Advanced Safety Module

Advanced Safety Module Service Tool – Instruction Manual

For Sigma-7 Series SERVOPACKs

Advanced Safety Module Service Tool – Instruction Manual Version 1.3

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Table of Contents

1 Introduction 5
1.1 General 5
1.2 Abbreviations 5
2 Getting Started 7
2.1 Installation 7
2.2 Start and Login 10
3 Parameter File Transfer 13
3.1 CMIF Container Transfer 13

1 Introduction

1.1 General

This document is valid for:
Advanced Safety Module Service Tool V1.0.0.2.

The *Advanced Safety Module Service Tool* is a stand-alone executable for downloading and uploading safe container files (created by the Advanced Safety Module Parameter Editor) to and from the ASM7 safety module.

The tool is designed for x86-based PCs with Windows 10.

The contents of the safe container file are protected by a checksum attached to the end of the parameter file. The safety device receiving this parameter file checks the parameterisation before use by calculating the checksum and comparing it with the checksum received.

Only one application may use the same interface port. Please close all other tools, e.g. SigmaWin+, that use the same USB connection before starting the Advanced Safety Module Service Tool.

1.2 Abbreviations

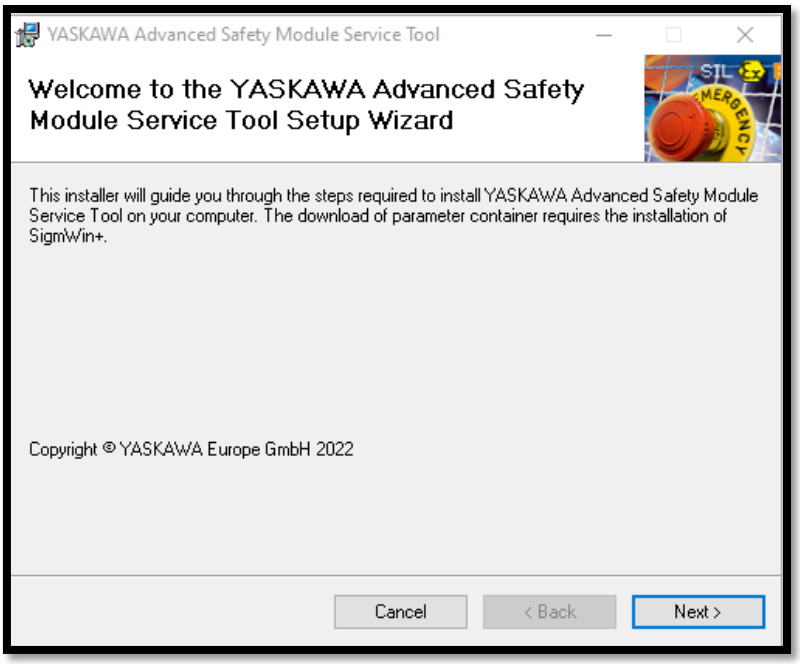
The following abbreviations and terms are used in this document:

Abbreviation / Term	Description
CMIF	Communication Platform Integration to access the SERVOPACK
Safety Module	Advanced Safety Module for Sigma-7 Series SERVOPACKs, the option module that provides safety functions specified in this manual.
SERVOPACK	Servo amplifier (e.g., Sigma-7 Series SGD7S)
UUID	A universally unique identifier (UUID) of 128-bit length (16 bytes)

