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

Document Number TOEP YEUOS7S 04

Version 1.3

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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.

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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 SER- VOPACKs, 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)

2.1 Installation

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

🕷 YASKAWA Advanced Safety Modul	e Service Tool		_		\times
Welcome to the YASKAN Module Service Tool Set	WA Advanco up Wizard	ed Safety			
This installer will guide you through the st Service Tool on your computer. The dow SigmWin+.	sps required to inst nload of parameter	all YASKAWA A. container require	dvance es the i	:d Safety № nstallation	1odule of
Copyright © YASKAWA Europe GmbH 20	322				
	Cancel	< Back		Next	>

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

i	YASKAWA Advanced Safety Modu	lle Service Tool	_	-	\times
L	cense Agreement			Ó	EL CAL
Ple Ag	ease take a moment to read the licens ree", then "Next". Otherwise click "C	e agreement now. If you ancel''.	u accept the ter	ms below, clic	k ''I
	END USER LICENSE AGREE	MENT			^
	Important Read Carefully				
	END-USER LICENSE AGREE IMPORTANT PLEASE READ LICENSE AGREEMENT CARE PROGRAM INSTALL: BABEL ("EULA") is a legal agreement entity) and BABELEOR NET fr	MENT FOR ("BABE THE TERMS AND O FULLY BEFORE C FOR.NET End-Use between you (eithe parthe SOETWARE	EL OBFUSC CONDITION CONTINUING or License Ag r an individua PRODUCT (ATOR") S OF THIS S WITH THI greement al or a single "BABEI	s • v
	● I Do Not Agree	◯ I Agree			
		Cancel	< Back	Next	>

Click the radio button I Agree.

😸 YAS	KAWA Advanced Safety Modul	le Service Tool	_		\times
Lice	nse Agreement			6	IL B L
Please Agree'	take a moment to read the license , then "Next". Otherwise click "Ca	e agreement now. If y ancel''.	you accept the term	ns below, clic	k ''I
	(INCLUDING NEGLIGENCE EVEN IF THE AUTHOR HA OF SUCH DAMAGES, AN HEREIN IS FOUND TO HA THE AUTHOR WILL NOT E OR DAMAGES CAUSED E FEATURES.	E), PRODUCT LI AS BEEN ADVIS D EVEN IF A RE IVE FAILED OF BE SUBJECT TO BY CERTAIN BA	ABILITY OR OT ED OF THE PO EMEDY SET FO ITS ESSENTIAI LIABILITY FOF BEL OBFUSCA	HERWISE DSSIBILITY DRTH L PURPOS R ANY BUG ATOR	; ^ E. 3S
8.	LANGUAGE OF AGREEM You agree that this EULA	ENT be drafted in the	English languag	je.	~
01	Do Not Agree	 I Agree 			
		Cancel	< Back	Next	>

Click the Next button to continue preparing the installation process.

🕼 YASKAWA Advanced Safety Module Service Tool	_		\times
Select Installation Folder			IL CAL
The installer will install YASKAWA Advanced Safety Module Service Tool to	the fol	lowing fold	er.
To install in this folder, click "Next". To install to a different folder, enter it be	low or (click "Brow	vse''.
Eolder: C:\Program Files (x86)\YASKAWA\ASM7SERVICE\		Browse Disk Cost.	
Cancel < Back		Next	>

🛃 YASKAWA Advanced Safety Modul	e Service Tool	_	
Confirm Installation			MER OF
The installer is ready to install YASKAWA	Advanced Safety N	Iodule Service Tool	on your computer.
Click "Next" to start the installation.			
	Cancel	< Back	Next >

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

🕷 YASKAWA Advanced Safety Modu	le Service Tool	_		\times
Installation Complete				10N3 C
YASKAWA Advanced Safety Module Se	rvice Tool has been	successfully installed	ł.	
Click "Close" to exit.				
Installation finished.				
	Cancel	< Back	Close	;

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.

🔏 YASKAWA	Advanced Safety Module Service Tool	\times
	Login	
Password:]
	OK Cancel	

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.

