generate reports enables you to send them to IDX for review. This enables us to provide remote assistance and offer insight regarding the health status of your network.

To generate a report, simply click on the **'Report'** tab:

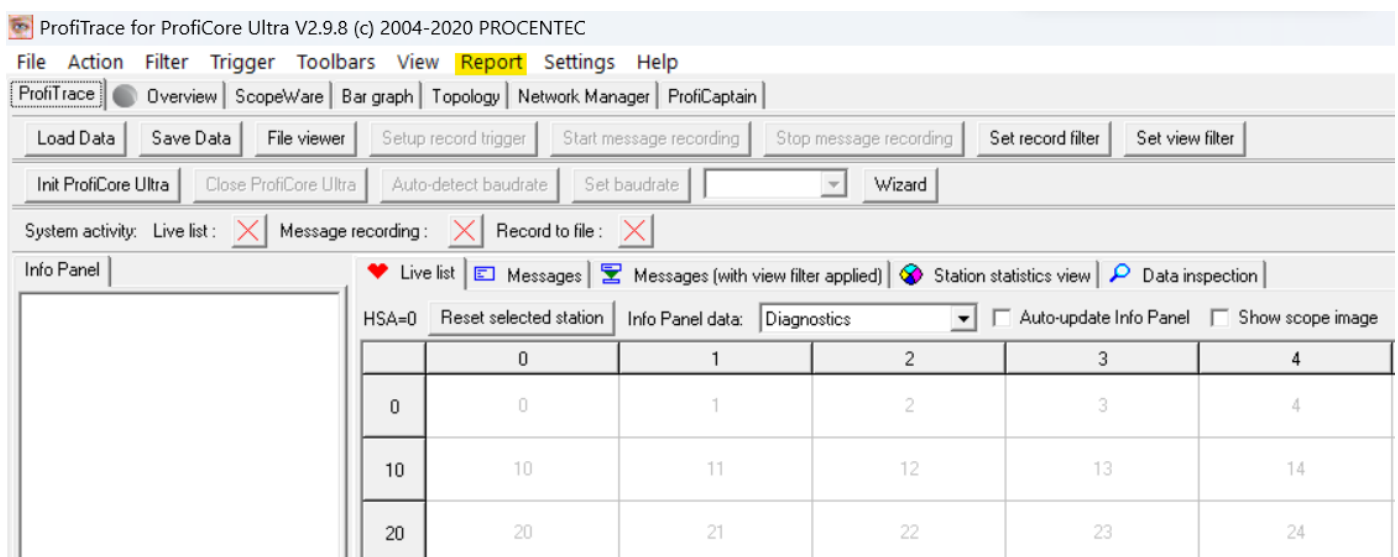


Figure 18: View of the Report tab

Then click on **‘Generate report’**:

