

EASY-COM-SWD-C1 firmware update to V1.01



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Original Release Notes

is the German-language edition of this document.

Translation of the original Release Notes

All versions of this document that are not in German are translations of the original Release Notes.

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1 EASY-COM-SWD-C1Firmware V1.01

1.1 Supported devices

These release notes refer to the firmware updates from V1.00 to V1.01 for the following devices of the easyE4 product range:

- EASY-COM-SWD-C1



The latest firmware update offers several new features and bugfixes. We recommend to all users of the device EASY-COM-SWD-C1 to update to the new version.

1.2 Updating the firmware

As of OS version V1.30, in addition to the base devices, the operating system and firmware for the communication modules of the easyE4 series can also be updated. The process varies for base devices and expansion or communication modules.

Update the firmware with a microSD memory card. Basically, the firmware of the base devices can also be overwritten with an older firmware from the microSD memory card.

Updates for the operating system are made available by Eaton Industries GmbH, Bonn in the Download Center - Software under Firmware Updates as *.zip files.

Download Center - Software

[http://www.eaton.eu/software/Firmware Updates/easy](http://www.eaton.eu/software/Firmware%20Updates/easy)

[http://www.eaton.eu/software/OS Updates/easy](http://www.eaton.eu/software/OS%20Updates/easy)

In addition to the *.fw file, which contains the firmware update, a configuration file (*.ini) is also stored in the same folder (ROOT) for the base device. This configuration file uses appropriate entries to control the update behavior of the base devices.

You can also configure your program for series production with this configuration file as well.

No configuration file is needed for expansion devices.

➔ No update is made if the operating system of the easyE4 base device is already at the status of the requested update.

Observe the documents belonging to the update in the download center.

Check the integrity of the firmware update ZIP file

The integrity of the firmware update ZIP file can be checked using a separate hash file which can be found on the Download Center in the column "txt":

Category search

1. Select the category!

- Software
- Libraries
- Wizard
- Driver
- OS Updates
- Device Description Files
- Application Samples
- Archive

Download center

+++ New product version

Located updates or full versions for download

Name	Size	Date	Preview	txt	pdf
easyE4 - Base unit devices OS Update V1.30	2063 KB	06/25/2021			
easyE4 - Base unit devices OS Update V1.23	1011 KB	01/18/2021			
easyE4 - Base unit devices OS Update V1.22	1255 KB	06/09/2020			

Firmware update files on the Eaton download server

For instance the respective hash file for V1.30 of the base unit firmware is named „easyE4_V1_30_ZIP_sha256_hash.txt“. This file contains the original hash for the ZIP-file. To calculate the hash value of the ZIP-file on your system you can utilize a standard tool to calculate SHA256 hashes. On a Windows 10 system the tool „certutil.exe“ can be used:

```
certutil.exe -hashfile <ZIP-file> SHA256 > my_hash.txt
```

or for the V1.30 firmware update:

```
certutil.exe -hashfile easyE4_UPDATE_OS_V130.zip SHA256 > my_hash.txt
```

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The file *my_hash.txt* now contains the hash value of the ZIP file on your system. This value can be compared to the hash file from the Eaton Download Center, e.g. *easyE4_V1_30_ZIP_sha256_hash.txt*. The ZIP file on your system is identical to the ZIP file from the Eaton Download Center if the two hash values are identical.

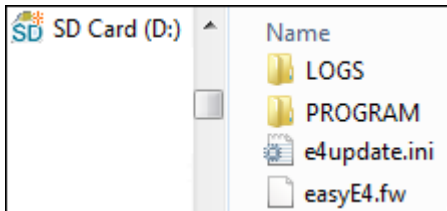
1.2.1 Firmware update base device

All Base Devices can be updated with a newer firmware.

Which generation your easyE4 device belongs to is displayed in the device menu and during online communication with the easyE4 basic device in the *easySoft communication view/HW Info tab*.

If there is a program on the base device, the program will be left unchanged when the operating system is updated. Retentive data will remain unchanged as well.