Safety Log	in	\times
\otimes	Login failed. The program will exit now.	
	ОК	

Connection		
Jsed Interface Port:	Port#10 USB	Configure
		Connect
afe Container File		
		Load File
		Write File
		11.11.0.110
New Senai Number.		update Senai No
Data Exchange		
Received Bytes (hex)		
		Send File
		Receive File
		Save Received File
		Read System Info
		ASM7 Initialize
		Motor and Encoder Parameter Check

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.

Parameter File Transfer

Lonnection		
Jsed Interface Port:	Port#10 USB	Configure
		Connect
afe Container File		
		Load File
		11.0
		Write Hile
New Serial Number:		Update Serial No
Heceived bytes (nex)		Send File
		Receive File
		Receive File Save Received File
		Receive File Save Received File Read System Info
		Receive File Save Received File Read System Info ASM7 Initialize
		Receive File Save Received File Read System Info ASM7 Initialize Motor and Encoder Parameter Check
		Receive File Save Received File Read System Info ASM7 Initialize Motor and Encoder Parameter Check

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.

Parameter File Transfer

annation		
onnection		
sed Interface Port:	Port#10 USB	Configure
		Connect
afe Container File		
File name: 01_OSB0 File length: 954 byte: Version: 2 No. Parameters: 183 User: Serial No.: D0218P7 UUID: e8a96b19-2b	2A STO via FSoE.bin 5 53510008 54-492e-a224-9637re6d7919	Load File
		Write File
New Serial Number:	D0218P753510008	Undate Serial No.
lata Exchange Received Bytes (hex):	opuace Jenai Ho
lata Exchange Received Bytes (hex):	opuace Jenai Ho
lata Exchange Received Bytes (hex):	Send File
lata Exchange Received Bytes (hex):	Send File Receive File
ata Exchange Received Bytes (hex):	Send File Receive File Save Received File
lata Exchange Received Bytes (hex):	Send File Receive File Save Received File Read System Info
Data Exchange Received Bytes (hex):	Send File Receive File Save Received File Read System Info ASM7 Initialize
Data Exchange Received Bytes (hex): :	Send File Receive File Save Received File Read System Info ASM7 Initialize Motor and Encoder Parameter Check

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:

issword		\times
		•
OK	Cancel]
	oK	oK Cancel

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.

Download of safe container file complete:	Send File
Turn off and on the 24 V control voltage of the Servopack in order to activate the safe container file.	Receive File
	Save Received File
Please check the alarm display of the Servopack.	Read System Info
In case of error, check the parameter setting by executing the function "Motor and Encoder	ASM7 Initialize
alameter thete .	Motor and Encoder Parameter Check

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

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.

Uploading a Safe Container File from the Connected Advanced Safety Module 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:

h Enter Container	Password		\times
Password:			0
	OK	Cancel	1

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.

Connection		
Ised Interface Port:	Port#10 USB	Configure
		Connect
afe Container File		
		Load File
		Write File
New Serial Number:		Indate Secial No.
		Opdate Selial Ho
lata Exchange Received Bytes (hex.)		Opulate Senai NU
lata Exchange Received Bytes (hex):		Send File
lata Exchange Received Bytes (hex)		Send File Receive File
lata Exchange Received Bytes (hex)		Send File Receive File Save Received File.
lata Exchange Received Bytes (hex)		Send File Receive File Save Received File. Read System Info
Nata Exchange Received Byles (hex)		Send File Receive File Save Received File. Read System Info ASM7 Initialize
Nata Exchange	:	Send File Receive File Save Received File Read System Info ASM7 Initialize Motor and Encoder Parameter Check
ata Exchange		Send File Receive File Save Received File Read System Info ASM7 Initialize Motor and Encoder Parameter Check

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 SER-VOPACK and Advanced Safety Module can be displayed by pressing the button *Motor and Encoder Parameter Check*.

 Servo Parameter Confirmation
 X

 Pc Number
 ASM7 Parameter
 SERVOPACK Setting
 Help

 Pc 0005C
 16384
 1048576
 Show

 Pc 0006C
 0x5042
 0x503C
 Show

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 SER-VOPACK, 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.

lata Exchange	
Received Bytes (hex):	
	Send File
	Receive File
	Save Received Rie
	Read System Info
	ASM7 Initialize
	Motor and Encoder Parameter Check

In order to delete the homing status, the serial number and an al-

ready 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).