2 Getting Started

2.1 Installation

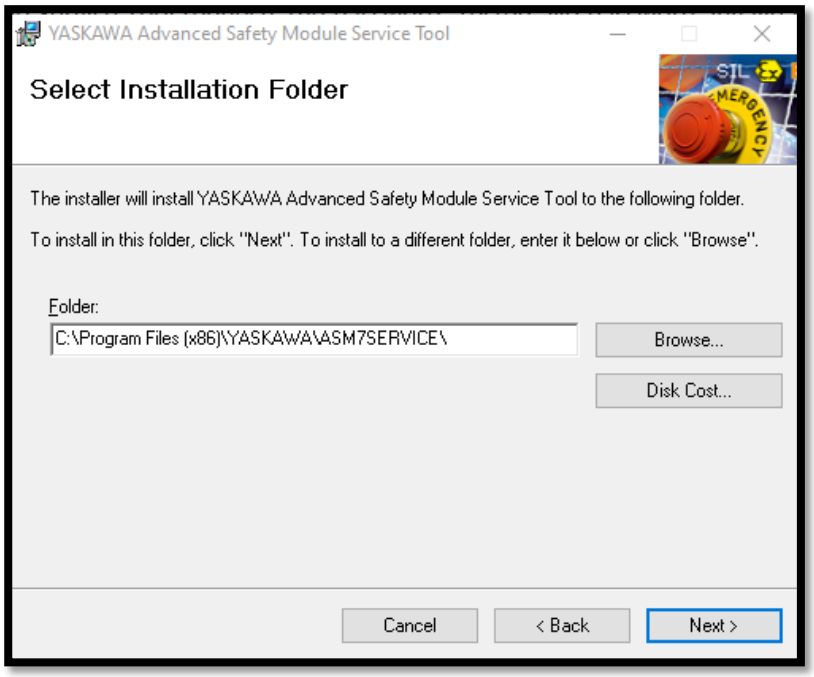
The installation of the software is started by double clicking on *setup.exe* in the installation folder.

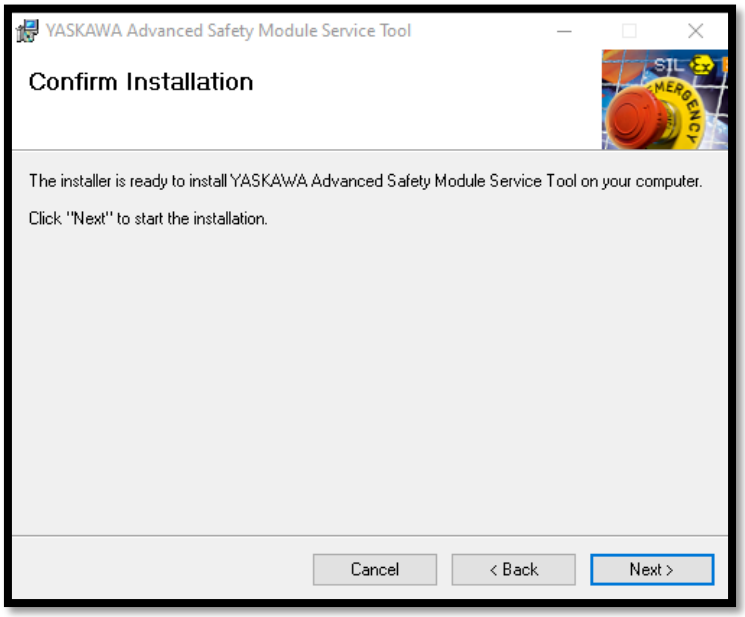


▶ Click the *Next* button to continue preparing the installation process.

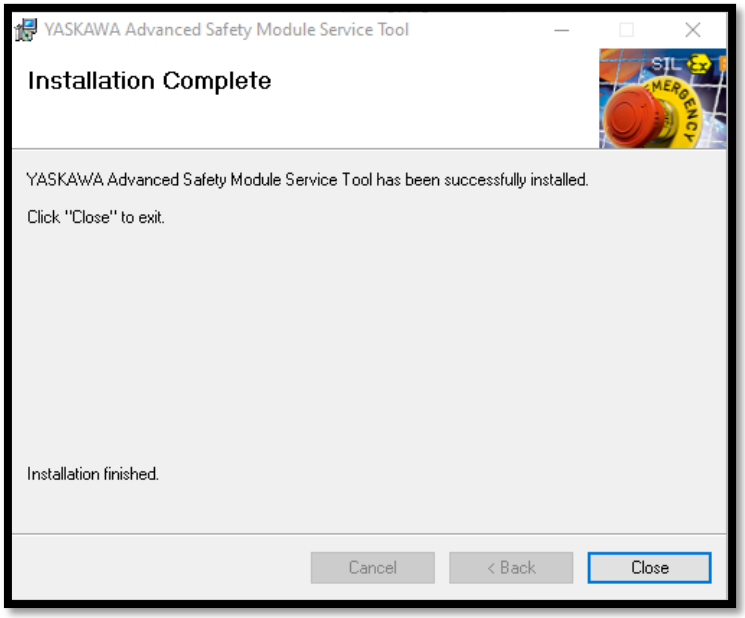
Click the radio button *I Agree*.

