

EcoStruxure Machine Expert - Basic

Transfer Tool - User Guide

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

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Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

BEFORE YOU BEGIN

Do not use this product on machinery lacking effective point-of-operation guarding. Lack of effective point-of-operation guarding on a machine can result in serious injury to the operator of that machine.

WARNING

UNGUARDED EQUIPMENT

- Do not use this software and related automation equipment on equipment which does not have point-of-operation protection.
- Do not reach into machinery during operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

This automation equipment and related software is used to control a variety of industrial processes. The type or model of automation equipment suitable for each application will vary depending on factors such as the control function required, degree of protection required, production methods, unusual conditions, government regulations, etc. In some applications, more than one processor may be required, as when backup redundancy is needed.

Only you, the user, machine builder or system integrator can be aware of all the conditions and factors present during setup, operation, and maintenance of the machine and, therefore, can determine the automation equipment and the related safeties and interlocks which can be properly used. When selecting automation and control equipment and related software for a particular application, you should refer to the applicable local and national standards and regulations. The National Safety Council's Accident Prevention Manual (nationally recognized in the United States of America) also provides much useful information.

In some applications, such as packaging machinery, additional operator protection such as point-of-operation guarding must be provided. This is necessary if the operator's hands and other parts of the body are free to enter the pinch points or other hazardous areas and serious injury can occur. Software products alone cannot protect an operator from injury. For this reason the software cannot be substituted for or take the place of point-of-operation protection.

Ensure that appropriate safeties and mechanical/electrical interlocks related to point-of-operation protection have been installed and are operational before placing the equipment into service. All interlocks and safeties related to point-of-operation protection must be coordinated with the related automation equipment and software programming.

NOTE: Coordination of safeties and mechanical/electrical interlocks for point-of-operation protection is outside the scope of the Function Block Library, System User Guide, or other implementation referenced in this documentation.

START-UP AND TEST

Before using electrical control and automation equipment for regular operation after installation, the system should be given a start-up test by qualified personnel to verify correct operation of the equipment. It is important that arrangements for such a check be made and that enough time is allowed to perform complete and satisfactory testing.

WARNING

EQUIPMENT OPERATION HAZARD

- Verify that all installation and set up procedures have been completed.
- Before operational tests are performed, remove all blocks or other temporary holding means used for shipment from all component devices.
- Remove tools, meters, and debris from equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Follow all start-up tests recommended in the equipment documentation. Store all equipment documentation for future references.

Software testing must be done in both simulated and real environments.

Verify that the completed system is free from all short circuits and temporary grounds that are not installed according to local regulations (according to the National Electrical Code in the U.S.A, for instance). If high-potential voltage testing is necessary, follow recommendations in equipment documentation to prevent accidental equipment damage.

Before energizing equipment:

- Remove tools, meters, and debris from equipment.
- Close the equipment enclosure door.
- Remove all temporary grounds from incoming power lines.
- Perform all start-up tests recommended by the manufacturer.

OPERATION AND ADJUSTMENTS

The following precautions are from the NEMA Standards Publication ICS 7.1-1995 (English version prevails):

- Regardless of the care exercised in the design and manufacture of equipment or in the selection and ratings of components, there are hazards that can be encountered if such equipment is improperly operated.
- It is sometimes possible to misadjust the equipment and thus produce unsatisfactory or unsafe operation. Always use the manufacturer's instructions as a guide for functional adjustments. Personnel who have access to these adjustments should be familiar with the equipment manufacturer's instructions and the machinery used with the electrical equipment.
- Only those operational adjustments actually required by the operator should be accessible to the operator. Access to other controls should be restricted to prevent unauthorized changes in operating characteristics.

About the Book



At a Glance

Document Scope

This document describes the Transfer Tool of EcoStruxure Machine Expert - Basic.

Validity Note

This document has been updated for the release of EcoStruxure™ Machine Expert - Basic V1.0.