- ▶ Download the operating system you want on your computer.
- ▶ Connect an empty microSD memory card (FAT format) to your computer.
- ▶ Use your PC to unpack the downloaded operating system to the ROOT of the microSD memory card.



MicroSD memory card content of bootloader version 1.01

Depending on the bootloader version on the base device, the following files are unpacked and required for the firmware update:

Unpacked files	Bootloader version1.00	Bootloader version1.01
Operating system file „EASYE4.FW“	✓	✓
Configuration file “e4update.ini”	–	✓

Which bootloader version is on the device is displayed during online communication with the easyE4 basic device in *easySoft communication view/register HW-Info*.

Bootloader version 1.01 check relevant parameters of INI file

Check the corresponding parameters in the configuration file "e4update.ini" and change them if necessary. As of firmware version V1.12, the following values are set by default:

forceupdate= 1 (default) (dominant entry)

and

update= 1 (default)

forceupdate	updateonce	
0	0	There will be no update.
0	1	The update is executed once (default).
1	0	The update from the microSD memory card is always executed.
1	1	

➔ If the update is executed, the entry for updateonce in the configuration file is automatically set to 0. Thus, the firmware is updated once with the default settings.

For further updates of microSD memory card, the configuration file "e4update.ini" must be adjusted manually and forceupdate=1 must be set.

- ▶ Switch off the easyE4 base device.
- ▶ Insert the microSD memory card with the new operating system into the microSD card holder and slide the holder into the device

➔ Make sure that the power is stable, and that the device is not turned off while the operating system is being updated (if it is, the operating system may be corrupted). Then run the operating system update again.

- ▶ Switch on the easyE4.

Bootloader version 1.01: The configuration in the "e4update.ini" file is queried in the easyE4 bootloader and a compatibility check is run. If the firmware in the device and on the microSD memory card is the same, no update is performed.

Bootloader version 1.00: The firmware is transferred from the microSD memory card to the base device.

If the device can be updated, a message is shown accordingly in the display or the LED POW/RUN/STATUS displays the update process.

- The LED POW/RUN/Status flashes quickly, the system is searching for the operating system on the microSD memory card.
- The LED POW/RUN/Status flashes slowly and rhythmically, the update is running.

The new firmware starts then.

➔ You can go to *INFORMATIONSYSTEM* to see what the current operating system version is.

- ▶ Switch off the supply voltage.
- ▶ Remove the microSD memory card with the operating system from the device.

➔ If the firmware transferred from the microSD memory card is older than the firmware set in the project, the project cannot start. The project may contain functions that the currently transferred firmware does not have.

Bootloader version 1.01:

If you do not remove the microSD memory card, the parameters in the configuration file "e4update.ini" will be evaluated each time the device is switched on and the firmware will be updated if necessary.

Bootloader version 1.00:

If you do not remove the microSD memory card, the program will only start after the firmware has been transferred from the microSD memory card.

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1.2.2 Firmware update expansion or communication devices

An expansion or communication device update must run via the device menu of a easyE4 base device.

Expansion devices of the first generation easyE4 (with firmware version 1.00) cannot be updated because there is no bootloader physically present in these devices. Which version of the firmware is on the device is displayed during online communication in the *easySoft communication view/register HW-Info*.

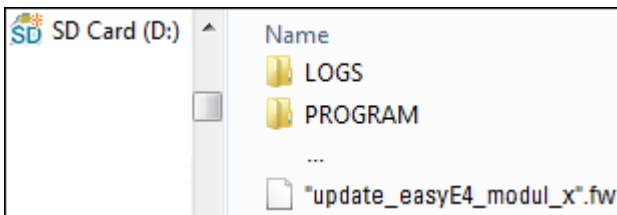
You can reach the device menu through one of the following options:

- a base device with display
- in the communication view of the easySoft 7 under Display\Display + keys
- a remote display with the web server.

An update must be run separately for each expansion or communication device.