Click the *Next* button to continue preparing the installation process.





▶ Click the *Next* button to start the actual installation process.



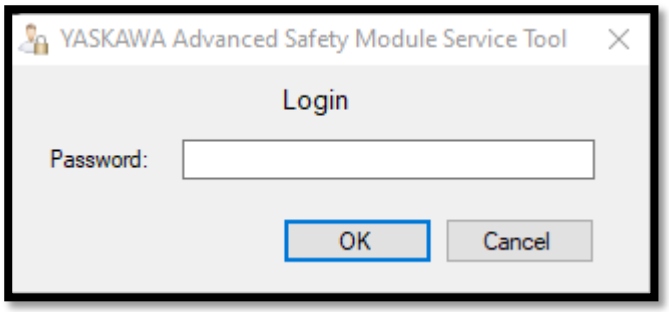
▶ Click the *Close* button to complete the installation process.

The following entry will appear in the Windows Start Menu under *Yaskawa*:

2.2 Start and Login

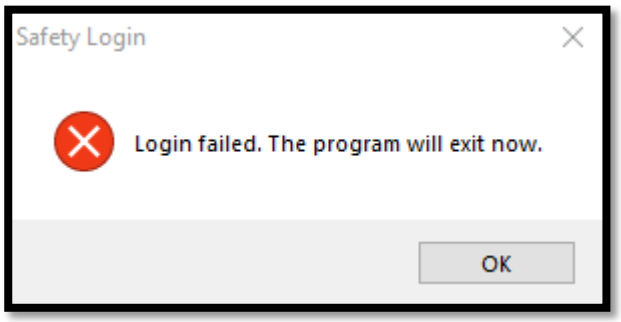
Only one application may use the same interface port. Please close all other tools, e.g., SigmaWin+, that use the same USB connection before starting the Advanced Safety Module Service Tool.

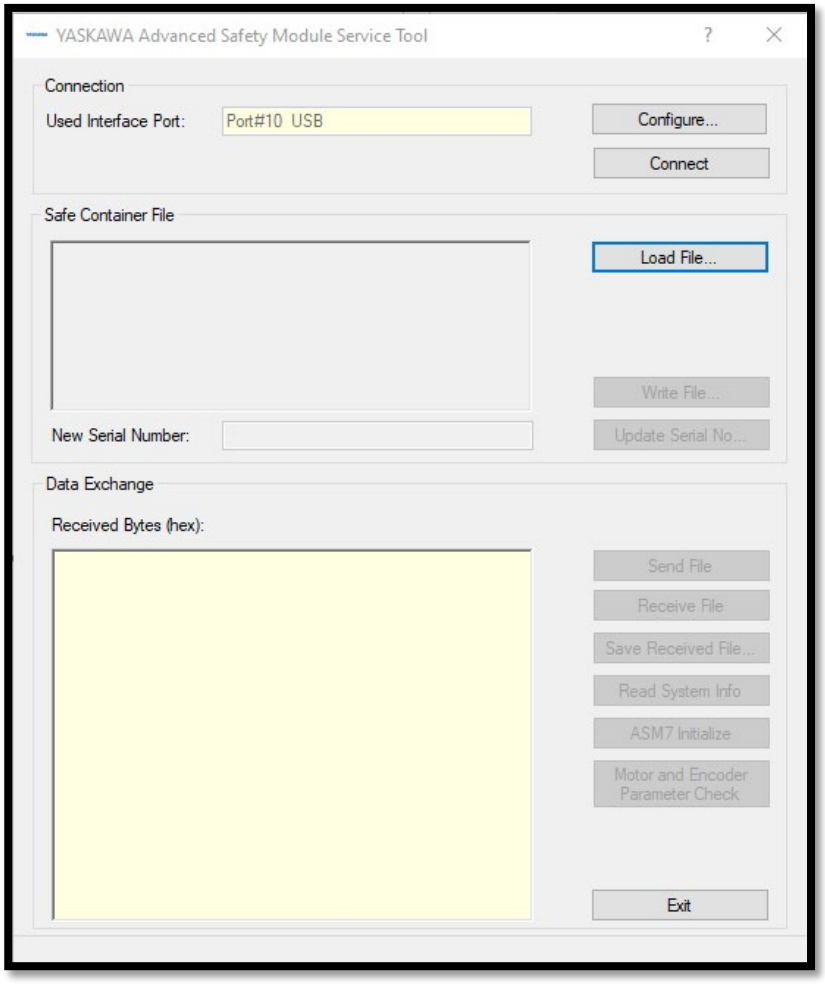
When the application is started, the user will be requested to enter the password.