Product Related Information

WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop, power outage and restart.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link.
- Observe all accident prevention regulations and local safety guidelines.¹
- Each implementation of this equipment must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

¹ For additional information, refer to NEMA ICS 1.1 (latest edition), "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control" and to NEMA ICS 7.1 (latest edition), "Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems" or their equivalent governing your particular location.

WARNING

UNINTENDED EQUIPMENT OPERATION

- Only use software approved by Schneider Electric for use with this equipment.
- Update your application program every time you change the physical hardware configuration.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

WARNING

UNINTENDED EQUIPMENT OPERATION

Do not include any wiring information, programming or configuration logic, or parameter values from any of the examples in your machine or process without thoroughly testing your entire application.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

WARNING

UNINTENDED EQUIPMENT OPERATION, DATA LOSS, OR FILE CORRUPTION

- Do not interrupt an ongoing data transfer.
- If the transfer is interrupted for any reason, re-initiate the transfer.
- Do not place your machine into service until the file transfer has completed successfully, unless you have accounted for corrupted files in your risk analysis and have taken appropriate steps to prevent any potentially serious consequences due to unsuccessful file transfers.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Related Documents

Title of Documentation	Reference Number
EcoStruxure Machine Expert - Basic - Operating Guide	<i>EIO00000003281 (ENG)</i> <i>EIO00000003282 (FRE)</i> <i>EIO00000003283 (GER)</i> <i>EIO00000003284 (SPA)</i> <i>EIO00000003285 (ITA)</i> <i>EIO00000003286 (CHS)</i> <i>EIO00000003287 (POR)</i> <i>EIO00000003288 (TUR)</i>

Chapter 1

Transfer Tool

Launching the Transfer Tool

Presentation

The Transfer Tool is a console application allowing scripting operations without using EcoStruxure Machine Expert - Basic.

It is installed with EcoStruxure Machine Expert - Basic.

The Transfer Tool allows you to:

- Upload from or download to the controller.
- Update the controller firmware.
- Backup and restore application data.

NOTE: To use the Transfer Tool, you must connect the controller to the PC using a USB cable.

Launching the Transfer Tool

Follow the procedure to launch the Transfer Tool.

Step	Action
1	Open a Windows command prompt window or launch Windows PowerShell (see Windows Online Help for more information).
2	Enter “TransferToolBasic” followed by desired arguments. Refer to Using Command Line Arguments. Example: TransferToolBasic -fMyScript.txt -lResult.log

Using Command Line Arguments

To execute a script and give instructions to the controller, you must indicate the script file location. Enter the script command file -f<file path> in your command prompt window.

If <file path>:

- Does not exist or has an invalid format, an error is returned to the command prompt window.
- Contains blank(s), delineate the file path by quotation marks.
- Is not an absolute path, it automatically points to a file relative to the actual directory of the command prompt window.

NOTE: This argument is mandatory. You must use it before using the other arguments.

To save the content of the command prompt window, enter -l<log file> in the command prompt window.

NOTE: By default, <log file> is named TransferToolBasic.log and is stored in your temporary folder.

If <log file>:

- Contains blank(s), delineate the file path by quotation marks.
- Is not an absolute path, it automatically points to a file relative to the actual directory of the command prompt window.

Chapter 2

Supported Commands in the Script File

Using Commands

Script File Rules

The script file format needs to be in UTF-8.

The instructions in the script file are not case sensitive.

Lines beginning with # and empty lines are ignored.

To write comments in the script file, enter # at the beginning of the line.

Uploading/Downloading the Application

Command	Description
upload <file>	This command allows you to transfer the application from the controller to your computer. When the transfer is finished, <code>upload OK</code> is displayed in the command prompt window. In case an error is detected during the transfer, <code>upload NOK</code> is displayed in the command prompt window.
download <file>	This command allows you to transfer the application from your computer to the controller. NOTE: The controller must be in STOPPED state. When the transfer is finished, <code>download OK</code> is displayed in the command prompt window. In case an error is detected during the transfer, <code>download NOK</code> is displayed in the command prompt window.