Just as with an update for base devices, this requires that the required unzipped operating system file "*.FW" is stored on the microSD memory card.

- ▶ Download the operating system you want on your computer.
- ▶ Connect an empty microSD memory card (FAT format) to your computer.
- ▶ Use your PC to unpack the downloaded operating system to the ROOT of the microSD memory card.



The unzipped file must be an operating system file that matches the easyE4 expansion or communication device (*.fw).

➔ No entry is required in a configuration file for an update.

To update the firmware, the easyE4 expansion or communication device must be connected to the base device with the EASY-E4-CONNECT1 plug connector.

The number of the easyE4 expansion is determined based on the position after the base devices in the assembly block, starting with 1 from the left. The maximum number 11 can be assigned to an expansion in the block.

An update must be carried out separately for each expansion device.

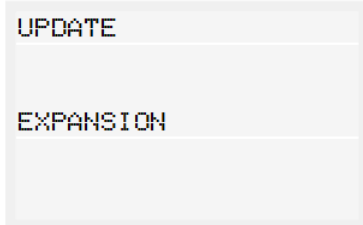
1.2.3 Update an expansion device via base device with display

Take the following steps to update an expansion from a base device with display:

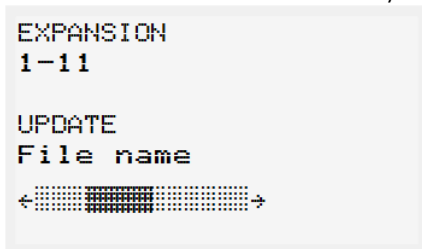
Extension devices of the first generation easyE4 (with firmware version 1.00) cannot be updated because there is no bootloader physically present in these devices.

To update an extension device via a base device with display, proceed as follows:

- ▶ Go to the main menu.
- ▶ Open the menu path *SYSTEM OPTIONS\UPDATE\EXPANSION*.



- ▶ Select the number of the easyE4 expansion in the block; 1 to 11 are possible.



- ▶ Select the corresponding operating system file.
- ▶ Press the OK button to select.

A confirmation prompt is displayed.

- ▶ You can return to the previous menu by selecting "No".
 - ▶ The update starts immediately by selecting "Yes".
- "Update" flashes in the display.

After the update has ended, the display returns to the menu *SYSTEM OPTIONS\UPDATE\EXPANSION*.

Repeat the process for other easyE4 expansion devices.



You can only view the hardware information (HW info), i.e. which firmware version is on the easyE4 expansion device, via the easySoft 7.

To do so, in the Communication view, connect to your easyE4 block. In the workspace Configuration, the FW version is displayed in the HW info.

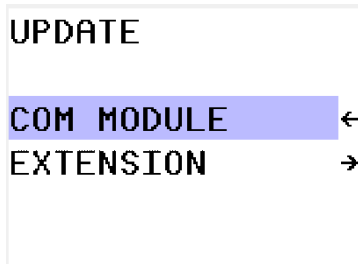
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1.2.4 Update a communication expansion device via base device with display

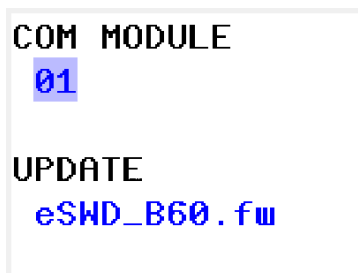
A communication expansion device update must run via the device menu of a easyE4 base device.

To update the SWD communication module via a base device with display, proceed as follows:

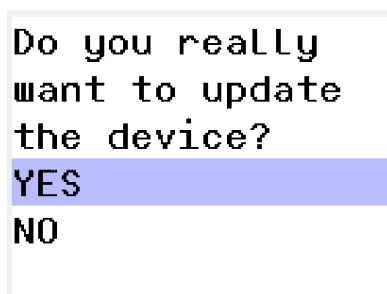
- ▶ Go to the main menu.
- ▶ Open the menu path *SYSTEM OPTIONS\UPDATE*.
- ▶ Select the 'COM MODULE' option in the block.