The password is: ASM7SERVICE. Note that the password is not case-sensitive.

If the login is canceled or an incorrect password is entered, the program will not start.





The main window is displayed when the *Advanced Safety Module Service Tool* is started. The user can now download or upload safe container files.

3 Parameter File Transfer

3.1 CMIF Container Transfer

The *Advanced Safety Module Service Tool* has a direct download (and upload) function via the CMIF interface to the SERVOPACK CmServer. Therefore, the PC with the installed tool requires the installation of SigmaWin+ Version 7.40 (or later) including the communication service CmServer.

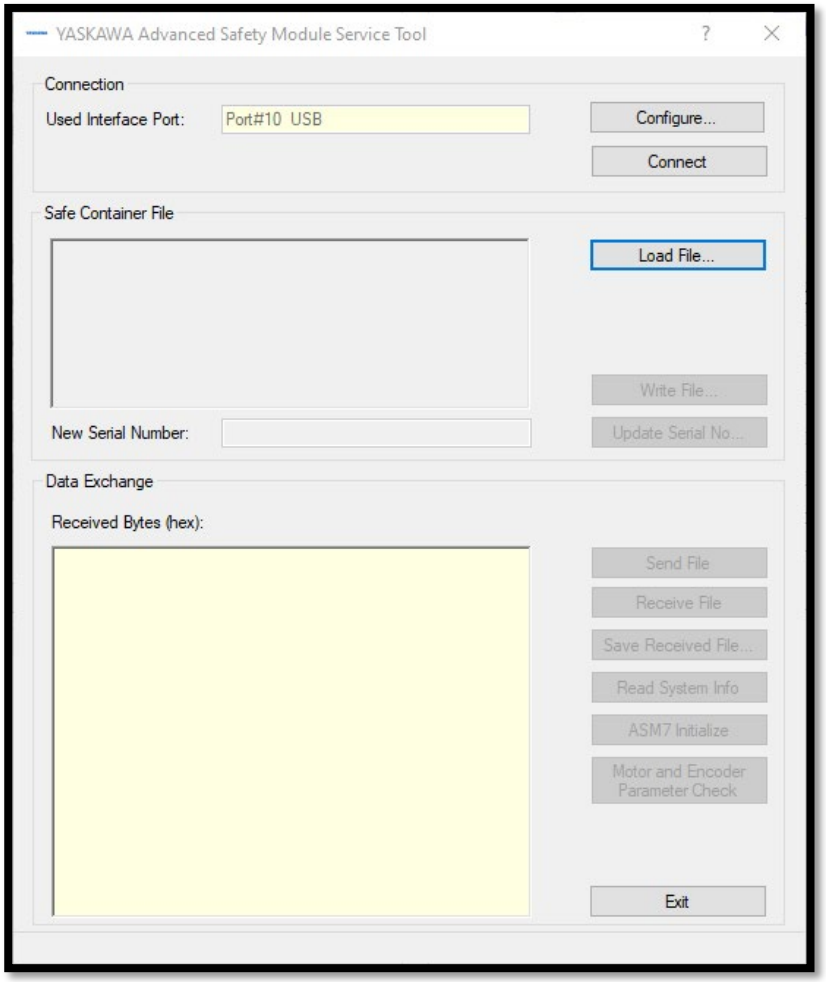
Communication with the SERVOPACK is only possible when one and only one software program uses the designated interface (typically USB). For example, it is not possible to have an online connection to the SERVOPACK using SigmaWin+ and simultaneously use the *Advanced Safety Module Service Tool*. Otherwise, communication will fail. Either close SigmaWin+ or close the Safe Container Download window of the *Advanced Safety Module Service Tool*.