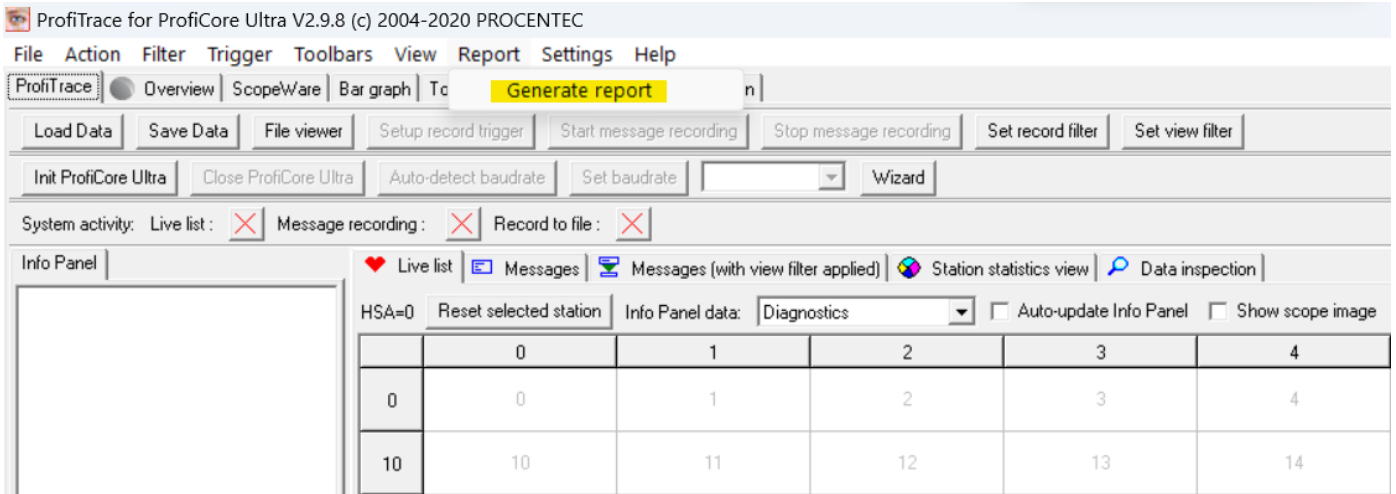


Figure 19: View of Generate Report

A pop-up window will prompt you to add relevant information such as location, network name, engineer, and company:

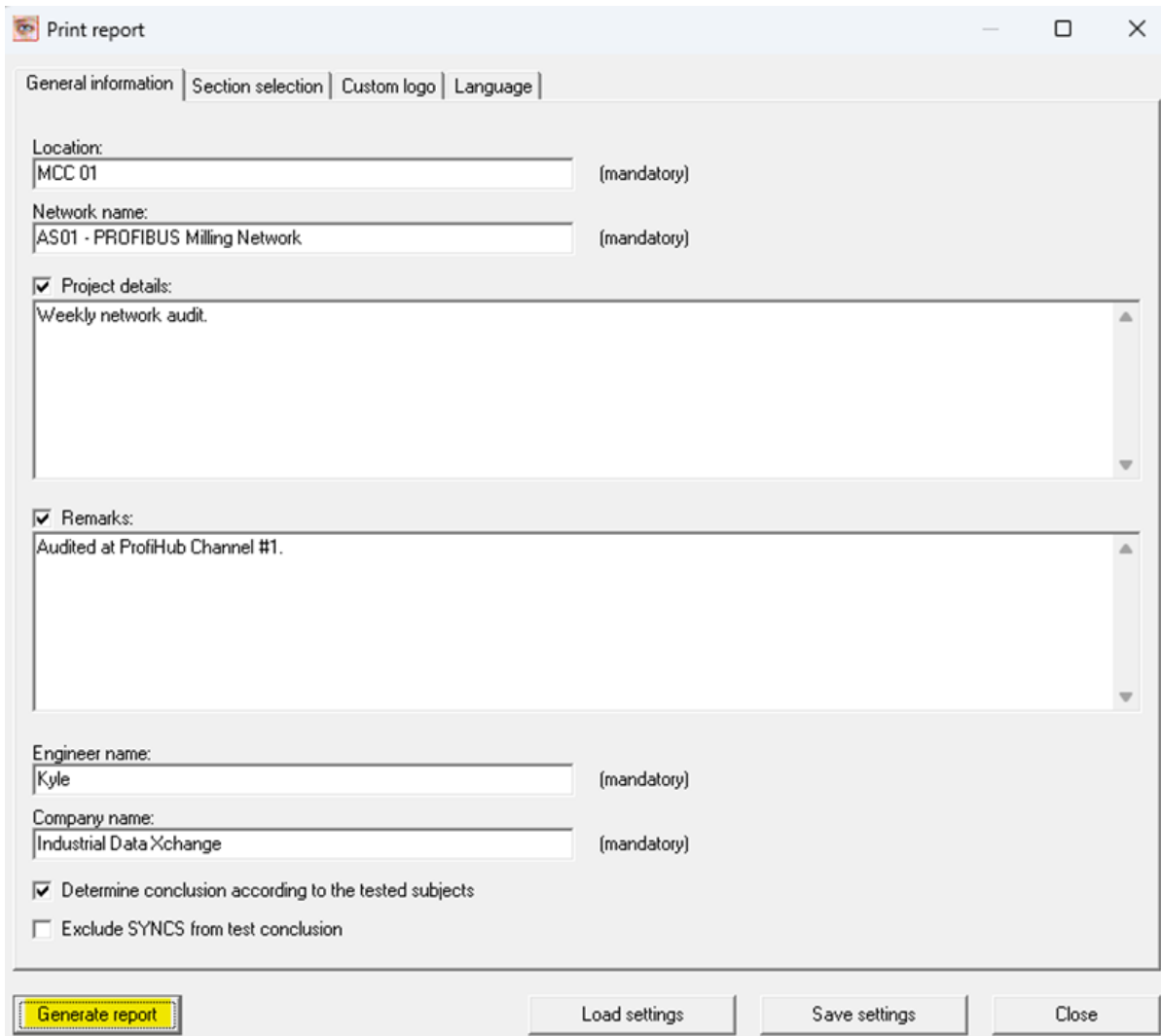
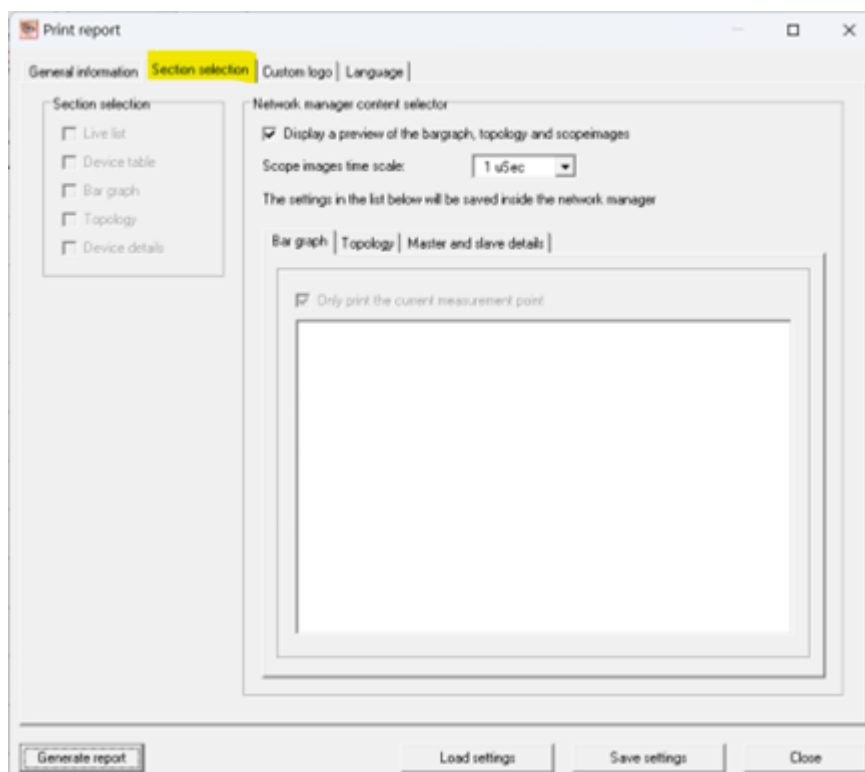