- ▶ The next screen displays the number of the connected SWD COM Module along with FW update file name. The number 'Bxx' shows the build number of the SWD FW.



- ▶ Once the appropriate FW file is selected (e.g., eSWD_B60.fw), A confirmation prompt is displayed for the COM module FW update. (Screen 3)
- ▶ Press the YES to confirm.



- ▶ You can return to the previous menu by selecting "No".
 - ▶ The update starts immediately by selecting "Yes".
- "Update" flashes in the display.

After the update has ended, the display returns to the main menu.

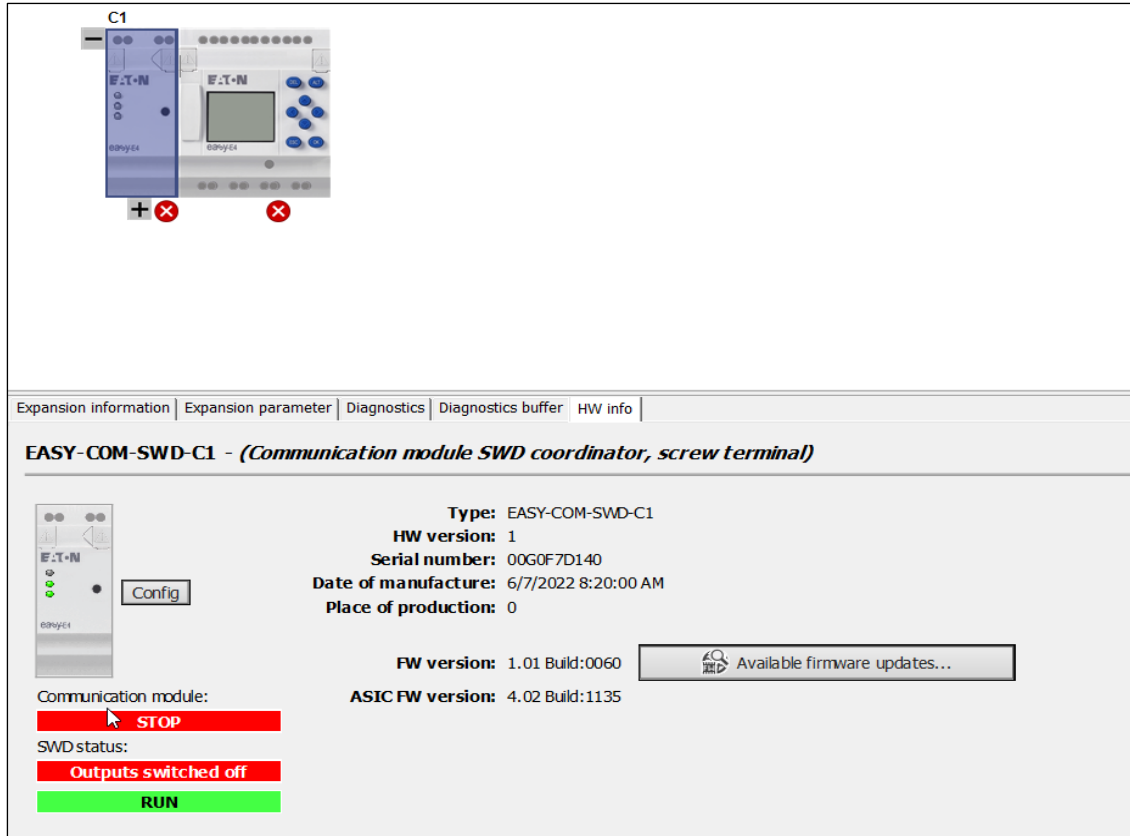
Currently at a time, easyE4 supports firmware update of a single SWD Communication module which is connected to it.

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You can only view the hardware information (HW info), i.e. which firmware version is on the easyE4 communication module, via the easySoft 7.

To do so, in the Communication view, click on SWD COM module. In the workspace Configuration, the FW version is displayed in the HW info section.