Downloading a Safe Container File to the Advanced Safety Module

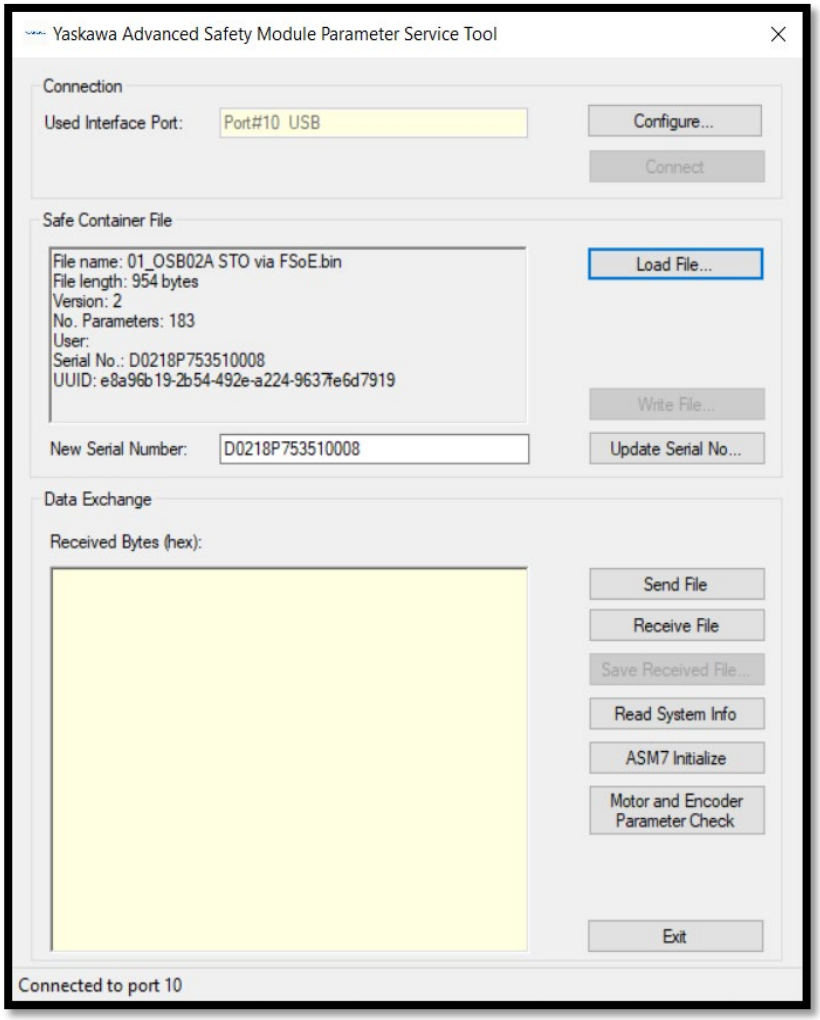
1. Configure the connection to the SERVOPACK.

At present, the port to which the SERVOPACK is connected can be only the USB port (Port#10 USB). Do NOT select an Ethernet connection!