Figure 20: View of Print Report

After this, click **‘Generate Report’**. You will be redirected to a print preview of your report. Save a copy on your desktop or in a dedicated folder.

If the report does not include bar graphs or scope images, navigate to the 'Print report' window -> select the second tab labelled 'Section selection' -> and check the box for 'Display a preview of the bar graph, topology, and scope images'. Finally, click 'Generate Report'.



9. Training

To gain further insight into interpreting the data, we recommend attending our Certified PROFIBUS Installer with Troubleshooting and Maintenance course. For a comprehensive understanding of PROFIBUS, including ProfiTrace usage and interpreting data packets transmitted over the bus, we suggest our Certified PROFIBUS Engineer Course.

For more information on our Certified PROFIBUS courses, or any of our certified courses, please contact the IDX Academy at academy@idx.co.za, or call us on +27 11 548 9960. Additionally, you can browse and book courses on our website at: <https://www.idx.co.za/training>.

10. Conclusion

This document provides guidance on using the ProfiCore device efficiently within a PROFIBUS network. From updating licenses to monitoring device health via the live list, users are equipped with essential tools for ensuring smooth data exchange and troubleshooting potential issues.

With instructions on interpreting error colours and accessing various features like message recording, the document empowers users to effectively manage and maintain their PROFIBUS network infrastructure. By following the outlined procedures and using the provided resources, users can optimise the performance of their PROFIBUS systems, contributing to enhanced productivity and operational efficiency.

About Industrial Data Xchange:

Industrial Data Xchange (IDX) is an Industrial ICT Partner that provides industry-related products, services, solutions, and training. We assist you to establish, maintain and leverage connectivity within your infrastructure.

Connectivity for Business Benefit:

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