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1.3 Legal disclaimer

All the information in this release notes has been prepared to the best of our knowledge and in accordance with the state of the art. However, this does not exclude the possibility of there being errors or inaccuracies. We assume no liability for the correctness and completeness of this information. In particular, this information does not guarantee any particular properties.

It is assumed that the user of this manual is thoroughly familiar with the information found in the manuals for incorporating the control relay into automation processes. Hazards posed by the control relay cannot be ruled out if the safety instructions are not observed – especially if the control relay is installed and commissioned by inadequately qualified personnel or if it is used improperly. Eaton assumes no liability for any damages resulting from cases such as these

1.4 New features in V1.01

This new firmware version offers several new features which are listed shortly here. For a detailed description refer to the updated easyE4 manual. The new features are generally only available if the firmware is used in combination with easySoft V7.40 or higher.

1.4.1 Support for 16bit signed IAs

The new version of the firmware offers the possibility to read signed analog inputs (IAs) from supported SWD devices.

For example, following easySoft project shows a SWD module EU5E-SWD-4PT-2 which can be used to read temperature data from connected PT100, PT1000, Ni1000 sensors. With the new firmware now analog data coming from these sensors can be read in signed format.

The screenshot displays the easySoft project interface. On the left, a tree view shows the project structure under 'easy' > 'SWD' > 'EATON' > 'Network infrastructure' > 'Analog modules'. The selected module is 'EU5E-SWD-4PT-2 (HW V03)'. The main area shows a project diagram with a 'C1' module connected to a 'C1.1' module. Below the diagram, the 'Device information' tab is active, showing the module name 'EU5E-SWD-4PT-2 - (Analog module, 4 PT100, PT1000, Ni1000)'. The 'SWD settings' section includes a 'Required expansion' checkbox (checked) and a 'Can be replaced with universal module' checkbox (unchecked). The 'Settings for individual inputs' section shows four input channels (T0, T1, T2, T3) with their respective sensor types and ranges. The 'Settings for all inputs' section shows the 'Format for T0-T3' set to '°C (view: 1/10 °)' and the 'Update' rate set to '0.25 s'.

Input	Sensor Type	Range
T0	PT100	(-50°C...400°C / -58°F...752°F)
T1	PT1000	(-50°C...400°C / -58°F...752°F)
T2	Ni1000	(-50°C...200°C / -58°F...392°F)
T3	PT100	(-50°C...400°C / -58°F...752°F)

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1.4.2 Support for 32-bit Operands

The new version of the firmware offers the possibility to read and write 32-bit analog input/outputs (IAs/QAs) from supported SWD devices.

For example, following easySoft project shows a SWD module EU1E-SWD-1CX which can be connected to a counter (encoder). With the new firmware now 32-bit counter value read in the device can be mapped to IA and used for inside easyE4 program as required.

The screenshot displays the easySoft project interface. On the left, the 'easy' project tree is expanded to show the 'SWD' section, specifically the 'EATON' > 'IP20 I/O modules' > 'Analog modules' > 'EU1E-SWD-1CX' module. The main project area shows a diagram of a rack (C1) with a 'C1.1' module connected to a counter (CNT) and a resistor (R). Below the diagram, the 'Device information' tab is selected, showing details for the 'EU1E-SWD-1CX - (T-Connector Encoder)'. The description states: 'T-Connector Encoder with one encoder input, IP69K AUX current consumption: 57 mA'. A table lists the inputs and their assigned addresses.

Des.	Meaning	Data type	Assigned
REFAC	Referencing activated	BIT	-
REF	Reference status	BIT	-
R	Reference	BIT	-
ZC	Zero-crossing	BIT	-
DIAG	Group diagnostics	BIT	-
PRSNT	Expansion available	BIT	-
SUBST	Universal module	BIT	-
CNT	Counters	DWORD(High-Word, Low-Word)	IA07
CNT_H	Meter (High-Word)	WORD	-
CNT_L	Meter (Low-Word)	WORD	-

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