2. Click on the *Connect* button to connect the SERVOPACK.
3. When the connection is established, click on the *Load File...* button at the top right of the dialogue.



4. Select the desired file in the *Load Safe Container File* dialogue. The serial number currently associated with the safe container file is displayed in the file information box and in the *New Serial Number* data entry field.



5. Determine the serial number of the connected Advanced Safety Module. If the serial number of the connected Advanced Safety Module matches the serial number displayed as described step 4, proceed to step 6.

If the serial number of the connected Advanced Safety Module differs from the serial number displayed as described in step 4, the safe container file must be updated with the serial number of the connected Advanced Safety Module.

Click the *Update Serial No...* button to apply the new serial number to the safe container file.

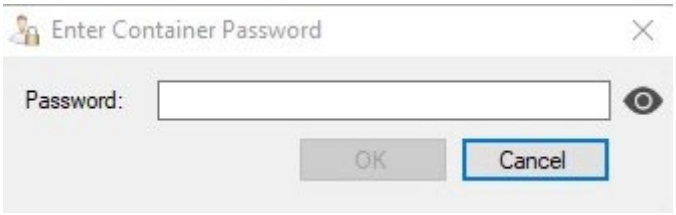
The new serial number will be shown in the file information box (and in the *New Serial Number* data entry field) and will be applied to the safe container file for sending. Writing this serial number to the safe container file is not required. If, however, it is desired to make this serial number persistently associated with the safe container file, click the button *Write File*.

Important information for machine manufacturers engaged in serial production

It is possible to assign a serial number without having to save the safe container file again and again for each and every machine axis. Use the one applicable safe container file and update the serial number as required for the whole series. If identical machine axes are to be furnished with the same safe container

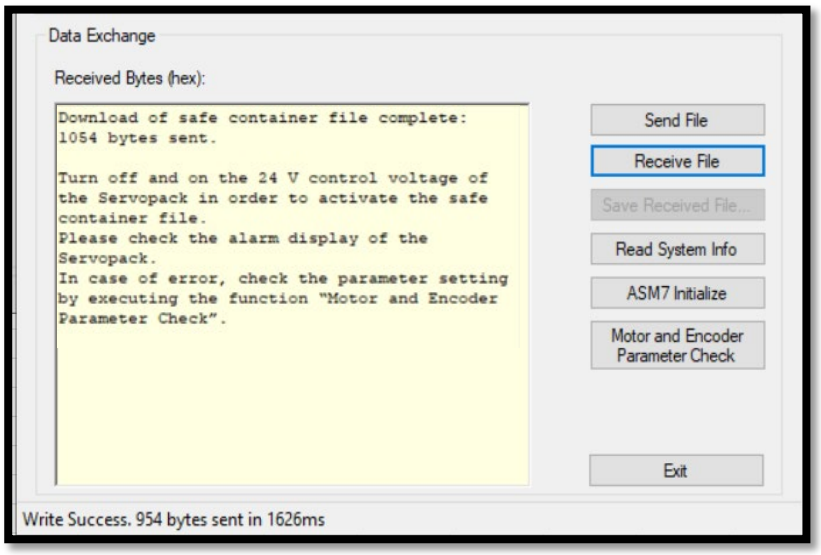
file, the serial number is entered during the download (see step 5 above) without having to save a new safe container file.

6. Click on the *Send File* button to start the download.
If there is already a parameter file in the ASM7 the user will be requested (message box) to enter the password of the container file in the ASM7:



The file will be transferred only if the password matches and if the serial number assigned to the file is identcally to the one of the Safety Option Board. Otherwise the file is not sent and an error message will appear.