For both commands:

- Use the `-c` parameter as communication mode.
- Provide `<file>` with the `smbk` file extension.

`if <file>:`

- Contains blank(s), delineate the file path by quotation marks.
- Is not an absolute path, it points to a file relative to the script command file.

Backing Up/Restoring the Memory Values

Command	Description
backup (MW M) <first> <last> <file>	<p>This command backups %MW or %M values from the controller to <file> on the computer.</p> <p>NOTE: <file> must be in csv format.</p> <p>When the backup is finished, <code>backup OK</code> is displayed in the command prompt window.</p> <p>In case an error is detected, <code>backup NOK</code> is displayed in the command prompt window.</p>
restore (MW M) <first> <last> <file>	<p>This command restores %MW or %M values from <file> on the computer to the controller.</p> <p>NOTE: <file> must be in csv format.</p> <p>When restoring is finished, <code>restore OK</code> is displayed in the command prompt window.</p> <p>In case an error is detected, <code>restore NOK</code> is displayed in the command prompt window.</p>

Replace <first> and <last> by numbers corresponding to the first and last indexes of %MW or %M.

For both commands, if <file>:

- Contains blank(s), delineate the file path by quotation marks.
- Is not an absolute path, it points to a file relative to the script command file.

NOTE: If you choose to back up memory values, you can initiate a backup while the logic controller is in the RUNNING state. As a consequence, the backup would not necessarily be coherent because the memory variables value can be modified from one scan to another. If you wish to have a consistent set of values for the variables, you may need to first put the logic controller into the STOPPED state.

WARNING

UNINTENDED EQUIPMENT OPERATION, DATA LOSS, OR FILE CORRUPTION

- Do not interrupt an ongoing data transfer.
- If the transfer is interrupted for any reason, re-initiate the transfer.
- Do not place your machine into service until the file transfer has completed successfully, unless you have accounted for corrupted files in your risk analysis and have taken appropriate steps to prevent any potentially serious consequences due to unsuccessful file transfers.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Updating the Firmware

Command	Description
update <firmware file>	This command updates the controller firmware. When the update is finished, update OK is displayed in the command prompt window. In case an error is detected, update NOK is displayed in the command prompt window.

If <file>:

- Contains blank(s), delineate the file path by quotation.
- Is not an absolute path, it points to a file relative to the script command file.

Stopping/Continuing the Execution Error

Command	Description
onerror STOP	This command stops processing the script file when a command is unsuccessful (default).
onerror CONT	This command continues processing the script file when a command is unsuccessful.

Script Example

```

# starting this line, in case an error is detected, we want to continue
onerror CONT

# backup memories
backup MW 0 1234 "C:\Users\loginName\Documents\memWords.csv"
backup MW 0 512 "C:\Users\loginName\Documents\memBits.csv"

# save the current application from the controller to the computer
upload "C:\Users\loginName\Documents\application.smbk"

# starting this line, in case an error is detected, we want to stop
onerror STOP

# update the controller firmware using the last one provided by the
software

update "C:\Program Files (x86)\Schneider Electric\EcoStruxure Machine
Expert Basic\Firmwares & PostConfiguration\M221\V1.6.1.13\M221.mfw"

# download the application
download "C:\Users\loginName\Documents\application.smbk"

# if we reached this script line, no error occurred (due to the onerror
STOP)

```

```
# now, if there is an error detected, we can continue the script  
onerror CONT  
  
# restore memories  
restore MW 0 1234 "C:\Users\loginName\Documents\memWords.csv"  
restore MW 0 512 "C:\Users\loginName\Documents\memBits.csv"
```

WARNING

UNINTENDED EQUIPMENT OPERATION, DATA LOSS, OR FILE CORRUPTION

- Do not interrupt an ongoing data transfer.
- If the transfer is interrupted for any reason, re-initiate the transfer.
- Do not place your machine into service until the file transfer has completed successfully, unless you have accounted for corrupted files in your risk analysis and have taken appropriate steps to prevent any potentially serious consequences due to unsuccessful file transfers.

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