7. When the download is completed successfully, a *Write Success* message will be displayed.



The user will get the advice to restart the Servopack, taking over the new parameters

Uploading a Safe Container File from the Connected Advanced Safety Module

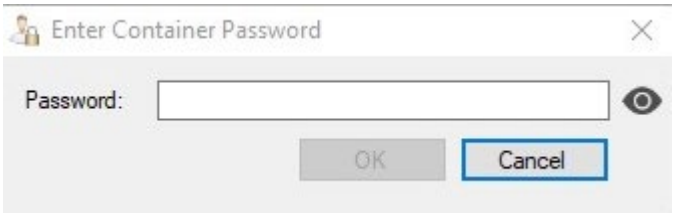
In addition to downloading, it is also possible to upload a parameter file from the connected Advanced Safety Module.

1. Configure the connection to the SERVOPACK.

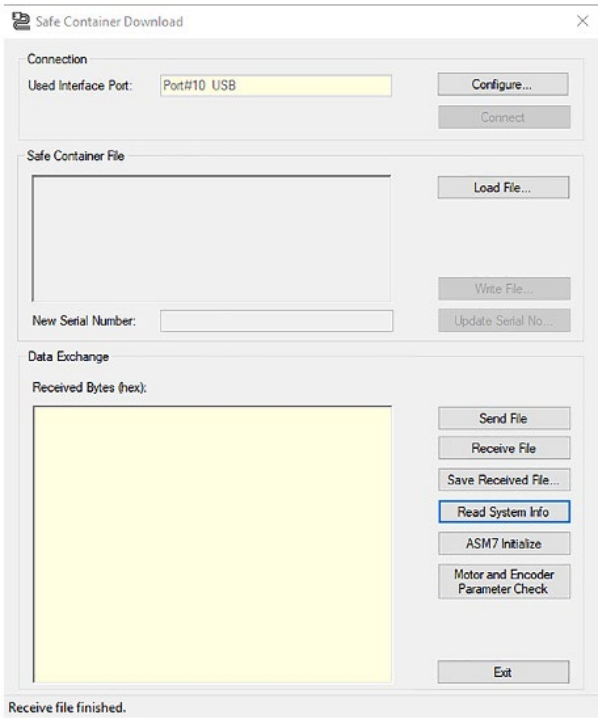
At present, the port to which the SERVOPACK is connected can be only the USB port (Port#10 USB). Do NOT select an Ethernet connection!

2. Click on the *Connect* button to connect the SERVOPACK.
3. When the connection is established, click on the *Receive File* button to start the upload.

When an existing bin safety container file upload is requested by the user (button “Receive File”), the user should first be requested (message box) to enter the password of the ASM7 container file:



The entered password will be encrypted in the same way as in the Parameter Editor. This result must be compared with encrypted password in the binary file loaded from the ASM7 in the background. If the password matches, the bin file is loaded as usual. If the password does not match, the file is not loaded and an error message (message box “Invalid file password. Upload canceled.”) is displayed.



4. If the upload was successful, save the received container file by clicking on the *Save Received File* button.

With the button “Save Received File” the current bin file can be saved for archive purposes or further download. No password request. The file will be copied only. The password in the bin file remains unchanged.

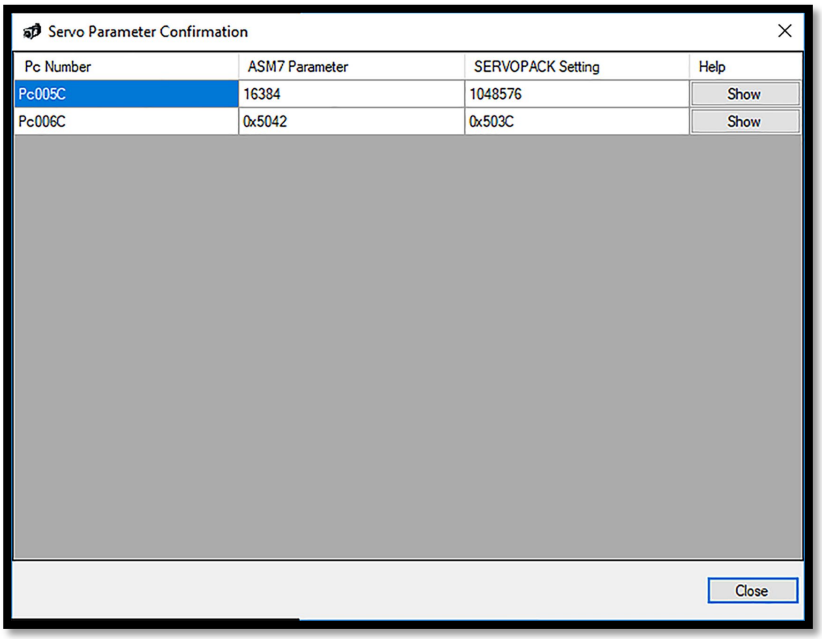
Motor and Encoder Parameter Check Button (Servo Parameter Confirmation)

The safety-related servo parameters contain information about the motor and encoder configuration of the SERVOPACK and are managed by the Advanced Safety Module. This information is held in the SERVOPACK, but it is also managed in the Advanced Safety Module with different parameter numbers.

When the unit consisting of SERVOPACK and Advanced Safety Module is switched on, the values of this parameter group stored in the SERVOPACK are compared with the values of the corresponding parameters in the Advanced Safety Module. If the values do not match, alarm A.EC1 (Safety-related Servo Parameter Unmatch Alarm) is displayed.

The safety-related servo parameters that do not match between SERVOPACK and Advanced Safety Module can be displayed by pressing the button *Motor and Encoder Parameter Check*.

Non-matching parameters are displayed in the following dialogue box.



When using the Digital Operator, the function described here corresponds to Fn042 (Safety-related Servo Parameter Confirmation).

ASM7 Initialize Button

If an Advanced Safety Module that is already in operation is initialized with a new SERVOPACK, the ASM7 Initialize button is helpful.

This Advanced Safety Module has the following features:

- SERVOPACK serial number stored
- Optional: Safe container stored
- Optional: Homing information stored

If an Advanced Safety Module with these properties is connected to a new SERVOPACK, the Safety Module Confirmation Alarm (A.EC0) is displayed.

By clicking on the *ASM7 Initialize* button, the stored serial number of the SERVOPACK, the homing information and the safe container in the non-volatile memory of the Advanced Safety Module are deleted.

- Click on the *ASM7 Initialize* button.

In order to delete the homing status, the serial number and an already existing container file in the ASM7, the “ASM7 Initialize” function must be locked by a password. For this the same principle as for the Digital Operator should be used. Means the password will be the last 4 digits of the ASM7 serial number.

When the user presses the “ASM7 Initialize” button a message box to enter the init password should appear.

Only when the entered password contains the correct 4 digits of the serial number the initialize function will be executed. If the password does not match an error message shall appear (message box “Invalid password. Init function not executed.”) and the initialize function will not be executed.

If the initialize function was executed a dialogue box will appear asking you to switch the power supply of the SERVOPACK off and on.

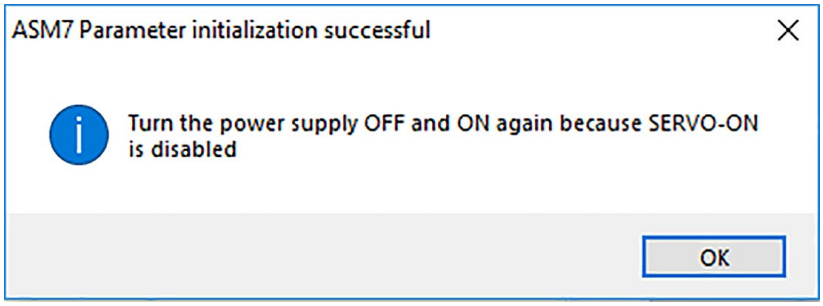


Fig. 1: ASM7 Initialize Cycle Power Dialogue box

After clicking OK in the message box, the message "ASM7 Parameter Initialization successful" will appear.

The initialization of the Advanced Safety Module can then be continued as described in the product manual.

When using the Digital Operator, the function described here corresponds to Fn043 (Safety Option Module Initializing Parameter Setting).